



To: Nancy Hirsch, State Forests Division Chief

From: Doug Decker, State Forester 

Date: July 19, 2011

Subject: Approval of Forest Grove and Astoria Implementation Plans



"STEWARDSHIP IN FORESTRY"

Introduction & Context

This memo conveys direction related to implementation plans for approximately 250,000 acres of state-owned forest land in the Astoria and Forest Grove districts. In January 2010 the Oregon Board of Forestry established clear direction to the Department for the Clatsop and Tillamook State Forests to increase harvest revenue from these lands 5-15 percent over the next ten years. In addition, the Board approved 2010 forest management plan established a long-term goal of creating stands with complex forest structure across 30 to 50 percent of the landscape. Revision of these implementation plans, done according to the process defined in administrative rules, provides an opportunity to reflect this new direction in the context of these 10-year implementation plans.

There has been significant interest from the public, stakeholders and the counties in these 10-year implementation plans as evidenced by attendance at public meetings and public comment on the draft Implementation plans. The ODF staff Analysis and Response to Public Comments may be found at:

http://egov.oregon.gov/ODF/STATE_FORESTS/District_Implementation_Plans.shtml

Early drafts of the IPs benefited from involvement and comment from the State Forests Advisory Committee, which resulted in changes even prior to the official public comment period.

In addition to the interest in these IPs specifically, the Board of Forestry recently commissioned a review from the Institute for Natural Resources (INR) that provided suggestions and critique of the analytical basis used to evaluate various forest management plan strategies. INR also provided suggestions about improving Board of Forestry Performance Measures. The Board of Forestry and the agency are committed to continuous improvement and will continue work on state forest management policy adjustments and strengthening of resource management strategies.



Direction and Intent

Based on the Board's direction to the Department related to revenue and stand structure goals, and recognizing the ongoing work on policy elements, performance measures and responding to the INR report and public comments, I am providing the following approval and direction:

1. I approve these two implementation plans with a phased in approach that defers for up to two years some harvest activity. The intent of this direction is to retain flexibility towards future development of complex forests, while addressing Board direction to achieve a revenue increase. More specifically, flexibility is retained by deferring some of the 2012 harvest operations to provide an opportunity to reevaluate how they may contribute to the future landscape design, wildlife and aquatic habitats.
2. This approval of the Forest Grove and Astoria 2012 Implementation Plans is consistent with Oregon Administrative Rules 629-035-0030, 00600105¹.
3. These two IPs also represent each district's share of possible contribution towards achieving the Board of Forestry Performance Measures and are aligned with State Forests Division policy. The plans include a landscape design that represents 30% of the forests on a trajectory towards more complex forests structure (more than the current condition) over time and they are expected to achieve 20% complex forest structure in twenty years (with at least half of the increase occurring within the first ten years). Harvest level increase opportunities associated with these two plans will be phased in beginning with the 2012 Annual Operation Plan.

Phase-in approach retains flexibility

In order to retain flexibility to respond to potential policy changes and other information, harvest level increase opportunities under these two plans will be phased in. The phase in will capture about half of the harvest level increase opportunity, consistent with each district's 2011 Implementation Plans. The phase is reflected in an update to the harvest objectives guidance for the 2012 Annual Operation Plan (AOP) provided by the State Forests Division. This moderate increase, from the base (5-year average AOP objectives by district – 2002-2006) provides a clear step toward achieving the Board's target of a 5-15% revenue increase expected over the next decade. Other performance measures/targets for these forests will be maintained or improved.

The phase in approach on implementation will delay capturing approximately 4 million board feet of timber with an estimated gross value of \$1 million from the previously planned 2012 AOP. Given the current performance measure language there will still be time within the 10-year span of these

¹ OAR 629-035-0030 Forest Management Planning, OAR 629-035-0060 Changes to Forest Land Management Classifications, and OAR 629-035-0105 Adopted Forest Management Plan Documents

plans to capture these harvest opportunities (meet BOF’s target of 5 to 15% within 10 year span of these plans).

As part of our continuous improvement process, any policy adjustments by the Board or new information gained from on-going scientific analyses, research or monitoring will be incorporated at the appropriate planning level.

Context – Clatsop & Tillamook State Forests

Often, much of the public interest is focused on our Clatsop and Tillamook State Forests located in the north coast. To provide some context on sustainable harvests levels, the recent ten-year average (2002-2011 harvest objectives) for these forests combined was 183 million board feet (MMBF) per year. This number represents a total for the Astoria, Forest Grove and Tillamook Districts. Moving forward under the 2010 revised Forest Management Plan; we have only two districts that have completed updating their IPs. The 2011 approved Astoria and Forest Grove IPs combined with the current 2009 Tillamook IP (Not yet revised) represent a sustainable harvest level of 181 MMBF, just slightly under the ten-year average.

Specifics on what the 2012 phase in will mean for the Astoria and Forest Grove Districts harvest objectives follows:

<i>District</i>	<i>Baseline (02-06) MMBF</i>	<i>Approved IP harvest level MMBF</i>	<i>2012 Planned Harvest MMBF</i>
<i>Astoria</i>	65.7	73.0	69.7
<i>Forest Grove</i>	56.6	61.0	59

This change in harvest objectives will result in some planned harvest units (reflected in the final 2012 AOP) being removed, modified and/or deferred. More detail on this is provided in the 2012 AOP document – appendix C.

[http://egov.oregon.gov/ODF/STATE FORESTS/Annual Operations Plans.shtml](http://egov.oregon.gov/ODF/STATE_FORESTS/Annual_Operations_Plans.shtml)

Mid-term Work: Clarifying Performance Expectations and Considering different management approaches

Since Board adoption of the NW and SW Forest Management Plans in 2001, there has been on-going debate about this integrated “structure based management” approach to managing state forests in NW Oregon. In addition, current revenue projections indicate that expenditures to implement this plan will continue to outpace revenue.

While I believe the current management plan is a creative and innovative approach to achieving policy objectives on state forests, it has not, as yet, produced the desired level of understanding, acceptance and support among those interested in State Forests. In this context, I will be recommending the Board of Forestry consider a pathway in the mid-term that:

1. Accepts and affirms GPV administrative rule direction;
2. Embarks on a clarification and re-articulation of expected outcomes from these lands in the form of revised performance measures;
3. Considers alternative forest management approaches/strategies that are aligned with expected outcomes and that deliver on revised performance measures.
4. Pursues this work in a context of public involvement, consistent with the Board's values expressed in the *2011 Forestry Program for Oregon* and pertinent administrative rules.



Forest Grove District

Implementation Plan

July 2011

Executive Summary – 2011 Forest Grove District Implementation Plan

The 2011 Implementation Plan for the ODF Forest Grove District is the next step in translating the state's 2010 update of the NW Oregon Forest Management Plan into management goals and objectives that will guide forest management on the district over the next decade.

The goal of the NW Oregon Forest Management Plan is to provide balanced management of 636,000 acres of State Forest land that are located in northwest Oregon consistent with statutory direction to secure "greatest permanent value" on these lands. This state land ownership includes about 500,000 acres located in the Forest Grove, Tillamook and Astoria Districts, (primarily the Clatsop and Tillamook State Forests) with the remainder of these lands located in the Santiam State Forest east of Salem and scattered state forest ownership in the coast range near Corvallis and Eugene. The 2010 NW Forest Management Plan is an integrated approach to forest management that strives to actively manage the forest, integrate often competing forest values and seek compatibility among values over time and across the landscape. This 10-year Implementation Plan for the Forest Grove District is a customized operational plan to meet the needs and situation of the District.

The Forest Grove District includes approximately 115,000 acres in eastern Tillamook, western Washington and Columbia Counties. These lands make up roughly the eastern one-third of the Tillamook State Forest. Most lands were acquired in the 1940s and 1950s when the counties deeded over tax-foreclosed lands to the state in exchange for a portion of future revenues. The northern one-third of the district has a history of extensive railroad logging and wildfire in the 1930s and the forest was naturally regenerated by Douglas-fir and other tree species over time. The southern two-thirds of the District are within the footprint of the "Tillamook Burn", a series of four catastrophic wildfires starting in 1933 through 1951. Following the fires, many acres were salvaged logged, greatly reducing snag concentrations. Major reforestation projects were initiated in the 1950s, 1960s and early 1970s. As a result of these massive tree planting efforts in a short time frame, a large portion of forest stands within the District are in the 50 to 70 year age-range, and consist primarily of one species: Douglas-fir.

This plan is a 10-year look to the future. It is designed to move the forest from its current condition towards its 'desired future condition'. The future condition described in the Plan includes a diversity of forest structures, which provide for a broad array of habitat for native fish and wildlife, diverse outdoor recreation opportunities, and a sustainable predictable flow of timber and revenue in support of counties, local government and to allow reinvestment in the forest.

State Forests in the Forest Grove District are a product of both natural and man-caused disturbance – whether from historic logging, tree mortality from insect or disease outbreak, destructive wind storms that frequent the north Pacific coast and changing geology. Nature changes the shape of the forest, which is why ODF relies on adaptive management. Adaptive management is a system of making, implementing and evaluating decisions recognizing that forest ecosystems, and the social values of Oregonians, are always changing. In adaptive management, ODF learns from management actions and decisions, research and monitoring (science) and accommodates change at the appropriate planning level. This 10-year plan will likely evolve between now and 2021 based on this principle.

Executive Summary – 2011 Forest Grove District Implementation Plan

New Information Requires Plan Revision

The Oregon Board of Forestry in 2010 approved changes to the 2001 NW Oregon Forest Management Plan and revised performance measure targets for the Clatsop and Tillamook State Forests. The 2010 Forest Management Plan changes are related to the amount of complex structure (layered and older forest structure) that will exist on the landscape, addresses how compliance with the Endangered Species Act will be achieved and expands strategies for species of concern. The Board's long term goal for "complex" forest structure shifts from 40 to 60 percent to 30 to 50 percent. The Board decided to not pursue a Habitat Conservation Plan (HCP) for these forests at this time, and will continue to implement a take-avoidance policy consistent with implementation over the past decade. Due to this change, the Board included a Species of Concern Plan. These changes resulted from new information and data modeling that projected lower than expected sustainable harvest levels from the 2001 NW Forest Management Plan. In addition, the Draft HCP developed in the late 1990s was no longer relevant to specific locations or numbers of threatened species such as the Northern Spotted Owl.

The Board's performance measures include targets for the Clatsop and Tillamook State Forests to increase revenues by 5 to 15 percent in the next ten years and increase the percentage of the landscape in complex structure to at least 17 to 20 percent of the forest over the next 20 years (*see the "Introduction" section of full Implementation Plan*). Targets for the remaining performance measures that address other social, environmental and economic benefits are to "maintain or increase" consistent with other performance measure targets. The result of the forest management plan changes and the expected outcomes expressed by the Board result in further contributions to local economies and support of local public services through timber harvests and revenue, while also retaining most of the existing "bank" of stands that have become complex forest structure while developing more over time.

Since Board of Forestry adoption of the 2010 Forest Management Plan, ODF staff used data modeling and field expertise to determine how to best achieve this policy direction at the Implementation Plan level. These analyses suggest that the revenue increases could be met across the Tillamook and Clatsop State Forests when the long term goal for complex structure was established at **30 percent** for the Forest Grove District. Establishing a 30 percent goal was necessary to meet the performance measure targets established by the Board and is consistent with the approved Forest Management Plan.

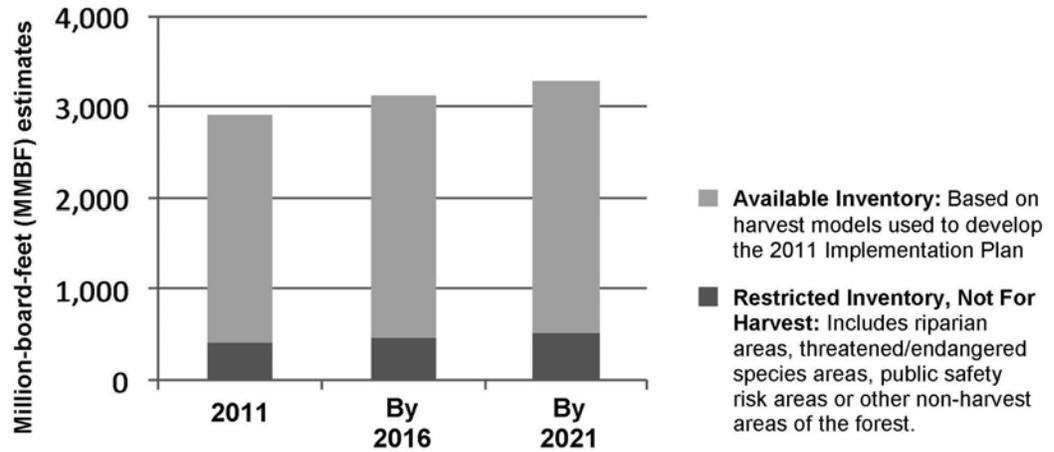
The Implementation Plan – where are we now, where will we be in 2021

The purpose of the Implementation Plan is to explain how the management strategies of the Oregon Department of Forestry will create the condition of the forest and the output levels that are desired by 2021. Such a vision was achieved by following a careful, thoughtful, collaborative and analytical process to use the insight of ODF field and staff specialists, consultation with counties and involvement from state partners (for example ODF&W), effective science and data modeling, and public input from the State Forests Advisory Committee, a group that provides advice on implementing state forest plans. Formal public review of the Draft 2011 Implementation Plan is also scheduled.

The Plan identifies the forest resources, geologic factors in the forest, watershed and wildlife data, scenic and recreation assets of the Tillamook and Clatsop State Forests. Each forest is managed for a mix of environmental, economic and social benefits in alignment with the 2010 NW Forest Management Plan, Board of Forestry Performance Measures and other legal requirements.

Executive Summary – 2011 Forest Grove District Implementation Plan

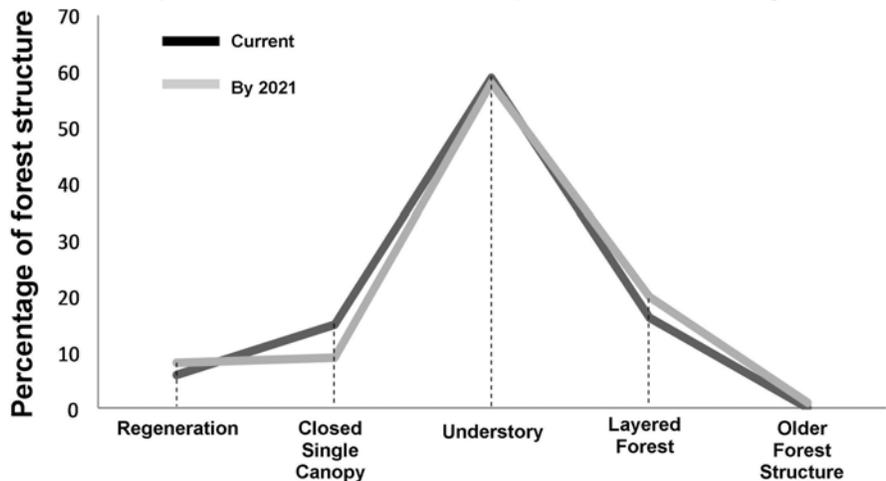
Anticipated Timber Inventory and Harvest Levels: Forest Grove District



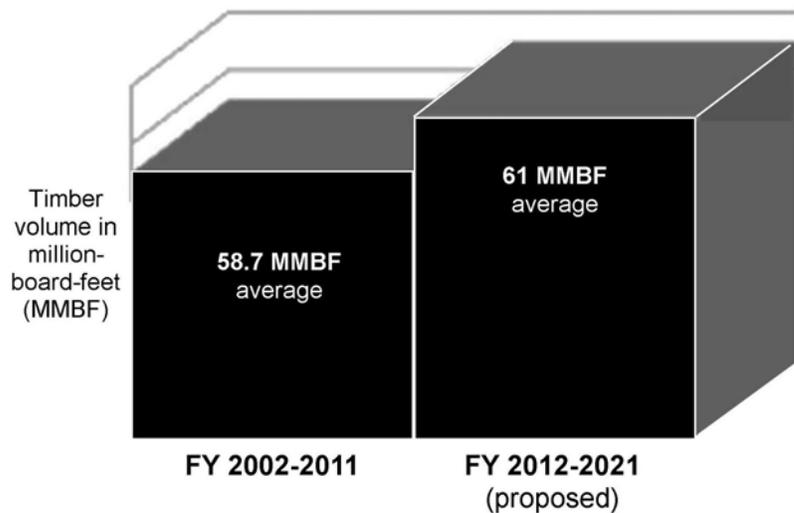
The Implementation Plan also acknowledges the important role the forest plays in recreation. ODF will continue to explore opportunities to sustain and increase enjoyment of the Tillamook State Forest by hikers, bicyclists, Off-Highway Vehicle fans, hunters, fishermen and others.

ODF also sees the value of trying new approaches to provide stewardship of recreation resources. During a difficult economic climate, the Department will continue to partner with Oregon Parks and Recreation and private contributors to maintain and improve public access to the forest. ODF will also continue to encourage volunteer services to help with keeping the forest safe and accessible to the public. During 2009, almost 16,000 hours of service were contributed by volunteers in both the Clatsop and Tillamook State Forests.

What a complex forest structure looks like - Forest Grove District Anticipated Stand Structure Development, Current and by 2021



ODF Forest Grove District Planned Annual Average Harvest Objectives



When examining the timber inventory, forest growth and projected harvest level there a clear observation that emerges – **this is a sustainable harvest level which obtains revenue benefits but allows for continued growth and harvest of the forest for future generations.**

Executive Summary – 2011 Forest Grove District Implementation Plan

How this plan matters to Oregonians

Conservation values are enhanced while still meeting economic needs

By establishing a twenty-year deadline for achieving certain levels of complex structure (spatially designated on the landscape), the net effect is to move more quickly toward the goal of having a “mosiac” of stand structure types across the landscape while also providing certainty. In addition, the ODF operation policies to protect federally-listed species and the Species of Concern strategies provide focused management in certain areas to ensure protection of threatened and sensitive fish and wildlife species. Inherent in the 2001 Forest Management Plan, and continued in the 2010 Forest Management Plan, are a suite of protection and restoration measures for fish and wildlife. These include retaining at least 5 live trees and 2 snags per acre following harvest, and ensuring an adequate amount of downed logs are retained for soil building and providing habitat to a host of smaller insect and wildlife species. Stream protection standards in these plans require “buffering” of streams systems and include strategies to minimize sediment reaching a stream.

Timber harvest maintains revenue to local governments

About two-thirds of the revenues from state forest timber sales goes to fund services at the county and local taxing district level, including schools. Over the last 10 years the revenues from state forest timber sales provided to Columbia, Tillamook and Washington counties were more than \$ 153 million dollars. Based on proposed timber harvest levels in this Implementation Plan, county revenues are likely to be similar over the next 10-year period, subject to timber market prices. There are also local jobs provided by logging and transportation of timber to mills – while data is not available individually for Columbia, Tillamook and Washington counties, about 57,000 jobs across Oregon are in the forest industry. The remaining one-third of the revenue is used by ODF to reinvest in the forest for activities like tree planting, research and monitoring, silvicultural activities, road maintenance, recreation support, stream improvement and a host of other activities that contribute to a healthy, productive and sustainable forest.

The timber harvest is on a sustainable path

One of ODF’s goals is to provide a predictable and sustainable supply of timber and revenue for the state, counties and local taxing districts. In the 2011 Plan, annual harvest levels are sustainable: harvest is less than the annual amount the forest is growing. Harvest levels are carefully set to allow for a stable flow of forest products over time, increasing the predictability of revenue to counties, and provide stable reinvestment in the forest.

This 10-year Implementation Plan for the Forest Grove District represents an adaptive approach that is based on the best knowledge, experience and information that we have at this time, but acknowledges that there will likely be changes and adjustments that need to be made. In this context, ODF has adaptive processes and procedures in place to allow for change over time.

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Introduction

The *Forest Grove District Implementation Plan* (IP) guides forest management for all forest resources on the Forest Grove District beginning July 1, 2011. This implementation plan is a major revision of the plan approved by the State Forester in June 2009. It describes the 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).

In 2007 the Board of Forestry (BOF) adopted nine Performance Measures (PM's) to gauge the success of implementing the FMP. The performance measures encompass the economic, environmental and social outcomes to be provided under greatest permanent value (GPV) over the next 20 years. The performance measure targets were also used in the development of this IP. Two of the performance measures that warrant more specific introduction are Nos. 3 and 6.

Performance Measure No. 3: Directs an increase in the annual revenues (five-year average)¹, adjusted for inflation, produced by BOF lands to 5 to 15 percent within the next ten years, and to meet or exceed that level for the subsequent ten years. This target was built upon the assumption that timber harvest volume may be used as a surrogate for revenues.

Timber harvest objectives to achieve PM No. 3 are derived from harvest modeling, which is intended to produce the highest level of non-declining, even flow of timber, while simultaneously achieving the target for PM No. 6 and the longer term structure goals defined in the FMP.

Performance Measure No. 6: Directs increasing the percent of the landscape in complex structure (Layered and Older Forest Structure) to at least 17 to 20 percent over the next two decades, with at least half of the increase to occur within the first ten years. Increase and maintain levels of the other forest types needed to achieve this target. Within the portion of the landscape providing complex structure, it is to be developed and maintained in complex structure in those areas where it is anticipated to result in the greatest benefits to both aquatic and terrestrial Species of Concern.

This IP includes a new landscape design that designates 30 percent of the district for the development of complex structure over time. The 30 percent target was selected to achieve both the PM No. 3 revenue target and the complex structure range in the FMP. This change in the proportion of complex structure development is coupled with additional policy direction from the Board of Forestry regarding Species of Concern as described in PM No. 6 above. As a consequence of these changes, some existing layered stands are not in areas of the landscape design designated for complex structures. As a result, these layered stands are available for harvest to achieve the increase in annual revenues described in PM No. 3.

¹ The baseline is the 5-year average annual revenues from 2002-2006 on the Tillamook and Clatsop State Forests.

Approximately 16% of the district is currently classified as complex stand structures. At the end of this IP period, the district will have 21% complex stand structures. (See Table 12) Understory stands that have been partial cut in the past will be moving into the layered stand structure during this IP period. Thus, even though some layered stands located outside of the 30% landscape design for complex structures will be harvested, more layered stands will be coming on line due to past management practices and the amount of layered stands on the district will increase during this IP period. There is currently a total of 2,963 MMBF of standing wood volume on the district. At the end of this IP period, there will be a total of 3,598 MMBF. (See Figure 4 for more details) This illustrates that while the district is increasing the annual harvest volume with this IP, the volume being harvested is still less than the total amount of volume per year being grown on the district.

In summary, this landscape design has a twofold aim:

1. Provide better economic performance.
2. Retain benefits to wildlife through more precisely targeted development of complex structure.

A more comprehensive section on aquatic habitat restoration now exists in this IP. The NW Forest Management Plan (NW FMP) establishes an Aquatic and Riparian Strategy for habitat restoration projects on State Forests (FMP 2010). State Forest's commitment to habitat restoration is further supported in the Species of Concern Policy (ODF 2010) which lists habitat restoration projects as an aquatic strategy. The Aquatic Resources: Habitat Restoration section of this IP provides the context and approach that State Forests will use for habitat restoration activities.

In addition, the management activities conducted under this plan will be consistent with the following State Forests Operational Policies and strategies:

1. Species of Concern Strategies;
2. Northern spotted owls;
3. Marbled murrelet;
4. Swiss Needle Cast Strategic Plan;
5. Salmon Anchor Habitat Strategies; and
6. Forest Roads Manual.

The specific operations and management activities necessary to carry out this IP will be described in annual plans, beginning with the *FY 2012 Forest Grove Annual Operations Plan (AOP)*.

District Overview

Land Ownership

The Forest Grove District has 115, 010 acres, and makes up roughly the eastern one-third of the Tillamook State Forest. See the district overview map in the **Map Section**. Most of the acres are in Tillamook and Washington counties, but there are also a significant number of acres in Clatsop, Columbia, and Yamhill counties. The acreage breakdown by county is shown in Table 1 below.

Within the district, 114,386 acres are Board of Forestry (BOF) lands, 607 acres are Common School lands (CSL), and 17 acres are administrative sites.

Forest lands adjacent to the northern, eastern, and southern boundaries of the district are mostly privately owned industrial forest lands and interspersed with scattered tracts of Bureau of Land Management and privately owned non-industrial forest lands.

Table 1. Forest Grove District Acres, by County and Fund

County	Board of Forestry	Common School	Administrative Sites	Total Acres
Tillamook	54,144	197	0	54,341
Washington	45,319	257	5	45,581
Clatsop	8,595	0	0	8,595
Columbia	6,303	77	12	6,392
Yamhill	25	76	0	101
Total Acres	114,386	607	17	115, 010

Forest Land Management Classification System

Below are tables summarizing the Forest Grove District Forest Land Management Classification System (FLMCS). The FLMCS has been implemented in accordance with OAR 629-350-005-, an administrative rule on state forest management adopted by the Board of Forestry in 1998. The district's initial draft of the land classification was completed in 2003 and subject to public review. This revision of the Forest Grove District IP also includes 2011 updates to the FLMCS for the district. The following classifications have been updated: Aquatic and Riparian Habitat, Research and Monitoring, and Wildlife Habitat.

