



Oregon

Tina Kotek, Governor

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*"STEWARDSHIP
IN FORESTRY"*

To: Mike Wilson, State Forests Division Chief
Andy White, Northwest Oregon Area Director
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Cc: Ron Zilli, State Forests Deputy Division Chief

From: Cal Mukumoto, Oregon State Forester

Date: April 07, 2023

Subject: North Cascade District Implementation Plan for the Northwest Oregon
State Forests Management Plan.

Introduction

This memo documents my review and approval of the revision to the North Cascade District Implementation Plan (IP). At the direction of the Board of Forestry the State Forests Division is continuing the development of the draft Western Oregon State Forests Habitat Conservation Plan (HCP) and new Forest Management Plan (FMP) for Western Oregon State Forests. At the time of developing this revised IP, the HCP is a formal public draft document with an accompanying draft Environmental Impact Statement in the federal National Environmental Policy Act (NEPA) process.

While the HCP is going through the NEPA process, the Division is focusing resources on the development of the new FMP and supporting IPs. These plans are going through a staggered development process as the details of each planning level feed into the next. The draft HCP process is expected to be completed by fall of 2023. The new FMP process is expected to be completed in 2024 and the supporting IPs for the new FMP are expected to be completed in late 2024 to early 2025.

Implementation Plan Revision

The current IP for the North Cascade District expires June 30th, 2023. This creates a transition period for fiscal years 2024 and 2025 (July 1, 2023 to June 30, 2025) before the HCP, new FMP and accompanying IP are in place. The revised North Cascade District IP guides management activities that will be undertaken to implement the strategies described in the NW FMP. This IP has also been revised to include new information on the district land base and forest resources and the components of the draft HCP in order to cover the expected HCP, new FMP, and accompanying IP approval timelines.

Once a final HCP decision is received from NOAA and USFWS, the Board of Forestry will consider whether to direct the Department to implement the HCP and new FMP. Until the Incidental Take Permits are issued and a new FMP has been adopted, the Division is obligated to continue to implement the NW FMP and to comply with the Endangered Species Act using take avoidance measures that include surveys for Northern Spotted Owls and Marbled Murrelets. Focused efforts on the companion FMP and IP represent ODF's continued commitment to the HCP and will ensure that it can be implemented in short order should the Board of Forestry direct the Department to do so.

Public Comment

The North Cascade District Implementation Plan revision underwent a 30-day public comment period from February 3, 2023 to March 6, 2023, and a public information workshop was held on February 2, 2023. During the public comment period, 48 written comments were received. These comments were considered and some refinements were made to this implementation plan as a result. A summary of the comments received and the Division's responses can be found in Appendix D. I reviewed this IP and found it to be consistent with the Northwest Oregon Forest Management Plan (2010). The activities conducted under this implementation plan are consistent with state forests operational policies and strategies and the draft HCP. Therefore, I approve the revised North Cascade District Implementation Plan.

Sincerely,

**Calvin
Mukumoto**

Cal Mukumoto
Oregon State Forester

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North Cascade District

Implementation Plan (IP)

July 1, 2023

Contents

North Cascade District	i
Executive Summary	1
Introduction	1
District Overview	2
Recent Wildfire Impacts	2
Physical Elements	4
Biological Elements	6
Forest Structure	13
Current Forest Structure	14
Landscape Design Overview	16
Forest Land Management Classification System	18
FLMCS	19
Integrated Forest Management Activities	20
Timber Harvest Operations	20
Young Stand Management	23
Forest Road Management	24
Recreation, Education, and Interpretation (REI) Management	25
Other Integrated Forest Management Activities	28
Aquatic & Riparian Management	28
Land Exchanges and Easements	29
Property Lines and Corners	29
Special Forest Products	30
Cultural, Archeological, and Historical Resources	30
Energy and Mineral Resources	30
Map Section	32
Appendix A	39
Harvest Modeling Analysis	39
Appendix B	42
SOC Limiting Factors Coarse Evaluation and Additional Strategies.	42
Appendix C	46
References	46
Appendix D	47
Public Comment Summary	47

Executive Summary

In October of 2020, the Board of Forestry (BOF) gave direction to the State Forests Division to continue the development of a *draft Western Oregon State Forests Habitat Conservation Plan (HCP)* and Forest Management Plan (FMP) for Western Oregon State Forests. While the HCP is going through the National Environmental Policy Act (NEPA) process, the Division is focusing resources on the development of the new FMP and supporting Implementation Plans (IPs). These plans are going through a staggered development process as the details of each planning level feed into the next. The draft HCP process is expected to be completed by fall of 2023. The new FMP process is expected to be completed in 2024 and the new IPs for that FMP are expected to be completed in late 2024 to early 2025.

The current IP for the North Cascade District expires June 30th, 2023. This creates a transition period for fiscal years 2024 and 2025 (July 1, 2023 to June 30 2025) where the current FMP strategies are being implemented and the draft HCP may be approved. At the time of developing this IP revision, the HCP is a formal public draft document with an accompanying draft Environmental Impact Statement in the federal NEPA process. Finalization of this process and issuance of Incidental Take Permits (ITPs) is expected to occur within FY 2024. In order to cover this transition period, the existing IP will be revised with an expected term of two years, through June 30th, 2025. In order to address the planning uncertainty and risk of timeline adjustments to the long-term planning processes these IP revisions can be extended through an extension memo signed by the State Forester. In addition to the expiration dates, these IPs need to be revised to include new information on the district land base and forest resources and include the components of the draft HCP in order to cover the expected HCP approval timeline. As this ongoing policy work evolves, ODF will also evaluate new information or changes in direction to determine if adjustments need to be made.

Introduction

The Oregon Department of Forestry (ODF) manages approximately 763,000 acres¹ of forestland throughout the state. Of these lands, 730,000 acres¹ are Board of Forestry lands, which are managed to secure greatest permanent value (GPV) by maintaining healthy and productive forests, providing clean air and water, recreation and outdoor learning opportunities, and diverse native fish and wildlife habitat. Timber from state forests provides local governments with much-needed revenue and supports family-wage jobs. The remaining 33,000 acres¹ are Common School Forest Lands (CSFL). ODF manages these lands for the Department of State Lands to provide the greatest benefit to Oregonians,

¹ These acres are legal acres. All other acres referenced in this document are based on GIS for analysis purposes.

consistent with resource conservation and sound land management strategies. Among these lands is the North Cascade District.

The *Northwest Oregon State Forests Management Plan* (FMP) adopted by the Board of Forestry in 2010 is the policy document that guides how these forests will be managed to secure GPV and support the CSFL goals. This Implementation Plan revision characterizes the overall framework for implementing the FMP during this time of transition and in the wake of the September 2020 Labor Day fires, which significantly altered forest conditions.

The *North Cascade District IP* guides forest management for all forest resources on the North Cascade District beginning July 1, 2023. This implementation plan is a major revision of the plan approved by the State Forester in 2012 and revised in 2021 after the Labor Day fires. It is prepared to broadly characterize forest operations, activities and projects that will achieve the intent of the long-range vision of the April 2010 *Northwest Oregon State Forests Management Plan* (FMP) and the provisions of the draft HCP over the next few years.

In summary, this implementation plan was developed to:

- Implement current Forest Management Plan strategies;
- Implement the HCP requirements and provisions of the ITP;
- Incorporate new information on the districts land base and forest resources;
- Adjust the mapped landscape design of the desired future condition to incorporate new information;
- Develop a sustainable and predictable harvest level;
- Contribute to financial sustainability necessary to meet plan goals;
- To cover the two-year period of transition between FMPs and new IPs (July 1, 2023 to June 30, 2025), with the option to extend them if needed.

In addition, the management activities conducted under this plan will be consistent with the management strategies in the State Forests Operational Policies and Bulletins. The specific operations and management activities necessary to carry out this IP will be described in annual plans, beginning with the FY24 *North Cascade District Annual Operations Plan* (AOP).

District Overview

Recent Wildfire Impacts

The 2020 wildfire season was one of the most destructive on record in the state of Oregon with multiple fires burning more than 1.2 million acres of private, state, federal and tribal forestland. The fires impacted all Oregonians and many rural communities suffered devastating fatalities and losses of homes, businesses, historical and cultural landmarks, community infrastructure, and critical natural

resources. In early September of 2020, fires caused widespread damage across the Santiam State Forest. Approximately 24,000 acres (51%) of the Santiam State Forest was within these fire perimeters. Thirty-five percent of the landscape on the Santiam State Forest was dramatically changed due to the fires. The fires burned in a mosaic pattern that introduced forest complexity across the landscape and impacted everything from forests that were very recently replanted to forests with older forest structure. There was widespread damage to wildlife habitat, riparian areas, road systems, recreation areas, campgrounds, and trails. Looking to the future from a forest management perspective, the post-fire landscape is the new reality for the North Cascade District. Post-fire specific work will continue, but no longer as the primary focus of district activities. The post-fire conditions will be one of the many issues the district considers when managing for Greatest Permanent Value. Additional information on the impacts of the 2020 fires on the North Cascade District and the district's restoration and recovery efforts can be found in the 2021 North Cascade District Implementation Plan Major Revision, the revised 2021 North Cascade District Annual Operations Plan and the 2022 North Cascade District Annual Operations Plan.

Land Ownership

The Santiam State Forest contains 47,476 acres and is located in the foothills of the Cascade Mountains in Oregon. The Santiam State Forest is managed by the North Cascade District. The acreage in the Santiam State Forest is distributed between three counties, as displayed in the table below. The ownership is primarily Board of Forestry Lands (98 percent), with a small amount of Common School Forest Lands (2 percent). Other forest lands in the counties are held by a mix of landowners: United States Forest Service, Bureau of Land Management, private timber companies, and small private landowners.

Table 1. North Cascade District Acreage by County and Fund

County	Admin Site	Board of Forestry	Common School	Total
Clackamas acres	7 ($<0.1\%$)	7,157 (15.1%)	113 (0.2%)	7,277 (15.3%)
Linn acres	- -	21,139 (44.5%)	88 (0.2%)	21,227 (44.7%)
Marion acres	- -	18,293 (39.3%)	678 (1.4%)	18,971 (40%)
Total acres	7 ($<0.1\%$)	46,589 (98.1%)	879 (1.9%)	47,476

Note: All percentages are percent of total acres on the district

Physical Elements

Topography

The terrain in the Santiam State Forest is characterized by long, smooth, steep slopes and broad ridge crests, but rock bluffs and deeply incised stream channels are also common. Approximately 29 percent lies between 1000 and 2000 feet, 46 percent lies between 2000 and 3000 feet, about 22 percent is between 3000 and 4000 feet, and 2 percent lies above 4000 feet. Elevations range from 1,000 to a little more than 5,000 feet. Higher elevations are typically rocky, especially on very steep slopes and ridge crests. Approximately 46 percent of the district has slopes less than 30 percent, 37 percent has slopes between 30 and 60 percent and 17 percent has slopes over 60 percent.

Climate

The Santiam State Forest has a temperate climate. Typically, the late fall and winter seasons are wet. This area receives approximately 70 inches of precipitation per year. Approximately 75 percent of this precipitation occurs between November and March. The winter season is cool, but snow and freezing conditions are not common, except at higher elevations. Most winters have one or two storms that bring strong, sometimes damaging winds. Summers are somewhat dry and warm. There has also been an increase of extreme weather events throughout the seasons in recent years.

Water

Major streams that drain these forest lands are: Rock Creek, Mad Creek, Snake Creek, Sardine Creek, and Stout Creek, which all flow into the North Santiam River. Major streams in the northern part of the Santiam State Forest include Butte Creek, Abiqua Creek, Cedar Creek, and Silver Creek, which flow into the Pudding River. Gawley Creek flows into the Molalla River. The Santiam State Forest contains a few scattered wetlands smaller than 10 acres.

There are four high elevation lakes located within the Butte Creek Basin. These lakes are popular recreation areas as well as habitat for various wildlife.

Portions of the Santiam State Forest are located within the watersheds for the cities of Salem, Stayton, Silverton, Detroit, Scotts Mills, Gates, Mill City, Mehama, and Lyons.

Municipal and/or domestic water systems exist throughout the forest. ODF utilizes the Oregon Water Resources Department (OWRD) website to access the most current information for identification of domestic water systems when reviewing planned timber sales, which allows for protection of these sites.

Geology and Soils

The geologic province of the area is the Western Cascades. The geologic history of the Western Cascades began 40 million years ago with the eruption of a chain of volcanoes just east of the Eocene shoreline. The area was tilted and folded during the middle Miocene (approximately 15 million years ago) followed by outpouring of lava. These rocks are mostly basalt and andesitic flows, volcanic breccia, tuff, and lesser amounts of other igneous rocks.

The dominant soil associations within the North Cascade District include Akerson, Fawn, Goodlow, Henline, Pechuck, Hembre and Nasty. Many of the soils on gentle to moderate slopes are easily compacted when wet. Therefore, restrictions are necessary on heavy equipment to prevent serious losses in soil productivity. Several shallow, rocky soils in the Santiam State Forest are not capable of producing timber in reasonable rotations. These soils make up a very small percentage of the forest.

The rugged topography and wet climate combined with the forces of old and recent volcanic activity, glaciation and stream down-cutting make the Cascade Range and associated foothills prone to landslides.

Soils in the areas burned during the 2020 Labor Day fires area are mostly gravelly, sandy, coarse-grained, and non-cohesive, resulting in high permeability and fairly high frictional strength. Initial assessments have found that some of the soils have been impacted by the fires. These changes are likely to cause, or have already caused, a loosening of surficial soils down to the bottom of the rooting depth. In most cases the effect should be constrained to the upper 2 ½ feet of soil. These soils, will over time, reconsolidate and regain their former strength through densification.

Scenic Resources

Areas deemed scenic resources can include lands with established, high public use vistas, viewpoints, or significant natural features; lands immediately adjacent to scenic highways; lands immediately adjacent to scenic waterways; areas adjacent to campgrounds; or lands visible from urban centers. Known scenic resources in the North Cascade District include:

- Highway 22 (FPA Scenic Highway)
- Santiam River (Scenic Waterway)
- City of Gates Viewshed
- Mill City Viewshed
- Butte Creek Campground
- Rhody Lake Campground
- Rock Creek Campground
- Santiam Horse Camp
- Shellburg Falls Recreation Area

Biological Elements

Vegetation

The vegetation in the Santiam State Forest consists primarily of Douglas-fir stands mixed with western hemlock, western redcedar, red alder, bigleaf maple, and an occasional Pacific yew in the lower elevations. Noble fir, silver fir, western white pine, Alaska yellow cedar, and mountain hemlock can be found in the higher elevations around the district. The understory typically consists of huckleberry, salal, ferns, vine maple, rhododendron, various herbaceous plants, and Oregon grape. The salmonberry community is mostly limited to lower slopes in certain drainages such as Abiqua Creek. Beargrass and snowbrush ceanothus can be found in the higher elevations.

Cold water corydalis (*Corydalis aquae-gelidae*) is a candidate for threatened and endangered status, but is not currently proposed under the state of Oregon's Endangered Species Act. This plant is found in swampy margins of cold mountain streams and lakes. Cold water corydalis had been identified in one location within the Butte Creek Basin, however, there has been no evidence of the plant after the 2020 Labor Day fires. Table 4 lists endangered, threatened, or candidate plants that may exist on the district.

The District Plant List (Table 2) includes endangered, threatened, candidate, and special concern plants that are, or have the potential to be found, on the district. This list is an expanded version of the list found in the Forest Management Plan.

Table 2. North Cascade District Endangered, Threatened or Candidate Plant Species¹

Genus	Species	Subspecies	Common name ²	Status ³	Record exists ⁴	Potential to be present
Threatened and Endangered Plants						
<i>Aster</i>	<i>curtus</i>		White-topped aster	ST, FSOC		✓
<i>Aster</i>	<i>vialis</i>		Wayside aster	ST	✓	
<i>Castilleja</i>	<i>levisecta</i>		Golden Indian-paintbrush	SE, FT		
<i>Howellia</i>	<i>Aquatalis</i>		Howellia	ST, FT		✓
<i>Lomatium</i>	<i>bradshawii</i>		Bradshaw's lomatium	SE		
<i>Lupinus</i>	<i>sulphureus</i>	<i>kincaidii</i>	Kincaids lupine	ST, FT		✓
<i>Sidalcea</i>	<i>nelsoniana</i>		Nelson's sidalcea	ST, FT		

Plants of Special Concern

Genus	Species	Subspecies	Common name ²	Status ³	Record exists ⁴	Potential to be present
Candidate Plants						
<i>Cimicifuga</i>	<i>elata</i>		Tall bugbane	SC		✓
<i>Corydalis</i>	<i>aquae-gelidae</i>		Cold water corydalis	SC	✓	
<i>Erigeron</i>	<i>oreganus</i>		Oregon daisy	SC		✓
<i>Montia</i>	<i>howellii</i>		Howell's montia	SC		✓
<i>Sisyrinchium</i>	<i>sarmentosum</i>		Pale blue-eyed grass	SC, FSOC		✓
<i>Sullivantia</i>	<i>oregana</i>		Oregon sullivantia	SC, FSOC		✓

¹Data Source: Oregon Biodiversity Information Center Database - 2022

²Plant names in bold are on the NWFMP list of plants.

³Status: SE – State Endangered; ST – State Threatened; SC – State Candidate; SP – Special Concern; FE – Federal Endangered; FT – Federal Threatened; FSOC – Federal Species of Concern

⁴Plants have been observed on or within ¼ mile of state forestlands.

Forest Health

Most insect, invasive weeds, disease, and abiotic forest threats are best handled through prevention via management for forest resilience. Healthy trees are well-defended and able to resist or tolerate these forest threats. Silvicultural methods will be used to enhance tree and stand resiliency to ensure forest health and sustainability.