The FLMCS is a method of describing the management emphasis of parcels of state forest land. 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.

The framework of the FLMCS places all state forest land within one of three land management classifications. The classifications are: (1) General Stewardship, (2) Focused Stewardship, and (3) Special Stewardship. Subclasses are assigned for the specific forest resources that require a Focused Stewardship or Special Stewardship Classification.

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, it is necessary to carry out supplemental planning, modified management practices, or compliance with legal or contractual requirements above those required on lands classified as General Stewardship.

One or more of the following characteristics exist on lands classified as Special Stewardship:

1. A legal or contractual constraint dominates the management of the lands and precludes the integrated management of all resources
2. One or more forest resources are present which require a level of protection that precludes the integrated management of all forest resources

This revision of the IP also includes a concurrent revision of the FLMCS on the Forest Grove District.

The FLMCS includes some overlapping classifications, defined as areas where two or more classifications occur on the same parcel of land. Overlap may occur within classifications or between classifications. Also, overlapping classifications cause the double counting of acres. As a result, if the acres shown in the tables below were totaled, the total would be greater than the actual number of acres in the district.

Table 2. Forest Grove District Acres, by Stewardship Class and Fund

Classification	Board of Forestry	Common School	Administrative Sites	Total Acres
Special	20,785	69	16	20,870
Focused	122,828	646	1	123,475
General	30,989	141	0	31,130

Table 3. Forest Grove District Acres, Focused and Special Stewardship Subclasses

	Acres Focused	Acres Special
Administrative Sites	0	83
Aquatic and Riparian Habitat	41,684	9,207
Cultural Resources	55	17
Deeds	0	0
Domestic Water Use	10,547	0
Easements	0	3
Energy and Minerals	0	70
Operationally Limited	0	10,382
Plants	0	499
Recreation	19,141	140
Research/Monitoring	396	203
Transmission	0	255
Visual	9,771	0
Wildlife Habitat	41,880	13

History

In the northern one-third of the district, natural regeneration grew back on a large, contiguous area of the forest after extensive railroad logging and forest fires during the 1930s. These stands developed into a dense coniferous forest consisting of Douglas-fir, true fir, western hemlock, and western redcedar, with Douglas-fir being the predominant species. Several thousand acres of these stands were commercially thinned in the late 1970s and early 1980s. About five percent of the area was poorly stocked, and during this same time period, that portion was clearcut and replanted with Douglas-fir and other conifers, which resulted in well-stocked stands.

The stands in the southern two-thirds of the district lie within the Tillamook Burn, and were created through major reforestation projects in the 1950s, 1960s, and early 1970s, which resulted in densely stocked stands of Douglas-fir. The Tillamook Burn was a series of catastrophic fires in 1933, 1939, and 1945. Before these fires, private timber companies owned most of these lands. Much of the area was accessed with railroad grades used for transporting logs during the pre-Tillamook Burn timber harvest operations. After the 1933 fire, most of these land holdings reverted back to county ownership for delinquent property tax payments. In the 1940s and 1950s, the counties deeded these lands to the state to reforest and manage. Many acres in the Burn were salvage logged, greatly reducing snag

concentrations. During the salvage logging, many miles of old railroad grades were converted into truck access roads.

In the 1960s, 1970s, and early 1980s, clearcut harvests occurred in some of the under-productive stands and mature stands not impacted by the fires, resulting in well-stocked Douglas-fir plantations. Beginning in 1983, small-scale commercial thinning operations began on some of the stands planted after the Tillamook Burn. From 1983 through 1991, commercial thinning operations averaged less than 100 acres per year. From 1992 to the present, the amount of commercial thinning over the entire district has gradually increased to approximately 2,300 acres per year.

From the mid-1970s to the present, most planted stands in the district have had a high survival rate and have been precommercially thinned to reduce stand density. About thirty percent of all stands have been fertilized at least one time.

Physical Elements

Geology and Soils

The Forest Grove District is located in the northern Oregon Coast Range. The rocks in this part of the Coast Range were generally formed by volcanic eruptions associated with the creation of an offshore volcanic island chain and by deposition of sediments in the surrounding shallow seas. These rocks have since been accreted to the continent, uplifted, and eroded to form the rugged topography of the current-day Coast Range. The predominate rock types on the district are diabase sills and dikes (intrusive igneous rocks), basalt flows and breccias and tuffs of the Tillamook Volcanics (extrusive igneous rocks), and marine mudstones and siltstones and sandstones (sedimentary rocks). The rocks are mostly Eocene in age and were formed 35 to 55 million years ago. They have experienced significant amounts of folding and faulting since then due to tectonic activity.

The rugged topography and wet climate combined with the forces of ongoing tectonic uplift and stream down-cutting make the Coast Range inherently prone to landslides. The Coast Range experiences many types of landslides, but in general two types worth noting:

1. Shallow landslides
 - typically less than 10 feet deep and often much less than one acre in size
 - primarily occur on steep slopes (greater than 60%) with shallow soils
 - movement is usually rapid (feet per second)
 - often form debris flows that can increase orders of magnitude in volume and travel long distances (1000's of feet), especially when they enter steep, confined channels
 - generally hard to predict at a site-specific level, so landforms and steep slopes prone to these failures are identified and treated instead
2. Deep-seated landslides
 - typically at least 10 feet deep and up to 100's of acres in size
 - primarily occur on gentle to moderate slopes, often with deep soils

- movement is usually slow (inches a day) and intermittent with years going by in between episodes of movement
- many are ancient features that have not experienced movement for hundreds or thousands of years and are relatively stable
- debris flows can occur on the margins of these landslides, especially where there are critical slope breaks with steeper topography and/or confined channels below
- are often identifiable on soil, geologic, and topographic maps and movement is often a reactivation of a pre-existing landslide feature, however movement may still be hard to predict at a site-specific level

Deep-seated landslides are common on those portions of the Forest Grove District dominated by weak marine sedimentary rocks prone to such landslides. Shallow landslides are common on those portions of the district dominated by steep slopes. The risk associated with active management in a landslide prone landscape is mitigated using the processes described in the Aquatic and Riparian Strategy 6 in the FMP.

The dominant soil associations within the Forest Grove District include Grindstone, Jewell, and Pinochle (ODF, 1978). The majority of these are colluvial soils, medium to moderately-fine textured, moderately deep to deep, and well-drained. On average, site index ranges between about 100 to 130 (high Site II). Some of the higher elevation soils have a high rock content and exhibit poorer productivity.

Topography

The majority of the district lies in rolling uplands along the crest of the Coast Range. Elevation ranges from 450 feet along Gales Creek to over 3,400 feet on Saddle Mountain. Approximately 7% of the district is below 1000 feet, 63% lies between 1000 and 2000 feet, 29% lies between 2000 and 3000 feet, and 1% is above 3000 feet. The district is dominated by gentle to moderate slopes with steep slopes generally associated with incised stream channels. Steep slopes are more widespread in a few areas including the Salmonberry River watershed and the Wilson River watershed north of Highway 6. Approximately 49% of the district has slopes less than 30 percent, 34% has slopes between 30 and 60 percent, and 17% has slopes over 60 percent.

Water

The district's distinguishing geographic feature is its location in relation to the Coast Range divide. About one-half of the district land base drains to the Pacific Ocean and the other half flows to the Willamette River. Five rivers originate within the Forest Grove District. These include the Nehalem River, Salmonberry River, Wilson River, Tualatin River, and the North Fork Trask River. In addition, nine important tributaries feed into these rivers from within the district: Wolf Creek, North Fork Wolf Creek, Lousignont Creek, North Fork Salmonberry, Gales Creek, Devils Lake Fork, South Fork Wilson, Scoggins Creek, and the North Fork of the North Fork Trask River.

Barney Reservoir lies at the district's southern end and is mostly surrounded by state forest land. Covering approximately 450 acres and with a capacity of 20,000 acre-feet, this reservoir supplies water to much of Washington County.

Climate

Mild winters and summers are typical. Although the higher elevations receive snow each year, there is not always enough to build a snowpack. Rainfall averages from 50 inches per year on the district's eastern edge to 150 inches per year on the western edge near the Coast Range divide. Most precipitation results from low-pressure systems flowing in from the Pacific Ocean. During summers, the prevailing jet stream shifts to the north resulting in high-pressure systems that bring fair, dry weather for extended periods.

Douglas-fir is well suited to almost all portions of the district and makes up approximately 95 percent of the forest cover types; the higher elevations are ideal for growing noble fir. Other tree species that do well in this climate include western hemlock, western redcedar, and red alder.

Natural Disturbances

Natural disturbances such as wildfire, windstorms, floods, landslides, and insect and disease outbreaks have influenced and will continue to influence the forest condition. These disturbances often result in increased forest diversity and complexity. Laminated root rot disease (*Phellinus weirii*) and windstorms are the most common of these disturbances in the Forest Grove District. Forest management will reduce the impact of epidemic natural disturbances, but endemic levels will continue to result in increased forest diversity and complexity.

Biological Elements

Vegetation

All of the Forest Grove District lies within the western hemlock zone (*Tsuga heterophylla*), as classified by the U.S. Forest Service technical report, *Natural Vegetation of Oregon and Washington* (Franklin and Dyrness 1973). Typically, the forest is comprised of heavily stocked stands of Douglas-fir mixed with minor amounts of western hemlock, western redcedar, true fir, and hardwoods. Generally, stands in the northern one-third of the district have a larger percentage of these other tree species than the stands in the southern two-thirds of the district, where the stands are nearly 100 percent Douglas-fir. Stands in the district's northern third are primarily 60 to 70 years old, and the stands in the southern two-thirds are primarily 40 to 50 years old. The most common shrubs and herbs include vine maple, hazel, ocean spray, cascara, huckleberry, salmonberry, salal, sword fern, trillium, and oxalis.

Currently there are seventeen exotic plant species known to exist on the district that are classified by the Oregon Department of Agriculture as "noxious weeds". They are Canada thistle, Scotch broom, Himalayan blackberry, Tansy ragwort, False Brome, Poison-hemlock, common teasel, Herb Robert, English ivy, English holy, Reed canary grass, Evergreen blackberry, Traveler's joy, Curly dock, Common St. Johnswort, Garlic mustard, and Japanese knotweed. Except for Japanese knotweed, these non-native plants are found

scattered in various densities throughout the district. Japanese knotweed is found in one small area in the district. Management and control of invasive species is described under **Proposed Management Activities**.

Forest Health

Laminated root disease (*Phellinus weirii*) is a serious concern throughout the district. It is unknown exactly how widespread the disease is. However, surveys have detected it in every basin, with some basins believed to be fifteen percent infected. The disease spreads by root contact with an infected host and is devastating to younger stands of Douglas-fir. Also, this disease may adversely impact true firs and western hemlock. If left untreated the disease will spread at an estimated rate of one to two feet per year, creating openings in the forest which initially will be occupied by brush species and trees that seed in naturally. Eventually, these young trees will be infected and the disease cycle will continue.

Two possible management strategies in stands with significant presence of laminated root disease are regeneration harvest or thin with patch cuts in the disease pockets. In both cases the resulting open spaces may be planted with tree species that are either disease-resistant or immune. In a predominately Douglas-fir forest these strategies will contribute to species and age diversity.

These silvicultural decisions are based largely on the extent and magnitude of the disease within a given stand. It is generally not recommended that Douglas-fir stands be commercially thinned if the disease is present in more than 40 percent of the stand. In these highly infected stands, the best option is often regeneration harvesting and reforestation with immune tree species, or stump removal and replanting with Douglas-fir. While stump removal is expensive it is a very effective way to remove the inoculum from the soil. Where the disease is present in 10 to 40 percent of the stand, thinning with patch cutting of disease pockets may be feasible. In stands with minor amounts of laminated root disease, the disease is often ignored. These management strategies contribute approximately 100 acres per year toward the district's annual regeneration harvest objective.

Additional information regarding this disease may be found in the publication titled *Laminated Root Rot in Western North America* (Thies and Sturrock, 1995).

Currently, Swiss needle cast does not occur in significant amounts within the Forest Grove District. No management constraints are anticipated as a result of Swiss needle cast.

Fish and Wildlife

The Forest Grove District is comprised of a variety of habitat types that support many species of mammals, birds, amphibians, reptiles, and fish. Wildlife strategy species identified by ODFW in the Oregon Conservation Strategy (ODFW 2006) that are known or likely to occur on the Forest Grove district include the coastal tailed frog, Columbia torrent salamander, clouded salamander, western toad, bald eagle, peregrine falcon, spotted owl, band-tailed pigeon, olive-sided flycatcher, little willow flycatcher, red tree vole, California myotis, fringed myotis, long-legged myotis, hoary bat, silver-haired bat, and Townsend's big-eared bat. ODFW Conservation Strategy fish species that are likely or known to occur on the Forest Grove district include Lower Columbia Fall Chinook, Coastal and Lower

Columbia Chum, Coastal and Willamette Cutthroat, Coastal and Lower Columbia Coho, Western Brook and Pacific Lamprey, Coastal Winter Steelhead, Lower Columbia Winter Steelhead, and Willamette Winter Steelhead. Coastal Spring and Fall Chinook, while not ODFW strategy species, are considered ODF species of concern. The integrated forest management strategies, as well as the aquatic and riparian strategies, of the *Northwest Oregon State Forests Management Plan*, will contribute to diverse habitats that are likely to accommodate most native fish and wildlife species and contribute to the maintenance and restoration of biodiversity.

Of the many wildlife species potentially found on the Forest Grove District, three are listed as threatened or endangered under either (or both) federal and state Endangered Species Acts: the northern spotted owl, marbled murrelet, and bald eagle. The presence of two of these species (northern spotted owl and bald eagle) has been confirmed on the Forest Grove District. The protection measures for the northern spotted owl are described in the *State Forest Program Operation Policies for: Northern Spotted Owls (2008)*, and the *Agreement for the Conservation of Northern Spotted Owls (2001)* (between ODF and the U.S. Fish and Wildlife Service, expires in September 2011). The *Agreement for the Conservation of Northern Spotted Owls* will expire on September 5, 2011. Protection for bald eagles will be accomplished by developing management plans for nesting territories in cooperation with ODF resource specialists, the Oregon Department of Fish and Wildlife, and adjacent landowners. Management plans will also be developed for bald eagle winter roost sites or staging areas, if any are discovered on state lands. The Forest Grove District has conducted a northern spotted owl survey program since 1990. Currently, there is one known spotted owl sites on the district. This site is classified as “pair status”. Wintering bald eagles have been observed within Forest Grove District, but there are currently no known nest sites. Marbled murrelet surveys have been conducted on the district since 1993, and the presence of murrelets has never been detected.

Species of Concern Strategies, adopted in 2010, specifically identify fish and wildlife species of concern on the Tillamook State Forest. Species of concern include those on federal or state ESA lists, state sensitive species, and strategy species for the Coast Range ecoregion (Oregon Conservation Strategy). Strategies to address these species are identified in policy. These strategies include:

- Identification of Terrestrial Anchor (TA) Sites which are areas intended 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.
- Identification of Aquatic Anchor (AA) sites which are watersheds where salmon and aquatic amphibian conservation is of concern. This specific strategy will take effect after the Salmon Anchor Watershed strategy expires in 2013. Riparian management strategies beyond those described in the FMP will be applied within AAs.

- Site-specific Strategies apply for a subset of Species of Concern. Where known sites exist, plans will be developed to address protection of habitat and/or prevention of disturbance. For spotted owls, following the expiration of the Agreement for the Conservation of Spotted Owls, 250 acre core areas will be identified for known pair sites.
- Additional strategies exist for stream restoration projects and creation of snags in some regeneration harvest areas to benefit two SOC that require snags in openings for nesting.

The streams, rivers, lakes, and other water bodies on the Forest Grove District provide habitat for a variety of fish species. There are approximately 194 miles of fish bearing streams on ODF ownership within the district. The Oregon Department of Fish and Wildlife (ODFW) completed stream habitat surveys in the Nehalem, Wilson, and Trask River basins between 1994 and 1996. Fish presence surveys were completed in conjunction with the aquatic habitat surveys. Native salmonid species that have been confirmed on the Forest Grove District include chinook salmon, coho salmon, steelhead trout, and coastal cutthroat trout. The North Fork Salmonberry River contains an important native steelhead run. In addition, the Devil's Lake Fork of the Wilson River, the North Fork of the Trask River, and many tributaries of the upper Nehalem River are important coho streams. Lower Columbia Fall Chinook, Lower Columbia Chum, Coastal and Lower Columbia Coho, and Willamette Winter Steelhead are listed as federally threatened. Protection measures for fish habitat are described in the Aquatic and riparian strategies in the *NW State Forests Management Plan (2010)* and *State Forests Species of Concern Operational Policy (2010)*. Aquatic Anchors (AA) are designated in the Upper Rock Creek, Lousignont Creek/Upper Nehalem River, South Fork Salmonberry, Devils Lake Fork Wilson River, Elkhorn Creek and Ben Smith Creek basins. Strategies within the AA's are to lower short term risk to salmonids while landscape strategies foster the development of properly functioning aquatic systems and suitable habitat forest-wide. The Salmon Anchor Habitat Strategies will remain in effect through the FY 2013 AOP. After that the Aquatic Anchor strategies will take effect. The SAH's and AA's locations are exactly the same. To simplify things, the SAH's and AA's will be referred to as AA's for the remainder of this document.

Watershed

Watershed Condition

Three watershed analyses have been conducted on the Forest Grove District: The Upper Nehalem, Trask, and Wilson Watershed Analyses. These watershed analyses cover 70,300 acres on Forest Grove District, or roughly 61% of the district.

Portions of these watersheds have relatively gentle topography. This lends itself to low gradient streams with abundant pools, which are favored by coho. These portions of the district have a moderate proportion of streams (13%) with high intrinsic potential for coho winter rearing. Under unimpaired conditions, the parts of the district in the Upper Nehalem watershed should be able to support more coho than would other watersheds. There are also a significant proportion of streams characterized as high gradient and deeply incised that provide high intrinsic potential for steelhead (25%).

Watershed analyses commonly conclude that current management approaches should result in desired future conditions for stream. Streams with less than desirable conditions are considered to be a result of prior management practices. Watershed analyses typically conclude that it could take many decades for conditions to improve and that restoration activities should focus increasing complex instream habitat and improving large wood recruitment from riparian areas.

Forest Grove's approach and priorities to restoration are described in Aquatic Resources Stream Enhancement section of this document. Findings from watershed analyses suggest that following:

- Consider opportunities to improve coho habitat: The Wheeler and McGregor management basins (Upper Nehalem watershed) have the highest overall potential for coho habitat. However, High Intrinsic Potential reaches of the Devil's Lake Fork are particularly significant to coho in the Wilson watershed. Thus, they merit special attention.
- Augment key pieces of instream wood: Most management basins were extensively deficient in key pieces, with the exception of the McGregor Basin, and the South Fork Wilson portion of the Rogers basin.
- Improve near-term wood recruitment potential: Wood recruitment potential was lowest in the McGregor, Rogers and Larch management basins.
- Improve long-term (50-100 year) wood recruitment potential by addressing hardwood senescence: Greatest identified issues are in the McGregor and Wheeler management basins.

These findings will be considered in the context of the Restoration Strategy.

Human Uses

Forest Management

Table 4 shows the current annual objectives of silvicultural management activities as well as the eight-year average of acres accomplished.

Table 4. Silvicultural Management Activities

Activity	Current Level² (Acres Per Year)	Eight-Year Average (Acres Per Year)
Regeneration Harvest ¹	896	906
Partial Cut	1,361	1,921
Reforestation	1,425	625
Precommercial Thinning	0 ³	248
Fertilization	0 ³	2,211
Pruning	0 ³	91

1. Under Oregon Department of Forestry management, this refers to a regeneration harvest (modified clearcut or retention cut) that removes most trees, but leaves specified numbers of green trees, snags, and down wood to provide structure (habitat) in the new stand.
2. Current harvest levels are taken from the district's most recent annual harvest plan, which is the Fiscal Year 2012 sale plan
3. Customary annual objectives of 300-500 acres of Precommercial Thinning and 2,000-5,000 acres of Fertilization have been eliminated or deferred due to budget constraints for FY 2012. Pruning amounts may also be altered depending on the final budget directions for FY 2012.

Roads

The district's primary road network is an established system that has been in place for about twenty years. It provides access for forest management activities, fire suppression, and public travel. (Note: these roads are designed and maintained for forest management activities, so the public should use extreme care when traveling these roads. Visions, guiding principles, and goals for managing the district's road network are discussed in the *Northwest Oregon State Forests Management Plan* (January 2001) and the *Forest Roads Manual* (July 2000). The *Forest Roads Manual* also provides standards and guidance for all road management activities and definitions, road classifications and other terms. The State Forests program is nearing completion of specific guidance for conducting transportation planning. District priorities for transportation planning are described in Management Basin Descriptions under Resource Considerations and Management Opportunities. Transportation planning will be a priority for basins or blocks determined to have limited or inadequate access.

The district's total road system consists of mostly collectors and spurs with a few under-standard roads: in total 660 miles of mostly single-lane roads with turnouts. Many of the district's main roads (collectors) were originally built as railroads and then converted to

truck roads in the 1940s and 1950s to standards considerably less stringent than those applied today. Many of these roads were constructed with inadequate drainage systems, poor surfacing, and little regard for slope stability and fish passage.

Most of these roads have been upgraded and now have improved drainage structures, rock surfacing, width, and alignment. There are still a few roads that are a legacy from those earlier decades and need improvement, access restriction or vacating.

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

Table 5. Forest Grove District Road System

Road Classification	Miles
Mainline	13
Collector	210
Spur	436
Administrative	1
Total Miles	660

New information has been gathered about current road conditions and environmental risk with the Upper Nehalem and Wilson watershed analyses (50 percent of the district’s road miles). The information is being used to help identify areas of concern, prioritize needed repairs, and plan road management activities. In addition, District personnel are working on a project team to create a State Forests road information management system. Additional road information will be collected after this system is completed and tested (during this IP period).

Nearly 95 percent of the district’s road miles are surfaced with gravel. The type of surfacing is split between old rock (usually this is natural quarry or pit run rock) and new, crushed rock. Additional crushed rock will be applied to roads, particularly those surfaced with old rock, as part of the district’s ongoing work to upgrade roads.

The Board of Forestry has adopted performance measures for State Forests for stream crossings and hydrologic connectivity. Approximately 64 culverts are installed in known fish-bearing streams. Of these, approximately 56 culverts will allow all fish to move upstream and downstream. The remaining culverts are either full or partial barriers to fish passage (blocking upstream passage of all fish or blocking upstream passage of juveniles and/or adults at some stream stages). These culverts will be evaluated for the possibility of mitigating the passage issues or installing new culverts to current fish passage standards.

Hydrologic connectivity measures the proportion of overall road length that drains to streams versus draining to and infiltration into the forest floor. Hydrologic connectivity in both the Upper Nehalem watershed and the Wilson watershed was 16 percent. This is very close to the State Forests performance measure of 15 percent. Road improvements during

this IP period are expected to have road systems meet the hydrologic connectivity target across the District.

The type and level of road activity that will occur during the planning period is discussed in the **Proposed Management Activities** and **Management Basins** sections of this document.

Recreation

The Tillamook State Forest is the largest block of public forest in the north Coast Range and has historically attracted large numbers of campers, anglers, hunters, hikers, off-highway vehicle (OHV) users, mountain bikers, equestrians, and other recreationists. Recreational activities on state forest lands produce significant revenues for local and regional business, and make an important contribution to the regional economy.

Two major highways (Highway 6 and Highway 26) cross the forest, providing direct access to much of the district from the heavily populated Portland metropolitan area. The most heavily used recreation areas in the district are along the Highway 6 corridor and in the Rogers Basin south of the Highway 6 summit.

There are currently five developed fee campgrounds on the district that collectively have been averaging over 8,500 overnight visitors per year. On the district, there are over 50 miles of trail designated for horse, hiker, and mountain bike use in addition to the 60 miles designated exclusively as Off-highway Vehicle (OHV) trail. The Rogers Basin has been designated for OHV use. There are 60 miles of designated OHV trails currently in place in the Rogers Basin. This basin is well known and used by many OHV enthusiasts. The Sunday Creek Basin and the entire area located north of Highway 6 have been designated for non-motorized recreational trail use. The Upper Salmonberry Basin has opportunities for remote recreational experiences, mostly located within the Salmonberry River canyon. Dispersed recreation use (camping, target shooting, etc.) continues to grow across the district.

Recreation management and development activities are described in the **Proposed Management Activities** section.

Scenic

There are a number of important or sensitive visual resource areas within the district. Currently, the most visually sensitive areas include the corridors along the Wilson River Highway (Highway 6) and the Sunset Highway (Highway 26), two established viewpoints, and the areas immediately adjacent to 5 campgrounds. The 2 highway corridors total about 18 miles in length and impact varying distances of adjacent forest land. The Three Mountains viewpoint along the Sunset Highway overlooks the southeast corner of the McGregor Basin. The Gales Creek interpretive kiosk overlooks the western portion of the Gales Creek Basin. The 5 campgrounds are Browns Camp, Stagecoach Horse Camp (Rogers Basin), Elk Creek (Larch Mountain Basin), Gales Creek (Gales Creek Basin), and Reehers Camp (Wheeler Basin).

Forest Stand Structures: Current Condition

The current stand condition is displayed in the graphs on the next page, and in the second map in the **Map Section**. Figure 1 shows the current stand structure, and percentage, using the structure-based management definitions for structure types. The stand structure abbreviations are given below.

In order to determine the current condition of the stand structure array on the district, an algorithm in the Stand Level Inventory (SLI) was used. The algorithm uses a variety of stand characteristics such as diameter, heights, trees per acre, density, snags, down wood and understory vegetation to determine stand structures.

Currently 65% of the stands on the Forest Grove District have been inventoried. Information for unmeasured stands is generated by imputation. Imputation uses specific information from a single measured stand to represent similar unmeasured stands.

In order to correct any errors from imputed data, all silvicultural prescriptions will be based on actual field reconnaissance during pre-operational analysis and planning, rather than just SLI data.

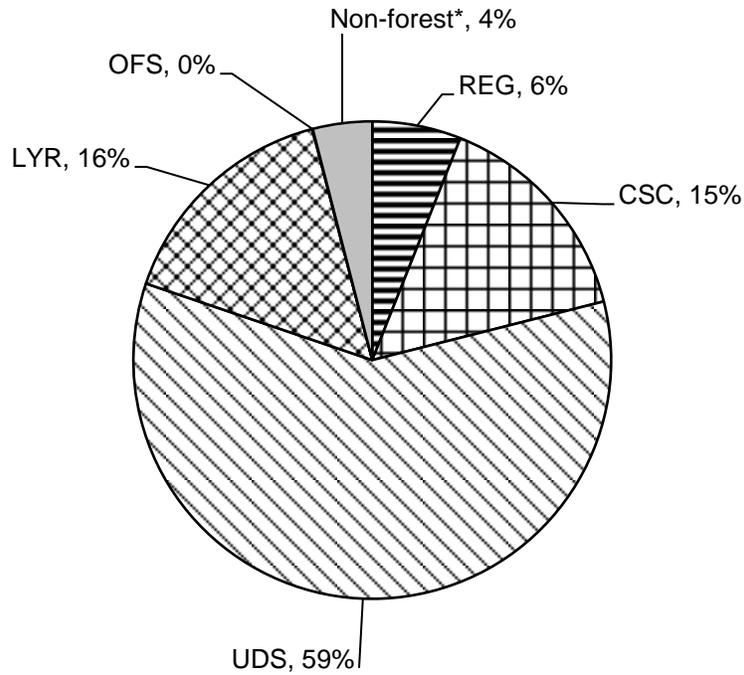
Figure 2 shows the current age distribution of the forest, regardless of structure, by percentage of acres.

Abbreviations for Forest Stand Types

REG	Regeneration
CSC	Closed single canopy
UDS	Understory
LYR	Layered
OFS	Older forest structure
NSC/NF	Non-silviculturally capable/ Non-forest

Figure 1. Current Stand Structure, by Percent

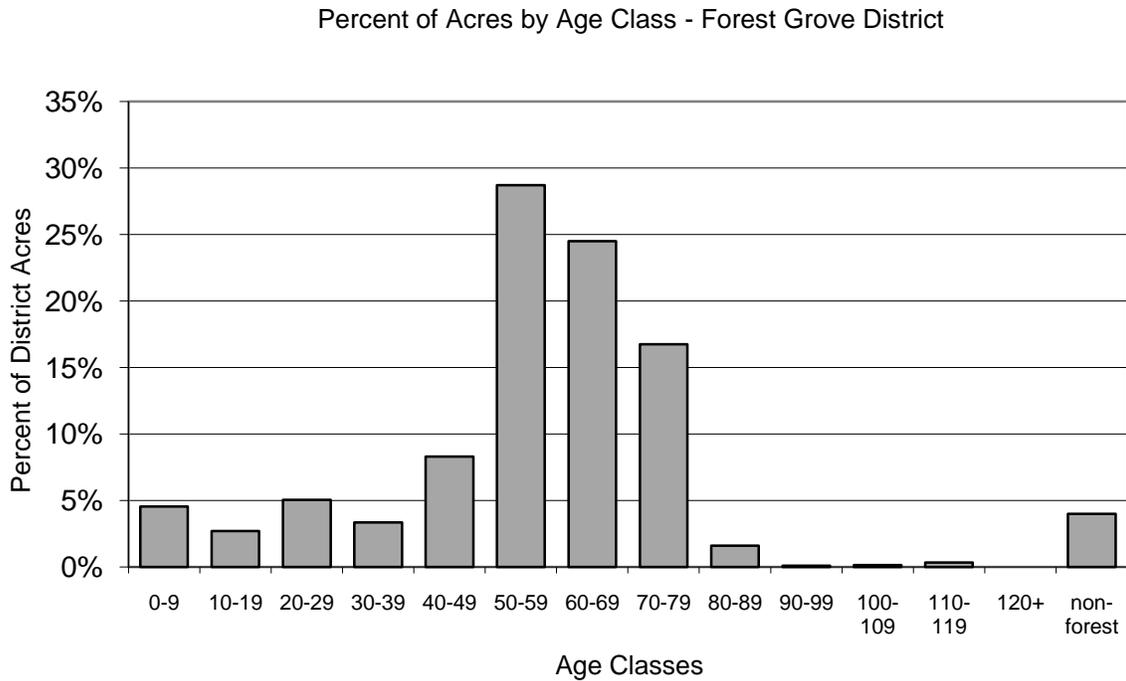
Percent of Acres by Stand Structure Class - Forest Grove District



*Non-forest (NF) lands are those areas, greater than 5 acres that are maintained in a permanently non forest condition. Examples include district offices, work camps and large power line right-of-ways.

The district's largest stand structure class is UDS. The most limited stand structure class on the district is OFS. Partial cutting will be the main tool used to move stands into a more complex structure class on the district. Snags and down wood may need to be added to layered stands to help them cross over to the older forest structure classification. More details can be found in the **Management Activities in Each Stand Class** section of this plan.

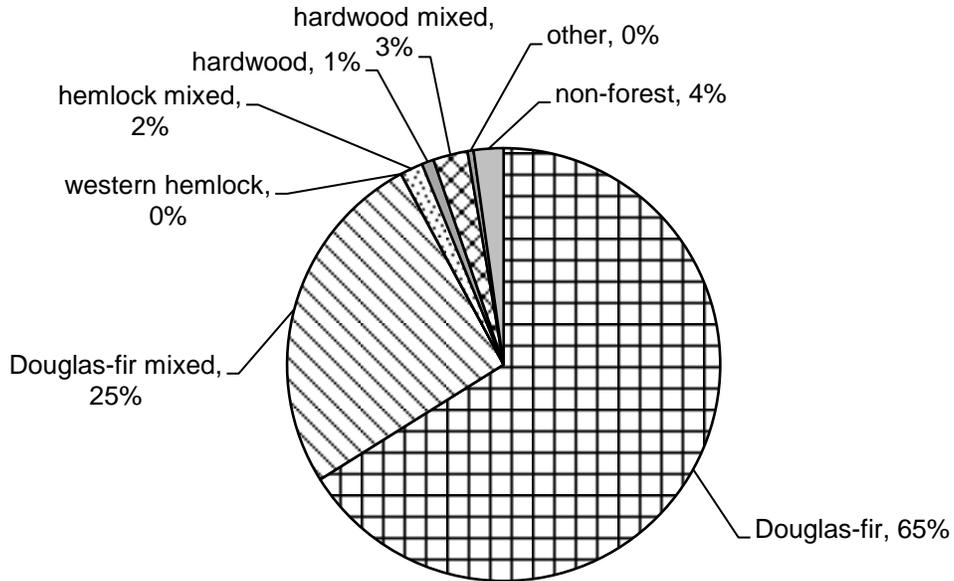
Figure 2. Stand Age Distribution, by Percentage of acres



The majority of the stands within the district are between 50 to 80 years old. This age class is the result of forest fires such as the Tillamook burns and harvests during the railroad logging era. Thinning as a stand management tool within the district started in the 1980's with a very minor amount of acreage accomplished each year. By 1992, the amount of acreage targeted for thinning increased. The younger age classes are the result of regeneration harvests.

Figure 3. Tree Species, by Percentage of Acres

Percent of Acres by Tree Species Groups - Forest Grove District



Single Species stands in Figure 3 are defined as having over 80% of the largest (diameter at breast height) 40 trees in Douglas-fir, western hemlock or hardwoods. This definition does not take into account any co-dominate tree species or tree species that may be located within the understory of the stand. Mixed species stands in Figure 3 are defined as having less than 80% of the largest (diameter at breast height) 40 trees in Douglas-fir, western hemlock or hardwoods. The mixed species stands generally are found mainly in the northern one third of the district, while the southern two thirds of the district consist mostly of Douglas-fir stands.

Management Activities

Current Condition Analysis

Stand Structures Interaction

The Current Condition Analysis and the Landscape Design sections of this Implementation Plan describe the amount of each of the identified forest stand types. As described in the forest management plan, the stand types represent only five points along a continuum of forest development. Five “stand” types were developed as a means to plan for and assess the development of the forest toward a range of “forest” types over time. Because the five types are only points along a continuum they do not express five specific habitat types nor are they perceived as discrete habitats by wildlife species. This is discussed in detail in Appendix C of the forest management plan.

As you think about the current condition and desired future condition descriptions as they relate to wildlife habitat keep in mind the following concepts and refer to Appendix C in the forest management plan for more detail.

Stand structure is described in three fundamental stand types: early structure, intermediate structure, and advanced structure. These stand types roughly correspond to young, pole-sized, and mature forest age/size classes.

Comparison between Landscape Patch Types and Stand Types

Landscape Patch	Stand Type
Young forest	Regeneration through closed single canopy sapling stands
Pole-sized forest	Closed single canopy pole-sized through layered stands
Mature forests	Closed single canopy, understory, layered, and older forest structure stands (trees larger than pole-sized)

Thus, as you examine the current and desired future conditions described by the stand types, it is important to think about combinations and aggregations of different stand types that function together to provide the benefits for each of the three broad patch types that wildlife use.

For example, when thinking about the amount of mature forest habitat that will be provided by the anticipated future array of layered and older forest structure stands – also consider the role of understory and closed single canopy stands. The desired future condition was developed to provide a blueprint of a desirable array for the development of the percentage of layered and older forest structure stand types and non-complex stand types in the future if natural disturbances allow and management assumptions come to fruition. As described in

the table, these stand types will be complemented by adjacent understory and large diameter closed single canopy stands to provide habitat patches that represent mature forests to wildlife species. The result being significantly more acres of mature forest habitat available for wildlife than any single stand type represents.

The entire array of all stand types has not been depicted because it is virtually impossible to predict how each stand on the landscape will develop over the next several decades. By focusing on generally, where we anticipate the development of layered and older forest structure stands, it provides the local manager with the blueprint for the management prescriptions necessary to move the landscape in the desired direction. Future adjustments will undoubtedly have to be made as natural disturbances, insects and disease, or other factors result in some stands not developing in accordance with management plans.

Regeneration

The regeneration (REG) structure comprises 6 percent of the district. This structure is primarily characterized by young (less than or equal to 18 years) even-aged stands of conifer or hardwood seedlings and saplings. However, this structure type has evolved as management strategies and techniques have evolved. Presently, it is not uncommon to find mature live trees, snags, and down wood intermixed throughout this structure. This structure type is widely used by big game animals for foraging habitat.

Closed Single Canopy

The closed single canopy (CSC) structure is at 15 percent of the district. This structure is characterized by the closed crowns of the overstory trees, which prevent light from reaching most of the forest floor. This low light level precludes the introduction of both brush and shade-tolerant conifer species in the understory, thus leaving the forest floor sparsely vegetated. Of all the structure types, this type is the least used by wildlife species, especially species requiring more complex habitats.

The abundance of CSC on the district can be attributed mainly to the highly successful reforestation efforts following the Tillamook fires, coupled with the relatively small amount of stand density management. Often, stands that were precommercially thinned were thinned too young and/or were not thinned heavily enough to advance these stands into the UDS structure. Closed single canopy stands are found in every basin and vary in age from 20 to 70 years.

Understory

The understory (UDS) stand structure, which accounts for 59 percent of the district, is the most common stand structure. This structure occurs where normal tree mortality, previous density management (precommercial thinning, partial cutting), poor stocking, low growth sites, root disease, or a combination of these factors have prevented the overstory canopy from fully closing. As a result, an understory of herbs, shrubs, and small conifer trees has developed. On good sites in this structure type, large, healthy conifer trees with large crowns characterize the overstory. Some of these stands began in a low stocked condition, with the overstory canopies eventually closing enough to shade out some of the brush and allow young conifer regeneration to occur.

Previous partial cutting also contributes to the presence of this structure. In stands managed through partial cutting, tree density may have been reduced enough to allow for understory vegetation development. The residual trees have increased growth in girth and crown size. In most cases, this structure provides better wildlife habitat, provides more recreation opportunities, is more scenic, provides better tree growth, and stimulates forest health better than the CSC stand structure.

Poor site class also contributes to the occurrence of this structure across the forest landscape. Site class is usually lowest on rocky, south-facing slopes where both water and nutrients are limited for supporting forest tree species. Therefore, in an environment with few overstory trees, the forest floor has many openings available for understory vegetation.

Diseased stands with advanced degeneration caused by *Phellinus weirii* root rot also fall into the UDS structure type. These infected stands are characterized by the presence of both standing and fallen dead trees, with a brush understory, surrounded by the surviving forest canopy. The fallen trees, having died from root disease, usually do not have roots attached to their trunks. The surrounding forest canopy is often infected or in the process of being infected by the root disease, thus continuing the spread and progression of the disease.

Layered

This structure comprises 16 percent of the district. The shortage of this structure will be the primary factor considered in stand management and landscape design decisions applied across the district.

Older Forest Structure

Currently, older forest structure (OFS) is significantly below the desired target percentage. As shown in Figure 1 and illustrated in the current condition map in the **Map Section**, this structure comprises 0 percent of the district. The shortage of this structure will be the primary factor considered in stand management and landscape design decisions applied across the district.

Non-Silviculturally Capable

By definition, non-silviculturally capable (NSC) lands do not form a single structure type. However, these lands do provide unique and significant habitat contributions to the district landscape. Comprising 4 percent of the district, NSC lands are characterized by geologic and hydrologic conditions unsuitable for the commercial growth and harvest of forest tree species. Geologic conditions include rock cliffs, talus slopes, rock slopes and outcroppings, and other substrate conditions incapable of supporting forest tree species. Hydrologic conditions include floodplains, marshes, beaver ponds, and other aquatic conditions that prevent the growth of forest tree species. These lands provide for plant and animal communities not associated with the other forest structures. Non-Forest lands are silviculturally capable areas, greater than 5 acres, that are maintained in a permanently non-forest condition. Examples in this district include the South Fork inmate work camp, located in the Rogers basin, and large power line right-of-ways. Non-silviculturally capable and non-forest areas are not considered part of the commercial forest land base and will not be managed for the growth and harvest of forest tree species.

Management Activities in Each Stand Type

This section describes the various management activities and the effects of management for each structure type.

Regeneration Stands

Management practices will be applied to these young stands in order to obtain the greatest value of this structure (rapid tree growth, big game forage, wildlife habitat, etc.). These stands have the potential to move through all of the stand structures toward OFS, depending on current and future landscape designs. All current and future regeneration harvests are designed to incorporate live green trees, snags, and down wood. These structural components in the young plantation will assure proper habitat function of REG stands throughout their growth and development.

Reforestation

Reforestation promptly follows all regeneration harvests and diseased patch harvests down to one-quarter acre in size. Site-specific conditions determine species composition, stock type, and stocking levels. Site preparation, vegetation management, and tree protection activities are important activities for successful stand establishment and maintenance. Site-specific prescriptions may include broadcast burning, slash piling, herbicide treatments, manual release, and tubing.

Precommercial Thinning

Precommercial thinning (PCT) is an important density management practice that thins out closely spaced trees, including small and defective young trees, in order to provide more water, light, and nutrients to increase the growth of the healthy residual trees. In addition, PCT keeps the canopy from closing, thus preserving the growth of herbaceous vegetation required by big game.

Pruning

Pruning may be used in more specialized situations. Pruning removes the lower limbs on the residual trees. It increases the wood quality of the pruned trees, retains big game forage for a longer period of time, and reduces damage caused by bears. Stands with white pine are pruned to prevent infection from white pine blister rust.

Closed Single Canopy Stands

Partial Cut

Past management experience has found that most CSC stands respond well to partial cutting. Not only do the residual trees grow faster, but also complex structures and diverse habitats develop more rapidly, with the creation of snags, down wood, and a shade-tolerant shrub and conifer understory (such as western hemlock, western redcedar, vine maple). Partial cutting improves forest health through increased stand vigor and lower susceptibility to damage from insects, disease, and windthrow, etc. Partial cutting also produces timber, revenue, and enhancements to other resources, including scenic and wildlife resources. Therefore, the majority of current CSC stands will be partial cut, to help these stands develop into the UDS structure. In some areas where either a seed source for shade-tolerant

conifer species or advanced regeneration are not present, shade-tolerant conifer species will be underplanted, to assure the development of the UDS structure.

Regeneration Harvest

Regeneration harvest (modified clearcut or retention cut) removes most trees, but leaves specified numbers of green trees, snags, and down wood to provide structure (habitat) in the new stand. The following three subheadings further define the CSC stands that would benefit from regeneration harvest as a silvicultural treatment.

***Phellinus weirii*-infected stands** — an option for CSC stands with *Phellinus weirii* root disease is to regeneration harvest significantly infected areas. This disease can be found in a variety of stages and spatial configurations in all stand structures, and is fatal to Douglas-fir, true fir, and western hemlock. Most infected stands gradually develop significant openings and patches dominated by brush. Disease surveys will be conducted to develop a map of the infected areas. The reforestation plan will use the survey information to develop plans to reforest the diseased areas with disease-resistant tree species, such as western redcedar, western white pine, red alder, or bigleaf maple. Generally only the larger concentrations of infections will be cost effective to treat, track, and monitor. Benefits from treating root disease pockets include increased habitat diversity through the creation of small patches or openings, and the incorporation of more diverse tree species into Douglas-fir-dominated stands. Depending upon the size of the openings created, the resulting stands will primarily become UDS with a few isolated REG stands. The primary difference between this treatment in CSC versus UDS stands is the advanced stage of the disease in UDS stands, which results in larger regeneration harvest openings.

Over-dense stands — A management option for over-dense CSC stands is to convert them into REG stands through regeneration harvest and reforestation. Over-dense stands have small crowns, are less vigorous, and are more susceptible to poor health conditions. These dense stands have a low likelihood of being able to respond to partial cutting, which usually leads to high mortality due to windthrow and breakage. Those trees that do not die take a long time to respond to the additional light and nutrients available after the partial cut. Therefore, gains made by partial cutting are negated by the increase in mortality and the slow growth response in these overly dense stands.

Big game foraging habitat opportunities — Openings for big game species and other open area-dependent wildlife species may be created through regeneration harvesting and planting. This management option will be used where landscape design and habitat analysis indicate the need for REG structure. Openings are important for the health of the big game populations using the Tillamook and Clatsop state forests. Live green trees will be retained, and snags and down wood will be retained or created to complement the new stand.

Understory Stands

Due to the various ways that UDS stands have developed and the differing vegetation compositions of the understory, a variety of stand management options will be pursued to address the stand-specific conditions associated with this structure type.

Partial Cut

For UDS stands that have a sparse to moderate overstory and are stocked with a healthy conifer understory, are on lower site soils, or are the result of partial cutting, the preferred management option will be to develop these stands into the LYR structure. In the majority of cases, these stands will be monitored until the overstory begins to shade out and suppress the understory. At that time, a partial cut will be done to release the understory while maintaining the health and vigor of the remaining overstory. This prescription will maintain the growth rates of both the overstory and understory while advancing the stand into the next level of structure complexity. In addition, snags and down wood will be recruited within stands deficient in these important structural habitat components.

Regeneration Harvest

The following two subheadings further define the UDS stands that would benefit from this silvicultural treatment.

***Phellinus weirii*-infected stands** — An option for UDS stands with *Phellinus weirii* root disease is to regeneration harvest the infected areas. Infected areas 5 acres and larger may be treated. In cases where the disease infection is significant, partial cutting may not be an option and the stand will be planned for regeneration harvest. These harvest units are usually defined by roads or streams so as to provide a barrier to future root contact from adjacent stands that may still contain the disease. Although it is impossible to completely eradicate laminated root disease from the landscape, these harvest practices will retard the spread of the disease. Additional benefits include increased habitat diversity through the creation of the REG structure, and the incorporation of more diverse tree species into Douglas-fir-dominated stands.

Low-stocked stands — In UDS stands that are poorly stocked, and have a brush understory, the preferred management option is to regeneration harvest and reforest with a healthy stand of trees. In these poorly stocked stands, the emphasis will be to reforest the site with a well-stocked plantation using a natural combination of conifer species. These sites will be converted to vigorous young stands of REG structure while providing foraging habitat for big game. In addition, live green trees will be retained and snags and down wood will be retained or created to complement the new stand.

Layered Stands

Partial Cut

LYR stands will either be left unmanaged until more stands of similar structural complexity are developed, or these stands will be partial cut to further their development in structural complexity toward OFS. The majority of the stands currently identified in this structure type are deficient in snag and down wood levels. Therefore, in addition to opening up the canopy to enhance residual overstory tree growth and understory development, snags and down wood will be recruited in stands deficient in these components.

Regeneration Harvest

Some stands classified as LYR may be considered for regeneration harvest if they are not in a location designated as complex stands in the landscape design for desired future condition. In a few cases, LYR stands may be regeneration harvested and reforested when these stands

become surplus to the desired future condition target. In these cases, the result will be to create a new conifer REG stand of vigorously growing trees while maintaining many of the structural components of the previous stand. These structural components include old growth trees, live green trees, snags, and down wood.

Older Forest Structure Stands

Partial Cut

OFS stands will for the most part be left unmanaged during this planning period. It is conceivable that a dense stand of OFS could be partial cut to promote increased overstory tree diameter growth and understory tree response. This would also be an opportunity to create additional hard snags and large down wood within the stand. In no case shall OFS stands be regeneration harvested during this planning period.

Proposed Management Activities

This section describes the management activities that will be accomplished starting in Fiscal Year 2012.

Silvicultural Activities

Table 6. Annual Silvicultural Activities Starting in Fiscal Year 2012

Activity	Estimated Annual Acreages⁶
Partial cut	850 - 3,450 acres ¹
Regeneration Harvest	300 – 1,300 acres ^{2,3}
Reforestation	300 - 1,425 acres ⁴
Precommercial Thinning	0 – 800 acres ⁵
Fertilization	0 – 2,500 acres ⁵

1. Patch cuts less than five acres will count toward the annual partial cut objective.
2. For this 10-year planning period, stands currently identified as OFS will not be considered for regeneration harvest.
3. Patch cuts greater than five acres will count toward the annual regeneration harvest total.
4. Reforestation acres are higher than regeneration harvest acres because they do not relate directly to the regeneration harvest acres for that fiscal year. There may be additional acres due to units being held over for site preparation or units being harvested in the first year of the contracts.
5. The acres shown represent a range dependent on annual workloads and budget levels. In years of low fiscal budget levels, these estimates could fall to zero.
6. The large range of partial cut and regeneration harvest acres is due to several factors. The number of acres harvested to meet the volume target for the district depends on the volume per acre of the stands. If high volume stands are being harvested, less acres will need to be cut to meet the volume target. If lower volume stands are being harvested, then more acres will need to be cut to meet the volume target. The large acreage range also gives the district flexibility to respond to natural disturbances, stand conditions and market conditions. For instance, if a significant wind event or beetle infestation occurred, the district would have the flexibility to have higher regeneration harvest acres to respond to those situations if

needed. In good market conditions, partial cutting acres may be higher. In low market conditions, regeneration harvest acres may be higher.

See **Appendix A** for additional information on the rationale and method applied to determine the proposed silvicultural activities in Table 6 above.

Roads

Guidance for achieving the desired condition will come from the *Forest Roads Manual* (ODF, July 2000).

Potential Road Activities

To accomplish the district's silvicultural objectives, it is estimated that between 114 and 154 miles of new road construction and between 135 and 170 miles of road improvement will be necessary over the entire district during the planning period. Road construction and improvement identified in this plan will be primarily achieved through project work connected with timber sales. Additional details can be found in the **Management Basins** section of this document. Roads will be 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 *Forest Roads Manual*.

No new mainline roads will be required. Approximately 80 percent of the roads to be constructed will be single spur roads within timber sale areas. These spurs will be narrow and have lengths between 0.1 and 1.5 miles. Collectors that connect these sale areas to the mainline system make up the remaining 20 percent, 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.