Climate change, wildfire, poor site quality or suitability for a tree species can predispose trees to damage caused by insects and disease. Silvicultural activities that may be utilized to address forest stressors include:

- Planting native species in locations most suitable for their growth, accounting for changing temperature and precipitation;
- Widening spacing to reduce competition for soil moisture and mitigate reduced or inconsistent precipitation;
- Increasing tree species diversity to inhibit the spread of host-specific insects and diseases;
- Avoiding planting host tree species in known root disease pockets;
- Utilizing preventive techniques during operations to prevent the spread of invasive weeds and diseases; and
- Removing marketable timber in a timely manner to avoid defect-causing agents such as wood boring beetles and fungi.

In addition to these techniques forest managers are also working to address several forest health concerns on the North Cascade District that are described below.

Insects and Disease

Phellinus weirii - is a root disease that affects Douglas-fir trees severely, and western hemlock moderately. The disease is spread when uninfected roots of a susceptible tree grow into contact with infected roots and are colonized by *Phellinus weirii*. For most of the North Cascade District, root disease is of moderate concern although the exact amount of the disease is unknown at this time. Recent root disease surveys in the Crabtree Basin have found high concentrations of the disease in the basin.

Swiss needle cast - is a native fungal disease of Douglas-fir. This disease, which causes the premature shedding of needles, has resulted in severe growth reductions in some stands, particularly plantations between 10 and 30 years old. In addition to the growth loss, there is concern that this disease will limit the development of complex forest structures in severely infected stands. For most of the North Cascade District, Swiss needle cast is of low concern although the exact amount of the disease is unknown at this time. The low concentrations of Swiss needle cast that are on the district are in Green Basin.

Post-fire Insects and Disease – Trees have chemical and mechanical defenses that repel, kill, or allow trees to tolerate insect and microbial pests. Fires can damage these defenses and cause trees to release volatile organic compounds that signal their stressed state to attacking pests. Opportunistic insects such as bark beetles and woodborers are usually the first to move into fire-damaged trees and may continue to attack damaged stands for 2-4 years following fire. Susceptibility to insect pests is higher in stands that were already stressed before the fire by drought, storm damage, overstocking, root diseases, etc. The district will monitor for signs of insect and disease related tree mortality in fire affected areas and respond with appropriate management action.

Invasive Weeds

Integrated pest management principles to address incidences of invasive, non-native plants will be applied on state forest land. ODF will coordinate with other agencies and landowners in efforts to address such problems. The district will take steps to assure that management activities are not contributing to existing or new invasions of non-native plant species. These steps will include vegetation management efforts to control such species on state forest land, and the use of native plant species in re-seeding projects on state forest lands.

Most noxious weeds or invasive plants are found along roads and have spread into young stands. The main sources for the weed introduction into the forest are vehicle traffic, equipment moved into and out of district, and where soil disturbance occurs. ODF requires 100% weed free grass seed and certified weed-free straw used for mulch for forest projects. Equipment washing is required in timber sale contracts to prevent the introduction of weed seed from other sites.

Fish and Wildlife

The North Cascade District is comprised of a variety of habitat types that support many native species found in forests in the Oregon Cascade Range (Johnson and

O'Neil 2001). Appendix E of the FMP contains lists of native fish and wildlife species that are currently known, or are likely, to exist within the area covered by the FMP. The Oregon Conservation Strategy² provides a list of species of concern for each ecoregion of the state. Many of the species listed as "Conservation Species" for the Oregon Cascade Range ecoregion are likely to be present on the North Cascade District. In addition, many game and furbearer species occur on the district. Some of the most common game species are black-tailed deer, Roosevelt elk, and black bear. Also common are American beavers, mountain beavers, cougars, bobcats, and coyotes.

The streams, rivers, lakes, and other water bodies on the North Cascade District provide habitat for a variety of fish and amphibian species. These aquatic species use habitats in or downstream of the plan area for part or all of their life history.

The integrated forest management strategies, as well as aquatic and riparian strategies, will contribute to diverse habitats that are likely to accommodate most native wildlife species and contribute to the maintenance and restoration of habitat.

Species of Concern (SOC)

Opportunities for additional conservation measures for "species of concern" have been identified on the North Cascade District. Species of Concern are listed in Table 3 for the North Cascade District. The list includes those on federal or state ESA lists, state sensitive species, and Oregon Conservation Strategy species for the West Cascade Ecoregion. Information regarding limiting factors and habitat needs was taken directly from *ODFW's Oregon Conservation Strategy (OCS)* for most species. For species not addressed in the OCS, general habitat needs were described based on available research and monitoring. The results of the assessment and development of SOC "course" strategies for the District are presented in Appendix B. Strategies in addition to the *NW State Forests Management Plan (2010)* to address these species are identified in policy and in the HCP. Some of these strategies include:

- The application of silvicultural tools to attain an array of forest stand structures and habitat types across the landscape, in a functional arrangement, and the production of stand structural components (e.g. canopy layering, understory development).
- The application of landscape design principles: The landscape design developed for this IP applied landscape design principles to provide a functional arrangement of stand types considering characteristics such as patch size and distribution, fragmentation, corridors, and interior habitat. The result is a landscape design that includes 35 percent of the landscape designated for complex forest structure. See additional information in the "Landscape Design Overview" section of the IP.

² Oregon Department of Fish and Wildlife. February 2016. The Oregon Conservation Strategy, Salem, OR. <http://www.oregonconservationstrategy.org/>

- Terrestrial Anchor (TA) Sites which are designated areas to benefit terrestrial wildlife species of concern, especially those associated with older forest or interior habitat conditions, sensitive to forest fragmentation, or do not readily disperse across younger forest conditions. Management within TAs is intended to be limited, to emulate natural small-scale disturbance patterns, and to minimize short-term negative impacts to habitat. Harvest will likely be limited to thinning projects with some small retention cuts. ODF biologists will be involved in development of management prescriptions within TAs.
- Aquatic Anchor (AA) watersheds with a heightened focus on conservation for salmon and/or aquatic amphibian species of concern. Riparian management strategies beyond those described in the FMP will be applied within AAs.
- Strategies for northern spotted owls are described in State Forest Division Operational Policies.
- Snags, green trees, and downed wood: The FMP, HCP and related strategies, call for active forest management for retention and development of key structural components such as snags, green trees, and downed wood, and the application of targets for these components at landscape scales.
- Riparian and aquatic strategies: the application of FMP and HCP riparian management standards as well as upslope components such as roads and slope stability strategies. Stream restoration projects will be undertaken as resources allow and focus on high priority areas.
- Site-specific plans, or modified practices: In addition to the above “coarse filter” strategies, some species may need additional “fine filter strategies.” If these species are identified on the district, this will be accomplished through the development of site-specific plans. Fine filter strategies in site plans, or otherwise recommended for consideration, may include modified harvest prescriptions or practices, seasonal restrictions, and buffers and resource site protection.

Table 3. List of Fish and Wildlife Species of Concern for North Cascade District¹

Species	Regulatory Status ²
AMPHIBIANS	
Cascade Torrent Salamander	SSV
Cascades Frog	Fsoc, SSV
Clouded Salamander	SSV
Coastal Tailed Frog	Fsoc, SSV
Foothill Yellow-legged Frog	Fsoc, SSV (W Valley)

Table 3. List of Fish and Wildlife Species of Concern for North Cascade District¹

Species	Regulatory Status²
Northern Red-legged Frog	Fsoc, SSV
Oregon Slender Salamander	Fsoc, SSV
Oregon Spotted Frog	FT, SSV
Western Toad	SSV
REPTILES	
Northwestern Pond Turtle	Fsoc, SSC
BIRDS	
American Peregrine Falcon	SSV
Bald Eagle	ST
Band-tailed Pigeon	Fsoc
Black Swift	SSV
Great-blue Heron	FPA
Great Gray Owl	SSV
Harlequin Duck	Fsoc, SSV
Lewis' Woodpecker	Fsoc, SSV
Northern Goshawk	Fsoc
Northern Spotted Owl	FT, ST
Olive-sided Flycatcher	Fsoc, SSV
Osprey	FPA
Purple Martin	Fsoc, SSC
Western Bluebird	SSV
Willow Flycatcher	SSV
MAMMALS	
American Pika	SSV
California Myotis	SSV
Fringed Myotis	Fsoc, SSV
Gray Wolf	FE
Hoary Bat	SSV
Long-legged Myotis	Fsoc, SSV
Pacific Fisher	Fsoc, SSV
Pacific Marten	SSV
Red Tree Vole	Fsoc, SSV
Silver-haired Bat	Fsoc, SSV
Townsend's Big-eared Bat	Fsoc, SSC

Table 3. List of Fish and Wildlife Species of Concern for North Cascade District¹

Species	Regulatory Status ²
FISH	
Bull Trout, MF Willamette	FT, SSC
Chinook, Upper Willamette, Spring	FT, SSC
Coastal Cutthroat, Willamette, Upper	Fsoc, SSV
Coho, Lower Columbia	FT, SSV
Lamprey, Western Brook	Fsoc, SSV
Lamprey, Pacific	Fsoc, SSV
Lamprey, River	Fsoc
Steelhead, Willamette Upper, Winter	FT, SSV

¹Strategy Species are those identified in The Oregon Conservation Strategy (ODFW, 2016). <http://www.oregonconservationstrategy.org/>

²Regulatory Status:

Fsoc – Federal Species of Concern

FPA – Forest Practices Act

FT – Federal Threatened

FE – Federal Endangered

SE – State Endangered

SSC – State Sensitive Critical

SSV – State Sensitive Vulnerable

FC – Federal Candidate (Distinct Population Segment Only)

Aquatic Anchors

Aquatic Anchor (AA) sites are watersheds where additional stream and riparian management standards are applied to specifically maintain and enhance habitat for salmonids and headwater amphibians. Aquatic Anchors (AAs) were selected through a collaborative effort with ODFW District Fish Biologists, State Forests Aquatic Specialist, and district staff during the 2012 IP development and will remain in place through this transition period.

Table 4. North Cascade District Aquatic Anchors

Name	Total Acres
Rock Creek	9,472
Sardine Creek	1,529
Total Aquatic Anchors	11,001

The Sardine Creek Aquatic Anchor is located entirely within the perimeter of the 2020 Labor Day fires. Of the 1,529 acres in the Sardine Creek Aquatic Anchor on

ODF managed land, 515 acres burned at a high severity, 578 acres burned at a moderate severity, and 228 acres burned at low severity. Portions of this area that were difficult to plant due to access were ariel seeded to reforest this area post burn. The Rock Creek Aquatic Anchor was largely unaffected by the 2020 fires, with only 13 acres burning at a low severity.

Terrestrial Anchors

Terrestrial Anchor Sites (TAS) are intended to benefit terrestrial wildlife species of concern, especially those associated with older forest or interior habitat conditions, sensitive to forest fragmentation, or that do not readily disperse across younger forest conditions. The TAS locations were selected through a collaborative effort with biologists and district staff during the 2012 IP development and will remain in place through this transition period.

Table 5. North Cascade District Terrestrial Anchors

Name		Total Acres
Rhody Lakes		1,354
All	Terrestrial	1,354
Anchors		

The Rhody Lakes TAS is located entirely within the perimeter of the 2020 Labor Day fires. Of the 1,354 acres in the TAS, 383 acres burned at high severity, 510 acres burned at moderate severity, and 232 acres burned at low severity. Any proposed future management within the forested portions of the TAS will promote development of mature forest conditions and will emphasize protection of existing high elevation lakes, wetland, and talus slopes. ODF and ODFW wildlife biologists will be involved in development of management prescriptions within the TAS. Underplanting in response to the fire created conditions is being performed in collaboration with American Forests.

Forest Structure

The foundation of the current FMP is to create a diverse set of forest conditions over time and across the landscape. These forest conditions are described as stand structure types described below.

- **Regeneration (REG):** This stand type occurs when a disturbance such as timber harvest, fire, or wind has killed or removed most or all of the larger trees, or when brush fields are cleared for planting
- **Closed Single Canopy (CSC):** This stand type occurs when new trees, shrubs, and herbs no longer appear in the stand, and some existing ones begin to die from shading and competition, in a process called stem exclusion.
- **Understory Development (UDS):** This stand type occurs after the stem

exclusion process has created small openings in the canopy, when enough light and nutrients become available to allow herbs, shrubs, and new trees to grow again in the understory.

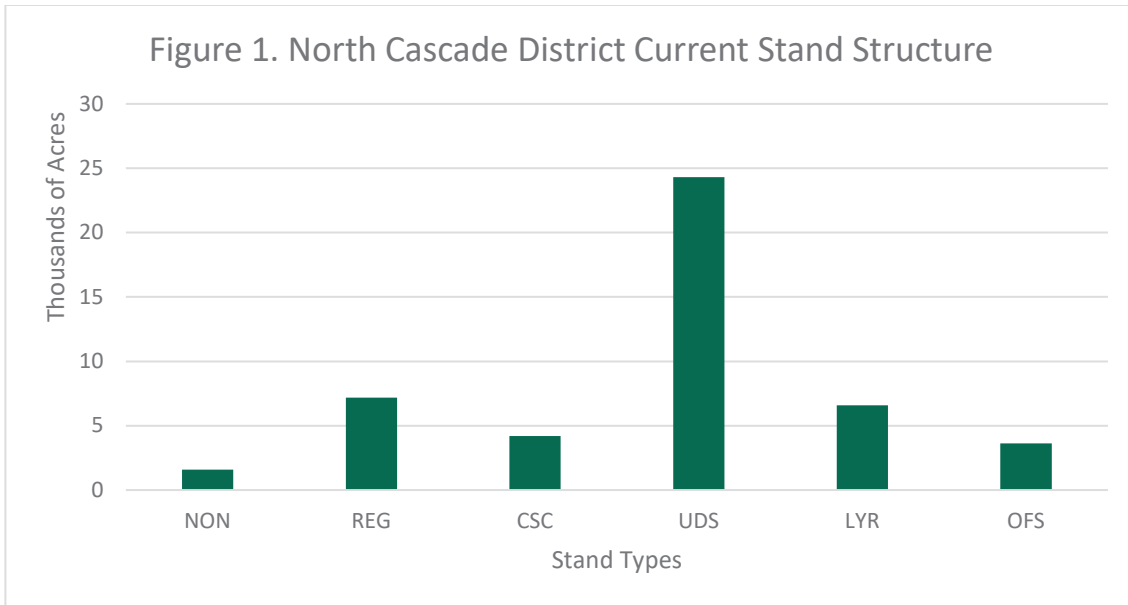
- Layered (LYR): This stand type occurs as the process of understory reinstitution progresses where openings in the canopy persists. Shrub and herb communities are more diverse and vigorous, and two or more distinct layers of tree canopy appear.
- Older Forest Condition (OFS): This stand type occurs when a forest stand attains structural characteristics such as numerous large trees, multi-layered canopy, substantial number of large, down logs, and large snags.

Current Forest Structure

The current stand condition is displayed in the graphs that follow, and on a map in the Map Section. Figure 1 shows the current stand structure and acreage using the structure-based management definitions for structure types. In order to determine the current condition of the stand structure array on the district, Stand Level Inventory (SLI) was used to identify stand characteristics such as diameter, heights, trees per acre, density, snags, down wood, and understory vegetation to determine stand structures.

Following the Labor Day fires in 2020, stands within the burn were re-typed based on GIS layers of burn severity, aggregated index seral stage group codes (small-diameter, medium-diameter, large-diameter), and dominant species. Pre-fire SLI stand density estimates were reduced proportionally to the predicted burn severity in an effort to simulate fire effects within the re-typed stands. This information is being used until stands within the burn areas can be inventoried. This approach has not been field verified for accuracy. Information for unmeasured stands outside of the burn area is generated by imputation. Imputation uses specific information from a single measured stand to represent similar unmeasured stands.

All silvicultural prescriptions will be based on actual field reconnaissance during pre-operational analysis and planning, in conjunction with SLI data.



Figures 1 & 2. Based on 2021 SLI data.

Note: Non-Forest (NON) lands are those areas, greater than 5 acres that are maintained in a permanently non forest condition.

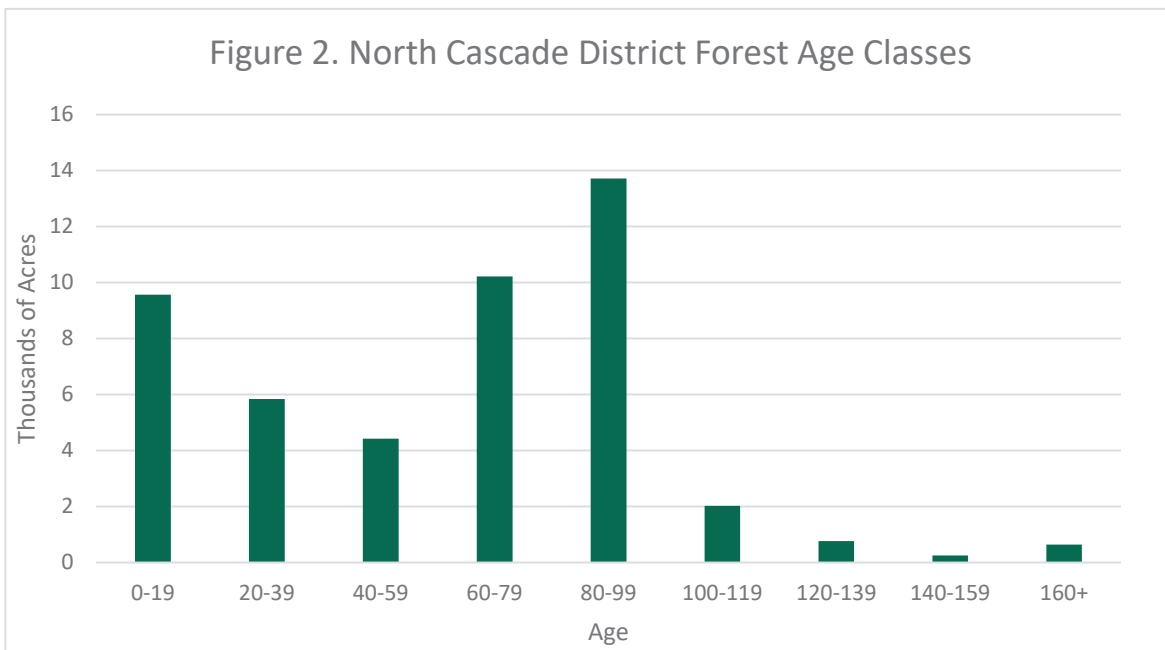


Table 6. Management Basin by Acres and Current Stand Condition

Management Basin	ACRES	NON	REG	CSC	UDS	LYR	OFS
Butte Creek	9,970	474	1,520	976	5,449	970	581
Cedar Creek	4,186	2	864	341	2,556	188	235
Crabtree	1,843	4	1,113	158	326	242	-
Green Basin	6,867	802	241	1,156	4,576	85	4
Mad Creek	6,604	25	709	689	3,674	1,347	159
Rock Creek	12,661	202	1,169	410	4,729	3,529	2,622
Scattered	5,343	70	1,567	468	3,002	216	19
District Total	47,475*	1,583	7,183	4,199	24,312	6,576	3,620

*Acres are not exact due to GIS rounding errors.