Table 7. Average Yearly Road Activities under the 2009 IP in the Fiscal Years 2008 – 2011

Activity	Estimated Annual Mileage
New Construction	14.4 miles rocked road; 0.5 miles dirt road
Road Improvement	16.5 miles
Road Vacating	1.2 miles

Slope Stability

Landslides occur naturally throughout the district. Sediment delivered by landslides to streams can have adverse short-term effects on water quality and fish habitat. However, large wood, boulders, and gravel delivered by landslides to streams can have positive long-term effects to fish habitat by providing increased structure. The Forest Management Plan recognizes the importance of ensuring that landslides deliver large wood to streams when they occur.

Landslide hazards may be exacerbated by management activities. Timber harvest may reduce root strength affecting overall soil strength and increasing susceptibility to shallow landslides. Timber harvest may also reduce canopy interception of rainfall affecting slope hydrology and increasing susceptibility to shallow landslides and potentially deep-seated landslides as well. Standing timber, as well as large downed wood, tends to reduce debris

flow travel distances. Roads may affect slope stability by altering slope geometry with cuts and fills and by altering slope hydrology.

Many existing landslides as well as areas with potential for future landslides are identified in available soil surveys and geologic maps. They can also be identified using topographic maps and data. LiDAR-generated topographic maps and data are especially useful for identifying and assessing landslide hazards.

The Area Geotechnical Specialist provides technical consultation to the district on slope stability issues so that they can make good management decisions. The Area Geotechnical Specialist reviews all planned road and harvesting operations during the annual operations planning process and conducts landslide hazard and risk assessments in order to protect:

- Public safety by applying the FPA Shallow, Rapidly Moving Landslides and Public Safety Rules (OAR 629-623-0000 through 0800); and
- Natural resources by applying Aquatic and Riparian Strategy 6: Slope Stability in the FMP.

This is done through a combination of map and photo review as well as field reconnaissance and investigation. Potential landslide issues are also identified by the district during field reconnaissance, operation layout, and during administration of active operations and the Area Geotechnical Specialist is consulted as necessary.

Depending on the level of hazard and risk, existing landslides and potential landslides are avoided during road and harvesting operations. If they cannot be avoided, then the district consults with the Area Geotechnical Specialist to assess their options and to better understand the hazard, risk, and potential mitigation strategies associated with each option. The Forest Management Plan refers to specific mitigation strategies including leaving trees along streams prone to debris flows. The Area Geotechnical Specialist documents the assessment, including findings and recommendations.

Recreation

Through a second party assessment of the State Forest's recreation program and additional staff analysis, the Division developed a recreation work plan that among other tasks included a "Recreation Visioning Process" and the development of recreation policies, procedures, and guidance. However, the significant drop in revenue and the resulting reduction in staff have delayed both of these activities. For the near term, the District will be following the State Forest Bulletin: "Near Term Direction for Recreation management and Investment on State Forests". The primarily focus will be on maintaining the existing infrastructure.

In addition, proposals for new recreation opportunities will be evaluated based on goals in the FMP and according to State Forest Division policy.

In conjunction with the implementation of the work plan mentioned above, the Forest Grove District will be working with the State Forests Division and the Tillamook District to

develop an integrated plan for implementation of recreation on the Tillamook State Forest. When this work has been completed, the Recreation section of this Implementation Plan will be updated to reflect the changes.

Existing Facilities and Programs

Public safety and law enforcement – The district is part of a thirteen-year old cooperative program with Tillamook district and Tillamook County Sheriff’s Department to maintain a consistent regulatory and enforcement presence in the forest. To provide this presence, three Tillamook County Sheriffs deputies are contracted to provide full time coverage throughout the year. Patrol and public contact by ODF staff is a necessary part of this effort. In addition, the ODF sponsored Trail Patrol volunteer program provides assistance and information to off-highway vehicle and non-motorized trail users, as well as assistance to the Sheriff’s department for search and rescue efforts.

Providing information and education to the public through a wide range of recreation guides, maps and brochures is also an important component of public safety. As identified in *Recreation Action Plan 2000*, the district will continue to enhance systems to provide updates concerning trail and road closures due to harvest operations, repair needs, authorized events or other reasons.

Continuing the law enforcement program and the other associated efforts at current levels is considered vital to providing a reasonable level of public safety and protection to the resource and recreation facilities.

Management and maintenance — The basic recreation program management and maintenance workload will continue to increase as visitation increases. The trail system demands a high level of maintenance to minimize trail damage and water quality problems. Approximately 50 to 65 percent of the total trail system will require maintenance each year. In addition, a percentage of the OHV trails need the surfacing upgraded in order to handle the level of use and prevent damage. Other types of maintenance workloads and costs include garbage and recycling service, vault toilet cleaning and pumping, well maintenance, sign replacement and maintenance, trailbridge repair, vegetation control, resource enhancement, and vandalism repairs.

Volunteer program — The recruitment and use of volunteers is critical to the overall success of the recreation program. The volunteer program takes a substantial amount of dedicated staff time for effective planning and use of volunteers. The district currently manages a volunteer program that includes the following recreation sub-programs.

Camp hosts	Trail maintenance and construction
Adopt- a-Trail	Trail patrol
Forest cleanup	Trail machine volunteer operator

These programs are expected to grow. It is estimated that there will be a 10 to 15 percent increase in volunteer hours and accomplishments if staffing levels remain constant over the next several years.

Recreation Advisory Committee

One specialized volunteer program is the Tillamook Recreation Advisory Committee (TRAC). The purpose of TRAC is to provide a forum for recreation users to have direct input into the development, review, and implementation of specific recreation policies, plans and projects for the Clatsop State Forest. TRAC is comprised of volunteer citizens who represent a particular interest in the use of the Tillamook State Forest, anglers, hunters, all OHV, equestrians, hikers, and mountain bike riders. The committee's input will help ensure that the recreation program benefits from a variety of creative ideas. It will also assist in establishing priorities that reflect both the needs of users, and the broad range of forest resource goals and strategies.

Event management — The Forest Grove District permits organized club-sponsored trail use events. Both motorized and non-motorized trail events are held on the district. On the average, six to eight OHV (off-highway vehicle) events are permitted on the district each year. The events consist of poker runs (fun runs), competitive timed motorcycle races, trials motorcycle competitions, four-wheel drive rallies, and competitive four-wheel drive events. The OHV events occur within the Rogers Basin. Other events, such as equestrian poker rides, mountain bike races, archery competitions, and education-related events are scheduled less frequently and primarily occur within the Gales Creek and Wheeler basins.

Aquatic Resources — Stream Enhancement Projects

The NW Forest Management Plan (NW FMP) establishes an Aquatic and Riparian Strategy for habitat restoration projects on State Forests (FMP 2010). State Forest's commitment to habitat restoration is further supported in the Species of Concern Policy (Species of Concern 2010) which lists habitat restoration projects as an aquatic Species of Concern strategy. The FMP and Species of Concern Policy establish several principles that provide the context and approach that State Forests will use for habitat restoration activities. The purpose of this document is to describe habitat restoration goals for the Forest Grove district and how restoration activities will be prioritized and reported for the Forest Grove District.

Habitat Restoration Approach

The overarching approach to habitat restoration is described in the NW FMP (page 4-67 through 4-68) and 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.

Landscape and site-specific strategies will improve levels of aquatic function in the short term to meet the immediate habitat needs of depressed species and place aquatic habitats on a trajectory toward desired conditions. At the same time actions are carried out to restore

the ecological processes and functions that create and maintain self-sustaining habitats over the long term. Restoration strategies include completing assessments to identify limiting factors (3a) and identify, design, and implement projects to remedy identified problems (3b). Projects should mimic natural process, use multidisciplinary approach, and consider site-specific as well as watershed scale processes and disturbance regimes. Projects will be designed to re-establish natural physical and biological processes.

Limiting factors (3a above) have largely been identified in the ODFW conservation strategy, the 2005 State of Oregon Coastal Coho Assessment (OCCA) (State of Oregon 2005), and ODF Watershed Analyses. Therefore the task is to identify, design, and implement projects to address the limiting factors (3b above). This document is intended to address these elements of the restoration strategy for the Forest Grove District by describing goals and priorities over the next 10 years.

District Goals

Contribute to Ecological Benefits through Stream Habitat and Water Quality Improvement

The Forest Grove District will implement restoration projects to improve aquatic habitat, riparian function, and water quality. The ecological value of potential projects will be evaluated using a “Restoration Screening Tool” described later in this document (under “Ecological Benefits”).

There are several principles for evaluating ecological benefits are established in the Coho Conservation Plan (CCP). Examples that fit well with State Forest policies and information base include (but are not limited to):

- Conservation investments that achieve desired status goal for coho ESU.
- Work that supports remediation of population-scale limiting factors identified for coho populations in the 2005 OCCA.
- Work that is based on watershed assessments and limiting factor analysis conducted by local watershed conservation entities (or others) at scales finer than the population-scale limiting factors in the 2005 OCCA.
- Work that supports restoration of ecological processes rather than providing a short-term substitution for ecological processes.
- Work that supports conservation of multiple native fish and wildlife species.
- Work that supports maintenance or enhancement of life-history diversity in coho and other native fish and wildlife species.
- Work that supports conservation of unique or rare functioning habitats and habitat diversity.
- Work that capitalizes on time-sensitive opportunities (e.g., willing landowners, time-association with land-use action, etc.).
- Work that is likely to produce a large increase in productive capacity of coho salmon.

In the Coastal and Lower Columbia coho and Steelhead ESUs: Projects will be implemented that contribute to measureable restoration goals established for coho in the CCP (Table 8) with a priority to work in streams/watersheds with high to moderate intrinsic potential for coho or steelhead.

Table 8. Goals for the amount of high quality habitat in each independent coho population in the Oregon Coast Coho Evolutionary Significant Unit for watersheds in the Forest Grove District. (Source: Oregon Coast Coho Conservation Plan Appendix 2 page 21)

ODF District	Population Unit	3% Marine Survival				High Quality Habitat Miles			
		Spawner Goal	Adult Recruit Goal	Observed Spawners	Estimated Observed Recruits	Total Needed	Current	Additional	Current % of Total Needed
AT, TL, FG	Nehalem	28,091	33,048	5,857	6,891	393	82	311	21%
TL, FG	Tillamook	10,909	12,834	1,896	2,231	153	27	126	17%

- ¹ Spawner goal @ 1.1% marine survival (Table 2) divided by 0.03/0.011.
- ² Spawner goal @ 3% marine survival. 15% is maximum allowable harvest rate under Amendment 13 during periods of 3% marine survival.
- ³ The average number of spawner observed during years with a 3% marine survival rate from 1990 to 2003.
- ⁴ Observed spawners @3% marine survival.
- ⁵ The adult recruit goal divided by 0.03 (marine survival) to obtain an estimate of the number of smolts needed. The number of smolts needed was then divided by 2,800 (smolts/mile produced by HQ habitat -based on Nickelson 1998).
- ⁶ The observed recruits divided by 0.03 (marine survival) to obtain an estimate of the number of smolts needed. The number of smolts needed was then divided by 2,800 (smolts/mile produced by HQ habitat -based on Nickelson 1998).
- ⁷Total miles high quality habitat needed – current miles high quality habitat

Number of Habitat Restoration Projects

Projects can be implemented *opportunistically* (when operating near streams that would benefit from restoration efforts) or with a *collaborative* approach both of which will be evaluated for ecological benefits. For the Forest Grove District the goals are to:

- Implement 2-5 collaborative projects over a 10-year period if resources and partners are available.
- Implement 2-3 opportunistic projects per year if resources are available.
- Contribute to fish passage improvement and hydrologic disconnection. These are the two metrics for measuring improvement towards state forests Performance Measure 5: Forest road risks to waters quality and fish habitat. The Performance Measure targets are to:
 - “Reduce the miles of hydrologically connected roads to less than 15% of the road network within the next 10 years, and maintain or improve that level of reduction for the following 10 years. Reduce the number of road crossings that are barriers to fish passage to less than 2% within the next 10 years, and maintain or improve that level of reduction for the subsequent 10 years.”

Forest Grove Priorities

The principles for prioritizing habitat restoration projects on the Forest Grove District are as follows:

- Prioritize projects for the best benefit to endangered species
- Prioritize projects that are most cost effective and efficient

The following project types are in order of priority assuming all else is equal. An exception to priorities may occur when projects can be implemented with high efficiency or if the “Restoration Screening Tool” suggests that for a given watershed there is a different order of priorities. For Forest Grove the overarching priorities are:

1. Fish Passage: This is considered the highest priority when passage project improves or provides access to (a) greater ¼ mile or more of habitat, (b) high or moderate intrinsic potential for coho, and/or (c) high priority restoration reaches for steelhead or Chinook.
2. Road Decommission or Hydrologic Disconnection: Hydrologic disconnection is important for all roads (i.e. including roads with connectivity to Type N or Type F streams) to reduce impacts on water quality. Decommission roads with the following characteristics:
 - a. Stream side roads: roads parallel and within 100 feet of Type F streams
 - b. Roads with many Type F stream crossings
 - c. Roads with significant stream crossing blow-out potential.

Road decommissioning around Type N streams may be a lower priority than instream habitat projects (below). For Forest Grove, most roads around small Type N streams are compliant with the Roads Manual and Performance Measures for roads.

3. Instream Habitat Projects (wood placement, boulders, etc.): The FMP states that a priority will be placed on projects that supplement natural “legacy” elements (large woody debris) that are lacking due to previous disturbance events, and/or management activities. An emphasis will be placed on projects that re-introduce large “key” pieces of wood to channels in natural configurations. Projects will maximize the functional attributes of large woody material, and minimize potential conflicts with public safety in downstream reaches. A priority will be placed on streams with salmon or steelhead habitat. Where data are available (Coast and Lower Columbia ESU), the highest priority will be to work in areas of “high intrinsic potential” for coho or steelhead.
4. Alternative Plans to Manage Riparian Areas: These projects will promote the desired future condition for riparian areas (MFC or Complex Structure). Such projects will not be carried out in areas with beaver presence unless plantings can be adequately protected against beaver damage.
5. Beaver: Beaver will be allowed to persist (i.e. not be trapped or moved out of streams) and beaver dams will not be destroyed (FPA OAR 629-660-0050). Exceptions include:
 - a. Beaver pose a risk to stream crossings that cannot be managed with alterations to the crossing.
 - b. Beaver pose a risk to plantation.Under these exception conditions:
 - a. A written plan will be submitted to the District Forester prior to the removal

- b. Relocation following ODFW relocation guidelines (ODFW 2010) will be considered.

Rationale for Priorities:

1. Fish Passage: No matter how good the habitat quality, if fish can't access it, there is little benefit. So a priority is placed on fish passage. Exception: if the projects do not access sufficient or important habitat, other habitat restoration projects may be a higher priority. Placing road work as a priority is consistent with the FMP principle to "eliminate human-induced conditions on the forest that may contribute to aquatic habitat deficiencies".
2. Road Decommissioning or Hydrologically Disconnecting Roads: Roads have the potential to chronically and episodically impact water quality and stream habitat more than any other forest activity. Therefore a priority is placed on decommissioning roads within the context of a transportation plan. Hydrologic connectivity is a Performance Measure and disconnecting roads reduces potential for road-sediment to get in streams. Placing road work as a priority is consistent with the FMP principle to "eliminate human-induced conditions on the forest that may contribute to aquatic habitat deficiencies".
3. Instream Restoration: Nearly all streams throughout the Coast range have low levels of large wood. Large wood provides complex habitat for fish – a limiting factor identified in the coho habitat restoration plan (OCCP 2007).
4. Alternate Vegetation Management Plans are an important tool that allow for management to shift riparian conditions to a desirable trajectory that will provide large wood recruitment to streams and ultimately replace the need for stream enhancement projects. This is placed as a lower priority because of challenges with successfully achieving reforestation near streams. Typically problems include: creating enough light (large enough opening in the overstory canopy) for the seedlings while minimizing potential negative effects on stream temperature and wood recruitment, controlling weed and brush competition near streams where the usual control tools are more restricted, and overcoming elk and beaver damage. The Forest Grove District has some current examples of where the Alternative Vegetation Management Plans are being implemented. Outcomes from these projects will help guide future use of Alternative Vegetation Plans.
5. Beaver: Currently State Forests is taking a passive approach to beaver colonization. We are not actively reintroducing beaver but we will make every attempt not to interfere with existing beaver and beaver activities. Beaver influence on streams provides key habitat conditions to support recovery of listed fish.

Ecological Benefits

Restoration Screening Tool

The ecological value of restoration projects can be weighed against several existing information sources. The information sources will be compiled in a "Restoration Screening Tool GIS Database" (under development by the Aquatic Specialist). The ODF Aquatic Specialist will review the screening tool when opportunistic (i.e. during the AOP process) or collaborative projects are being considered. This database compiles information from

several sources including: Fish habitat distribution (ODFW 2010b); stream size and fish distribution (ODF GIS Data); stream gradient and width; Intrinsic Potential for Coastal coho (CLAMS 2005) and coho and Steelhead in the Lower Columbia and Oregon Coast (CLAMS 2008); road crossings, road segments, and stream reaches identified as good opportunities for restoration in ODF Watershed Analyses (R2 Resource Consultants 2005 and Duck Creek 2008) and ODFW Aquatic Inventory Assessments (ODFW 2005 and 2006); and OCCP measurable criteria for coho recovery. The Restoration Screening Tool may eventually be adapted to track beaver-related information and restoration accomplishments.

Opportunistic Projects: Projects Associated with Timber Sales

By their nature these are not identified in advance of annual operations plans. These projects may not necessarily follow priorities established above. This allowance is made because these projects are typically a highly efficient means to improve the quality of aquatic habitat because the operation includes harvest mechanisms or proximity to streams that facilitate efficient (high benefit to habitat with low cost) implementation. Guiding principles for implementation of habitat restoration projects associated with timber sales include but are not limited to one or more of the following:

- Good access to stream (e.g. either cable over stream or road/tractor ground near stream).
- Trees of sufficient size (meet ODFW diameter and length criteria) or with root wad attached are available in the harvest area.
- Operation is adjacent to a salmon or steelhead stream.
- Operation is adjacent to stream with an active channel width between 10 and 20 feet. Wider channels may work, but are more challenging because of the length of wood required (2 X channel width). Projects in narrower channels can work as well, but are considered a lower priority-especially if the stream is steep and only contains cutthroat trout.
- Personnel are available to administer implementation of the project.
- Address 1 or more of the habitat restoration priorities.

Collaborative Projects: Planned outside of Timber Sales

In addition to meeting ecological priorities, these projects will have substantial community support and collaboration. These projects will be filtered through the Restoration Screening Tool by the ODF Aquatic Specialist and weighed against the established priorities for the district. The Watershed Council Coordinator and/or local ODFW Habitat Biologist typically will provide leadership in the design, grant requests, and implementation of these projects.

Measure of Accomplishment

The Aquatic Specialist will report progress towards habitat restoration goals using the following metrics:

- Number of projects
 - By type (e.g. barrier removal, hydrologic disconnection, decommission, wood placement, etc.)
- Miles of stream or roads treated or habitat made accessible
 - By type
 - By 5th Field HUC

- Number of miles treated within salmon or steelhead habitat
 - On Coast and Lower Columbia this can be reported as miles of High IP (CLAMS 2005 and CLAMS 2008).
 - On the coast and for coho this can be reported in terms of miles per watershed with measurable goals established in the coho conservation plan.

Reporting System and Timeline

The Oregon Watershed Enhancement Board's (OWEB) existing habitat restoration reporting system will be utilized:

- Annually (March): Projects will be reported to OWEB by [ODF/ODFW District Person].

The OWEB database will be queried by the ODF Aquatic Specialist to provide the following reports:

- Annually (August): Summary of annual accomplishments by district by project type for Division purposes.
- Biennially (August-or PM reporting time frame): Maps and narrative of accomplishments to date by watershed.
- Annually (August): Establish an annual summary of accomplishments by district by watershed for the county report.

Cultural Resources

- A cultural resource inventory was developed and completed in August, 2002. Revisions and updates will continue throughout the 10-year implementation planning period.
- Inventoried cultural resource sites will be evaluated to determine the appropriate protection class (Class I, II, or III).
- Potential operation areas will be checked against the cultural resource site inventory for the district to see if any sites are in or adjacent to the operation area.
- Sites that are within or adjacent to a proposed operation that has the potential to impact the site, and which have not been assessed for class designation, will be evaluated to determine the appropriate cultural resource class.
- Class I sites will be protected according to the legal standards in the applicable laws.
- Protection of Class II or III sites will be based on field inspection of the site and consultation with the appropriate Department of Forestry or other specialist.

Energy and Mineral Resources

The district will locate, assess, and plan for aggregate rock sources where adequate sources for future management are not currently identified. The district will assess existing sources to determine the amount and quality of rock present. Finally, the district will create quarry development and reclamation plans based on the assessment data, estimated long-term needs, and resource protection issues.

Lands and Access

The district will carry out the following activities.

- Continue to pursue land exchange opportunities when:
 - (1) The transaction furthers the purposes of ORS 530.010, the acquisition of lands chiefly valuable for the production of forest crops, watershed protection and development, erosion control, grazing, recreation or forest administration purposes; and
 - (2) The exchange furthers the objectives of achieving greatest permanent value as defined in OAR 629-035-0020 as expressed in the approved forest management plan; and
 - (3) The transaction results in the consolidation of state forest lands, or makes management of state-owned forest lands more economically feasible.
- Follow current Board of Forestry policies for land acquisitions and exchanges and the Administrative Rule for State Forest Land Acquisitions and Exchanges (Chapter 629, Division 33).
- Complete a land exchange and acquisition plan, as required (OAR 629-033-0015).
- Maintain the inventory of property corners and lines.
- The establishment and maintenance of property corners and lines will be prioritized and scheduled through the Annual Operations Plans.

Scenic Resources

The district will carry out the following activities:

- Complete the mapping of high sensitivity areas using the criteria detailed in the *Northwest Oregon State Forests Management Plan* strategies (pp 4-105 to 4-107) and the Forest Land Management Classification guidelines.
- Identify and map moderate and low sensitivity areas using the criteria in the *Northwest Oregon State Forests Management Plan* strategies (pp 4-106 to 4-107).
- Prior to completion of moderate and low sensitivity area mapping, areas not initially identified as high sensitivity will be evaluated at the time of a proposed operation (with the potential for an adverse visual impact) to determine if the area is moderate or low sensitivity.
- Proposed operations in high and moderate sensitivity areas will be evaluated to determine appropriate landscape and/or stand-level prescriptions necessary to mitigate the visual impacts consistent with the management objectives in the strategies.
- The resource analysis section of the annual plan will include an evaluation of the potential visual impacts and a description of the landscape and/or stand-level prescription that will be applied.

Plants

The district will protect plant species in accordance with state and federal Endangered Species Acts. In addition to Endangered and Threatened plants, the district will also make provisions for candidate and special plants. The District Plant List (Table 9) 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 *Northwest Oregon State Forests Management Plan* (pg 2-62).

This will be accomplished by the following:

- During the planning of forest operations, the district will determine whether the proposed operation areas contain a plant on the District Plant List. This determination will be made by reviewing the Oregon Biodiversity Information Center (OBIC) database for rare plant locations. In addition, the district will use its local knowledge on rare plant locations and habitat requirements.
- When the district has determined that a plant from its list may occur within an operation area, it will consult with the Oregon Department of Agriculture (ODA) to determine the appropriate level of protection. If ODA deems a field survey is necessary due to the presence of listed plants and/or habitats, the survey results will be submitted to ODA. Survey methods and survey results will comply with OAR 603-73-090 5(C).
- The district will contribute all information about rare plant locations to OBIC so that the database is kept updated.

Table 9. Forest Grove District Endangered, Threatened or Candidate Plant Species

Genus	Species	Subspecies	Common name¹	Status	Record exists²	Potential to be present
Threatened and Endangered Plants						
<i>Erigeron</i>	<i>decumbens</i>		Willamette daisy	SE, FE		✓
<i>Erythronium</i>	<i>elegans</i>		Coast Range fawn-lily	ST		✓
<i>Lupinus</i>	<i>sulphureus</i>	<i>kincaidii</i>	Kincaids lupine	ST, FT		✓
<i>Sidalcea</i>	<i>nelsoniana</i>		Nelson's checkermallow	ST, FT	✓	
Plants of Special Concern						
<i>Castilleja</i>	<i>chambersii</i>		Chamber's paintbrush	SP		✓
<i>Dodecatheon</i>	<i>austrofrigidum</i>		Frigid shootingstar	SP		✓
Candidate Plants						
<i>Cardamine</i>	<i>pattersonii</i>		Saddle Mt. bittercress	SC		✓
<i>Filipendula</i>	<i>occidentalis</i>		Queen-of-the-forest	SC		✓
<i>Saxifraga</i>	<i>hitchcockiana</i>		Saddle Mt. saxifrage	SC		✓
<i>Sidalcea</i>	<i>hirtipes</i>		Bristly-stemmed sidalcea	SC		✓
<i>Sullivantia</i>	<i>oregana</i>		Oregon sullivantia	SC		✓

¹Plant names in bold are on the NW FMP list of plants.

²Plants have been observed on or in close proximity to state forestlands.

Status:

SE – State Endangered

ST – State Threatened

SC – State Candidate

SP – Special Concern

FE – Federal Endangered

FT – Federal Threatened

The NWFMP Forest Health Strategies call for monitoring pest populations, damage levels and trends, to use Integrated Pest Management (IPM) to suppress or prevent damaging pest populations, and to cooperate with other agencies and associations to prevent the introduction of non-native pests. (pg. 4-77 to 4-79). Implementation Plans address how individual Districts will contribute to statewide efforts to reduce the quantity and range of invasive, non-native plant species.

Recent draft Policy and Procedures prepared for the State Forest Division articulates how active Invasive Weed Management should be pursued. This section of the IP serves as the District Invasive Weed Management plan that will be used to guide the management of invasive weeds on Oregon Department of Forestry managed lands. This is a dynamic document and it may be incomplete or lacking information, however, it can be updated through the Annual Operations Planning process as available or as management strategies change.

The invasive species currently found on the district are Canada thistle, Scotch broom, Himalayan blackberry, Tansy ragwort, False Brome, Poison-hemlock, common teasel, Herb Robert, English ivy, English holly, Reed canary grass, Evergreen blackberry, Traveler's joy, Curly dock, Common St. Johnswort, Garlic mustard, and Japanese knotweed. These species will be actively controlled or eradicated. See Table 10 below for more information.

Generally, species found in small amounts will be eradicated. Japanese knotweed is a plant that fits this category. This will be accomplished using hand and chemical controls as well as continued monitoring of the site.

The other invasive species are found scattered throughout the district and will be "actively controlled" because to eradicate them would be impractical. In some cases, "actively controlled" may only mean monitoring their spread and impact through doing stand exams, stocking surveys and road inventory. In other cases, actual control activities, such as roadside spray application, will be identified and included as part of the annual operations plan. Equipment washing to prevent the introduction or spread of invasive species will be required in most timber sale contracts on the district.

Table 10. Forest Grove District Common Invasive Species and Management Objectives

Species	Current status	Objective	Comments
Garlic Mustard	None known	Prevent	Early detection and rapid response (EDRR)
False Brome	Larch Mtn Basin	Monitor	EDRR
English Ivy	Gales Creek	Eradicate ¹	EDRR, treated with herbicides.
Gorse	None known	Prevent	EDRR
Himalayan Blackberry	All basins	Control ²	Treat through roadside/campground herbicide application.
Yellow flag iris	None known	Prevent	EDRR
Knotweed - various species	Storey Burn Rd, Wilson River Summit, Wheeler Basin, Idiot Creek Rd, Hwy 6 (ODOT ROW)	Control	Treat with herbicides.
Scotch Broom	All basins	Contain ³	Treat through roadside/campground and site prep herbicide application. Equipment washing for containment.
Tansy ragwort	All basins	Monitor	Natural control methods.
Poison-hemlock	Gales Creek Basin, Storey Burn Rd	Control	EDRR. Treat with herbicides.
Herb Robert	Gales Creek	Control	Treat with herbicides and hand pulling.
Reed canary grass	Gales Creek Basin	Monitor	
Traveler's Joy	Gales Creek Basin	Eradicate	Hand pulled.

1. **Eradicate:** The noxious weed species is eliminated from the district, including all viable seeds and/or vegetative propagules.
2. **Control:** Seed production is prevented throughout the target patch, and the area coverage of the weed is decreased over time. Prevent the weed species from dominating the vegetation of the area but accept low levels of the weed.
3. **Contain:** Weeds are geographically contained and are not increasing beyond the perimeter of the infestation. Treatment within established infestations may be limited, but control or eradicate outside those areas.

Special Forest Products

The district will carry out the following activities.

- Provide permits to harvest special forest products on a request basis, consistent with product availability, protection requirements, and other resource management strategies.
- Periodically review and update district policies, procedures, and product price listings.
- Share special forest product information between districts and communicate permit information with adjacent landowners.
- Assess the need and capability for a special forest product planning program that could: (a) identify major products that would be emphasized on the district, (b) delineate logical sale units and personal use areas, and (c) develop a harvest schedule based on the productivity of special forest products for both commercial harvesting and personal use.

Landscape Design Overview

The Forest Grove District has eleven basins. Of this total, seven basins comprise 86 percent of the district's acres. The district is bordered on the west by state forest land within the Tillamook District. The north and east sides of the district are bordered primarily by private industrial forest land. To the south is an even mix of Bureau of Land Management (BLM) and private industrial forest land. There is also a 4,700-acre isolated tract of state ownership in Columbia County, which is surrounded by private forest land. In addition to the large amount of private industrial forest land to the east and north, there is a 13,000-acre tract of private industrial forest land located in the center of the main body of the district.

A desired future condition map can be found in the attached **Map Section**. 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 30% 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 shapes that provide connectivity between watersheds, and dispersal habitat for wildlife. The overall design will also include habitats necessary for those species needing more open conditions.

A portion of the landscape will be designated for achieving complex structure- this is referred to as "Landscape Design". Performance measure 6 establishes that, for the Clatsop and Tillamook Forests, 17-20% of the complex structure will be achieved within 20 years. The forest management plan establishes that a total of 30-50% of the landscape will become complex over a longer time frame. The following principles were applied during the landscape design process to designate 20% and 30% of complex stands.

17-20% in 20 Years

In addition to FMP landscape design principles stands which are most likely to reach complex in 20 years and which contribute to:

- o Large patch sizes
- o Large blocks of interior habitat
- o Connectivity between patches
- o Good distribution of complex habitat across the forest and between district
- o Good headwater habitat and overlap with Terrestrial and Aquatic Anchors

Known locations of SOC-

Locate around known SOC when information is available (owl locations, responses, priority given to terrestrial species)

Stand Characteristics include but are not limited to:

- o Large trees, range of species, good understory development
- o Areas that did not have to be regeneration harvested to reach complex
- o Utilize stands currently in complex or managed to achieve complex (previous investments in thinned units)
- o Dropped regeneration units from the 17-20% design

- o Currently occupied habitat and/or high habitat potential stands for terrestrial, aquatic and amphibian SOC.

30% Design

Additional (to the 17-20% design) 10%: Use same biological principles as the first 17-20% and

- o Also consider the use of operationally limited acres if appropriate.
- o Operationally limited areas were added if they contributed to the biological goals for species of concern.

Terrestrial Anchors

- o Same as above, with additional goal to have three 3,000 acre blocks to accommodate SOC with low mobility
- o Place in areas that are part of the 30% design
- o Include areas with known SOC occurrence (owl locations, responses, priority given to terrestrial species)
- o Try to overlap with aquatic anchors when possible, but terrestrial needs take priority over aquatic needs

Aquatic Anchors

Consider designating habitat in Aquatic Anchors to provide additional benefit for fish SOC.

Stand origin and age were not heavily considered when developing the district's landscape design. With the vast majority of the stands being between age 50 and 80, and because of the time it will take to meet our desired future condition, it was decided that other resource issues and landscape design principles would drive the landscape design process. Areas identified for the first 17-20% of complex stands are located in the Wilark Basin, McGregor Basin, Wheeler Basin, Gales Creek Basin, Upper Salmonberry Basin, Larch Mountain Basin, and Roger's Basin. It is important to achieve these complex forest structures as quickly as possible in these areas.

Areas identified for the additional 10% of complex stands include the Kings and Elk Mountain area in the western portion of Larch Mountain Basin and Sunday Creek Basin. These are mostly steep, low site areas where trees develop slowly or are stands where there are higher levels of snags and down wood and can provide connectivity to areas identified in the first strategy.

Large areas (2,000 to 6,000 acres) of complex structures will create large interior habitat areas for future dispersal habitat, and will provide enhanced protection for many resources. Examples include: riparian areas, large interior habitat areas, terrestrial anchor sites, important salmonid streams, and areas emphasizing water quality, site quality, slope stability, and scenic and recreational resources.

In areas with slope stability concerns, OFS and LYR stand structures, coupled with proper road building and road maintenance, will significantly reduce the probability of slope failure. In addition, having older, more complex stand structures located below potential landslide initiation areas will lead to properly functioning landslides—that is, debris deposits

will contribute large woody material and gravels that develop into stream structure and enhance habitats through natural geologic processes.

For the next 30 to 40 years, areas not designated to be OFS or LYR will provide the pool from which regeneration (REG) and understory (UDS) stand structures will be created. These stand structures will be arranged across the rest of the landscape, based on habitat, resources, and logistical and operational needs and constraints. The closed single canopy (CSC) stand structure will not be purposely designed in the landscape design. It will be identified and mapped as stands move into that stand structure.

Implementation of Landscape Design Maps

The landscape design map represents the district's current vision of where complex structures will be developed over time. 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

Generally, harvest operations at sites designated for complex structure will be partial cuts or retention harvests designed to develop complex structure over time. New information about an existing stand however, such as insect or disease presence, stand density, or some other condition, may indicate that a regeneration harvest is the most appropriate silvicultural prescription for the stand. In these cases, the Pre-Operations Report for the harvest operation in the Annual Operations Plan will describe why it is not appropriate to develop the current stand into complex structure and how the resulting plantation will be the best option to develop complex structure in the shortest timeframe.

The district may identify a site designated for the development of complex structure on the landscape design map that is not currently suitable for the development of complex structure. Examples include: sites that are not suitable for partial cut harvesting or sites that are infected with a root rot and require one or more rotations of alder before complex structure can be developed. In these cases the landscape design may be changed, replacing the less desirable site with a site of comparable acreage that is better suited for the development of complex structure.

Changes to the landscape design will be fully described in an Annual Operations Plan and will not exceed 240 acres in a year. The complex structure goal will remain consistent with the BOF direction that calls for the District to develop complex structure across 30 percent of its landscape, with 20 percent to be achieved within 20 years. The landscape design map will be fully reviewed with any major revision of the district implementation plan.

Management Basins

Management Basins Overview

The district is divided into 11 management basins ranging in size from 425 acres to 20,834 acres. The main body of the district is divided into 7 basins, which are between 10,618 acres and 20,834 acres in size. These basins were delineated using a combination of watershed boundaries and major highways. The 4 remaining basins are located to the south, east, and northeast of the main body of the district, and were delineated using drainage and ownership patterns.

Information Summary for All Management Basins

Table 11. Summary: Current Condition* (CC) and Desired Future Condition (DFC), by Stand Structure and Percentage

Management Basin	Acres	NSC/ Non- Forest**	REG	CSC	UDS	NON	COMPLEX CONDITION			
						COMPLEX CONDITION	LYR		OFS	
		CC*	CC	CC	CC	DFC**	CC	DFC	CC	DFC
Bell Mountain	1,728	0	17	51	32	100	0	0	0	0
East District Isolated Tracts	425	0	0	0	54	100	46	0	0	0
Gales Creek	10,166	0	4	12	64	66	20	18	0	15
Larch Mountain	13,160	13	5	19	60	59	3	34	0	7
McGregor	10,618	1	13	16	53	79	17	12	0	9
Rogers	20,834	4	6	11	61	77	18	12	0	11
Scoggins Creek	3,018	0	17	16	58	100	9	0	0	0
Sunday Creek	15,239	3	5	8	75	96	9	0	0	4
Upper Salmonberry	18,955	3	6	12	53	51	26	28	0	20
Wheeler	16,141	0	5	21	57	51	17	9	0	40
Wilark	4,726	4	5	36	45	88	10	3	0	9
District Total	115,010	4	6	15	59	66	16	15	0	15

* The Current Condition was determined using the latest Stand Level Inventory imputed 10/26/2010.

** The Desired Future Condition will be achieved in an estimated 20 to 60 years. The percentage for all desired stand structures does not equal 100% because 4% of the district is designated as Non-Silviculturally Capable or Non-Forest.

*** NSC/Non-Forest (Non-Silviculturally Capable and Non-Forest lands). Non-Silviculturally Capable lands are not capable of growing forest tree species (defined in OAR 629-035-0040). Non-Forest lands are those areas, greater than 5 acres, that are maintained in a permanently no forest condition (example include district offices, work camps and large power line right-of-ways).

Information Summary (continued)

In the *Northwest Oregon State Forests Management Plan* (pg 4-48), the ranges for the desired future condition of stand structure types were outlined. These ranges are given below.

Regeneration (REG)	15–25%
Closed Single Canopy (CSC)	5–15%
Understory (UDS)	30–40%
Layered (LYR)	15–25%
Older Forest Structure (OFS)	15–25%

Table 11 on the previous page shows that for the Forest Grove District's desired future condition, the planned percentages of stand structure types fall within the management plan ranges. The desired future condition map in the **Map Section** shows potential future stand structure across the district.

The time required to achieve this desired future condition depends on site quality and density management. In general, the desired future condition should be achieved in 20 years for the complex stands identified in the first strategy and approximately 50 to 60 years for the remaining complex stands. In all cases, the achievement of the desired structure percentages is limited by the current shortage of OFS. On higher quality sites (site classes 1, 2, or 3); active density management (i.e., partial cutting) should be able to produce OFS in a relatively short time period. On lower quality sites (site classes 4 or 5), where little or no density management occurs, it will take longer to achieve OFS.

Basin Descriptions

Bell Mountain Basin

Bell Mountain Basin is located in the Nestucca River watershed. It is comprised of 9 isolated, state-owned parcels totaling 1,728 acres, and is mostly surrounded by BLM forest lands. The majority of the BLM land is comprised of complex forest structures, and is currently being managed as late successional reserves. Most of the state forest land is comprised of young, less complex stand structures (REG, CSC, and UDS).

Approximately 6 to 8 miles of OHV trails currently exist in the basin. Trails on state land provide access and connection to the larger OHV network located on BLM land.

Key Resource Considerations for Bell Mountain Basin

- A high percentage of the BLM land in this basin is comprised of complex stand structures.
- All the state tracts in this basin are priority candidates to exchange for BLM parcels within the main block of the Tillamook State Forest.

- Approximately 6 to 8 miles of OHV trails currently exist in the basin. Trails on state land provide access and connection to the larger OHV network located on BLM land.
- There are 1.2 miles of fish bearing (Type F) streams located in this basin.
- The transportation system provides good access; construction of a few spurs and some road improvement are all that are needed.

Desired Future Condition and Landscape Design

Currently there are no planned complex stands within this basin.

Management Opportunities

Harvest – There is one potential regeneration harvest opportunity in this basin.

Transportation – This basin is a low priority for planning and/or investments in the infrastructure. Road construction and improvement will be at a lower rate than the last ten years.

East District Isolated Tracts Basin

These 6 isolated tracts, widely scattered along the eastern edge of the district, total 425 acres and range in size from 5 acres to 140 acres. Privately owned land surrounds most of the parcels, and 3 parcels are also adjacent to BLM land. These tracts represent a wide range of stand ages from 15 to 75 years old. These scattered tracts are all candidates for exchange.

Key Resource Considerations for East District Isolated Tracts Basin

- The tracts in this basin are isolated and a high priority to exchange for parcels adjacent to or within the main block of the Tillamook State Forest.
- There is a total of 2 miles of fish bearing (Type F) streams in this basin.
- The transportation system provides limited access; access to some parcels is good but some parcels need access developed.

Desired Future Condition and Landscape Design

Currently there are no planned complex stands within this basin.

Management Opportunities

Harvest – Opportunities during this planning period include regeneration harvesting three isolated 80 acre parcels and portions of an isolated 150 acre parcel.

Transportation – This basin is a low priority for planning and/or investments in the infrastructure. If harvest opportunities are implemented, then road construction and improvement will be at a higher rate than the last ten years. Access across private ownership will need to be acquired.

Gales Creek Basin

The basin consists of 10,166 acres of state forest land, which is broken into 4 widely separated main blocks within the Gales Creek watershed. Much of this basin is privately owned land and has boundaries with 3 other basins of state forest land to the north, west, and south. This basin is located on the eastern edge of the district, both north and south of the Wilson River Highway, and much of this basin is easily accessible for public recreation. The Gales Creek Campground and the Gales Creek Overlook kiosk are two key recreation and interpretive opportunities located in this basin. The western portion of this basin was part of the 1933 and 1945 Tillamook fires and was one of the first reforested areas; thus, the average stand age is 60 to 65 years.

The Wildcat Mountain area, in the eastern portion of this basin, was not involved in any of the Tillamook fires. As a result, this 2,522-acre area has a wide range of stand ages from 20 to 80 years, and tree species from western redcedar and Douglas-fir to bigleaf maple and red alder. In the mid-1990s a pair of northern spotted owls was discovered nesting in this area, however, they no longer occupy this site.

Key Resource Considerations for Gales Creek Basin

- Gales Creek, a main tributary of the Tualatin River, originates in this basin. The main tributaries to Gales Creek in this basin are Beaver Creek, Iler Creek, and White Creek. Salmonids and resident trout reside in Gales Creek and most of its tributaries.
- There are approximately 12 miles of fish bearing (Type F) streams in this basin.
- Recreational considerations include Gales Creek Campground and trailhead facilities and 10 miles of non-motorized trails. This basin is designated for non-motorized recreational uses only.
- Visual resource considerations include those areas visible from the Wilson River Highway (Highway 6), particularly those areas of the forest visible from the Gales Creek Overlook, and Gales Creek Campground.
- The southern portion of the basin is home to one northern spotted owl site.
- The transportation system provides fair access; access to some steeper areas needs to be developed.

Desired Future Condition and Landscape Design

Approximately 33 percent of the basin will be managed to produce OFS and LYR stand structures. OFS and LYR stands have been located within the northern spotted owl site in the southern portion of the basin. Another large interior habitat area will be created in the Wildcat Mountain area.

Management Opportunities

Harvest – Some regeneration harvest opportunities exist on those acres not designated as DFC – Complex.

Transportation – This basin is a medium priority for planning and/or investments in the infra-structure. Road construction and improvement will be at a higher rate than the last ten years.

Larch Mountain Basin

This basin contains 13,160 acres of contiguous state-owned land, bordered by privately owned land to the north and state forest land on the other three sides. The Wilson Basin in the Tillamook District borders this basin to the west. The Wilson River and the Wilson River Highway (Highway 6) form the entire 11-mile southern boundary of this basin. Larch Mountain, Elk Mountain, Kings Mountain, Elk Creek, Idiot Creek, and Drift Creek are the dominant features and drainages. The topography varies from the steep rugged slopes and river canyons of the Kings Mountain area to moderate slopes at the middle to upper elevations on Larch Mountain. This area was burned in the 1933 and 1945 Tillamook fires. The stands in this basin range from 55 to 60 years old as a result of the Tillamook Burn reforestation projects, and have more western hemlock than most basins in the district.

Key Resource Considerations

- Recreational and visual resources include Elk Creek Campground, Kings Mountain Trailhead, 16 miles of non-motorized trails, and the areas visible from Highway 6. The Kings Mountain and Elk Mountain area is approximately 6,000 acres of very rugged terrain with high recreational and scenic value.
- There are approximately 24 miles of fish bearing (Type F) streams located in this basin.
- Important salmonid streams include: South Fork Wilson, North Fork Wilson, Devils Lake Fork, Elk Creek, Idiot Creek, and Drift Creek. Approximately 2,300 acres of the Ben Smith Creek Aquatic Anchor is located in the western portion of this basin.
- Much of the eastern portion of the basin has stands infected with *Phellinus weirii*, a fungus that causes root disease and is fatal to Douglas-fir.
- The transportation system provides inadequate access; a large part of the basin has no access developed.

Desired Future Condition and Landscape Design

The rugged terrain and the high recreation, scenic, fish and wildlife values dictate that a 41% of this basin will be designated as OFS and LYR. OFS and LYR have been placed along Game Hog Creek which is considered to be an important stream for salmonids. LYR stands have been placed along the Wilson, the West Fork Elk Creek, and Idiot Creek which are also important salmonid streams. LYR stands were also located on portions of Kings Mountain, and Elk Mountain. Because of the rugged terrain and low site on these areas, these complex structures will take longer to develop than in other parts of the district. For the most part, these complex forest structures will develop naturally with little or no silvicultural manipulations. Any future partial cutting in the Kings Mountain area will most likely be done with helicopters.

Management Opportunities

Harvest – There are few harvest opportunities east of Elk Creek. In this part of the basin regeneration harvesting will make up the majority of the harvest prescriptions.

Transportation – This basin is a low priority for planning and/or investments in the infrastructure. Road construction and improvement will be at the same rate as the last ten years.

McGregor Basin

This basin contains 10,618 acres of contiguous state forest land located directly north of the Sunset Highway. To the south the basin is bounded by state land; privately owned land borders the other three sides. Timber is between 55 and 70 years old. The dominant feature is the North Fork Wolf Creek, which is a tributary to the Nehalem River and an important salmonid stream. This area receives low recreational use except during hunting season.

During the 1990s, northern spotted owl surveys detected non-territorial single owls moving in and out of this basin. The basin represents an important connection between the northern spotted owl usage in the Jewell area and the high quality habitat being developed to the south in the Wheeler Basin.

Key Resource Considerations

- There are approximately 16 miles of fish bearing (Type F) streams located in this basin.
- The North Fork of Wolf Creek and Olson Creek are both important coho salmon streams. The western edge of this basin is located within the Upper Rock Creek Aquatic Anchor.
- Recreational resources include the one-mile Four Corners Trail and a 1.5 mile interpretive loop trail at the Sunset Wayside on Highway 26. Hunting and dispersed camping is the most prevalent recreational use of this basin.
- The stands visible from the Sunset Highway are important as a visual resource.
- While northern spotted owls have been detected passing through this area, there are no known resident owls. However, this basin may act as important dispersal habitat. In this basin, there is one individual domestic water right registered with the Oregon Department of Water Resources.
- The transportation system provides good access; construction of a few spurs and some road improvement are all that are needed.

Desired Future Condition and Landscape Design

Approximately 21 percent of this basin will be managed to produce complex stand structures. OFS stands will be concentrated along Bear Creek and the South Fork of Rock Creek within the Upper Rock Creek Aquatic Anchor. Additional LYR stands will be located along the North Fork of Wolf Creek.

Management Opportunities

Harvest – Harvest opportunities in this basin are moderate to high. Many of the stands suited to partial cut prescriptions have been recently completed. The majority of harvest opportunities during this planning period will be regeneration harvests.

Transportation – This basin is a low priority for planning and/or investments in the infrastructure. Road construction and improvement will be at the same rate as the last ten years.

Rogers Basin

With 20,834 acres of contiguous state forest land, this basin represents the district's largest management basin. The majority of the Wilson River headwaters are included within this basin. The basin is made up of 50 to 60-year-old stands resulting from the reforestation after the Tillamook fires. This is the district's most heavily used basin for recreation; it is used primarily by off-highway vehicle (OHV) users. The basin has about 50 miles of OHV trails, an OHV campground (Browns Camp), Stagecoach Horse Camp, and 10.5 miles of non-motorized trails. Approximately 85% of this basin has been classified as Focused Stewardship-Recreation. This basin is bounded by privately owned land to the south and east, state forest land to the west, and state forest land across Highway 6 to the north. The Wilson Basin in the Tillamook District borders this basin to the west.

Key Resource Considerations

- This basin has the highest recreational use in the district, with OHV use being primary. There is an extensive trail network throughout the basin, which includes approximately 59 miles of designated OHV trails and 10.5 miles of designated non-motorized trails. Dispersed camping and hunting are also important uses.
- Browns Camp Campground, Stagecoach Horse Camp, Lyda Camp staging area, University Falls Trailhead, Rogers Camp Trailhead, and Deyoe Creek Trailhead are located within this basin.
- A major visual resource is the area visible from the Wilson River Highway, which forms the basin's northern boundary.
- There are approximately 37 miles of fish bearing (Type F) streams located in this basin.
- There are four important salmonid streams: Devils Lake Fork, Elliot Creek, Deyoe Creek, and South Fork of the Wilson. Approximately 6,000 acres of the Devils Lake Fork Wilson River Aquatic Anchor is located in the eastern portion of this basin.
- Much of the basin has stands infected with *Phellinus weirii*.
- A state-listed endangered plant, Nelson's checker-mallow, *Sidalcea nelsoniana*, is located in two small meadows adjacent to the upper Devils Lake Fork of the Wilson River.
- A 2,081 acre Terrestrial Anchor Site is located within this basin.
- In this basin, there are two individual domestic water rights that are registered with the Oregon Department of Water Resources.
- The transportation system provides good access; construction of a few spurs and some road improvement are all that are needed.

Desired Future Condition and Landscape Design

For fish and wildlife, and scenic resources, 23 percent of the basin will be managed for complex stand structures. LYR and OFS stands will be located within the South Fork Wilson TAS. Complex stands will be located along the salmonid streams within the Devils Lake Fork Wilson River Aquatic Anchor. LYR stands will be located near the upper reaches of the South Fork of the Wilson, another important salmonid stream. Additional complex stands will be designated along a portion of the Wilson River Highway for scenic reasons.

Management Opportunities

Harvest – Harvest opportunities are moderate to high. Much of this basin is known for its high levels of root rot infection. These diseased forest stands are best treated by regeneration harvesting the highly susceptible Douglas-fir and replanting with resistant tree species. Partial cuts will be planned for healthy stands. Partial cut opportunities will be greatest within the Terrestrial Anchor Site while regeneration harvest opportunities will be located outside the Terrestrial Anchor Site.