Landscape Design Overview

The FMP establishes targets for how much of the forest landscape will be managed to create each of the five structure classes. Expressed as percentage of the landscape, the targets describe a long-range desired future condition (DFC), with upper and lower limits (Table 7).

Table 7. Desired Future Condition (Targets) for the proportion of Stand Structure types across the landscape on each District

Stand Type	Range
REG	15-25%
CSC	5-15%
UDS	30-40%
LYR	15-25%
OFS	15-25%

Together, the LYR and OFS are considered complex stand structures and are designated in a functional arrangement across the landscape resulting in a “mapped landscape design” or DFC Complex. A desired future condition map is in the Map Section. While DFC Complex is mapped, targets for REG, CSC and UDS stands are not mapped, but rather are expressed as a desired range that accounts for changes across the landscape from management during the duration of the IP.

The landscape design process was a collaborative effort between the district, resource specialists, and ODFW biologists. The district intends to achieve the desired future condition of 35 percent complex stands on the district by designating areas for older forest structure (OFS) and layered (LYR) stand structures across the landscape, ensuring a variety of forest patch sizes and dispersal habitat for wildlife. It is important to note that the mapped DFC Complex does not represent the current amount of complex forest structure on the

landscape. It represents the long-term target and location that will be achieved through active management which is estimated to take 70-90 years to achieve.

The broader landscape design considerations applied consisted of the following:

- The distribution of habitats for native wildlife;
- The range of habitat patch sizes provided;
- Provision of interior habitat areas for species of concern;
- Unique, rare, or sensitive habitats and associated species;
- Connectivity across the landscape including habitats on adjacent federal lands.
- Operational feasibility of active management;
- Current stand age and structure.

The contribution that each selected stand provided to the overall distribution of habitats, and to patch sizes, interior habitat, and connectivity was considered, as well as known or suspected potential to harbor SOC. Identification and protection of key habitat areas (occupied, suitable, or important for larger landscape connectivity) for SOC will help maintain existing populations and allow for colonization of new habitat as it develops over the longer term. This landscape design is a foundational strategy for species of concern.

In addition to the development of complex structure, corridors of the more complex stand structure types will be provided along streams. These corridors can provide some connectivity between the complex stands within basins, especially when combined with adjacent federal land.

In the long term these forests are expected to maintain the same general balance of structures over the landscape through time.

Table 8. Mapped DFC Complex (Targets) by Management Basin

Management Basin	Total Basin Acres	LYR	OFS
Butte Creek	9,970	29%	12%
Cedar Creek	4,186	10%	5%
Crabtree	1,843	0%	0%
Green Basin	6,867	21%	5%
Mad Creek	6,604	14%	15%
Rock Creek	12,661	22%	33%
Scattered	5,343	18%	3%
District Total	47,475*	20%	15%

*Acreages are not exact due to GIS rounding errors.

The landscape design map represents the current vision of where complex structures will be developed over time under the current FMP and can be seen in the Desired Future Condition Map in the map section. The district will use this map in the planning of harvest operations and the designing of silvicultural

prescriptions. Through the course of implementation, however, refinements to the landscape design map are likely to occur due to stand conditions, harvest efficiency and operability concerns, or new information.

Changes to the landscape design will be fully described in an Annual Operations Plan. The landscape design map will be fully reviewed with any major revision of the district IP.

Forest Land Management Classification System

The Forest Land Management Classification System (FLMCS). FLMCS is a method of describing the management emphasis of parcels of state forest land and has been implemented in accordance with OAR 629-035-0055. The management emphasis identifies the extent to which a parcel of land can be managed for a variety of forest resources. It also identifies when a particular forest resource may need a more focused approach in its management, or possibly an exclusive priority in its management. Below are tables summarizing the district's FLMCS.

The framework of the FLMCS places all state forest land within one of four land management classifications. The classifications are: (1) General Stewardship, (2) Focused Stewardship, (3) Special Use Areas, (4) High Value Conservation Areas. Subclasses are assigned for the specific forest resources that require a Focused Stewardship, Special Use Classification, or High Value Conservation Area Classification.

The definition of land management classifications as defined by OAR are:

On General Stewardship lands, all forest resources are actively managed using integrated management strategies, techniques, and practices to meet forest management planning goals. Strategies, techniques, and practices that are used may vary spatially and temporally.

On Focused Stewardship lands, integrated management practices are performed in a manner that is intended to accomplish forest management planning goals, and are compatible over time and across the landscape when actively managed, but for which a forest management plan, habitat conservation plan, or other legal requirement identifies a requirement for one or more of the following for a specific resource: supplemental planning, before conducting management practices, that helps to achieve identified goals for the specific resource; modified management practices that help achieve the identified goals for the specific resource; or, compliance with legal or contractual requirements above those required on lands classified as General Stewardship.

On lands classified as Special Use, a forest management plan, or other legal requirement identifies one or more of the following: a legal or

contractual constraint dominates the management of the lands and precludes the integrated management of all forest resources; lands are committed to a specific use and management activities are limited to those that are compatible with the specific use.

On lands classified as High Value Conservation Areas, a forest management plan, habitat conservation plan, or other legal requirement identifies areas in the landscape that need to be appropriately managed in order to maintain, enhance, or restore important conservation values and one or more of the following: a legal or contractual constraint dominates the management of the lands and directs the management of forest resources; lands are committed to a specific conservation value and management activities are limited to those that are compatible with achieving goals for the specific conservation value.

Tables 9 and 10 below show the district's land management classification revision. Table 9 shows the classified acres in each of the four management classes. Table 10 shows the number of subclass acres located in the Focused Stewardship Areas, Special Use Areas, and High Value Conservations Areas. Both tables include overlapping acres.

FLMCS

Tables 9 & 10 reflect the current FLMCS for the North Cascade District:

Table 9. North Cascade District Acres, by Stewardship Class and Fund*

Classification	BOF	CSL	Total Acres
Focused Stewardship	53,108	902	54,010
Special Use	5,743	105	5,849
High Value Conservation Area	6,473	93	6,556
General Stewardship	11,682	119	11,801

Table 10. Forest Land Management Classifications for North Cascade District - Focused and Special Subclasses (Acres)

	Focused Stewardship	Special Use	High Value Conservation Area
Administrative Sites	0	21	0
Agriculture, Grazing	0	0	0
Aquatic & Riparian	9,529	0	4,892
Cultural Resource	23	9	0
Deeds	0	0	0
Domestic Water Use	15,942	0	0
Easements	0	0	0
Energy & Minerals	0	55	0
Operationally Limited	0	4,367	0
Plants	17	0	0
Recreation	725	1,131	0
Research/Monitoring	108	24	0
Transmission	0	182	0
Unique, Threatened or Endangered Plants	0	0	78
Visual	8,006	60	0
Wildlife Habitat	19,660	0	1,596

* Acres in Table 9 and Table 10 include overlapping classifications.

Integrated Forest Management Activities

The North Cascade District forests are actively managed to provide a mixture of environmental, economic, and social benefits. The following sections describe the general forest operations, activities and projects that will provide a balance of these benefits as required by Oregon Administrative Rule (OAR 629-035-0020) and will honor the current planning process and commitments made to the HCP during this transition period.

Timber Harvest Operations

Management Activities

Different types of management activities will be used to implement the FMP and HCP strategies. Multiple factors apply to selecting stands for management and prescribing silvicultural prescriptions and their relative importance may change from year to year. Additional factors that affect these annual decisions include the

overall objectives identified in this IP, the Annual Harvest Objective (AHO), recent harvest activity in the area, results of threatened and endangered species surveys, condition of the transportation system, current market conditions, division revenue forecasts.

Described below are the different types of management tools that will be used during this IP as needed and where appropriate. The specific operations and management activities necessary to carry out this IP will be described in the Annual Operations Plans starting in FY24.

Partial Cut Harvests (Thinning)

Past management experience found that when timed correctly most stands respond well to thinning. Partial cutting improves forest health by increasing stand vigor and lowering susceptibility to damage from insects, disease, and windthrow, capture natural competition mortality, etc. Partial cutting also produces timber, yields revenue, and enhances scenic and wildlife resources.

Partial cuts in areas not planned to be developed into complex forest conditions will have a silvicultural thinning prescription that reduces stocking enough to increase or maintain individual tree growth. Trees are left evenly spaced over the stand. The goal is to produce high quality, high volume stands at final harvest.

In areas planned to be developed into complex forests, thinning prescriptions will be utilized that are intended to increase or maintain individual tree growth and promote complex forest conditions. Reducing the stocking will encourage larger canopies, diameters, and limbs on the residual trees. In addition, more sunlight will reach the forest floor, which will enhance understory development. The goal here is to put the stands on a pathway towards a complex structure as opposed to producing high value stands for final harvest.

Partial cuts may be used as a management tool in areas affected by disturbance, such as the 2020 Labor Day fires. Although the planned post-fire harvesting has been completed, the areas affected by fire continue to be monitored and if forest health issues arise then the North Cascade District may continue to implement a range of post-fire harvest methods and prescriptions. Partial cuts would be used to initiate restoration of healthy forests, remove hazard trees, prevent the spread of insects and disease, or to recover value, consistent with the desired future forest conditions and current resource protection policies.

Regeneration Harvests (Modified Clearcuts and Retention Cuts)

Regeneration harvest removes most trees, but leaves specified numbers of green trees, snags, and down wood to provide structure (habitat) in the new stand. These types of harvest will predominantly be focused in stands that are located outside of the mapped landscape design of DFC complex and the draft HCAs.

Some stands that are alder or have forest health issues may be considered for regeneration harvest (modified clearcut or retention cut) inside of the mapped landscape design of DFC complex or draft HCAs. These types of harvest prescriptions will be developed in conjunction with biologists with the goal of

creating better quality habitat in the future. In these cases, the result will be to create a new conifer stand of vigorously growing trees while maintaining many of the structural components of the previous stand. These structural components include remnant trees, live green trees, snags, and down wood.

Regeneration harvests may be used as a management tool in areas affected by disturbance, such as the 2020 Labor Day fires. Although the planned post-fire harvesting has been completed, the areas affected by fire continue to be monitored and if forest health issues arise then the North Cascade District may continue to implement a range of post-fire harvest methods and prescriptions. Regeneration Harvest methods would be used to initiate restoration of healthy forests, remove hazard trees, prevent the spread of insects and disease, or to recover value, consistent with the desired future forest conditions and current resource protection policies.

Overview of Structural Components

The FMP, draft HCP and related strategies, describe retention requirements of key structural components such as snags, green trees, and downed wood. The techniques used to develop snags and down wood will vary according to tree size, age, species, and type of management activity.

In first entry commercial thinnings (generally between ages 25 and 40), no prescriptions will be used to develop snags and down wood, as trees this size do not make long-lasting snags or down wood. Some of the trees left in the thinning will naturally become snags, due to top breakage. This would also be the case in younger stands harvested early because of Swiss Needle Cast (SNC) infections. In older partial cuts, if pre-harvest stand examinations do not indicate enough snags, then some trees may be topped or girdled during the operation to become snags. Harvest prescriptions may be modified to provide contributions to landscape level goals for down wood.

In clearcuts, to obtain down wood and snags objectives pre-harvest estimates and harvest prescriptions must be used to assure these levels are attained. If snags or down wood are found to be deficient in an area, additional leave trees may be retained with the assumption that due to natural causes a certain percentage of these will become snags and/or down wood. In hardwood stands, it is often difficult to find enough large down wood and snags after the operation. Therefore, these structural elements must often come from conifer trees that are present in the stand.

Planned Annual Harvest Objectives

This section describes the management activities that will be accomplished during the duration of the Implementation Plan period. All management activities will be designed consistent with FMP strategies and draft HCP objectives.

The AHO identifies the sustainable and predictable production of timber (forest products) from the district, and the harvest activities for the IP period. The AHO is determined through the Harvest Modeling Analysis described in Appendix A. The

analysis establishes the AHO range of 9 -10 MMBF as the sustainable volume that can be produced to meet the goals of the Northwest Oregon State Forest Management Plan and draft HCP as applied through this IP. The top of the range allows for flexibility for sale planning and to incorporate additional harvest within HCAs when the Incidental Take Permit takes effect. The AHO will be implemented through the district's Annual Operations Plan (AOP). The objective is to be within the range of the AHO on an annual basis throughout the length of the IP.

Harvests that occur to meet the AHO range may move some stand types to other stand types during this IP period. Modified clearcut and retention cut harvest would move stands from their current stand condition into the Regeneration stand type while partial cutting may maintain a stand's current stand condition, or could provide improved growing conditions to allow for increased stand diversity over time to move into another more complex stand type. Due to the short duration of this IP, impacts to the amounts of different stand types will be relatively minor and will be described in the Annual Operations Plan.

Under normal circumstances, the volume proposed in an AOP will be within the AHO target range; however, some events may result in an AOP volume that is farther from the AHO target. These events may consist of, but are not limited to, catastrophic windstorm, fire, and/or market conditions. For example, catastrophic events may lead to emergency salvage operations that result in harvesting above the AHO, or market conditions preclude meeting AHO targets. The Annual Operations Plan will describe how the volume relates to the AHO volume identified in the IP.

Young Stand Management

Reforestation

Reforestation promptly follows all regeneration harvests and patch-cut harvests as per the Oregon Forest Practice Rules. ODF plants native tree species that are grown from seed that is considered to be suited to future conditions. This seed is produced from traditional crossbreeding of trees from a variety of seed zones to make them resilient to current disease and future climate conditions. Individual reforestation strategies are developed for harvest units. These strategies take into consideration elevation, aspect, disease, desired future stand conditions, and anticipated drier, hotter future conditions resulting from climate change. These strategies include site preparation, species, stock type and tree spacing tailored to each unit.

A variety of species may be planted during reforestation, with Douglas-fir being the primary species. Western hemlock, noble fir, red alder, and western redcedar will also be planted if the site is appropriate for those species. In areas where pathogens affecting Douglas-fir are present, resistant species such as red alder or western redcedar may be planted in higher percentages. Tree planting, site preparation, vegetation management, and tree protection activities are important

for successful stand establishment. Site-specific prescriptions may include, but are not limited to, slash piling, prescribed burning, herbicide treatments, manual release, and tubing (of seedlings to protect them from animal damage).

Pre-commercial Thinning

Pre-commercial thinning (PCT) is an important density management practice in young, dense stands. PCT generally occurs in stands between 13 and 17 years old and removes non-merchantable small or defective trees, in order to provide more water, light, and nutrients to increase the growth of the healthy residual trees. In addition, PCT delays the canopy from closing, thus preserving the growth of herbaceous vegetation to maintain plant species diversity and forage opportunities for wildlife and to contribute to species diversity through density management tree selection.

Forest Road Management

Overview

The State Forest road network provides access for forest management activities, fire suppression, and recreation. The existing road system on the North Cascade District consists of mainlines, collectors and spurs: in total 380 miles of mostly single-lane roads with turnouts. Many of the main roads (collectors) were originally built to standards that are not the same as those identified in the *ODF Forest Roads Manual* (September 2006). However, most of these roads have been upgraded or vacated and now meet the more recent standards of improved drainage structures, rock surfacing, width, and alignment.

There are approximately 190 miles of road inside the perimeter of the September 2020 Labor Day fires. Roads will continue to be monitored and evaluated closely during the ongoing post-fire restoration and recovery process to ensure safe travel routes to facilitate current and future management goals in an efficient manner, while minimizing impacts to natural resources and waters of the state. This monitoring includes (but is not limited to) monitoring culvert conditions, road surface wear, development of ruts or potholes, or road runoff and need for wet weather hauling restrictions.

Fish passable structures have been installed on nearly all streams that have been classified as fish streams. There may be a limited number of streams in the upper reaches of drainage basins that have yet to be classified as fish or non-fish where structures may need to be replaced. There are still a few roads that are a legacy from those earlier decades that need improvement, access restriction or vacating.

The following table shows the approximate number of miles by road classification:

Table 11 - North Cascade District Surfaced Road System

Road Classification	Miles
Mainline	121
Collector	90
Spur	169
Total Miles	380

Not all surfaced roads are suitable for all-weather haul. Surfaced roads not suitable for all-weather haul will be improved as needed for timber sale access.

Hydrological connectivity surveys are performed on haul routes during sale layout. The district prioritizes road improvement projects that reduce hydrologic connectivity and culvert replacements that are barriers to fish migration on active or planned haul routes and sites of opportunity near active or planned haul routes. Road maintenance investments are made to support forest operations, protect existing road infrastructure and water quality, and provide for safety improvements. The district also closely monitors road conditions on active operations and performs additional patrols and assessments during and after inclement weather events.

Potential Road Activities

Roads will be constructed and maintained as necessary to protect water quality and the road system asset value. Road maintenance activities will follow the maintenance guidance in Chapter 7 of the ODF *Forest Roads Manual* (September 2006) and the Oregon Forest Practices rules. Road maintenance, like road construction and improvement, is primarily accomplished under timber sale contracts or through work order contracts.

Road construction and improvement identified in this plan will be primarily achieved through project work connected with timber sales or through work order contracts. The majority of roads to be constructed will be single lane spur roads that are within or access timber sale areas. Collector roads may be built to connect these sale areas to the mainline system, and in most cases, will access other future timber sales. Many of these same roads will be used for numerous management activities over the next several decades.

Recreation, Education, and Interpretation (REI) Management

The REI program manages and maintains over seventy-five recreation facilities, including campgrounds, picnic areas, trailheads, boat launches, river access areas, target shooting lanes, interpretive sites, and viewpoints. The program also manages close to 500 miles of off-highway vehicle trails and just over 145 miles of non-motorized trails across five districts (Astoria, Forest Grove, North Cascade, Tillamook, and West Oregon).

Recreation, Education, and Interpretation opportunities on state forests create pathways and opportunities for visitors to explore, learn about, enjoy, and connect with Oregon's state forests.

These opportunities and the connections they create foster stewardship and partnership, support community health and wellbeing, and promote understanding of the value of the environmental, economic, and social benefits that flow from management of state forests, including clean drinking water, healthy resilient forests for recreation opportunities and wildlife, jobs and revenue for local communities, and forest products we use daily.

Through recreation opportunities, REI program services, and community engagement, the program introduces people to Oregon Department of Forestry. This work highlights the program's role in achieving the agency's overall mission: *"To serve the people of Oregon by protecting, managing, and promoting stewardship of Oregon's forests to enhance environmental, economic, and community sustainability."*

Recreation Resources

Recreation opportunities on the North Cascade District are diverse and include angling, foraging, hiking, horseback riding, off-highway vehicle use, mountain biking, and target shooting. There are additional opportunities to learn about the forest and active forest management through interpretive and educational programs. These activities will continue to be integrated into the overall planning and forest management activities.

The forest setting around recreation facilities and trails has been changed by the 2020 Labor Day fires and may be further changed by post-fire activity focused on forest recovery and reforestation. Recreation facilities and trails that have been significantly impacted may continue to be closed to public access for extended periods to ensure public safety and to allow for hazard tree removal, forest road repair, post-fire harvest operations, reforestation and facility and trail repair.

Facilities (Campgrounds, Viewpoints, Trailheads, etc.)

Existing facilities include campgrounds, OHV staging areas, designated dispersed campsites, interpretive sites, and trailheads.

Existing developed facilities on the North Cascade District:

- 3 campgrounds
- 1 OHV staging area
- 7 trailheads and parking areas
- 1 developed target shooting lane

In addition to the existing facilities dispersed camping continues to be popular and tends to be concentrated along rivers and streams. Fishing and hunting are also popular throughout the forest. In general, the district's recreation use is seasonal with the most activity occurring in the late spring, summer, and fall, but more use is occurring district-wide and all year round.

Motorized Trails

Motorized use could include motorcycles, all-terrain vehicles (ATV) and four-wheel drive vehicles. Trails may be designated for all three activities or for specific types of motorized vehicles. There are approximately 6 miles of motorized trails in the North Cascade District.

Non-Motorized Trails

Non-Motorized use could include hiking, mountain biking and equestrian uses. Trails may be designated for any combination of these activities or for a single type of non-motorized use. There are approximately 26 miles of non-motorized trails in the North Cascade District.

Planned Recreation Activities

Over the course of this implementation plan the REI program will focus on conducting an inventory and assessment of existing opportunities, development of best management practices, updating recreation facility design standards, and developing recreation management and trail system plans in collaboration with the use community consistent with the goals and strategies of the *REI Program Strategic Plan*. These plans will inform management, future improvements, development, and distribution of recreation opportunities across the state forests and ultimately lead to more welcoming, accessible, and accommodating recreation opportunities for all visitors.

Recreation Program projects over the course of this implementation plan will focus on maintenance of existing infrastructure, and operations and enhancement (improvement and development) of recreation facilities and trail networks consistent with the goals and strategies of the Recreation, Education, and Interpretation Program strategic plan. More specifically, Recreation AOP projects will be prioritized and advanced when the project will:

- Improve public safety and reduce user conflict
- Enhance facility and trail system access for all visitors
- Improve recreation facility and trail system sustainability
- Improve operational efficiency and reduce facility and trail system maintenance need and costs
- Improve trail system connectivity, diversity, and flow
- Address and minimize resource impacts
- Align with the timing of operational activity and reduce the potential for future interactions with timber harvest, reforestation, and roads management operations
- Align recreation program trail and facility infrastructure with future vision

Volunteer Program and Partnerships

Oregon's state forests embody the Oregon Way of shared ownership, resiliency, and compromise. Volunteerism and a sense of individual stewardship of state forests are part of what makes these lands special for many Oregonians. The REI program is committed to maintaining volunteer program efforts and developing

partnerships that provide opportunities for all Oregonians to get involved while stewarding state forests.

Focus over this implementation plan will be on updating and expanding REI's Volunteer Stewardship and Partnership Programs. REI program staff will create uniform policies and procedures to guide volunteer program efforts and develop a Community Engagement Plan that will help guide partnership efforts.

Activities associated with the volunteer program include the recruitment, selection, and management of campground hosts, planning and management of trail maintenance, trail development, and special volunteer projects. Updates to the current volunteer manual, policies, and best management practices will be developed to guide volunteer activity across state forests.

The Recreation program will continue to look for opportunities to develop new partnerships and to enhance existing partnerships that will increase our collective capacity to meet program and project goals and objectives.

Other Integrated Forest Management Activities

Aquatic & Riparian Management

An objective of State Forests' aquatic resources management is to maintain, enhance, and restore aquatic habitat. Strategies are employed during harvest activities and include but are not limited to: leave trees adjacent to streams to protect stream temperature, provide nutrients, protect stream banks, and eventually provide wood to improve fish habitat. This is achieved primarily through riparian buffer strategies specific to the aquatic resource characteristics such as presence of fish, size, and flow duration. The fire events of 2020 represent a wood recruitment event that will continue for years to come as dead and dying trees provide a short-term influx of large wood to streams. Therefore, in the short term, the fires have replaced the need for stream enhancement projects in many basins affected by the fires. Long term, riparian buffer strategies will be important for the development of mature trees for future large wood recruitment.

Stream Enhancement Projects

State Forests has been committed to implementing stream enhancement work on ODF-managed lands for more than two decades as a partner in the *Oregon Plan for Salmon and Watersheds* and in partnership with ODFW, local partners, and adjacent land managers. Stream enhancement, fish passage, and ODF's current riparian management area standards are designed to collectively improve processes and function of aquatic ecosystems over time, and ultimately benefit resident and anadromous aquatic-dependent species.

The overarching approach to habitat restoration is described in the Forest Management Plan and is summarized below:

- Eliminate human-induced conditions on the forest that may contribute to aquatic habitat deficiencies, or that may limit the timely recovery of desired aquatic habitat conditions.
- Promote aquatic habitat conditions that will support the short-term survival needs of depressed salmonids, in order to reduce the potential for further declines in these populations.
- Attain properly functioning aquatic habitat conditions in a timely manner.
- Encourage forest conditions that will support the ecological processes necessary to naturally create and maintain complex aquatic habitats on a self-sustaining basis.

When preparing the Annual Operation Plans the district and the staff riparian specialist will work together to assess stream enhancement opportunities. Where feasible, the district intends to combine large wood placements and other stream enhancement projects in high priority stream reaches with the timing of an adjacent or nearby timber sale in order to recognize the benefits of onsite equipment, operators, and available trees. Additionally, and when available, specialists work with ODFW and/or watershed councils, access other local prioritization information such as Coho Strategic Action Plans, Rapid Bio-assessments, Watershed Assessments, etc. to inform where to focus efforts.

Model and GIS data will be utilized to develop a first screening and initial prioritization of potential projects for each Annual Operation Plan. Once this initial list has been developed there are still several remaining factors to consider, including but not limited to: stream access, species and size of trees within harvest units, harvest mechanisms (i.e., ground or cable), and stream specific characteristics such as current wood loading amounts, valley configuration, gradient, stream size and power, nearby infrastructure, land ownership upstream/downstream, domestic water sources, etc. This work will be conducted during the Annual Operations Plan process or during sale layout depending on workloads and efficiency.

Land Exchanges and Easements

In order to maintain or improve access to land parcels and potentially consolidate lands the district will continue to pursue land exchange and easement opportunities that are consistent with current Board of Forestry policy to achieve greatest permanent value.

Property Lines and Corners

The establishment and maintenance of property corners and lines will be prioritized and scheduled through the Annual Operations Plans. Survey work may

be accomplished through multiple methods including service contracts with licensed professional land surveyors, cost sharing with adjacent landowners or utilizing the licensed surveyor on staff with ODF

Special Forest Products

The North Cascade District issues personal use firewood permits for areas where timber sale contracts have been completed. Other non-timber sale areas may be available as conditions allow. These permits serve the purpose of providing a low cost source of firewood for the public, removing excess logging debris from landings in the harvest units, and removing small timber and debris resulting from windstorms or other damage.

The North Cascade District is not currently issuing other Miscellaneous Forest Products permits due to lack of compliance with permits and impacts to adjacent landowners. This policy may be re-evaluated during the lifespan of this IP. If permits are resumed, the process will be outlined in the District AOP. Non-commercial volumes of special forest products are available for personal use without having a permit, not including firewood.

Cultural, Archeological, and Historical Resources

It is the policy of the Oregon Department of Forestry, State Forests Division, to preserve and protect archaeological and cultural resources and sites during forest management activities according to state law. In order to protect any potential cultural resources during forest management activities, planned operations areas are screened for the presence of cultural resources. Areas where cultural resources may be present receive further review and avoidance measures where appropriate. Consultation with the State Historic Preservation Office or a qualified archaeologist shall occur if any cultural or archaeological resources are inadvertently discovered on State Forest lands during the course of management activities.

Energy and Mineral Resources

Hard rock is removed from state forest lands for road surfacing on an ongoing basis. These sites, called rock pits or quarries, are in specific locations, generally less than three acres. They are used for ten or more years before being exhausted of suitable surfacing rock. Most often the hard rock from these sites is crushed to produce surfacing rock of specific size and grade for forest roads. This crushed rock is either applied directly to existing or newly constructed roads or is stockpiled at a nearby location for future application. When quarry sites are exhausted, they are vacated by providing water drainage, reducing the slope of the quarry walls,

and sometimes filling them in with topsoil and reseeding the surface with annual and perennial plants.

Map Section

North Cascade District Overview

North Cascade District: Current Condition Stand Structure

North Cascade District: Desired Future Condition Stand Structure

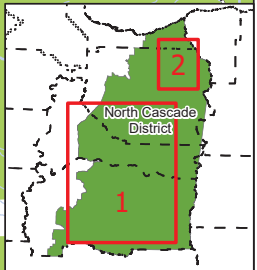
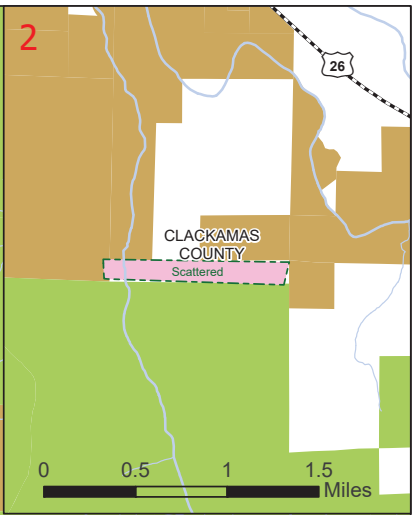
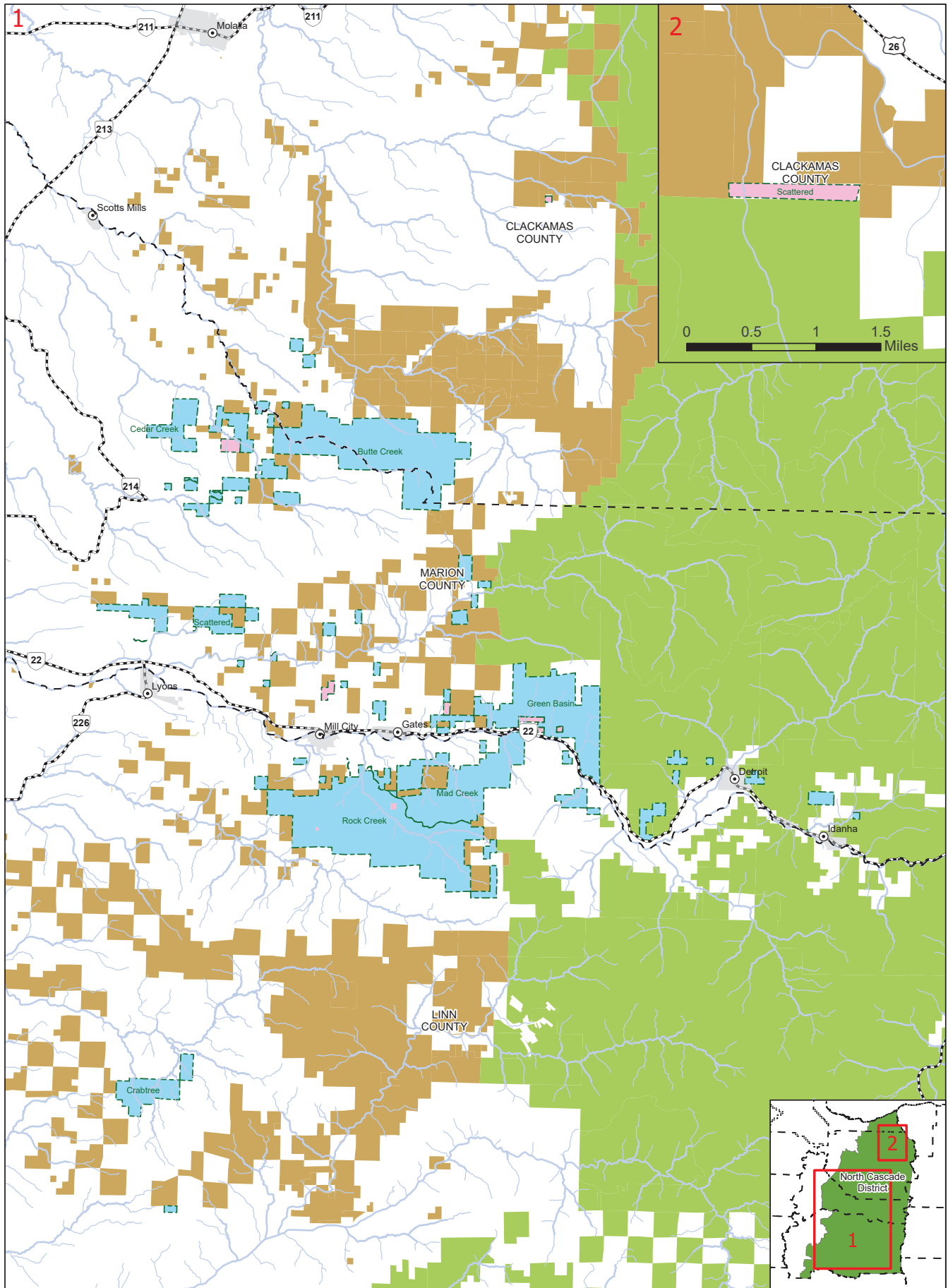
North Cascade District: Forest Land Management Classification – Stewardship Classes

North Cascade District: Forest Land Management Classification – Biological Subclasses

North Cascade District: Forest Land Management Classification – Management Subclasses

North Cascade District: Forest Land Management Classification – Social Subclasses

North Cascade District Overview



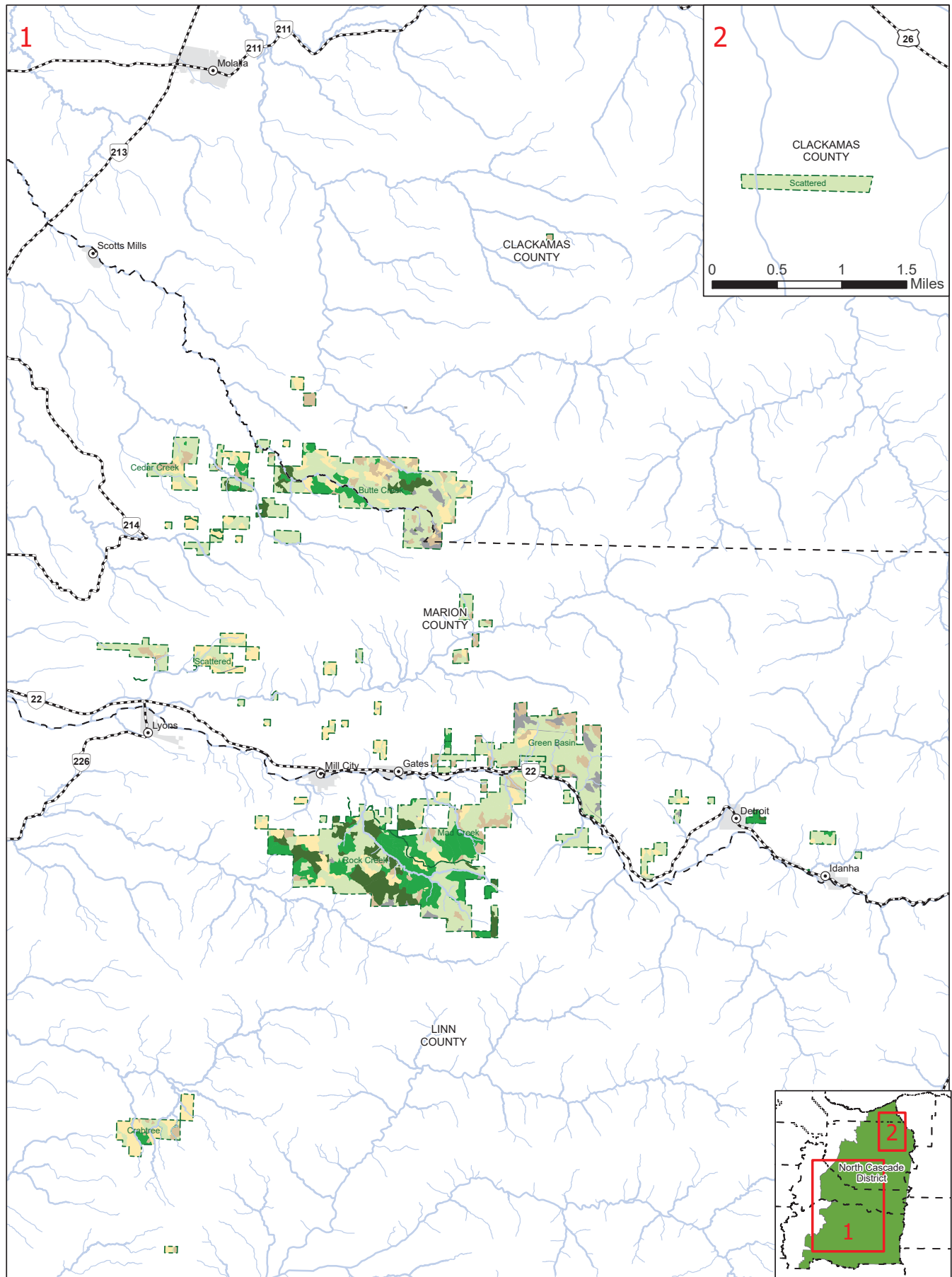
- Ownership
- Board of Forestry Lands
 - Common School Lands
 - Streams, Large
 - Streams, Medium
 - United States Bureau of Land Management
 - United States Forest Service
 - Management Basins
 - Counties
 - City Limits
 - Roads
 - Towns



This product is for informational use and may not have been prepared or suitable for legal, engineering, or surveying purposes. This information or data is provided with the understanding that conclusions drawn from such are the responsibility of the user.