Transportation – This basin is a medium priority for planning and/or investments in the infra-structure. Road construction and improvement will be at the same rate as the last ten years.

Scoggins Creek Basin

This small, 3,018-acre isolated basin drains directly into Hagg Lake by means of Scoggins Creek. The Scoggins Creek canyon is predominantly characterized by steep slopes, highly erosive soils, and high risk sites. As shown during the February 1996 storm, large slide features can become active under the right weather conditions. Hagg Lake provides water for irrigation and municipal uses, and is heavily used for recreation. The state forest land within this basin is completely surrounded by privately owned land. The predominant adjacent landowner is Stimson Lumber Company, and all the state parcels within this basin are a high priority for exchange.

Key Resource Considerations

- Approximately 249 acres adjacent to the City of Forest Grove's watershed has been designated as Focused Stewardship – Domestic Water Use.
- Scoggins Creek flows directly into Hagg Lake and provides water for irrigation, recreation, and municipal use.
- There are approximately 5 miles of fish bearing (Type F) streams in this basin.
- State forest parcels are excellent candidates for exchange with Stimson Lumber Company.
- The transportation system provides limited access; access to some areas is good but some large areas need access developed.

Desired Future Condition and Landscape Design

Currently there are no planned complex stands within this basin.

Management Opportunities

Harvest – The majority of harvest opportunities remaining in this basin are regeneration harvests. Harvest activity will be moderate during the planning period.

Transportation – This basin is a high priority for planning and/or investments in the infrastructure. Road construction and improvement will be at the same rate as the last ten years.

Sunday Creek Basin

The southernmost contiguous ownership in the district, Sunday Creek Basin, totals 15,239 acres. The vast majority of the stands in this basin are between 45 and 55 years old, as a result of reforestation after the Tillamook fires. This basin is bounded by privately owned land to the north and east, BLM and private land to the south and by the Trask Basin in the Tillamook District to the west. Key features include the headwaters of the Tualatin River, Middle Fork of the North Fork Trask River, the North Fork of the North Fork Trask River, and Barney Reservoir (the municipal water supply for much of Washington County). Except for a small area in the southwest corner of this basin, the recreational use in this basin is designated as non-motorized and is low to moderate in frequency. The main recreational uses in this basin are hunting, fishing and dispersed camping.

Key Resource Considerations

- Important water resources include: Barney Reservoir (the general municipal watershed for the cities of Hillsboro, Beaverton, and Forest Grove) and the headwaters of the Tualatin River, which include Sunday Creek and Maple Creek. Approximately 1,470 acres around Barney Reservoir have been designated as Focused Stewardship – Domestic Water Use.
- There are approximately 21 miles of fish bearing (Type F) streams in this basin.
- The Middle Fork of the North Fork Trask River and the North Fork of the North Fork Trask River are important salmonid habitat resources. The southwest tip of this basin is located within the Elkhorn Creek Aquatic Anchor.
- Approximately 1.5 miles of OHV trail exists in the southwest corner of the basin that provides connections to established trails on the Tillamook district as well as on adjacent landowners.
- The transportation system provides good access; construction of a few spurs and some road improvement are all that are needed.

Desired Future Condition and Landscape Design

Approximately 4 percent of this basin will be managed for OFS stand structures. OFS stands will be located along Elkhorn Creek within the Elkhorn Creek Aquatic Anchor. Another block of complex stands will be located adjacent to neighboring BLM lands that are currently designated as Late Successional Reserves (LSR).

Management Opportunities

Harvest – Opportunities for both partial cut and regeneration harvests are moderate. Very little regeneration harvest activity has taken place during the past ten years. This can be expected to increase. For the most part regeneration harvests will be located on upland areas a good distance from the main streams in this basin.

Transportation – This basin is a high priority for planning and/or investments in the infrastructure. Road construction and improvement will be at a higher rate than the last ten years.

Upper Salmonberry Basin

This 18,955-acre basin is dominated by important salmonid streams, steep terrain, remote recreational opportunities, and scenic views. It will be targeted for a high percentage of OFS and LYR stands. This design will allow for large interior habitat areas and maximum protection of the inner canyon zones of the Salmonberry River and the North Fork Salmonberry River. While much of the basin was railroad logged, portions were burned in large fires in 1932 and 1945. Stand ages range from 55 to 70 years, resulting from natural regeneration and planting following logging and fires. This basin is bordered by privately owned land to the north and south, and by state forest land to the east and west. The Cronin Creek Basin and the Salmonberry Basin in the Tillamook District border this basin to the west. The Port of Tillamook Bay railroad divides the basin nearly in half, paralleling the Salmonberry River. This basin is zoned for non-motorized recreation.

Key Resource Considerations

- There are approximately 36 miles of fish bearing (Type F) streams in this basin.
- The North Fork Salmonberry River has an important native steelhead population.
- The Salmonberry River, Wolf Creek, and Pennoyer Creek are other important salmonid streams. The southwest corner of this basin is located within the South Fork Salmonberry River Aquatic Anchor.
- This basin is often utilized for dispersed camping and remote recreational experiences. Hunting and viewing migrating fish in the North Fork Salmonberry River are other popular activities.
- The scenic quality of the Salmonberry River canyon is an important resource.
- The Upper Salmonberry (3,097 acres) and a portion of the Wolf Creek (1,031 acres) Terrestrial Anchor Sites are located within the basin.
- The transportation system provides limited access; access to some areas is good but some large areas need access developed.

Desired Future Condition and Landscape Design

Approximately 48 percent of the basin will be managed for complex stands. A large portion of the South Fork Salmonberry River Aquatic Anchor will be designated with a mixture of OFS and LYR stands. All of the Upper Salmonberry and Wolf Creek TAS will be designated with complex stands. Other LYR and OFS stands will be located within stands

with high levels of down wood and snags, within stream adjacent stands and within stands that provide connectivity to upland habitats.

Management Opportunities

Harvest – Opportunities for both partial cut and regeneration harvest are moderate. It is anticipated that there will be slightly higher levels of regeneration harvesting during this planning period than over the past 10 years. For the most part regeneration harvests will be located in the upland areas. Partial cut opportunities will be greatest within the Terrestrial Anchor Site while regeneration harvest opportunities will be located outside the Terrestrial Anchor Site.

Transportation – This basin is a high priority for planning and/or investments in the infrastructure. Road construction and improvement will be at a higher rate than the last ten years.

Wheeler Basin

This basin is bordered by private land to the east and state land on the other three sides. Stand ages are predominantly 65 to 75 years old as a result of natural regeneration following railroad logging in the 1930s.

Several key coho streams are located in this 16,141-acre basin. They include the Nehalem River, Carlson Creek, Wolf Creek, Lousignont Creek, and North Lousignont Creek. These streams are located in the eastern two-thirds of the basin. This basin is popular for hunting, driving and dispersed camping. It is becoming increasingly popular for non-motorized trail users, particularly equestrian users. It is zoned for non-motorized recreation. Approximately three (3) miles of the Gales Creek Trail from Bell Camp Road to Reehers Camp is located within the basin.

Key Resource Considerations

- This basin contains 3,172 acres of a Terrestrial Anchor Site (TAS).
- There are approximately 33 miles of fish bearing (Type F) streams in this basin.
- Important coho streams include: Lousignont Creek, North Lousignont Creek, Wolf Creek, Carlson Creek, the upper Nehalem River, and the South Fork of Rock Creek. Most of this basin is within the Lousignont and Upper Rock Creek Aquatic Anchors.
- Recreational resources include Reehers Camp campground and three (3) miles of the Gales Creek Trail.
- The surveyed route of the Salem to Astoria Military Road runs through this basin. It has recently been identified and marked. These markers will be preserved during any operations.
- The town of Timber obtains its drinking water from the Nehalem River at a location adjacent to this basin. A 1,923-acre area upstream from this water source has been designated as Focused Stewardship – Domestic Water Use.
- The transportation system provides fair access; access to some steeper areas needs to be developed.

Desired Future Condition and Landscape Design

Approximately 50 percent of this basin will be managed for complex stands. With numerous coho streams and a TAS in this basin, the focus will be on developing OFS and LYR stand structures quickly. All of the TAS is on a pathway to OFS or LYR. OFS & LYR stands are also located within the Lousignont and the Upper Rock Creek Aquatic Anchors.

Management Opportunities

Harvest – Opportunities for both partial cut and regeneration harvest are moderate. Partial cut opportunities will be greatest within the Terrestrial Anchor Site while regeneration harvest opportunities will be located outside the Terrestrial Anchor Site.

Transportation – This basin is a medium priority for planning and/or investments in the infra-structure. Road construction and improvement will be at a higher rate than the last ten years.

Wilark Basin

Located in Columbia County in the northeast part of the district, these 4,726 acres of state forest land are entirely surrounded by privately owned land. A 240-acre parcel owned by Columbia County, known as Camp Wilkerson, lies at the center of the state forest land. Because of deed restrictions, the county parcel will be maintained as mature forest structure. Therefore, some OFS stand structure will be located adjacent to this parcel to increase the interior habitat area. Oak Ranch Creek and the Little Clatskanie River are the only fish-bearing streams in this basin and are not designated as core salmonid areas. Approximately 60 percent of the basin has been regeneration harvested within the past 25 years, leaving few opportunities to achieve mature forest structures in the next four decades. The terrain is very gentle, the timber is easily accessible with little or no road building, and there are few recreation or scenic opportunities.

Key Resource Considerations

- State forest land surrounds the 240-acres of county-owned land, which is being managed for complex stand structures. This provides one of the few opportunities in this basin for a large interior habitat area.
- There are approximately 7 miles of fish bearing (Type F) streams in this basin.
- Oak Ranch Creek and Little Clatskanie River are the only major fish streams.
- In this basin, there is one individual domestic water right registered with the Oregon Department of Water Resources.
- The transportation system provides good access; construction of a few spurs and some road improvement are all that are needed.

Desired Future Condition and Landscape Design

Approximately 12 percent of this basin will be managed for OFS and LYR stand structures. Complex stands will be placed along the county-owned land to create a larger interior

habitat area. Other complex stands will be located within certain older stands or stands with a known high level of snags and down wood.

Management Opportunities

Harvest – Opportunities for regeneration harvest are low. Opportunities for partial cuts are low to moderate. This basin has been well managed over the past 30 years and has a high percentage of plantations nearing maturity. Much of the partial cuts will take place in these stands during the second half of this planning period.

Transportation – This basin is a low priority for planning and/or investments in the infrastructure. Road construction and improvement will be at the same rate as the last ten years.

Expected Outputs and Habitat Achievements

In general, structure-based management intervals used in this district have been determined to fit an 18-year average. Within any given 18-year period, a stand will be subject to review for a management prescription. If a silvicultural treatment is determined to be necessary or beneficial, the stand will be managed to either advance it toward the next level of structural complexity or to convert it into a new, young, vigorous stand, depending on the desired landscape goals for the stand. For the 10-year planning period, stands currently in OFS will be retained to function as complex structure on the landscape. In the future, when replacement stands achieve a similar structure, some of the older complex structures may be targeted for final harvest. Partial cutting will be the primary silvicultural stand management activity to advance stands toward the next level of structural complexity. More complex structures will not be achieved immediately following a partial cut. Historical evidence suggests that it may take the full 18-year period following the management prescription for a more complex structure to be achieved. Partial cutting in both younger and older stands will progress CSC and UDS stand structures toward the more complex LYR stand structure. Some younger stands will receive multiple partial cut entries on an 18-year interval to develop the components of a LYR stand. Some LYR stands may require an additional partial cut entry to hasten the development of OFS characteristics (larger diameter trees, higher snag densities, and greater down wood levels, etc.).

Structure Targets, Timber and Habitat

The harvest levels proposed in this implementation plan will contribute toward the desired future structure targets as outlined in Table 11, **Information Summary for all Management Basins**. Table 12 shows an estimate of desired future structure targets at the end of this implementation planning period.

Partial cuts will be evaluated during the planning process for opportunities to add structural components where they are lacking. Some snags may need to be created in older partial cuts that are lacking in hard snags. Structural components in younger partial cuts will be addressed at the next silvicultural decision point. This delay in snag creation in younger partial cuts will provide for the creation of larger diameter snags in the future. While there is no specific down wood target for partial cuts, it is felt that the recruitment of down wood should be somewhat continuous for those stands progressing towards complex stand structures. An estimated 200 cubic feet per acre of down wood will be added during partial cut operations as a result of residual slash and snag creation. In addition, these stands will be monitored over time to ensure that recruitment of down wood is taking place through natural processes.

The northern basins have high levels of beetle kill and will be evaluated over the planning period as to whether or not additional snag creation will be required during each AOP process. For regeneration harvest units outside the heavy beetle kill basins, the snag creation level will be 2 per acre. Down wood will be added at the time of harvesting by leaving cull

logs, slash, and if necessary contract requirements for creating down wood. DWD surveys on completed regeneration harvests have averaged over 900 cubic feet per acre of decay class 1 and 2. The down wood target for regeneration harvests is 600 to 900 cubic feet per acre in decay class 1 and 2. Where down wood is severely lacking, 1 to 2 trees per acre may be left in addition to the 5 green trees per acre target. These additional trees may be felled immediately after harvest or left standing for the purpose of recruitment by natural means over time (e.g., windthrow).

Table 12. Anticipated Stand Structure Development by 2021

	REG	CSC ²	UDS ³	LYR ⁴	OFS
Current Condition ⁵	6	15	59	16	0
After Implementation Plan Period ¹	8	9	58	20	1
Desired Future Condition	←	66	→	15	15

1. These are estimates that may differ from the actual conditions significantly.
2. After partial cutting CSC stands, it takes about 5 –to 7 years for an understory to develop.
3. After partial cutting and/or underplanting, it may take 20 to 30 years for layering to develop.
4. The time it takes to develop LYR stands into OFS is highly variable and depends on many factors, including (but not limited to): snag and down wood recruitment; development of trees greater than 32 inches in diameter.
5. The percentage for all stand structures does not equal 100% because 4% of the district is designated as Non-Silviculturally Capable or Non-Forest.

Harvest Outputs

The Annual Harvest Objects (AHO) in Table 13 identifies the sustainable and predictable production of timber (forest products) from the district, and the harvest activities “for the ten-year period that will be necessary to move toward the desired future condition” (NW FMP page 5-4). The AHO is determined through the District Opportunity Analysis described in Appendix A. The Opportunity Analysis establishes 61 MMBF as the maximum sustainable volume that can be produced to meet the goals of the Northwest Oregon State Forest Management Plan as applied through this Implementation Plan. The acre ranges for regeneration harvest and partial cut harvest describe the types of harvest activities that will occur over time to achieve the volume objective and desired future condition of stand structures.

The AHOs will be implemented through the district’s Annual Operations Plan. The objective is to achieve the average of the AHO over the expected 10 year planning horizon for the Implementation Plan. Under normal circumstances, the volume proposed in an Annual Operations Plan will be near the AHO target; however, unforeseen, events may result in an Annual Operations Plan volume that is farther from the AHO target. Unforeseen events may consist of, but are not limited to, catastrophic windstorm, fire, or poor market conditions. For example, catastrophic events may lead to emergency salvage operations that result in harvesting above of the AHO, or poor market conditions preclude meeting AHO volume. When unforeseen factors for one district preclude achieving AHO objectives, the State Forester may re-direct annual harvest levels to another district. The Annual Operations Plan

will describe how the volume relates to the AHO volume identified in the Implementation Plan.

The acres of regeneration harvesting and partial cutting proposed in each Annual Operations Plan will normally be within the ranges identified in Table 13, but the mixture of acres will vary from year to year based on the stands selected for harvest, their current condition, desired future condition, and the silvicultural prescription used to move the stand from its current to its future condition. Numerous factors apply to the stand selection process and their relative importance may change from year to year and from basin to basin. Factors that affect the stand selection process include the overall objectives indentified in this Implementation Plan, recent harvest activity in the basin, results of threatened and endangered species surveys, condition of the transportation system, and current market conditions.

If changed conditions, new information, or different strategies indicate a significant shift in the AHO is necessary; this Implementation Plan will be revised. There are two processes for revisions to the Implementation Plan: major or minor. Page 5-4 of the Northwest Oregon State Forest Management Plan defines a major revision (of the AHO) as:

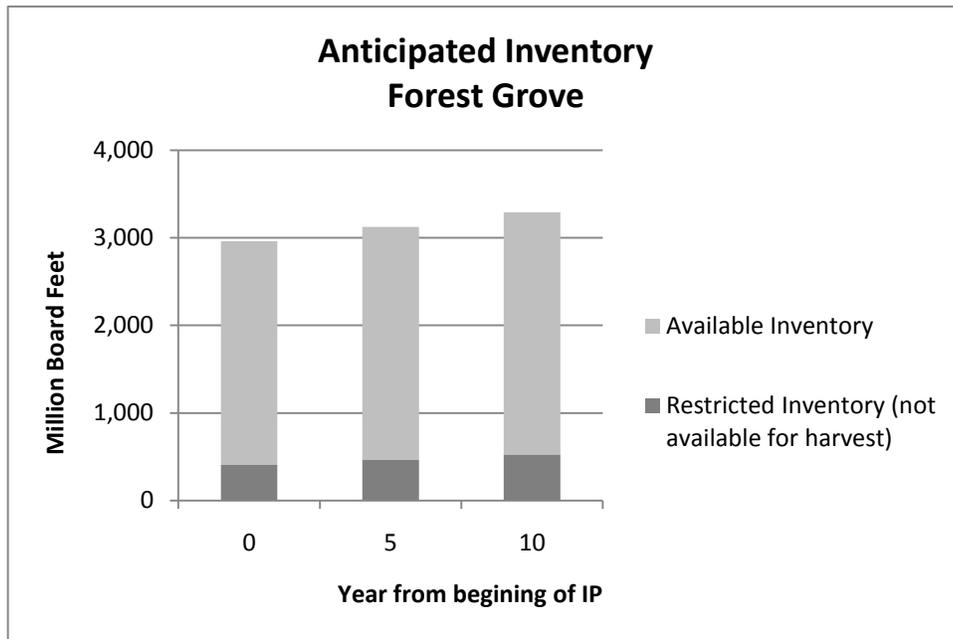
“Revisions that propose changes to the annual harvest level ranges of more than 25% (based on combined acreage of regeneration and partial harvest).”

The Northwest Oregon State Forest Management Plan prescribes a 30-day public comment period prior to State Forester approval of major revisions. Minor revisions (those that do not meet the criteria of a major revision) to the Implementation Plan may be approved by the District Forester. Minor revisions to the Implementation Plan are described in Annual Operations Plan.

Table 13. Annual Partial Cut and Regeneration Harvest Objectives, by Volume and Acres

Volume (MMBF)	Regeneration Harvest Acres	Partial Cut Harvest Acres
61	300 - 1,300	850 - 3,450

Figure 4. Anticipated Inventory



1. The volume in this chart is based on the outputs of the harvest model used to inform this implementation plan. These figures are estimates intended to demonstrate the volume trend under this implementation plan rather than absolute values.
2. Restricted Inventory are those areas that not available for harvest and includes Inner Riparian Zone, designated NSO areas (40 percent of the provincial circle), Administrative Sites, high landslide hazard locations that are a risk to public safety, and some other non-harvestable sites.

Figure 4 shows that during this IP period, total wood volume on the district increases from 2,963 MMBF to 3,598 MMBF. The available wood volume increases from 2,557 MMBF to 2,767 MMBF. Figure 4 illustrates that despite an increase in the annual harvest volume, the available inventory on the district continues to increase.

Appendix A

District Opportunity Analysis

This Implementation Plan describes the current condition of the resources present on the district, landscape design strategies to achieve a desired future condition, and management activities for a 10 year period, including the Annual Harvest Objective (AHO). This appendix describes the *Opportunity Analysis* the district used to determine the AHO to achieve the strategies described in this Implementation Plan, the Northwest Oregon State Forest Management Plan, and the other plans, policies or strategies listed in the *Introduction* of this Implementation Plan.

The purpose of the Opportunity Analysis is to identify the highest sustainable flow of timber volume that attains the stand structure goals for the district. The Opportunity Analysis also identifies the acreage range for regeneration harvest and partial cut harvests necessary to achieve the volume outputs and stand structure goals.

The Opportunity Analysis is based on the volume, harvest acre, and stand structure outputs from a harvest scheduling model. Those outputs have been analyzed by the district using results of recent timber harvest and other information to *ground truth* the model. In this analysis, the district accounts for factors which could not be model because of a lack of data (i.e. high landslide hazard locations); as well as factors that do not lend themselves to a computer model (i.e. scenic and recreation resources).

The district's Opportunity Analysis is the source of the AHO and other management activities listed in the following tables in the Implementation Plan:

- Table 6. Annual Silvicultural Activities Starting Fiscal Year 2012
- Table 13. Annual Partial Cut and Regeneration Harvest Objectives, by Volume and Acres

Harvest Scheduling Model

The harvest scheduling model that generated the data for the Opportunity Analysis is based on the models used for the Harvest and Habitat Model Project. These models are designed to simultaneously achieve goals for timber harvest and stand structure development consistent with the principles of structure based management described in the Northwest Oregon State Forests Management Plan. These models are designed to incorporate rules that emulate the strategies and practices contained in plans, policies, and strategies that apply to the planning area. More information on these models can be found in the *Harvest and Habitat Model Project Final Report* (ODF; March 8, 2006) or by contacting the State Forests Operations Coordinator in Salem.

The harvest scheduling model for this Opportunity Analysis has been updated from the Harvest and Habitat Model to:

- Ensure the model rules reflect the plans, policies, and strategies that are applicable to this Implementation Plan, as described in the *Introduction* section of the Implementation Plan;
- Incorporate the most current spatial data available, including stand boundaries, locations of species of concern, and the current landscape design; and
- Revised yield tables developed from most current Stand Level Inventory data.

Harvest Context

- The average AOP volume per year over the last five years is very close to the current Implementation Plan volume. The district believes that the new model volume output (61 MMBF) per year can be implemented given the acreage ranges displayed in Table A-1.

Table A-1. Harvest Outputs

	Model Outputs ¹	AOP Average 2007 through 2011	Implementation Plan ²
Volume (MMBF)	60.5	60	61
Regeneration Harvest Acres	803	928	800 300 - 1,300
Partial Cut Harvest Acres	2,165	1,819	2,150 850 - 3,450
Total Acres	2,968	2,724	2,950 1,150 – 4,750

1. Average annual harvest level based on the average outputs from the first two periods of the IP Revision Harvest Model (H&H 7).

2. Annual harvest levels from the implementation plan March 2011. The top number is the mid-point of the range and the lower numbers are the range of outputs.

- The average harvest volumes per acre shown in Table A-2 are consistent with district experience. Actual Partial Cut and Regeneration Harvest volumes per acre over the past ten AOP's match very closely with the model volume per acre. Actual Regeneration Harvest volumes per acre can easily fluctuate plus or minus 10 percent based on the stands selected for any given AOP. While Partial Cut "Take" volumes per acre don't vary all that much from stand to stand, Regeneration Harvest volumes per acre can vary by as much as 40 percent.

Table A-2. Average Harvest per Acres

	Model ¹	Actual ²	Difference	Percent
Regeneration Harvest	34.4 MBF	33.6 MBF	+ 0.8 MBF	+2.3%
Partial Cut Harvest	14.8 MBF	15.3 MBF	-0.5 MBF	-3.4%

1. Average volume harvest per acre for the first model period.
2. Based on the 10-year average volume harvested per acre using "cut out" or timber cruise information.

Other Factors Affecting Implementation

High Landslide Hazard Locations. This impacts a very small acreage on the district. There is no need for any volume adjustment.

Focused Stewardship – Recreation. There are approximately 19,146 acres of Focused Stewardship – Recreation subclass located primarily within the Roger’s basin south of Highway 6. With Forest Grove’s proximity to the greater Portland area we experience a high level of recreational use. There is a high level of sensitivity from users related to harvest impacts on both motorized and non-motorized trails. In the past the district has tried to limit impacts by spreading out harvest units both spatially and temporally. This was not modeled because of the difficulty in quantifying these impacts. Since the model is not operational the district’s timber management unit and recreation unit can continue to work together to minimize harvest impacts on recreational use.

Northern Spotted Owl Circles. The model reflects the current NSO sites and assumes the same number of sites over time, thus there are no impacts to the implementation of the annual harvest objective.

Implementation

The Annual Harvest Objectives for the implementation plan are 61 MMBF on 803 acres of Regeneration Harvest and 2,165 acres of Partial Cut. These acreages represent the mid-point of the ranges shown in Table A-1. Annual Harvest Objective acreage ranges were set assuming a minimum of 20 percent of the AHO volume will include either partial cut or regeneration harvest. The factors mentioned above will not have any significant impact on the implementation of these objectives during the Implementation Plan period.

Appendix B

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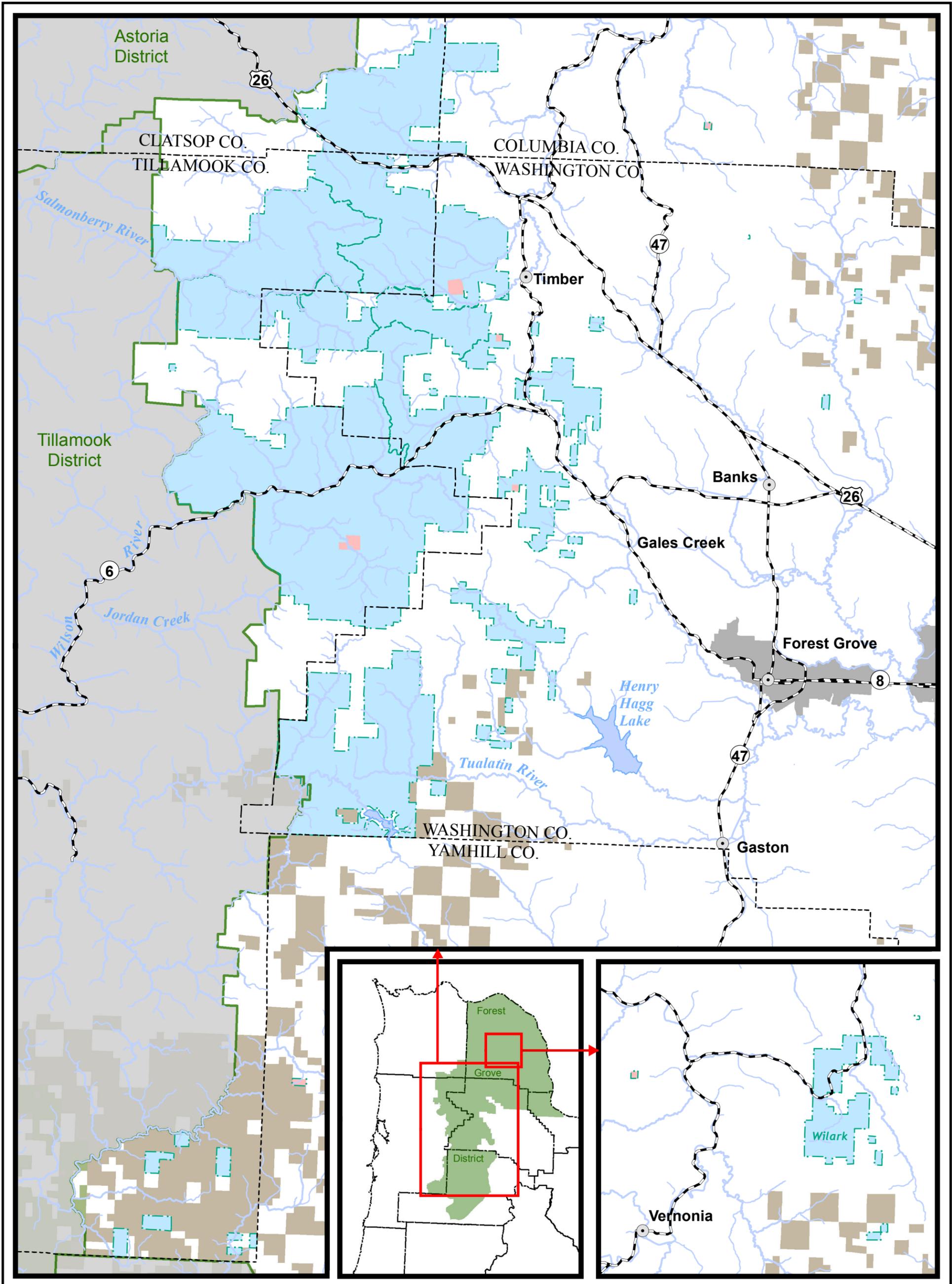
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- ODFW** 2005. *Fish Habitat Assessment in the Oregon Department of Forestry in the Upper Nehalem and Clatskanie Study Area*. Peggy Kavanagh, Kim Jones, and Charles Stein. Oregon Department of Fish and Wildlife. 28655 Highway 34. Corvallis, Or. 97333
- ODFW** 2006. *Fish Habitat Assessment in the Oregon Department of Forestry Wilson River Study Area*. Peggy Kavanagh, Kim Jones, and Charles Stein. Oregon Department of Fish and Wildlife. 28655 Highway 34. Corvallis, Or. 97333
- ODFW** 2007. Oregon Coast Coho Conservation Plan March 16, 2007. Prepared by Oregon Department of Fish and Wildlife in partnership with state and federal natural resource agencies. 63 pages.
http://www.oregon.gov/OPSW/cohoproject/PDFs/November2007_pdfs/Coho_Plan.pdf
- ODFW** 2010. *Beaver Relocation Guidelines, May 2010*. Oregon Department of Fish and Wildlife, Salem, Oregon.
- ODFW** 2010b. *Oregon Anadromous Fish Habitat Distribution*. Oregon Department of Fish and Wildlife. <http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishdistdata>
- R2 Resource Consultants** 2005. *Upper Nehalem Watershed Analysis Parts I-III*. R2 Resource Consultants, Inc. in association with Lee Benda and Associates, Inc. Available from the Oregon Department of Forestry.
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<http://nrimp.dfw.state.or.us/OregonPlan/default.aspx?p=152&path=ftp/reports/Final%20Reports&title=&link=>

Map Section

- 1. Forest Grove District Overview**
- 2. Forest Grove District: Current Condition Stand Structure**
- 3. Forest Grove District: Desired Future Condition Stand Structure**

Forest Grove District Ownership



Ownership

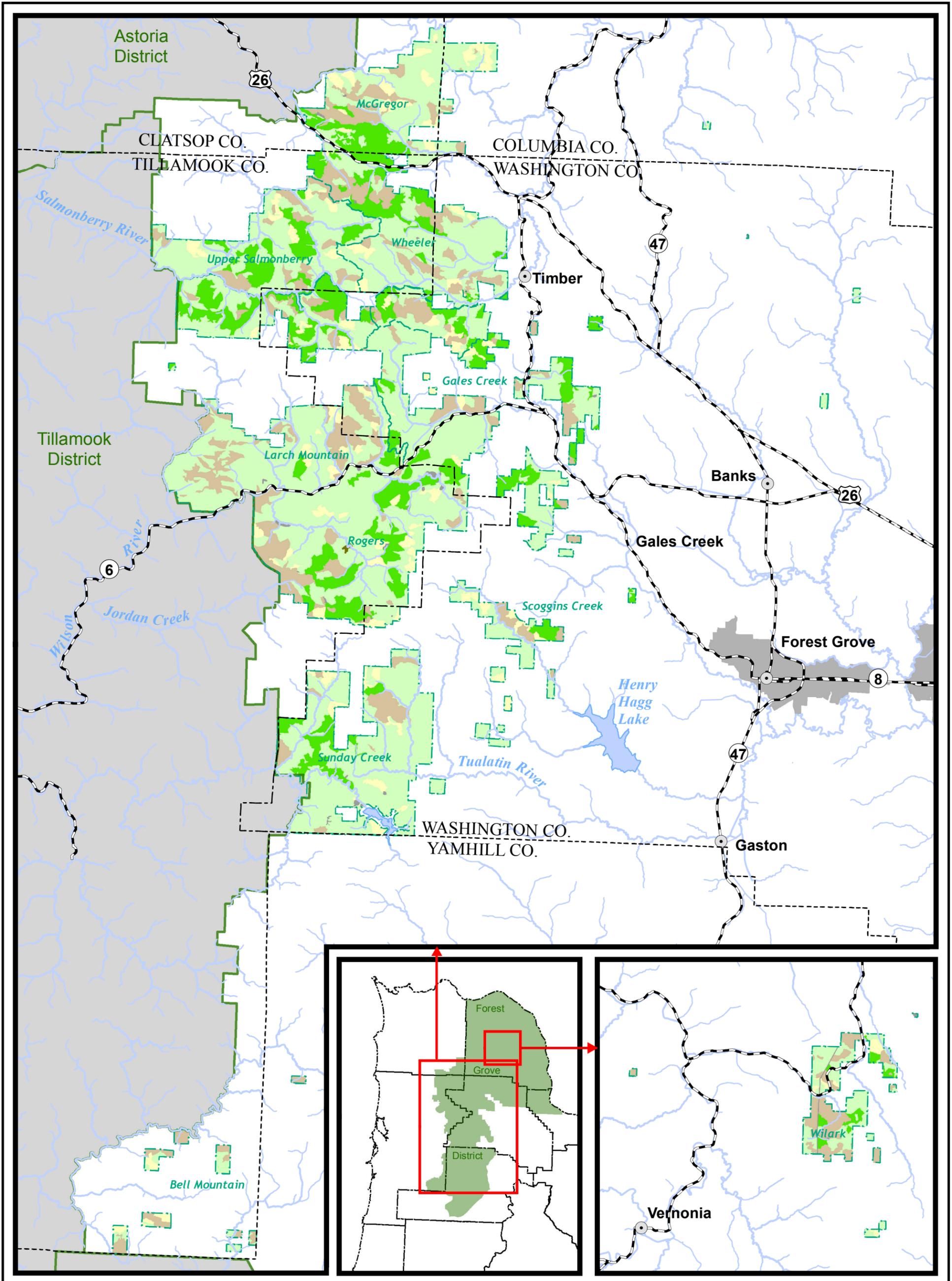
- Board of Forestry Lands
- Common School Lands
- US Bureau of Land Management
- US Forest Service

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Management Basins
- Adjacent Districts



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Forest Grove District Current Condition



Stand Structure Type

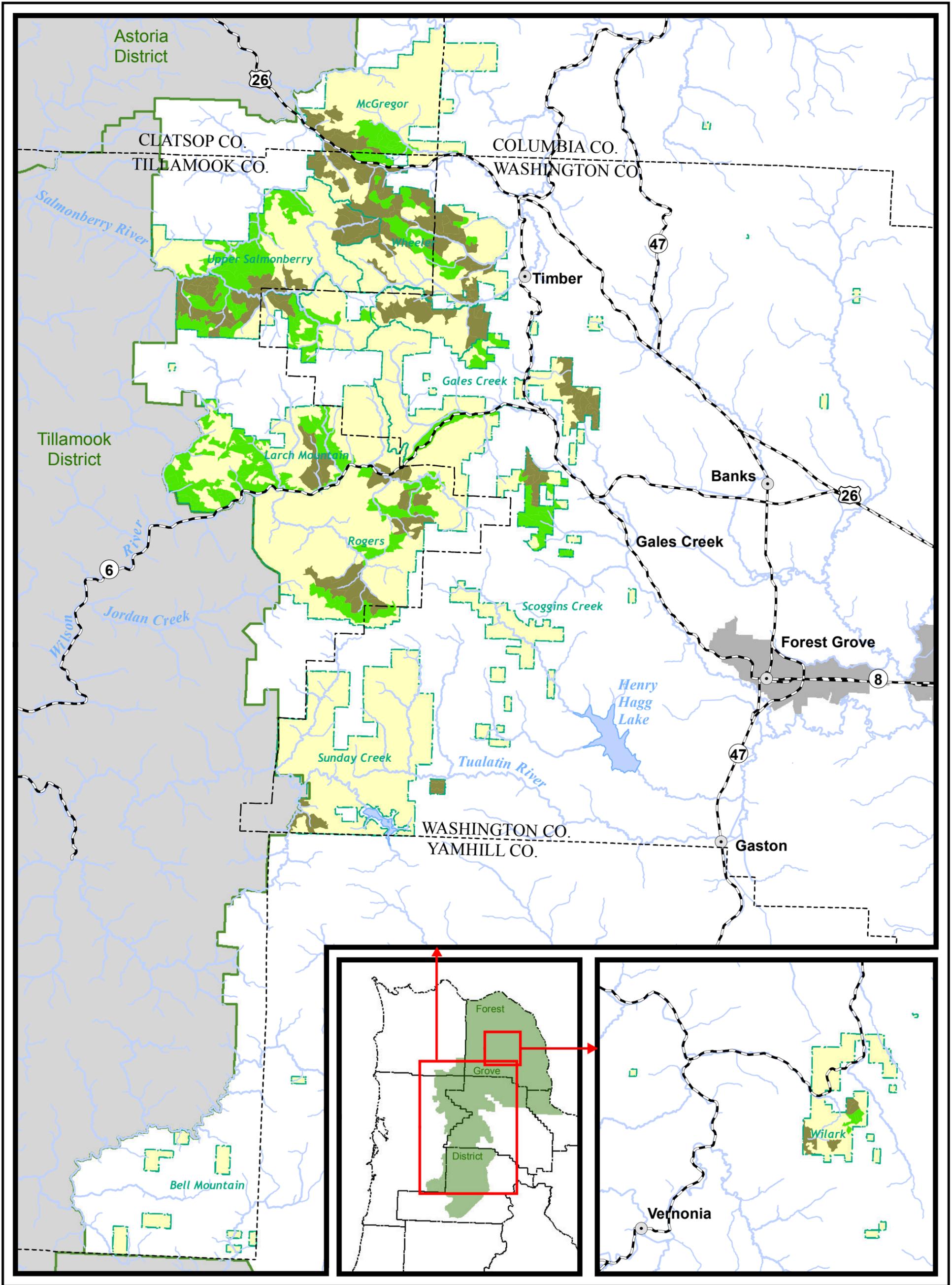
- Non-Silviculturally Capable
- Regeneration
- Closed Single Canopy
- Understory
- Layered
- O/S

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Adjacent Districts
- Management Basins



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Forest Grove District Desired Future Condition



Stand Structure Type

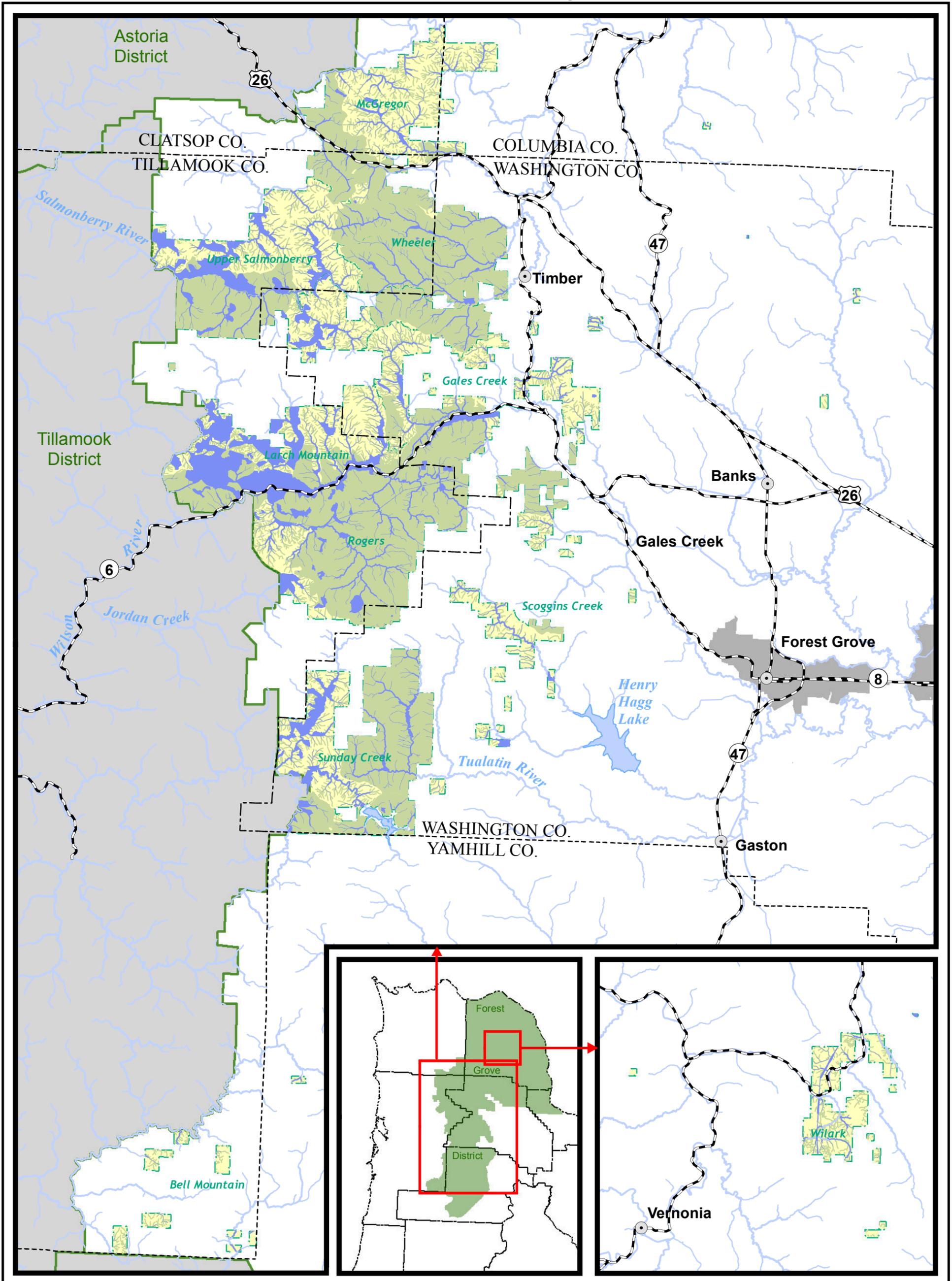
-  Layered
-  Older Forest Structure
-  Other

-  Towns
-  Roads
-  Streams, Large
-  Streams, Medium
-  Adjacent Districts
-  Management Basins



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Forest Grove District Stewardship Classifications



Stewardship Classifications

-  Special
-  Focused
-  Other

 Towns

 Roads

 Streams, Large

 Streams, Medium

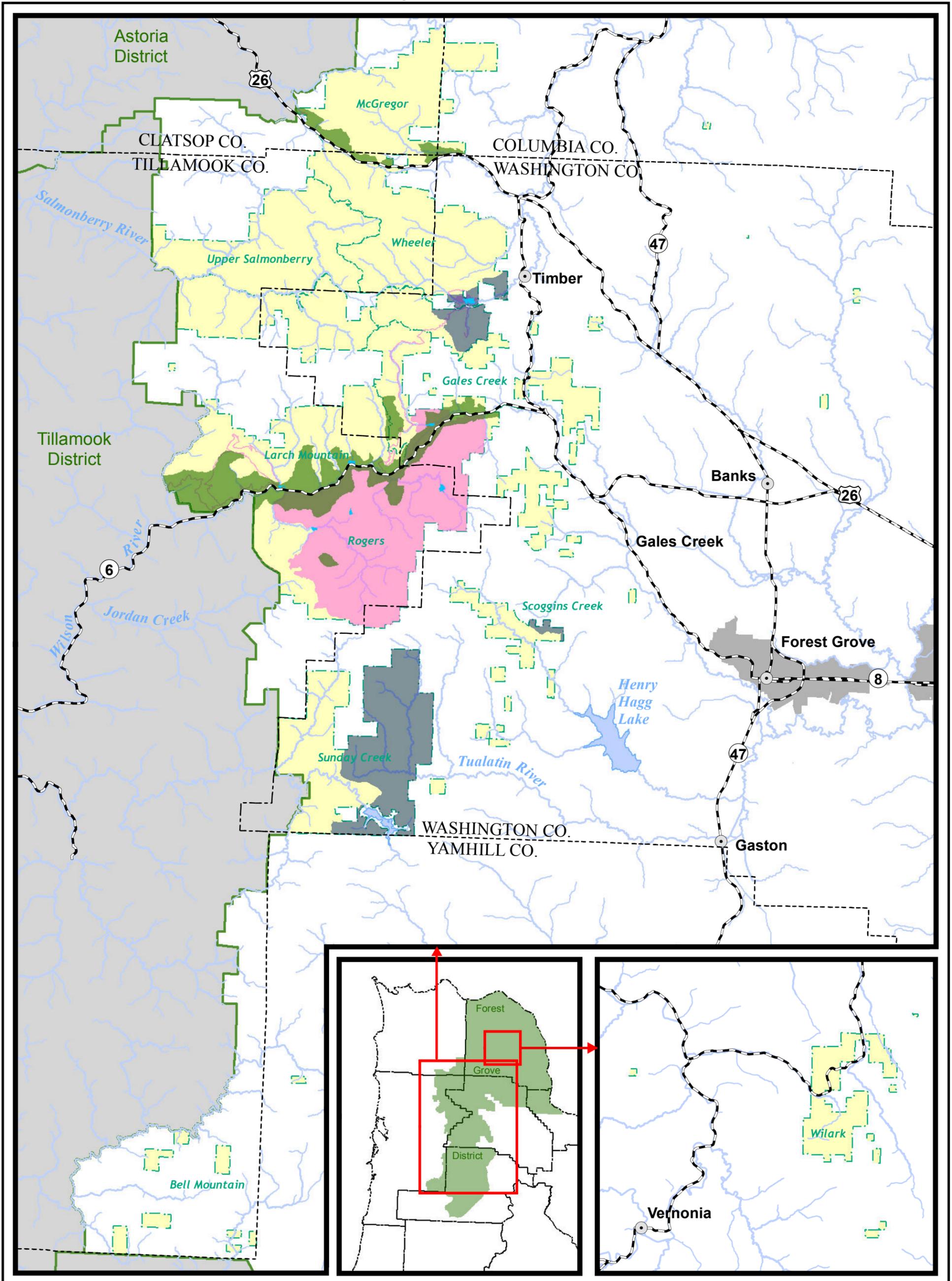
 Adjacent Districts

 Management Basins



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Forest Grove District Stewardship Classifications - Social Subclasses



Special Stewardship

- Recreation

Focused Stewardship

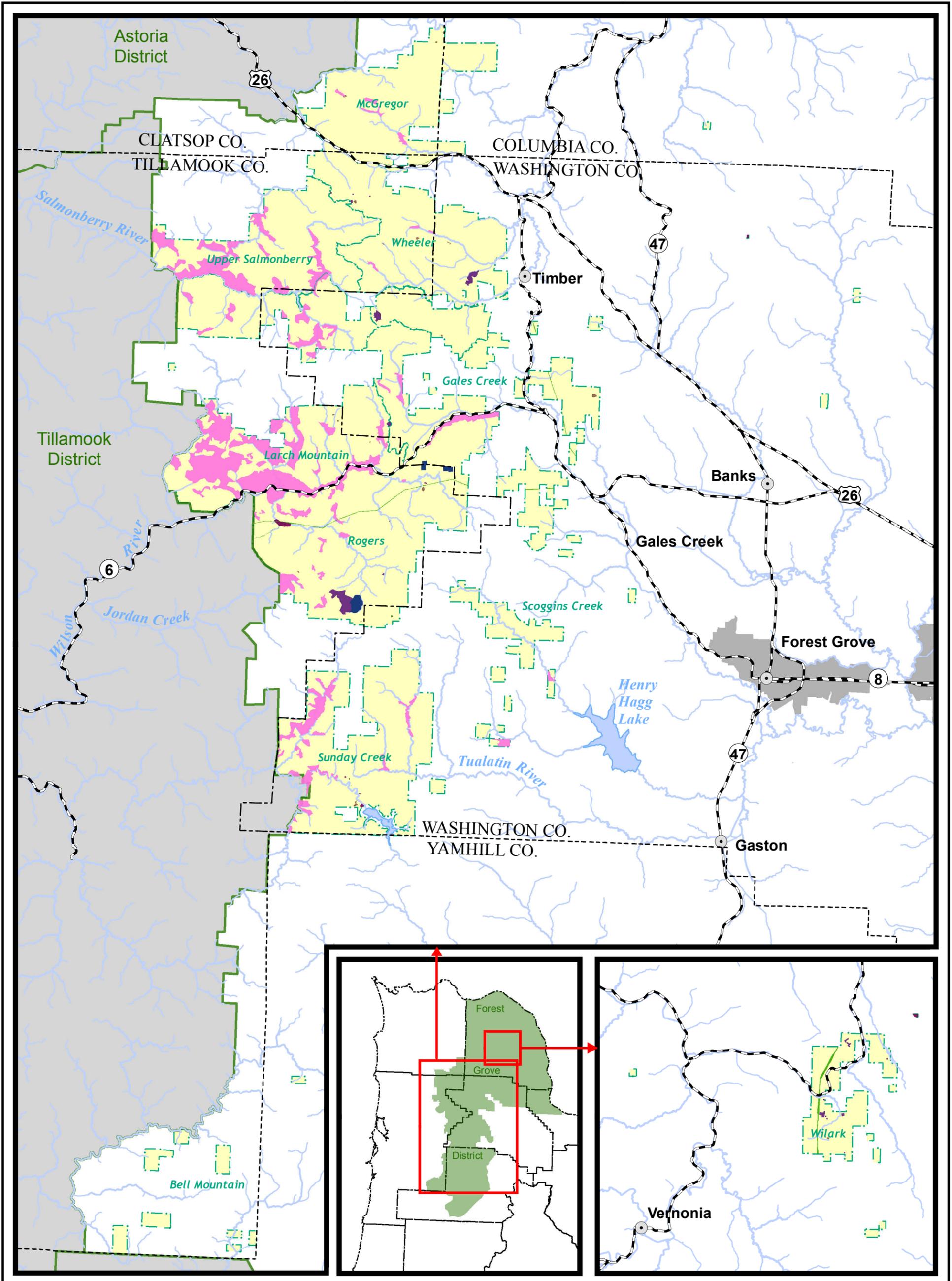
- Domestic Water Use
- Visual
- Recreation