North Cascade District Current Condition Stand Structure



- Current Condition
- Non-Silviculturally Capable
 - Regeneration
 - Closed Single Canopy
 - Understory
 - Layered

- Older Forest Structure
- Streams, Large
- Streams, Medium
- Management Basins
- Counties

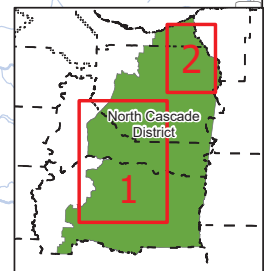
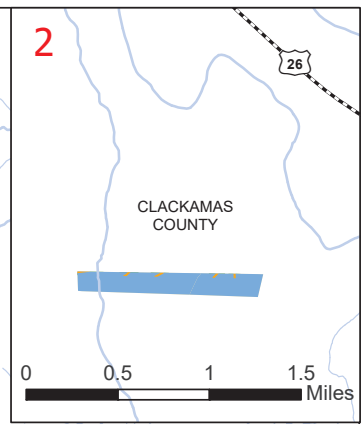
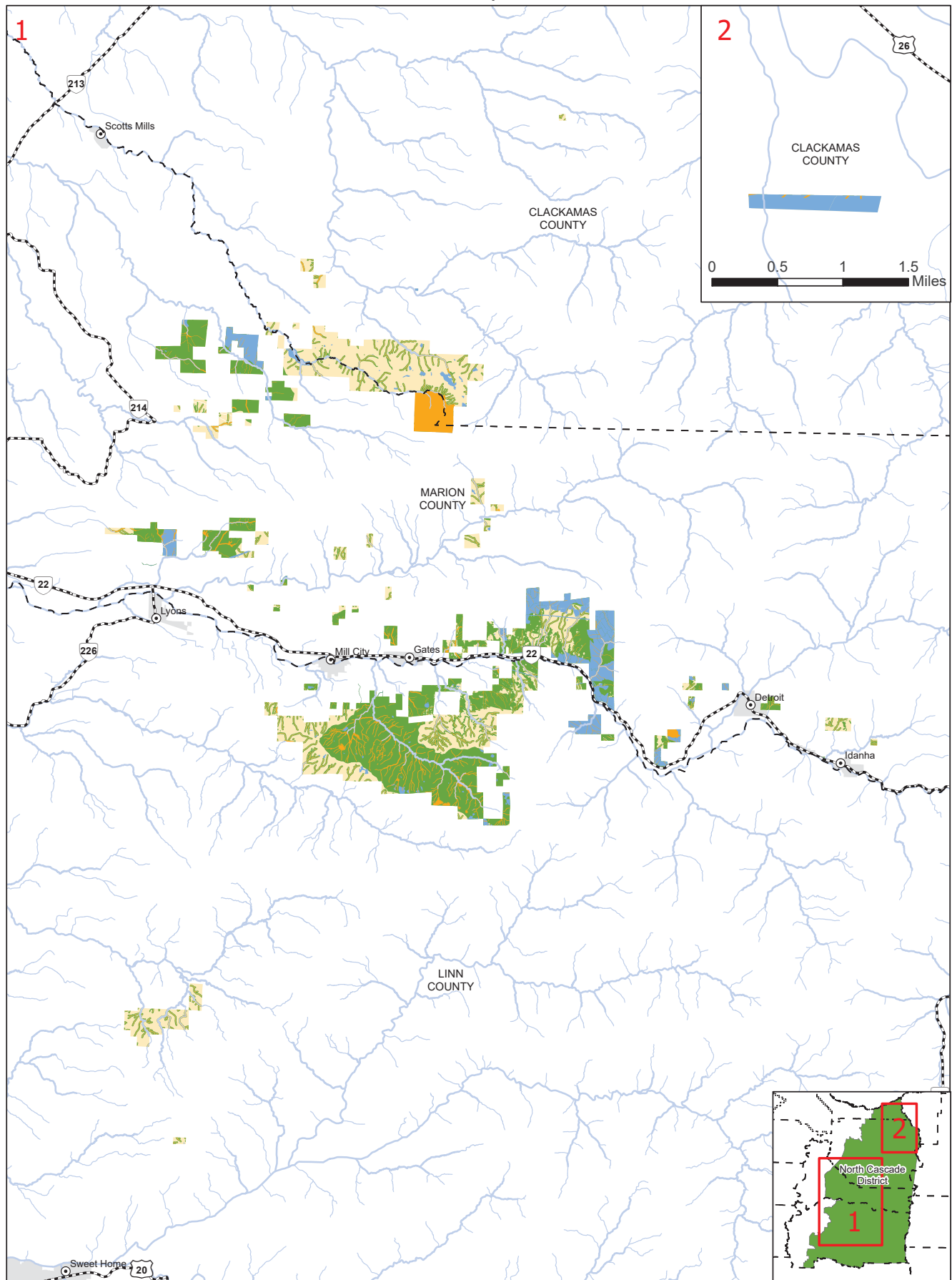
- City Limits
- Roads
- Towns



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0 1.5 3 4.5 6 Miles

North Cascade District Forest Land Management Classification Stewardship Classes



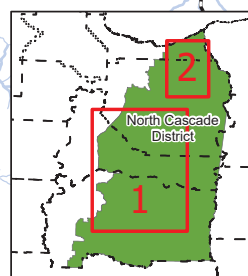
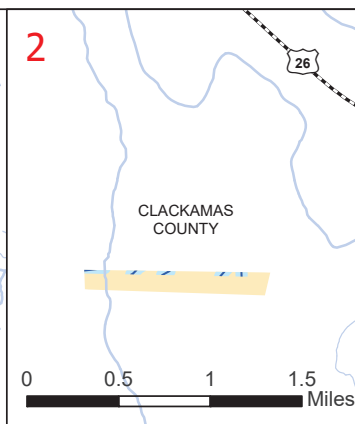
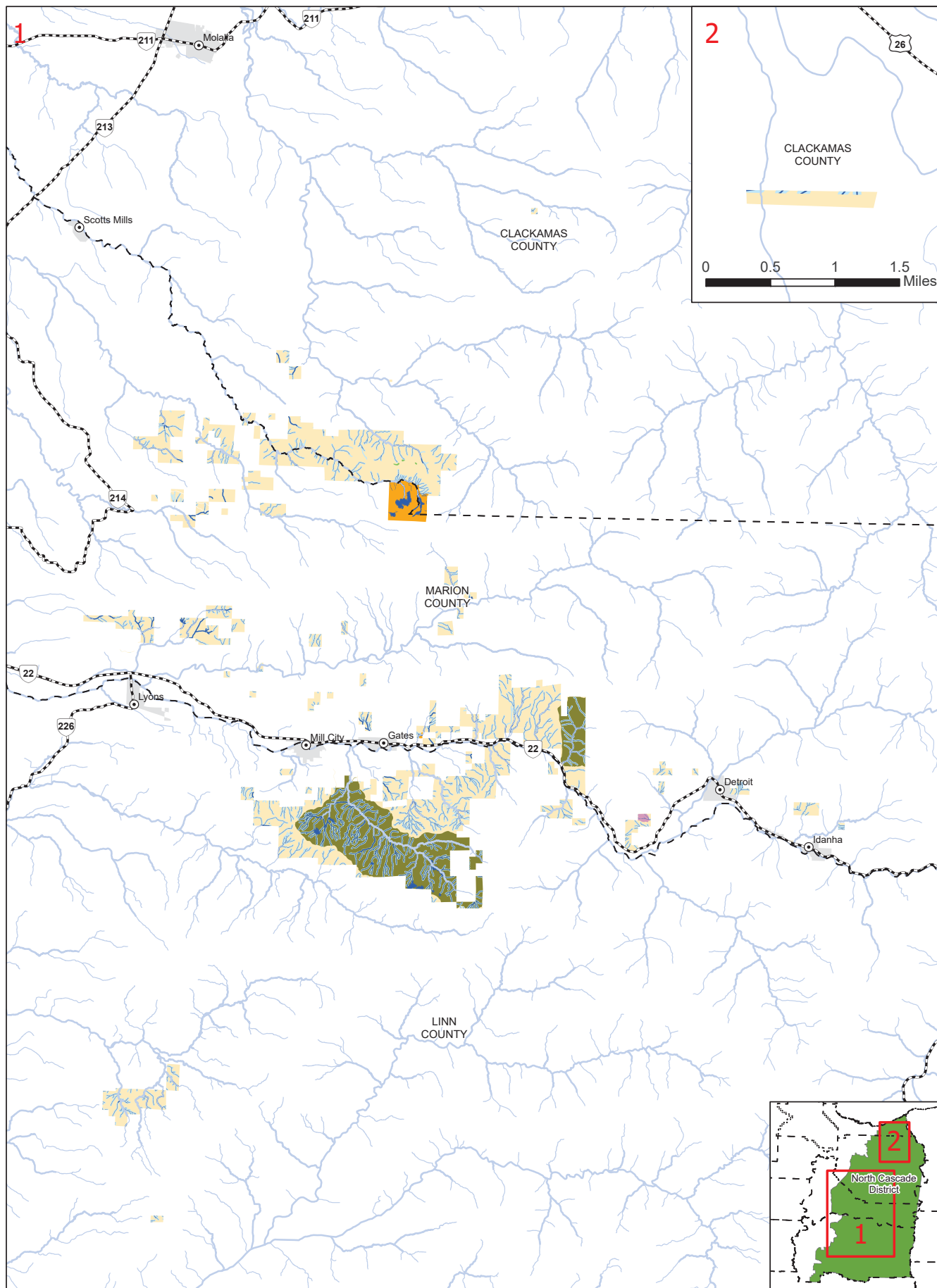
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|------------------------------|-------------------|
| Stewardship | ODF Managed Lands |
| High Value Conservation Area | Counties |
| Special Use | City Limits |
| Focused Stewardship | Roads |
| Streams, Large | Towns |
| Streams, Medium | |



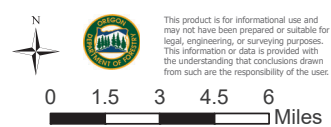
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North Cascade District Forest Land Management Classification - Biological Subclasses

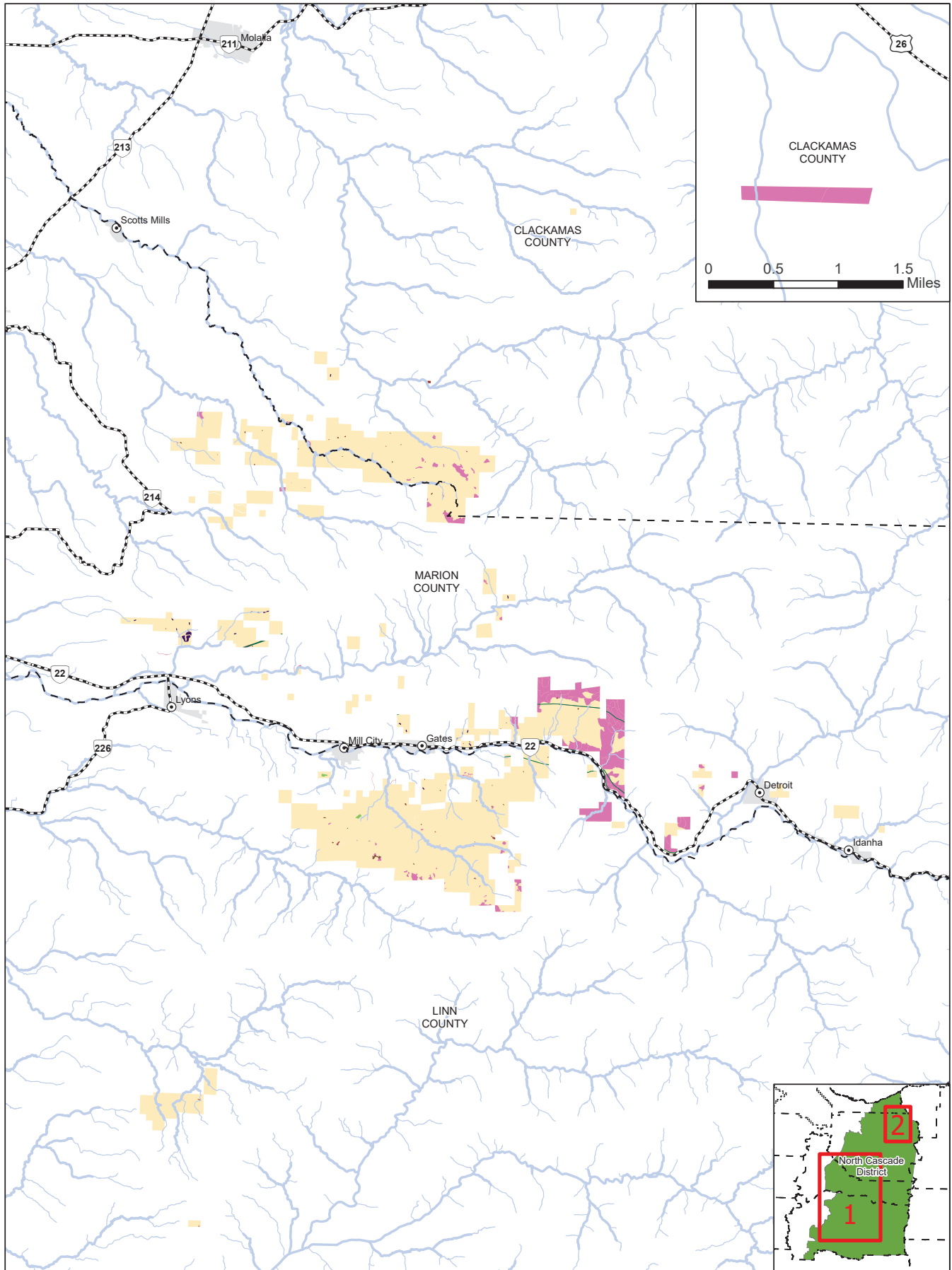


- Stewardship Classifications**
- HVCA Subclasses**
 - Aquatic and Riparian Habitat
 - Unique, Threatened or Endangered Plants
 - Wildlife Habitat
 - Focused Subclasses**
 - Aquatic and Riparian Habitat
 - Plants
 - Wildlife Habitat
 - Streams, Large**
 - Streams, Medium**
 - ODF Managed Lands**
 - Counties**
 - City Limits**
 - Roads**
 - Towns**



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North Cascade District Forest Land Classification System - Management Subclasses



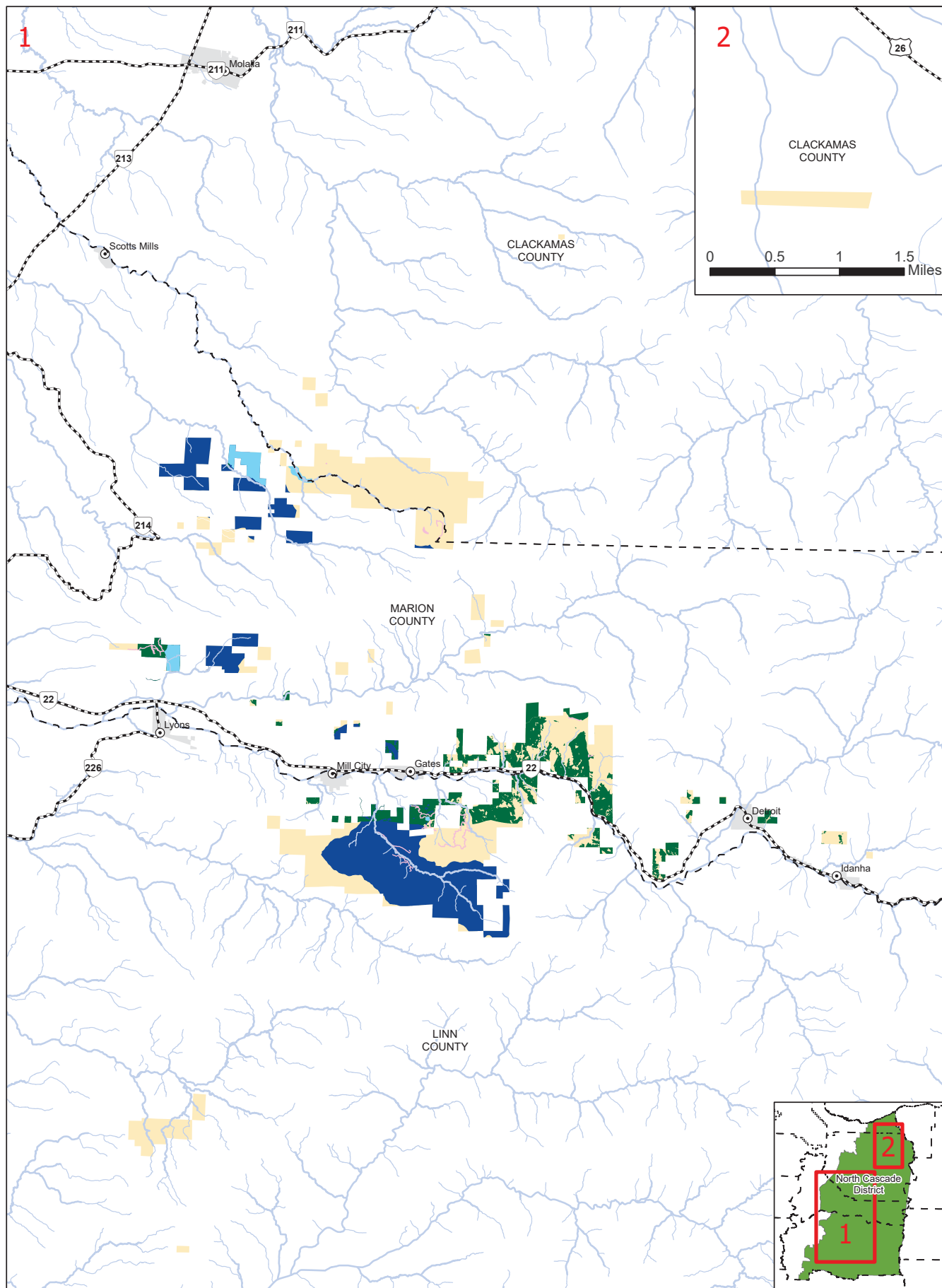
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|--|---|--|
| Special Subclasses | Focused Subclass | Counties |
| ■ Administrative Sites | ■ Focused Research/Monitoring | City Limits |
| ■ Research/Monitoring | — Streams, Large | Roads |
| ■ Energy and Minerals | — Streams, Medium | Towns |
| ■ Transmission | ■ ODF Managed Lands | |
| ■ Operationally Limited | | |



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North Cascade District Forest Land Management Classification - Social Subclasses



Stewardship Classifications

Focused Stewardship

- Domestic Water Use
- Visual
- Recreation

Special Stewardship

- Recreation
- Visual
- Recreation
- Streams, Large
- Streams, Medium

ODF Managed Lands

- ODF Managed Lands
- Counties
- City Limits
- Roads
- Towns



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0 1.5 3 4.5 6 Miles

Appendix A

Harvest Modeling Analysis

This appendix describes the *Harvest Modeling Analysis* the district used to determine the Annual Harvest Objective (AHO) resulting from the strategies described in this Implementation Plan, the Northwest Oregon State Forest Management Plan, the draft HCP requirements, the Species of Concern strategies, and the other plans, policies or strategies listed in this Implementation Plan.

The analysis is based on the volume, stand structure and wildlife habitat outputs produced utilizing a harvest scheduling model called Patchworks. These outputs were then reviewed and adjusted as necessary using expert opinion from the district. This model uses spatial inputs and a set of rules to find a solution that optimizes multiple goals across a 150 year timeframe. There are three primary inputs to the harvest model: (1) a growth-and-yield model, in this case the Forest Vegetation Simulator (FVS), (2) a detailed spatial representation of the landscape, using thousands of polygons in GIS, and (3) a set of rules and weighted goals.

The primary competing goals in the model are (1) timber harvest in the short- and long-term; (2) landscape design in the short-term and complex structure requirement in the long-term and (3) wildlife habitat development in the short- and long-term.

Some of the other rules followed by the model include:

- Ensure sustainability of both long-term timber harvest and inventory on the landscape: Harvest volume is held to even-flow through the entire 150 years and volume of growing stock is not allowed to decline after year 100. Even-flow means that the harvest volume is not allowed to decrease or increase, but must remain the same during the 150 year timeframe.
- No regen harvest within the mapped landscape design for desired future complex stands for the first five years, then the landscape design is allowed to move around the landscape.
- No regen harvest in Terrestrial Anchor Sites for the first five years.
- Regen harvest is allowed with the HCAs to treat Swiss needle cast and alder stands for wildlife habitat improvement as allowed by the HCP for the first 30 years.
- Thinning of healthy conifer stands within the HCAs for the first 30 years to improve wildlife habitat as allowed by the HCP.
- A minimum of 40% estimated spotted owl dispersal habitat was maintained outside of HCAs as required by the HCP.

- Patches of regeneration harvest were not allowed to exceed 120 acres in a single five year model period.

The model solution suggests a volume output where the long-term integrity of both the Desired Future Condition and the HCP implementation requirements remain intact at the end of the IP timeframe (2-3 years). The IP volumes need to accommodate several scenarios during this transition period as ODF works towards getting an approved HCP and developing a new Western Oregon FMP. Those scenarios include:

- Current FMPs with species of concern protections, take avoidance strategies and T&E surveys while implementing the HCP (period 1 only);
- Current FMPs while implementing the HCP requirements with an incidental take permit (after period 1);
- Allow for the planning process needed to determine where up to 1,500 acres per year of thinning of healthy conifer stands within the HCAs will occur across the HCP Permit Area.

Table 1. Modeled Harvest Volume Per Year

Total Harvest Volume (MMBF)
13.8

Harvest models are limited by the model's inputs, and uncertainty in the inputs should be noted. Initial stand measurements are taken from a stand inventory that inherently has uncertainty for inventory, stand age, etc. From that initial inventory, stands are projected using the FVS growth model, which introduces additional uncertainty pertaining to current and future forest conditions. Spatial information is based on current GIS layers where uncertainty occurs from using modeled streams and roads layers, and predicted steep slope and inner gorge areas.

The model solution was reviewed by the district to ensure that model rules were being followed across the landscape and that the solution is implementable. The district also reviewed a sub-set of harvest units within the first ten years of the model to evaluate age at harvest, harvest volume, inventory growth rates, and if model rules were being followed at the operational level. The model solution review also looked at impacts to recreation, wildlife, district workload and finances.

There were issues identified within the Model solution:

- Volume per acre was too high
- Stream data shows some inconsistencies
- Thinning ranges inside/outside HCAs were not working correctly within the model

To account for the over optimistic harvest volume per acre, a volume reduction (determined by the district using cut out data during district Model Solution Review (MSR)) was applied to the total volume from the model output as shown below

Table 2. Adjusted Volume Per Year

Unadjusted Total Volume	District Volume reduction based on MSR		Adjusted Total Volume
	Regen	Thin	
13.8	16%	19%	11.5

Following the Labor Day fires in 2020, stands within the burn were re-typed based on GIS layers of burn severity, aggregated index seral stage group codes (small-diameter, medium-diameter, large-diameter), and dominant species. Pre-fire SLI stand density estimates were reduced proportionally according to the predicted burn severity in an effort to simulate fire effects within the re-typed stands. This information is being used until stands within the burn areas can be inventoried. This approach has not been field verified for accuracy. Due to this, a conservative approach towards volume outputs is recommended below the Adjusted Total Volume Per Year shown in the table above. A volume of 9 MMBF per year follows district recommendations based on review of the model outputs and knowledge of conditions in the field. This becomes the base amount of harvest volume per year that may be realized during this IP duration. To allow flexibility for sale planning and to incorporate additional harvest within HCAs when the Incidental Take Permit takes effect, volume targets for the IP duration are being expressed as a range presented below.

Table 3. District Harvest Volumes Per Year

Volume Range (MMBF)
9 - 10

Appendix B

SOC Limiting Factors Coarse Evaluation and Additional Strategies.

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
Cascade torrent salamander	Sensitive to increased temperature and sediment. Low reproductive rate	Aquatic and Riparian Management Strategies	Aquatic Anchor with additional headwater protection (all or proportion of headwater streams)
Cascades frog	Montane species vulnerable to genetic isolation. Experiencing substantial reductions in southern parts of range (e.g., CA). Sensitive to waterborne pathogens.	Aquatic and Riparian Management Strategies	None at this time
Clouded salamander	Limited range (occurs primarily in Oregon). Loss of large logs.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags and downed wood in harvest units)	None at this time
Coastal tailed frog	Limited range (PNW endemic), Low reproductive rate. Low dispersal ability. Sedimentation & increases in water temperature.	Aquatic and Riparian Management Strategies	None at this time
Foothill Yellow-legged frog	Habitat loss from hydrologic modifications for hydropower. Gravel bars and low-flow nursery areas have been lost in many areas. Foothill yellow-legged frogs may also be impacted by sedimentation and waterborne pathogens	Aquatic and Riparian Management Strategies	None at this time
Northern red-legged frog	Loss of egg-laying habitat. Predation & competition from bullfrogs and invasive fish.	Aquatic and Riparian Management Strategies	None at this time
Oregon slender salamander	Endemic to OR Cascades/ Restricted distribution. Require habitat complexity characteristic of old-growth and unmanaged young forests.	DFC, Downed Wood	None at this time
Oregon spotted frog	High fidelity to egg-laying sites. Some populations are isolated and vulnerable to inbreeding and extinction. Livestock grazing can remove cover along stream edges, allowing sediment and excessive aquatic vegetation to decrease habitat value. Predation and competition by invasive fish and bullfrogs and siltation of water sources are further threats.	Aquatic and Riparian Management Strategies	None at this time
Western toad	Loss of breeding habitat, siltation, and recreational impacts.	Protect wetlands, road BMPs reduce siltation	None at this time
Northern Pacific pond turtle	Loss of aquatic & nesting habitats (conversion and invasive species). Road Mortality. Predation.	Aquatic and Riparian Management Strategies	Site Plans for riparian areas at known sites

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
Western painted turtle	Loss of aquatic & nesting habitats (conversion and invasive species). Predation.	Aquatic and Riparian Management Strategies	Site Plans for riparian areas at known sites
American peregrine falcon	Disturbance at nests.	Landscape Management Concept 2 - Landscape Design (maintain unique habitats and those of species at risk)	Site Plans near active nests
Bald eagle	Loss of large nest trees.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Band-tailed pigeon	Reduction in quality and number of mineral sites. Large area requirements.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Black swift	Small disjunct populations & unique nesting habitat		Site Plan
Great blue heron	Sensitive to disturbance at nesting rookeries.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Great gray owl	Large area requirements, reduction in amount of late seral forest & montane grasslands.	Landscape Management Concepts and Strategies	None at this time
Harlequin duck	Narrow breeding habitat requirements, high breeding site fidelity, low reproductive rates, and delayed reproduction	Aquatic and Riparian Management Strategies	None at this time
Lewis' woodpecker	Population declines & local extirpation; habitat loss and degradation; loss of old cottonwood snags; competition with starlings for nest cavities.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags and downed wood in harvest units).	Modified Practice: Focus or increase snag retention in upland areas in occupied areas; Site Plans
Northern goshawk	Large area requirements. Affected by reductions in amount of late successional and closed canopy forest.	Landscape Management Concepts and Strategies	Site Plan (already in existing SOC policy for other districts)
Northern spotted owl	Declining. Large home range. Reduction in late seral habitat. Habitat loss to severe fire.	Landscape Management Concepts and Strategies; State Forests Northern Spotted Owl Operational Policy (1.2) and associated Procedures and Guidance	None at this time
Olive-sided flycatcher	Relatively large area requirements. Increased predation rates in harvest units or fragmented forest.	Landscape Management Concepts and Strategies	Modified Practice: Structural retention strategies (number and location of green trees and snags) could be modified in known nest stands.
Osprey	Large snags and broken-topped trees in close proximity to water. Sensitive to disturbance at nest sites.	Aquatic and Riparian Management Strategies	Site Plan/FPA Rules

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
Purple martin	Loss of nesting cavities. Competition with starlings for nest cavities, adequate aerial prey base.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	Modified Practice: Focus on retention of snags with specific characteristics (low, skinny) in upland areas of clearcuts (within 3 miles of large water bodies)
Western bluebird	Habitat loss & degradation. Competition from non-native birds for cavities.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	Modified Practice: Focus on retention of snags with specific characteristics in upland areas of clearcuts
Willow flycatcher	Declining populations, loss of nesting habitat.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Modified Practice: Consider gap creation, heavy thinning, and intentional development of complex early seral habitat
American pika	Very sensitive to high temperatures. They have limited dispersal ability, low fecundity, and are vulnerable to decreases in snowpack.	Landscape Management Concepts and Strategies	None at this time
California myotis	Reduction of large snags, patchy distribution, low populations.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Fringed myotis	Disturbance at roosts, patchy distribution, reduction in snags.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Gray wolf	Limited by availability of disturbance free areas	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	See amended 2010 Oregon Wolf Conservation and Management Plan for strategies.
Hoary bat	Habitat loss.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Long-legged myotis	Reduction of late seral conifer, loss of hollow trees and tall, newly dead snags, loss of healthy riparian habitat, untimely bridge replacement.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units); Riparian Management Strategies	None at this time
Pacific fisher	Large home range, low rate reproduction, specific denning habitat.	Landscape Management Concepts 1-3 and Management Strategies 1-4; Riparian Management Strategies	None at this time
Pacific marten	Low survival in fragmented forests. Road mortality. Predation.	Landscape Management Concepts 1-3 and Management Strategies 1-	None at this time

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
		4; Riparian Management Strategies	
Red tree vole	Small home range, limited dispersal ability, low reproduction rate.	Landscape Management Concepts and Strategies	None at this time.
Silver-haired bat	Reduction of late seral conifer forests, loss of hollow trees and tall, newly dead snags.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Townsend's big-eared bat	Highly sensitive to disturbance at roosts; highly specific roost requirements (dependent on uncommon or at risk structures for habitat). Pesticides and related prey reduction.	Cultural resource protection may protect against destruction of some mines/buildings but not against disturbance	Site Plans for any mine or cave roosts or building maternal roosts
Bull Trout, Willamette	Migration and spawning barriers. Early rearing habitat. Predation. Hybridization. Limited food source. Altered hydrological regime. Angling mortality.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time
Chinook, Upper Willamette, Spring	Water quality. Fish passage. Riparian condition. Altered watershed processes. Marine Survival	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time
Coastal Cutthroat, Willamette (Upper Willamette)	Habitat fragmentation or actions that increase population isolation. Water Quality. Alterations of hydrology and watershed function. Loss of estuarine habitat for rearing. Ocean productivity.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time
Coho, Coastal	Stream complexity. Water quality. Fish passage. Riparian condition. Altered watershed processes. Marine Survival.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time
Lamprey, Western Brook	Reduced water quality. Passage barriers. Altered flow patterns. Dredging. Rapid water drawdowns. Marine survival.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time
Lamprey, Pacific	Reduced water quality. Passage barriers. Altered flow patterns. Dredging. Rapid water drawdowns. Marine survival.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time
Lamprey, River	Reduced water quality and quantity. Passage barriers. Altered flow patterns. Dredging. Rapid water drawdowns. Predation.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J. Aquatic anchor.	None at this time

* Limiting Factors information taken from the 2016 Oregon Conservation Strategy (ODFW 2016).

Appendix C

References

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Appendix D

Public Comment Summary

Public Involvement and Summary of Changes:

In order to engage with Oregonians, the Oregon Department of Forestry's (ODF) Implementation Plan revisions for the Astoria, Forest Grove, Klamath-Lake, North Cascade, Tillamook, West Oregon and Western Lane districts that had a 30-day public comment period, which began February 3, 2023. The public was notified via a statewide news release and subsequent media coverage, as well as emails to citizens and stakeholders on ODF's mailing lists, the ODF website, and posts on ODF's Facebook, Instagram & Twitter platforms. A public information workshop was also held on February 2, 2023. Public comment was accepted through the ODF website, email, and letters.

The purpose of the Public Comment Period was to provide an opportunity for the public to review the revised Implementation Plan, ask questions, make recommendations, and offer comments. As a public agency, ODF strives to operate in the best interest of Oregonians. We provide opportunities for public participation to assist us in securing the greatest permanent value from state forests for all Oregonians.

The following is a summary of the changes that have been made to the Implementation Plans based on the feedback that was received and new information that we have learned:

Changes in all Implementation Plans included:

- "Executive Summary"
 - Updated language to reflect adjustments made to ongoing policy work timelines
 - Provided additional clarity and language about considering new information from ongoing policy work.
- "Climate" – Updated language for clarity to include additional information about extreme weather events.
- "Planned Annual Harvest Objectives" - Added harvest and stand type language for clarity.
- "Young Stand Management" – Updated reforestation language to include additional information about seed sources and planting considerations.
- "Forest Health" – Updated silviculture activities to provide additional clarity.
- "Appendix A" – Updated take avoidance land T&E survey language to provide additional clarity.
- "Appendix D" – Added this appendix which summarizes the Public Comments

Summary of comments: In all, ODF received 48 individual written comments related to the Implementation Plan revisions for the Astoria, Forest Grove, Klamath-Lake, North Cascade, Tillamook, West Oregon and Western Lane districts. While there were many comments that specifically pertained to the Implementation Plan revisions, a large number of comments were out-of-scope as they related to other topics like the Habitat Conservation Plan, new Forest Management Plan, grants, legislation, etc. While these out-of-scope comments won't be addressed in this document we did summarize them below. The following is a summary of comments received and agency responses, to these draft plans.

Implementation Plan/Habitat Conservation Plan Comments

Comments related to the incorporation of the draft Habitat Conservation Plan requirements into the Implementation Plan revisions included general comments of support or opposition as well as recommendations. Commenters recommend:

- *Extending current Implementation Plans until the Habitat Conservation Plan is adopted instead of approving the revised Implementation Plans.*
- *Delaying implementation of the Habitat Conservation Plan until the new Forest Management Plan is finalized.*
- *Implementing the Habitat Conservation Plan requirements and provisions of the Incidental Take Permit only when they are approved and in place.*
- *Developing transitional implementation plans for Fiscal Year 24-25 that continue business as usual.*
- *Delaying implementation of the draft Habitat Conservation Plan to give ODF, counties, and industry time to plan for possible reduced harvest going forward.*
- *Support ODF applying Habitat Conservation Areas and Riparian Conservation Areas into Implementation Plans revisions which will help create more complex forests, provide habitat for many species, make forests less prone to wildfire, and older stands that store more carbon than those managed on a 40-year rotation.*
- *Extending current Implementation Plans should not increase the timeline to draft Fiscal Year 2024 Annual Operations Plans just add alternate sales or primaries from previous fiscal years.*
- *Removing Habitat Conservation Area restrictions on where regeneration harvest sales can occur until a Habitat Conservation Plan is finalized.*
- *Removing the Habitat Conservation Plan requirement that a minimum of 40% estimated spotted owl dispersal habitat will be maintained outside of Habitat Conservation Areas from Implementation Plans.*
- *Using Habitat Conservation Plan Alternative 3 for adequate protection of water quality and aquatic resources in the Implementation Plans.*
- *Removing limits on thinning and clearcut harvesting in Habitat Conservation Areas until Board of Forestry approves a Forest Management Plan designating Habitat Conservation Areas.*
- *Excluding any language related to draft Habitat Conservation Plan in the guiding documents for any of ODF managed lands until the Habitat Conservation Plan has been finalized.*

- *Implementing conservation measures from the draft Habitat Conservation Plan consistent with the wildlife goals and Desired Future Condition Complex ranges outlined in the current Forest Management Plan.*
- *Using a transitional approach that implement some conservation measures of the draft Habitat Conservation Plan that truly align with the current Forest Management Plan instead of combining all conservation measures and overemphasizing thinning prescriptions.*
- *Implementing Habitat Conservation Area strategies in areas designated as Desired Future Condition Complex.*
- *Exclude draft Habitat Conservation Plan management prescriptions in Implementation Plans until Habitat Conservation Plan is adopted and incidental take permits are issued.*
- *Incorporating the approved Private Forest Accord since all major environmental groups, timber stakeholders, and the State of Oregon can agree that the Private Forest Accord meets all Endangered Species Act requirements, and all water quality and environmental goals and all economic goals that the Board of Forestry is expected to meet and balance.*

More general comments, which did not include recommendations, include:

- *Commendation for incorporating best management practices in the proposed Habitat Conservation Plan and Implementation Plans revisions.*
- *Supporting incorporation of draft Habitat Conservation Plan requirements into Implementation Plans revisions.*
- *Perspective that the revised Implementation Plans bloat areas designated as Desired Future Condition complex by implementing conservation strategies designed to meet other goals not included in the current Forest Management Plan.*
- *Concern that the Implementation Plans revisions do not achieve the original balance of Greatest Permanent Value in the current Forest Management Plan because of the overlap of the current Forest Management Plan requirements and the draft Habitat Conservation Plan requirements.*
- *Perspective that New Implementation Plans fail to balance ecosystem services and instead focuses on conservation measures due to overlapping DRAFT Habitat Conservation Plan strategies on top of current Forest Management Plan objectives.*
- *Perspective that the Habitat Conservation Plan restrictions are compounding the impacts of current Forest Management Plan restrictions (Desired Future Condition, Terrestrial Anchor Sites, Aquatic Anchors), which according to Implementation Plans will continue even after a Habitat Conservation Plan is adopted.*
- *Perspective that Districts will be operating under unnecessarily restrictive implementation plans if they move forward with implementation of the draft Habitat Conservation Plan.*

Implementation Plan/Habitat Conservation Plan Response:

At the direction of the Board of Forestry, ODF is continuing the development of a draft Western Oregon State Forests Habitat Conservation Plan and new Forest Management Plan for Western Oregon State Forests. At the time of developing the revised Implementation Plans, the Habitat Conservation Plan is a formal public draft document with an accompanying draft Environmental Impact Statement in the federal National Environmental Policy Act process. Finalization of the Environmental Impact Statement and Biological Opinions, and issuance of Incidental Take Permits is expected to occur within Fiscal Year 2024. The current draft of the Habitat Conservation Plan states that implementation will begin with the Fiscal Year 24 Annual Operations Plan. There were several comments providing suggestions for partial implementation of the Habitat Conservation Plan requirements or adjustments to the requirements but in order to continue this process these Implementation Plans must be revised to include all of the components of the draft Habitat Conservation Plan in order to cover the expected Habitat Conservation Plan approval timeline. As this process evolves ODF will evaluate new information or changes in direction after they occur to determine if adjustments need to be made.

Forest Management Plan/Habitat Conservation Plan Balance: Given the Board of Forestry direction, even in light of the questions and the dialog that is occurring, and the timing requirements outlined in the draft Habitat Conservation Plan there is a transition period where ODF may be issued Incidental Take Permits without an approved new Forest Management Plan. This means that we need to work under current Forest Management Plan until a new Forest Management Plan has been approved including the requirements around Terrestrial Anchors, Aquatic Anchors, and Desired Future Condition. The current Forest Management Plan gives flexibility to manage above the minimum requirements outlined in the plan and provide discretion to exceed these requirements to achieve other goals. There have been many examples of current Forest Management Plan overlap with other requirements since the plan adoption, such as the Forest Practices Act rule overlap, species of concern requirements, and litigation settlement requirements. In this case it means the additional Habitat Conservation Plan requirements needed to follow the Board of Forestry direction and honor the Habitat Conservation Plan process. This overlap of rules will be temporary during this transition period and will be resolved with the adoption of a new Forest Management Plan. As the Habitat Conservation Plan and new Forest Management Plan process evolves, ODF will evaluate new information or changes in direction after they occur to determine if adjustments need to be made.

Utilizing the Private Forest Accord: The Private Forest Accord and the State Forests Habitat Conservation Plan are two separate Habitat Conservation Plan processes. The Private Forest Accord process excludes State Forests from being an applicant for that Habitat Conservation Plan and any Incidental Take Permits that may result. This means that State Forests could not implement the Private Forest Accord rules to meet Endangered Species Act requirements. Another major difference is that the Private Forest Accord only covers certain fish and amphibian species while the State Forest Habitat Conservation Plan covers several fish and amphibian species but also includes additional species of birds and mammals. The Private Forest Accord resulted in a new set of Forest Practices Act rules prior to completion of its related Habitat Conservation Plan and issuance of Incidental Take Permits. This is similar to the process that State Forest is

using during this transition period by implementing the State Forest draft Habitat Conservation Plan requirements while the State Forest Habitat Conservation Plan process is being completed.

HARVEST LEVELS COMMENTS

Comments related to State Forest timber harvest levels included:

- *Keep harvest levels at the current Implementation Plan levels. Don't lower the harvest levels.*
- *Revise Implementation Plans to bring harvest levels closer to current levels.*
- *Several comments expressing concern that businesses and mills will close, contract firefighting and logging resources won't be available because of reduced harvest levels.*
- *One noted that Implementation Plans fail to accurately follow either plan and significantly reduce annual harvest objectives that will leave critical gaps in Oregon's forest manufacturing capacity and operating workforce.*
- *Several comments concerned the decreases in Annual Harvest Objective for the majority of the Draft Implementation Plans when Habitat Conservation Plan and new Forest Management Plan are not approved.*
- *Concern that required workforce won't be available for the Department to achieve its conservation goals alongside its economic goals.*
- *Proposed harvest reductions could be closer to 50% depending on proposed stands taken out of production.*
- *One commenter noted that the harvest reductions mean roughly a 30% reduction in annual harvest and amounts to an approximate decrease of \$80 million dollars in revenue over two years resulting in a \$30 million budget shortfall for ODF and \$50 million budget shortfall for counties and local governments and has the potential to adversely impact over 700 timber-related jobs in rural communities.*
- *Reduced harvest levels from State Forests combined with declining supply from highly regulated domestic producers will require imported wood products to meet demand.*
- *Reduction in harvest combined with Oregon's new emission requirements will make it hard for trucking companies to stay in business.*
- *State Forest reductions combined with United States Forest Service harvest level reductions, decreasing market due to 2020 fires, and increased Private Forest Accord harvest restrictions will harm local companies and families and lead to lumber being imported when we should be sustainably supplying the market locally.*

Harvest Levels Response:

These Implementation Plans seek to balance the agency's legal obligation to manage state forests for economic, environmental, and social values while working through potential policy changes in the face of a broad range of perspectives. In doing so, harvest levels will be lower for the next two to three years as we work through the Habitat Conservation Plan and new Forest Management Plan process, await final direction from the Board while honoring commitments made in the Habitat Conservation Plan as to not affect the calculations of "take" during the Environmental Impact Statement and continue to implement management strategies in the current Forest Management Plan to ensure future sustainability under these rules and policies. These revisions incorporate new data and information on forest resources and incorporate both the Forest Management Plan and the draft Habitat Conservation Plan requirements during this transition period while this work is being completed. This has required harvest levels to be adjusted to ensure future sustainability under these rules and policies. The harvest levels are lower than what we have been operating on in previous years and represent a range of 19% to 27% in total volume reductions averaged across all the districts from the current Implementation Plan targets. The actual harvest levels and specific operations will be identified in the Fiscal Year 24 and Fiscal Year 25 Annual Operation Plans. Currently State Forests has approximately 325 million board feet of timber under contract and an additional 330 to 365 million board feet that will be added to the local market over the next two years. As ODF works through the Habitat Conservation Plan and new Forest Management Plan process new information or changes in direction will be evaluated after they occur to determine if adjustments need to be made.

FOREST MANAGEMENT COMMENTS

Comments related to Forest Management on state forests include:

- *Regeneration harvests should be avoided in Habitat Conservation Areas especially harvest of alder stands within Habitat Conservation Areas should be avoided at all costs as alder has value in fixing nitrogen and providing foraging habitat.*
- *Partial cuts in the Habitat Conservation Areas must be limited and only applied where there are clear conservation objectives for developing complex forest conditions.*
- *Clearcut timber harvest on steep slopes above salmon-bearing streams must be avoided or risk violating the Endangered Species Act.*
- *Opposed to planting genetically modified trees.*
- *Consider planting more cedar because it is higher quality wood, doesn't rot away and has more value.*
- *Current harvest methods not only remove trees but also clear all native and nurse trees, understory plants, and then are sprayed with chemicals.*

Forest Management Response:

Partial Cut/Thinnings in Habitat Conservation Areas: Some partial cuts for improving wildlife habitat consistent with the long-term goals of the Habitat Conservation Plan will

occur within the Habitat Conservation Areas. As areas for habitat improvement are identified, the partial cut prescription for these areas will be developed in collaboration with ODF biologists and foresters. This is done in partnership as the biologists identify what habitat characteristics they are looking for in the stands and the foresters help identify prescriptions that would lead to those desired characteristics. Partial cutting within Habitat Conservation Areas will average approximately 1,500 acres per year across the districts as per the Habitat Conservation Plan. During the time frame of these Implementation Plans, these partial cut prescriptions will align with the current NW & SW Forest Management Plans, Habitat Conservation Plan and Implementation Plans.

Regeneration in Habitat Conservation Areas: Hardwood species have value for wildlife habitat, however, large expanses of red alder dominant stands with little conifer component are unlikely to develop into suitable or highly suitable habitat for some covered species within the Habitat Conservation Areas. There are approximately 50,000 acres of hardwood dominated stands within the Habitat Conservation Areas. To assist in meeting the biological goals and objectives within the Habitat Conservation Plan for the terrestrial covered species, stand management in the form of modified clearcut or retention cut may occur in approximately 30% of red alder-dominant stands within Habitat Conservation Areas over the first 30 years of the Habitat Conservation Plan implementation. Within these managed stands, existing conifers may be retained where operationally feasible, and some hardwoods may also be retained during harvest. All trees regardless of species are maintained within Riparian Conservation Areas. Many hardwood-dominated stands within the Habitat Conservation Areas will remain unmanaged.

There are approximately 46,000 acres of stands within Habitat Conservation Areas containing Douglas-fir trees that are severely infected with Swiss needle cast. Swiss needle cast is a native disease of Douglas-fir that affects trees of all ages and causes premature loss of needles, especially in the upper crown, which reduces tree growth and vigor across affected acres. The focus of management in a subset (33%) of these infected stands within Habitat Conservation Areas over the first 30 years of the permit term will be to replace stands that are stunted by Swiss needle cast that are not otherwise likely to become high quality habitat for covered species. These managed areas will be replanted with a species mix that will grow into more suitable habitat for the covered species. Swiss needle cast regeneration prescriptions may include the retention of other conifer species and hardwood species that are unaffected by the disease. No trees regardless of Swiss needle cast infection will be removed from Riparian Conservation Areas. Many Swiss needle cast infected stands within the Habitat Conservation Areas will remain unmanaged.

Green Tree Retention: Green trees are retained within each modified clearcut unit. Arrangements of retained green trees include; scattered individual trees, clumps of trees, and trees concentrated in and adjacent to riparian management areas, inner gorge areas or headwalls. The final decision on the location and arrangement of the green trees is made while the timber sale is being laid out to incorporate information on potential minor tree species, unique stand features, steep slopes, visual considerations, reforestation considerations, logging costs, etc.

Steep Slopes: The Forest Management Plans and associated policies are designed to ensure forest resources are protected and that natural processes fundamental to healthy forests continue. Landslides are important natural geological processes, which introduce large wood and gravel into the stream network. Large wood and gravel inputs are critical to fish habitat, spawning and rearing.

Strategies in place within the forest management plans and Habitat Conservation Plan provide robust aquatic and riparian buffers that include additional protection measures and tree retention for areas of potential unstable slopes such as inner gorges, initiation sites and their associated potential debris flow track reaches and high energy seasonal streams. ODF strives to complete geotechnical reviews prior to finalizing district annual operation plans, however, some field consultations can't be completed by then or are more effectively done during sale layout. Further unstable slopes noted by foresters are addressed prior to finalizing leave tree strategies and all geotechnical concerns are addressed prior to a timber sale being sold.

Young Stand Management: ODF does not plant genetically modified trees. ODF plants native tree species that are grown from seed that is considered to be suited to future conditions. This seed is produced from traditional crossbreeding of trees from a variety of seed zones to make them resilient to current disease and future climate conditions. Individual reforestation strategies are developed for harvest units. These strategies take into consideration elevation, aspect, root disease, desired future stand conditions, and anticipated drier, hotter future conditions resulting from climate change. These strategies include site preparation, species, stock type and tree spacing tailored to each unit. Cedar is included as a species that may be planted on state forest in areas that are well suited to its growth.

Herbicides: Harvest sites by law must be replanted, and ODF strives to use the minimum amount of herbicides necessary to achieve reforestation success. After harvesting, vegetation that competes with newly planted trees rapidly re-colonizes harvest units. Herbicides are an effective tool to temporarily reduce competing vegetation which enables newly planted seedlings to establish and thrive, so there will be future forests for all Oregonians as well as the wildlife that depend on them. When using herbicides, it is done in accordance with the product label and all applicable rules and laws. Contractors hired to apply herbicides on ODF lands are closely monitored by ODF contract administrators (who are also licensed applicators). ODF uses ground-based applications where it is practical and does not unduly increase costs or present physical hazards to crews working on steep slopes. ODF encourages all concerned citizens to sign up in FERNS for notifications, as this is the easiest way to stay informed on upcoming operations.

INSECT AND DISEASE COMMENTS

Comment received related to insect and disease management:

- *Support harvesting in order to reduce insect infestations.*

Insect and Disease Response:

Most insect, disease and abiotic forest threats are best handled through prevention via management for forest resilience. Healthy trees are well-defended and able to resist or tolerate these forest threats. Silvicultural methods will be used to enhance tree and stand resiliency to ensure forest health and sustainability. Silvicultural activities that may be utilized to address forest stressors include:

- Planting native species in locations most suitable for their growth, accounting for changing temperature and precipitation;
- Widening spacing to reduce competition for soil moisture and mitigate reduced or inconsistent precipitation;
- Increasing tree species diversity to inhibit the spread of host-specific insects and diseases;
- Avoiding planting host tree species in known root disease pockets;
- Utilizing preventive techniques during operations to prevent the spread of invasive weeds and diseases; and
- Removing marketable timber in a timely manner to avoid defect-causing agents such as wood boring beetles and fungi.

WILDLIFE COMMENTS

Themes on wildlife include:

- *One commenter suggested that continuing threatened and endangered species surveys after the Incidental Take Permits are issued is unnecessary.*
- *Threatened and Endangered surveys should be ended once a Habitat Conservation Plan is adopted.*
- *Take avoidance strategies in the current Forest Management Plan should not continue after a Habitat Conservation Plan is adopted.*

Wildlife Response:

Upcoming operations will be surveyed for Threatened and Endangered species until such time as Incidental Take Permits are issued and implemented by ODF. Forest managers will evaluate and determine the transition plan for the Threatened and Endangered survey program based on anticipated timing of the Incidental Take Permits issuance and contract commitments. The strategy surrounding surveys and take avoidance strategies is found in Appendix A – District Harvest Modeling Analysis and refers to modeling. The model is run in periods of 5 years so this language was acknowledging that take avoidance strategies would need to be applied for the first couple of years on the ground. This language in Appendix A will be adjusted for clarity.

STREAMS COMMENTS

Comments around stream health, protection and enhancement include:

- *Encourage State Forests to protect drinking water coming from healthy watersheds.*

- *Consider fish habitat protection and enhancement along Gales Creek and its tributaries.*
- *Utilize one set of riparian/aquatic strategies at a time in these Implementation Plans.*
- *Encourage ODF to designate Tualatin tributaries such as Gales Creek as an Aquatic Anchor Watershed and Terrestrial Anchors.*
- *Thinning and other timber harvest operations should be avoided in Riparian Conservation Areas allowing more natural processes to run, devoid of human disturbance and providing habitats and buffers from landslide threats.*

Streams Response:

Stream Buffers: Strategies within the Forest Management Plans and the Habitat Conservation Plan are designed to maintain or restore properly functioning aquatic systems. Streams will be protected by applying no harvest Riparian Conservation Areas from the draft Habitat Conservation Plan. The only exceptions to this is within the designated Aquatic Anchors where no harvest zones will be extended out to 50 feet when regeneration harvesting on small perennial, debris flow-prone, and high-energy non-fish streams as outlined in the State Forest Division Species of Concern Policy; or when a small, non-fish stream is designated as Type D or within process protection zones, then the buffers for those reaches detailed within Oregon Forest Practices Act may be applied.

Stream Enhancement: State Forests has been committed to implementing stream enhancement work on ODF-managed lands for more than two decades as a partner in the Oregon Plan for Salmon and Watersheds and in partnership with Oregon Department of Fish and Wildlife, local partners, and adjacent land managers. Stream enhancement, fish passage, and Riparian Conservation Area standards are designed to collectively improve processes and function of aquatic ecosystems over time, and ultimately benefit resident and anadromous aquatic-dependent species. Over the last 25 years, ODF has implemented many types of projects including over 200 in-stream projects across State Forests (an average of 8 projects per year) and provided over 7,618 trees (an average of over 300 trees per year) resulting in over 47 million dollars of in-kind contributions. Since 2009, ODF has done several stream enhancement projects in partnership with Oregon Department of Fish and Wildlife, Oregon Watershed Enhancement Board, the Tualatin River Watershed Council and adjacent land managers along Gales Creek and its tributaries where coho salmon were present. This includes placing 294 logs within the streams and installing 2 stream crossings that allow for the passage of fish. ODF will continue to look for additional stream enhancement opportunities with local partners in the future.

Aquatic Anchors and Terrestrial Anchor Sites: Aquatic Anchors are 6th field watersheds that were identified as important to aquatic species by the Aquatic and Riparian Specialist for ODF and Aquatic Specialists for Oregon Department of Fish and Wildlife. The watersheds selected support populations of salmonid and aquatic amphibian species of concern; contain high quality aquatic habitat for salmonids and/or aquatic amphibians; and contain an adequate proportion of state forest ownership to provide a reasonable likelihood that state forests management strategies will have a meaningful influence on watershed condition. Terrestrial Anchor Site locations were chosen collaboratively by

biologists from ODF and Oregon Department of Fish and Wildlife using data on the presence of species of concern, the habitat needs of those species while considering the current stand conditions and the likelihood of achieving complex stand structure in a timely manner. The Tualatin tributaries did not meet the criteria mentioned or were a lower priority for location for both the Aquatic Anchors and Terrestrial Anchor Sites at the time the designations were determined.

CARBON/CLIMATE COMMENTS

Climate change and the appropriate role of state forests continues to be a topic of concern. Comments received in this theme include:

- *Encourage ODF to update draft Implementation Plan climate assessment under the physical elements to include information regarding the effects of climate change on forest lands.*
- *Several commenters noted that there is no mention of the approved Climate Change and Carbon Plan in the Draft Implementation Plan.*
- *Recommendation to include proposed actions to begin meeting the goals of the Climate Change and Carbon Plan to increase carbon storage and sequestration in the Tillamook State Forest.*
- *Consider applying a 21-inch tree harvest restriction to preserve the old growth and mature trees and to store and sequester carbon to help mitigate climate change.*
- *One commenter noted that thinning results in a substantial net loss of forest carbon storage, and a net increase in carbon emissions that can substantially exceed those of wildfire emissions.*
- *Recommendation to promote climate smart forestry practices (e.g., variable density thinning, afforestation, longer timber harvest rotations, limiting the diameter of harvested trees, etc.) all of which allow timber harvesting with minimal impacts on climate change.*
- *Recommend best way to store carbon long term is in living trees which sequester additional carbon as it grows.*

Carbon/Climate Response:

Climate change and carbon and overall forest management strategies are being actively addressed as part of the new Western Oregon State Forests Management Plan and associated Implementation Plans as per the Oregon Department of Forestry Climate Change and Carbon Plan. The Western Oregon State Forests Management Plan and Implementation Plans will be completed in 2024 and 2025 respectively.

While the current Forest Management Plans and these Revised Implementation Plans don't address carbon or climate change directly, the implementation of these plans will result in a variety of forest stand conditions that maintain healthy, multi-species, vigorously growing forests, which will contribute to resilient healthy forests into the future. This is consistent with strategies within the Climate Change and Carbon Plan. Legacy structures retained within harvest areas will continue to store carbon while the new seedlings regenerating around these structures will accumulate carbon. Areas of the forest that have a desired future condition of Layered or Older Forest Structure, riparian areas, no

harvest wildlife areas, forested areas that are inoperable, etc. provide carbon storage throughout large portions of the landscape.

Forest health strategies are addressed on a site-specific basis when the reforestation plan is developed for planting and other young stand management treatments. Site specific prescriptions consider target species, aspect, elevation, soil types, Swiss needle cast risk where applicable, *Phellinus weirii* (laminated root rot) presence, required stocking guidelines, natural advanced regeneration, the desired future condition of the stand and anticipated drier, hotter future conditions resulting from climate change. This will provide for a diverse, healthy, productive, and sustainable forest ecosystem over time that will be more resilient to change.

Old Growth: The Northwest and Southwest State Forests Management Plan defines Old Growth as “Typical characteristics of old growth include: a moderate to high canopy closure; a patchy, multilayered, multispecies canopy with trees of several age classes, but dominated by large overstory trees with a high incidence of large living trees, some with broken tops and other indications of old and decaying wood; numerous large, standing dead trees (snags); heavy accumulations of down woody debris; and the presence of species and functional processes that are representative of the potential natural community. In western Oregon, old-growth characteristics begin to appear in unmanaged forests at 175-250 years of age.”

Existing old growth trees are generally scattered individual trees or are occasionally small isolated patches. The Northwest and Southwest State Forests Management Plans specifically reserve these remnant trees from harvest.

RECREATION COMMENTS

Comments received around public engagement in recreation development include:

- *Two commenters recommend engaging local residents in the development of a new trailhead, trails, and/or trail system at the far north end of the Tillamook State Forest near Highway 53 when considering development of new recreation areas.*

Recreation Response:

The Oregon Department of Forestry is looking forward to engaging with local communities and trail use clubs and organizations during the development of recreation management plans and trail system plans for state forests in northwest Oregon. We will be reaching out to our partners and local communities as we begin to shape the process for development of these important plans. As stated in the draft Implementation Plan, the recreation management and trail system plans will define distribution of recreation and trail opportunities on state forest land. As we embark on this planning work in collaboration with our community partners, one of our goals will be to enhance trail system diversity, distribution, and connectivity and in the process create, where we can, recreation opportunities, particularly trail opportunities, close to home for many that live in the rural communities that surround state forests.

ROADS COMMENTS

Comments around public access and new road construction include:

- *One commenter asked why a State Forest road is closed to public after a new bridge paid by public was put in after Prouty creek culvert washed out in 2017.*
- *One commenter stated they have seen roads gated off and road quality decrease due to funding shortfalls cutting off access to 500 acres in Benton County.*
- *Another commenter suggested that stream crossings should be avoided and ODF must minimize the use and impacts of culverts, which can be detrimental to fish migration and habitat.*
- *Comment that road building has expanded on State Forests in the past 10 years and recommended that road-building on steep slopes above salmon-bearing streams must be avoided or risk violating the Endangered Species Act.*
- *New road building should be prohibited within the Riparian Conservation Areas and Habitat Conservation Areas.*

Roads Response:

State Forests are managed to support public access while providing for community safety, environmental benefits, protection of state and private assets, and wildfire prevention. Roads are evaluated for their public access benefits and costs during the annual operations planning process. Some roads are closed and vacated to reduce the maintenance costs and to minimize impacts to the environment. These areas remain open for walk-in use. The Department retains the option of gating roads if vandalism, neighbor concerns, or excessive road damage from public use becomes a problem in particular areas. The public may still access these areas on foot, bicycle or horseback.

In the case of the road closure for access to the Tillamook State Forest after a new bridge was installed on Prouty Creek, the road was temporarily closed until the bridge was replaced. This particular area of the Tillamook State Forest is accessed by traveling through privately owned lands. While the bridge was being replaced, the current private landowner decided to limit access through their property with a gate as is their right. ODF has access beyond the gate via an easement to allow for forest management and fire suppression. The easement does not allow for public access. The area behind the gate is still accessible to the public albeit through a different access point on the forest.

A well-maintained road system is necessary for a working forest and to provide the recreational access Oregonians increasingly demand. Road systems also provide access for fire response. All road construction, improvement, maintenance and vacating will follow best management practices in the State Forest Roads Manual and meet goals and objectives as outlined in the Habitat Conservation Plan. ODF evaluates each timber sale and strives to build the minimum number of roads required, except where ODF has identified road systems that can be moved away from existing streams to mitigate hydrological issues. This may result in more road miles, but relocating roads away from the stream network is beneficial for watershed processes. ODF tries to limit the number of stream crossings where possible when building new roads. Where stream crossings are unavoidable, new and replacement stream crossings will be designed to meet National Oceanic and Atmospheric Administration Fisheries (2022) passage criteria to maintain passage for covered fish species where applicable and follow best management practices

outlined in the State Forest Roads Manual. All planned road construction is reviewed by the Geotechnical specialist to ensure that new roads are located in stable locations to provide the best protection to natural resources while meeting the objective of the road. Discussions are held regarding the long-term use of the road by ODF Staff for reforestation and future management, and whether a road needs to be surfaced or if it can be left unsurfaced. Financial costs of the construction and long-term maintenance are considered as well as potential impact to sale operations, anticipated closures related to weather, and long-term impact to wildlife and recreation.

Roads in Riparian Conservation Areas/Habitat Conservation Areas: Minimal roads will be built within Habitat Conservation Areas as needed in conjunction with management activities to improve habitat. Roads will be located away from streams, wetlands, unstable areas, and sensitive resource sites. Road development within the Riparian Conservation Areas will only occur when other alternatives are not operationally/economically feasible.

MODELING COMMENTS

Concern around modeling outcomes used to inform the annual harvest objective include:

- *One commenter recommended reviewing data used in harvest model based on concerns from some field staff.*

Modeling Response:

District staff reviewed the modeling data and expressed concerns regarding the growth and yield outputs from the model. The modeled outcomes were then adjusted to address the District's concerns. The State Forest Division is currently working with a consultant from Mason, Bruce and Girard to see if the growth and yield data can be calibrated to more closely align with expected state forests outputs. This calibrated data will be used in future modeling efforts including the Western Oregon State Forests Management Plan implementing the Habitat Conservation Plan modeling to be presented to the Board of Forestry in September.

OUT OF SCOPE COMMENTS

Comments that were out of scope that related to the draft Habitat Conservation Plan, new Forest Management Plan, grants, legislation, and other topics:

- *Several commenters support ODF's commitment to Habitat Conservation Plan*
- *Keep current Habitat Conservation Plan process on track and don't redesign.*
- *Opposed to the Habitat Conservation Plan and the negative effects to rural Oregonians.*
- *Suggest removing the thinning acre limits in Habitat Conservation Areas in the draft Habitat Conservation Plan.*
- *Several comments recommending revisiting State Forests Habitat Conservation Plan to ensure conservation, production, sustainability, and supports rural Oregonians.*
- *BOF should set the minimum board foot harvest per year to provide clarity.*

- *Recommends adopting Private Forest Accord and rejecting proposed Habitat Conservation Plan that protects more than necessary to meet Endangered Species Act requirements and all water quality and environmental goals.*
- *Board of Forestry should direct ODF staff to prepare a revised Habitat Conservation Plan to get increase harvests levels to the levels proposed at the beginning of this process.*
- *Proposed Habitat Conservation Plan arbitrarily sets aside large areas of timber into non-production.*
- *Recommend ODF quickly redesign Habitat Conservation Plan that will ensure sustained harvests that are in line with the current 10-year average harvest volume of 250 million board feet.*
- *Habitat Conservation Plan was developed without proven environmental models that guarantee endangered species would actually be protected.*
- *Disagrees with large forest set asides to protect non-existent northern spotted owl sites on Clatsop County State Forests. The two current Northern Spotted Owl circles in Clatsop County State Forests have been vacant for years and could be scheduled to close soon.*
- *Noted that changing the flow of harvest volume, updating growth and yield tables, or increasing thinning harvests in the Habitat Conservation Areas won't be enough, only way to increase harvest is to reduce acres in the Habitat Conservation Areas and eliminate management restrictions on those lands to be managed outside of the Habitat Conservation Areas.*
- *One commenter noted that the draft Habitat Conservation Plan was drafted behind closed doors and is a high-cost initiative.*
- *Another commenter noted that there are more cost-effective measures the state could take to support sensitive wildlife.*
- *Other commenters recommended additional model runs showing shorter & longer rotations, new Private Forest Accord rules and scenarios around current sustainable harvest levels to inform the Board of Forestry around tradeoffs.*
- *The current draft Habitat Conservation Plan sets aside more acres than needed when considering the cumulative impacts globally by requiring the imports to replace sustainably produced Oregon products.*
- *Concern not enough is being done to protect the logging industry.*
- *People's livelihoods should come before an endangered species.*
- *Another suggested that federal government could financially support Oregon to prevent clearcutting the temperate rainforest that is the most efficient, self-sustaining weapon against climate change like it does other countries.*
- *ODF timber contributes to the marketplace that generates stable revenue for the counties and helps maintain the mill infrastructure and jobs are a key piece of the economic stability in small communities.*
- *Noted that the reduction in harvest as a result of the Habitat Conservation Plan is unreasonable compared to the level it was claimed to achieve with the draft Habitat Conservation Plan and what the draft Environmental Impact Statement projected.*
- *I oppose Senate Bill 803. I oppose House Bill 3158. I oppose Senate Bill 85. I wholly support Senate Bill 498 and Senate Bill 795.*

- *Request for grant to help steward 10 acres of private forest in Southwest Oregon.*
- *Oregon can't afford to shut down our state forests.*
- *Manage forests by clearing underbrush and allow sufficient timber harvest to house citizens and support counties.*
- *Taxpayers need proper forest management, proper road maintenance, proper harvested forests that actually proved more wildlife.*
- *Support State Forests protecting endangered species.*
- *One commenter noted that saving spotted owls and other species seems noble but questioned what animals survive forest fires.*
- *One commenter noted that Barred Owls are currently out-competing Spotted Owls. Large set-asides will not make the Spotted Owls more competitive and thus are not effective.*
- *One commenter noted not seeing proof of significant endangered species improvement on federal forests due large timber set-asides since 1999 so unlikely to see different results on State Forests.*
- *One commenter noted that Oregonians have the responsibility to sustainably manage all forest lands to meet goals of the global environment and not transfer our environmental responsibility to countries with far less strict policies.*
- *Some wilderness is fine but not too much.*
- *Consideration must be given to using our temperate rainforests to combat climate change Recommends deeding or selling State Forests to private enterprise.*
- *Environmental groups should not have more say than people who live in the area.*
- *ODF lands should be managed for maximum timber production while providing recreational opportunities and fish and wildlife habitat as it is currently.*
- *The Habitat Conservation Plan requirement that a minimum of 40% estimated spotted owl dispersal habitat will be maintained outside of Habitat Conservation Areas should be removed from draft Habitat Conservation Plan.*
- *Federal agencies have not required ODF to set aside more than half of the productive land base to achieve the conservation goals it desires.*
- *Forest workers are not prepared for the proposed diesel ban.*
- *Growing of inventory while maintaining the harvest level will add more habitat to sensitive species over time improving the outlook for all objectives the Habitat Conservation Plan will be addressing.*
- *Harvested lands provide good food sources for wildlife.*
- *One commenter noted complex forests provide a variety of trees, shrubs, soil microorganisms, pollinators, birds, and wildlife and are important for carbon sinks, erosion control, moisture release, drinking water, and providing cold water for endangered fish and wildlife.*
- *Several commenters noted that limiting harvest would lead to increase of wildfires.*
- *One commenter recommended that proper wildland fire protection is needed.*
- *One commenter noted that large set asides of timberland on Federal Forests in Oregon, Washington, and California now burn more proportionally each year, causing larger and immediate carbon gas releases and cost billions of dollars to fight forest fires over the years.*

- *Recommendation that State and Private forests should be managed and utilized to include carbon sequestering forest products.*
- *One commenter noted that State Forests should serve as a carbon sink as that is one of the greatest permanent values.*
- *One commenter proposed revising the current agreement and unhook dependence on timber harvests to supply their funding for schools and other services.*
- *Supports managing State Forests for greatest value including minimizing wildfire and other catastrophic events.*