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Adjacent Districts
- Management Basins



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Forest Grove District Stewardship Classifications - Management Subclasses



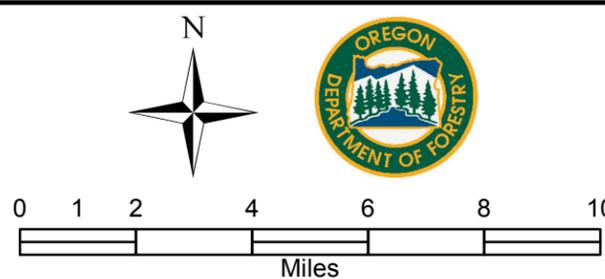
Special Stewardship

- Administrative Sites
- Research/Monitoring
- Easements
- Transmission
- Energy and Minerals
- Operationally Limited

Focused Stewardship

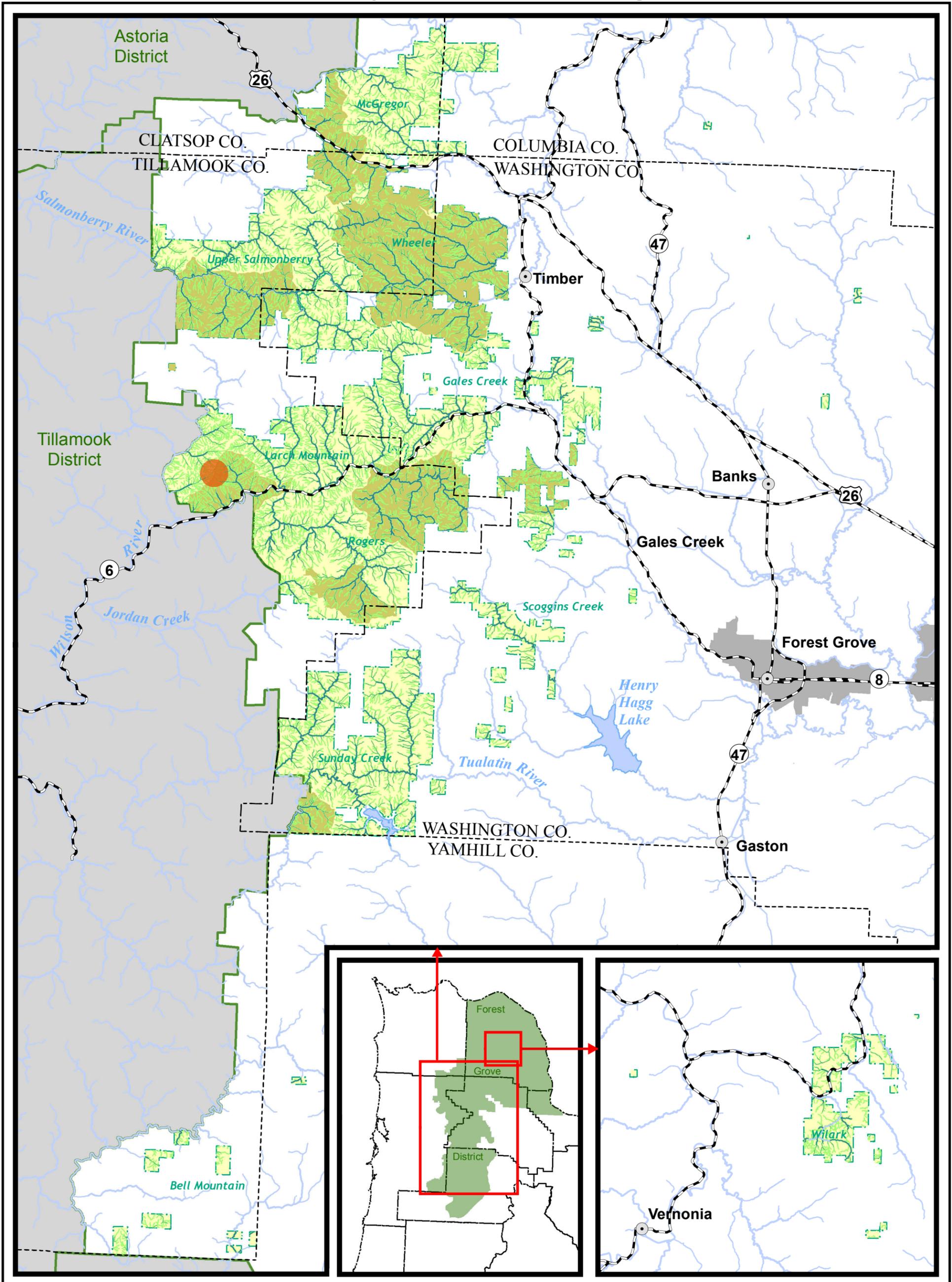
- Research/Monitoring

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Adjacent Districts
- Management Basins



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Forest Grove District Stewardship Classifications - Biological Subclasses



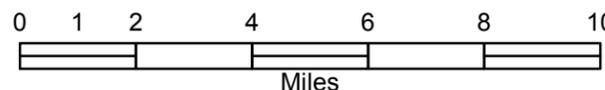
Special Stewardship

-  Aquatic and Riparian Habitat
-  Wildlife Habitat
-  Plants

Focused Stewardship

-  Aquatic and Riparian Habitat
-  Wildlife Habitat

-  Towns
-  Roads
-  Streams, Large
-  Streams, Medium
-  Adjacent Districts
-  Management Basins



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APPENDIX C: Forest Land Management Classification System (FLMCS) Major Change

The FLMCS is a method of describing the management emphasis of parcels of state forest land. 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.

The framework of the FLMCS places all state forest land within one of three land management classifications. The classifications are: (1) General Stewardship, (2) Focused Stewardship, and (3) Special Stewardship. Subclasses are assigned for the specific forest resources that require a Focused Stewardship or Special Stewardship Classification.

The current FLMCS for the Forest Grove District was established in early 2011. Following new information received from the 2011 Threatened and Endangered surveys, it is necessary to make a major modification to the FLMCS. A new Northern Spotted Owl (NSO) site has been established on the district. This new site will increase the Focused Stewardship Wildlife subclass on the district by 4,372 acres.

The following tables from the Forest Grove District Implementation Plan, 2011 have been modified to show this increase:

Table 2. Forest Grove District Acres, by Stewardship Class and Fund

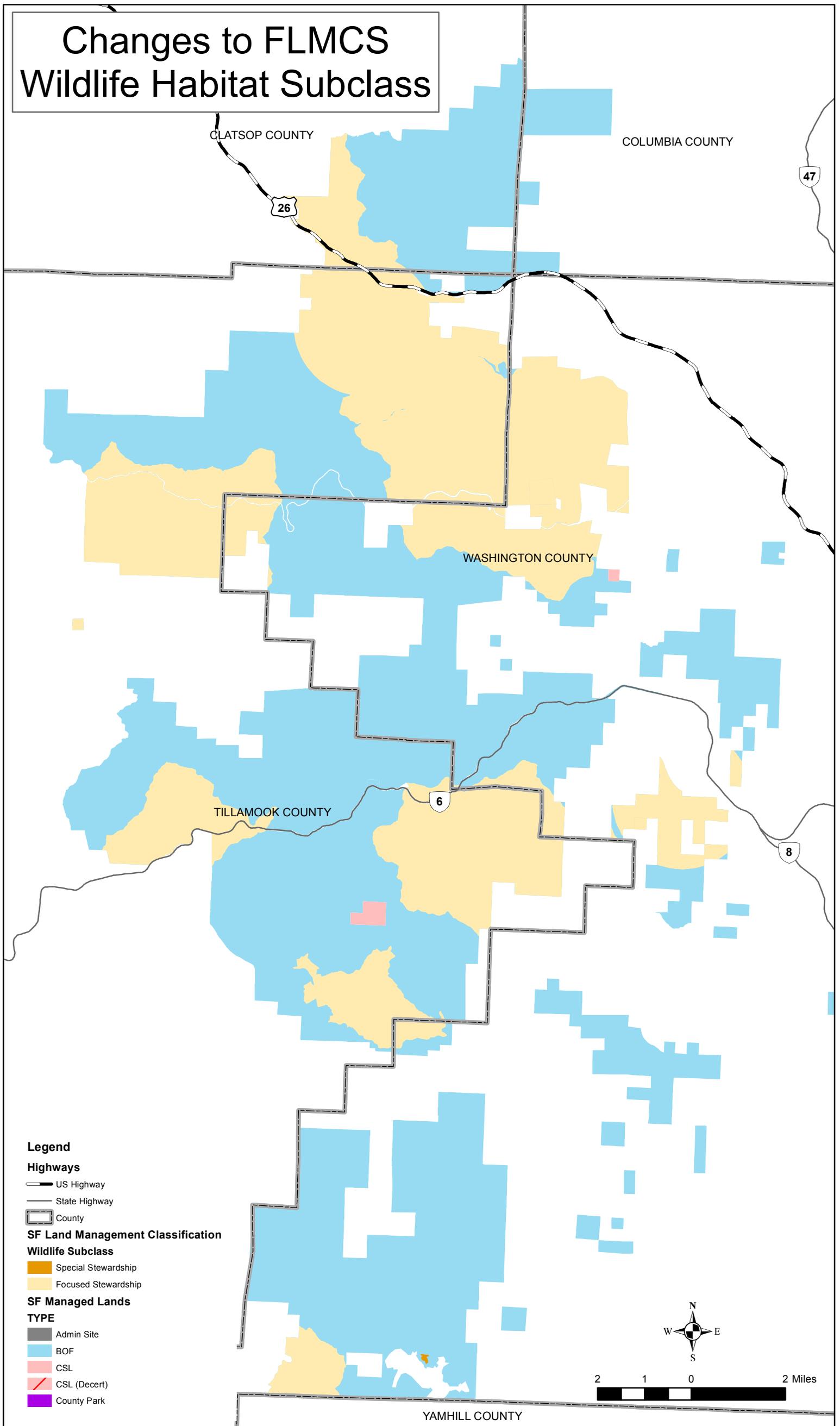
Classification	Board of Forestry	Common School	Administrative Sites	Total Acres
Special	20,785	69	16	20,870
Focused	127,200	646	1	127,847
General	30,989	141	0	31,130

Table 3. Forest Grove District Acres, Focused and Special Stewardship Subclasses

	Acres Focused	Acres Special
Administrative Sites	0	83
Aquatic and Riparian Habitat	41,684	9,207
Cultural Resources	55	17
Deeds	0	0
Domestic Water Use	10,547	0
Easements	0	3
Energy and Minerals	0	70
Operationally Limited	0	10,382
Plants	0	499
Recreation	19,141	140
Research/Monitoring	396	203
Transmission	0	255
Visual	9,771	0
Wildlife Habitat	46,252	13

See map below for additional information.

Changes to FLMCS Wildlife Habitat Subclass



Legend

Highways

- US Highway
- State Highway
- County

SF Land Management Classification

Wildlife Subclass

- Special Stewardship
- Focused Stewardship

SF Managed Lands

TYPE

- Admin Site
- BOF
- CSL
- CSL (Decert)
- County Park



YAMHILL COUNTY



Oregon

John A. Kitzhaber, MD, Governor

Department of Forestry

State Forester's Office
2600 State Street
Salem, OR 97310-1336
503-945-7200
FAX 503-945-7212
www.oregon.gov/ODF



"STEWARDSHIP IN FORESTRY"

To: Liz Dent, State Forest Division Chief
From: Doug Decker, State Forester
Date: June 25, 2014

Subject: Implementation of the Revised Forest Land Management Classification Rule on State Forests

This memo addresses approval of the implementation of the revised Forest Land Management Classification System (FLMCS) rule, including the new High Value Conservation Areas and Special Use classifications, on State Forest lands managed by the following districts: Astoria, Coos, Forest Grove, North Cascade, Southwest Oregon, Tillamook, West Oregon, and Western Lane.

On June 5, 2013, the Oregon Board of Forestry adopted a revision to the FLMCS rule (OAR 629-035-0055) that added the classifications of High Value Conservation Area and Special Use while removing the Special Stewardship Classification. The purpose of this rule revision was to increase the visibility of the important conservation strategies that were already occurring on State Forests.

It was clear that implementation of this rule revision would result in a major change to the FLMCS maps/data and would be required to be available for public comment for 30-days (OAR 629-035-0060). Upon approval of the rule revision, the districts were directed to begin the task of updating the FLMCS data with the goal of having draft maps available for a public comment process that would occur concurrently with the normal 45-day public comment period for the Annual Operations Plans.

The public comment period occurred between March 17 and May 2, 2014 and included three open houses that focused on the implementation of the revised FLMCS rules, especially the location and purpose of High Value Conservation Areas. The open house were held early in the public comment period at the Forest Grove, Astoria, and Tillamook district offices. In response to the public comment period, the Division received:

- Eight letters/emails
- Approximately 1,700 form letter type emails
- Fifteen comments generated through an on-line survey

Almost all of the comments were generally supportive of the implementation of the FLMCS. Many of the comments included a request that the Department improve the durability of the High Value Conservation Areas; this issue is currently being addressed through the Alternative Forest Management Plan Project.

Several individuals indicated that old growth should be classified as High Value Conservation Areas. After reviewing the management strategies for old growth in the Northwest Oregon, Southwest Oregon, and Elliott State Forest Management Plans, I have found that old growth stands (as defined in those plans) qualifies for classification as High Value Conservation Areas under the Unique, Threatened, or Endangered Plants subclass. I have directed the districts to include existing old growth stands as High Value Conservation Areas in their final FLMCS designations.

After reviewing the draft FLMC maps/data, the public input, the recommendations from the District Foresters and Area Directors, and consistent with OAR 629-035-0060 (2), I am approving the revised FLMCS for Astoria, Coos, Forest Grove, North Cascade, Southwest Oregon, Tillamook, West Oregon, and Western Lane Districts.



Doug Decker
State Forester

6.25.14

Date

APPENDIX A

Forest Land Management Classification System (FLMCS) Major Change Notification

The FLMCS is a method of describing the management emphasis of parcels of state forest land. 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.

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, and (4) High Value Conservation Area. Subclasses are assigned for the specific forest resources that require a Focused Stewardship, Special Use or High Value Conservation Area Classification.

A major modification of the FLMCS is defined as one that cumulatively exceeds 500 acres within one year. When changes in excess of 500 acres are proposed, a 45 day public comment period is held to allow review and suggestions. The public comment period occurred between March 17 and May 2, 2014 and included three open houses that focused on the implementation of the revised FLMCS rules. In response to the public comment period, the Division received:

- Eight letters/emails
- Approximately 1,700 form letter type emails
- Fifteen comments generated through an on-line survey

Almost all of the comments were generally supportive of the implementation of the FLMCS and they contained no specific requests to change the maps/data. Many of the comments included a request that the Department improve the durability of the High Value Conservation Areas; this issue is currently being addressed through the Alternative Forest Management Plan Project. The changes were approved by the State Forester.

The current FLMCS for the Forest Grove District was established in early 2011. In 2013 following a public comment period, the Board of Forestry modified the process to add a new classification called High Value Conservation and rename Special Stewardship to Special Use. As a result of this significant change to the FLMCS, the District took this opportunity to do a thorough re-evaluation of all the classifications within the district. Terrestrial Anchor Sites, the stream bank zone and inner zone of riparian management areas (RMA) are now proposed to be classified as High Value Conservation areas. Another large change within the District FLMCS is that previously Aquatic Anchors had been erroneously placed in the Aquatic and Riparian Habitat subclass. These are now correctly classified within the Wildlife Habitat subclass. A previous overlap error was corrected within the Focused Stewardship buffers along RMAs which resulted in lowered acreage within the Aquatic and Riparian Habitat subclass. Using LiDAR and field recon, additional acres were added to the Operationally Limited subclass.

The following tables from the Forest Grove District Implementation Plan, 2011 have been modified to reflect these changes:

Table 2. Forest Grove District Acres, by Class and Fund

Classification	Board of Forestry	Common School	Administrative Sites	Total Acres*
High Value Conservation	19,090	62	0	19,152
Special Use	17,201	17	16	17,234
Focused	66,645	417	0	67,062
General	35,987	166	0	36,153

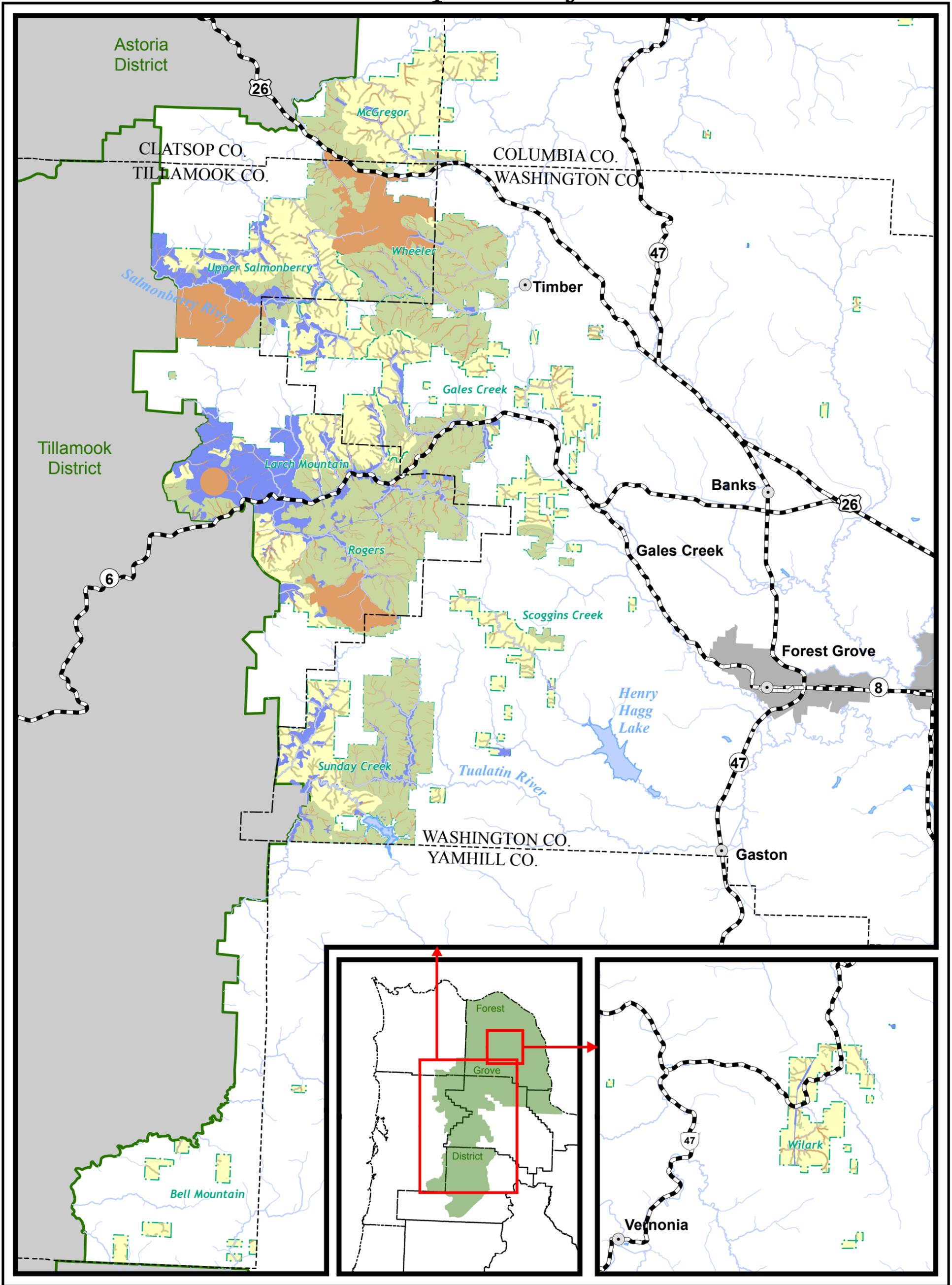
*The sum of the total acres is greater than the total acres within the District. This is due to the overlap between the High Value Conservation, Special Use and Focused classifications on the forest.

Table 3. Forest Grove District Acres, Focused, Special Use and High Value Conservation Subclasses

	Acres Focused	Acres Special Use	Acres High Value Conservation
Administrative Sites	0	112	0
Aquatic and Riparian Habitat	15,361	0	9,903
Cultural Resources	25	99	0
Deeds	0	0	0
Domestic Water Use	10,549	0	0
Easements	0	3	0
Energy and Minerals	0	80	0
Operationally Limited	0	16,313	0
Plants	0	0	574
Recreation	19,328	141	0
Research/Monitoring	441	203	0
Transmission	0	268	0
Visual	10,524	485	0
Wildlife Habitat	35,651	0	9,639

Updated FLMCS maps are included for review.

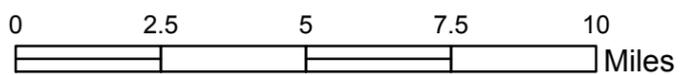
Forest Grove District Stewardship Classifications



Stewardship Classifications

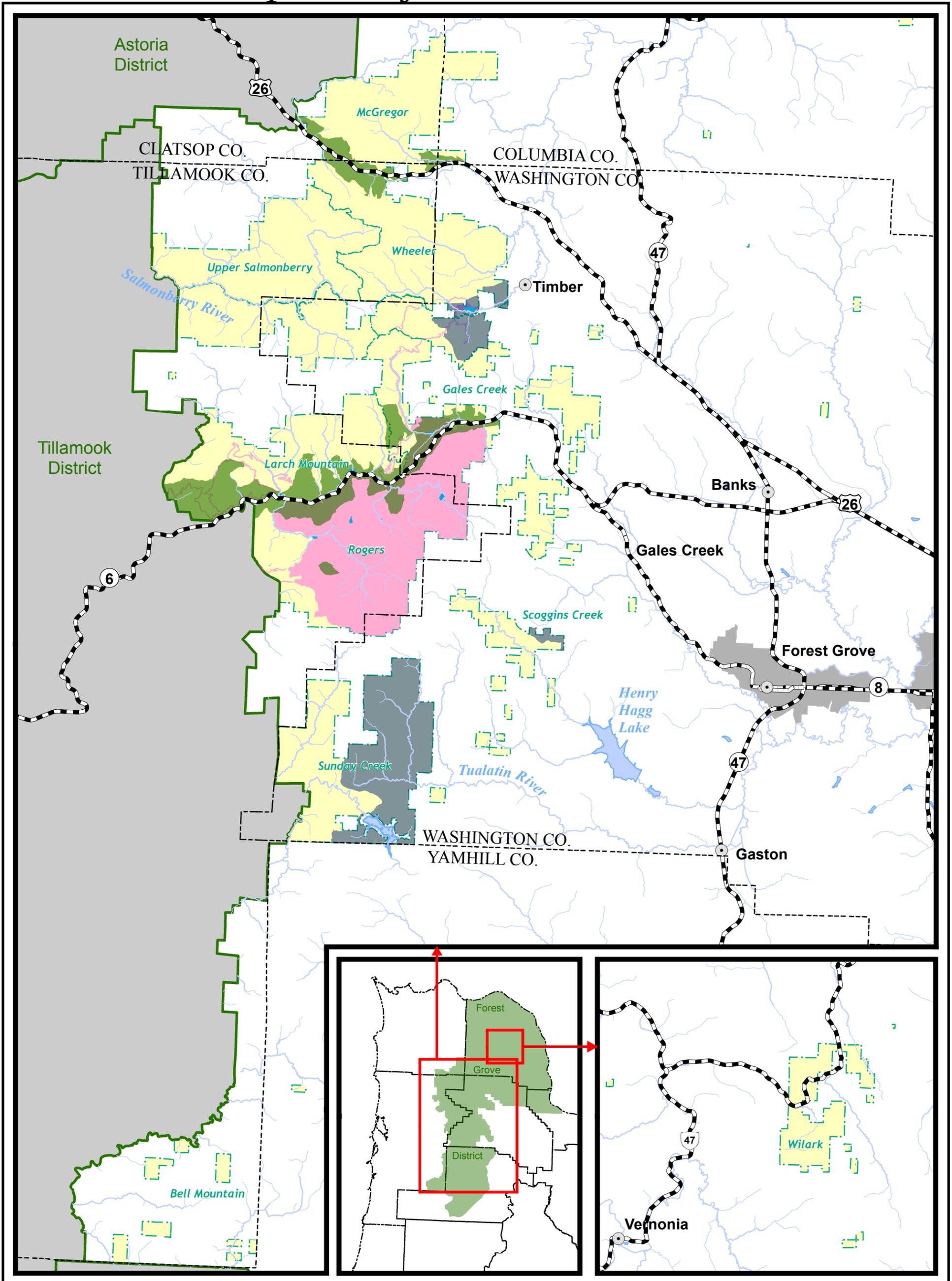
- High Value Conservation Area
- Special Use
- Focused

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Adjacent Districts
- Management Basins



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Forest Grove District Stewardship Classifications - Social Subclasses



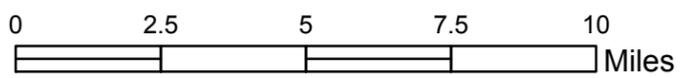
Special Use

- Recreation
- Visual

Focused

- Domestic Water Use
- Visual
- Recreation

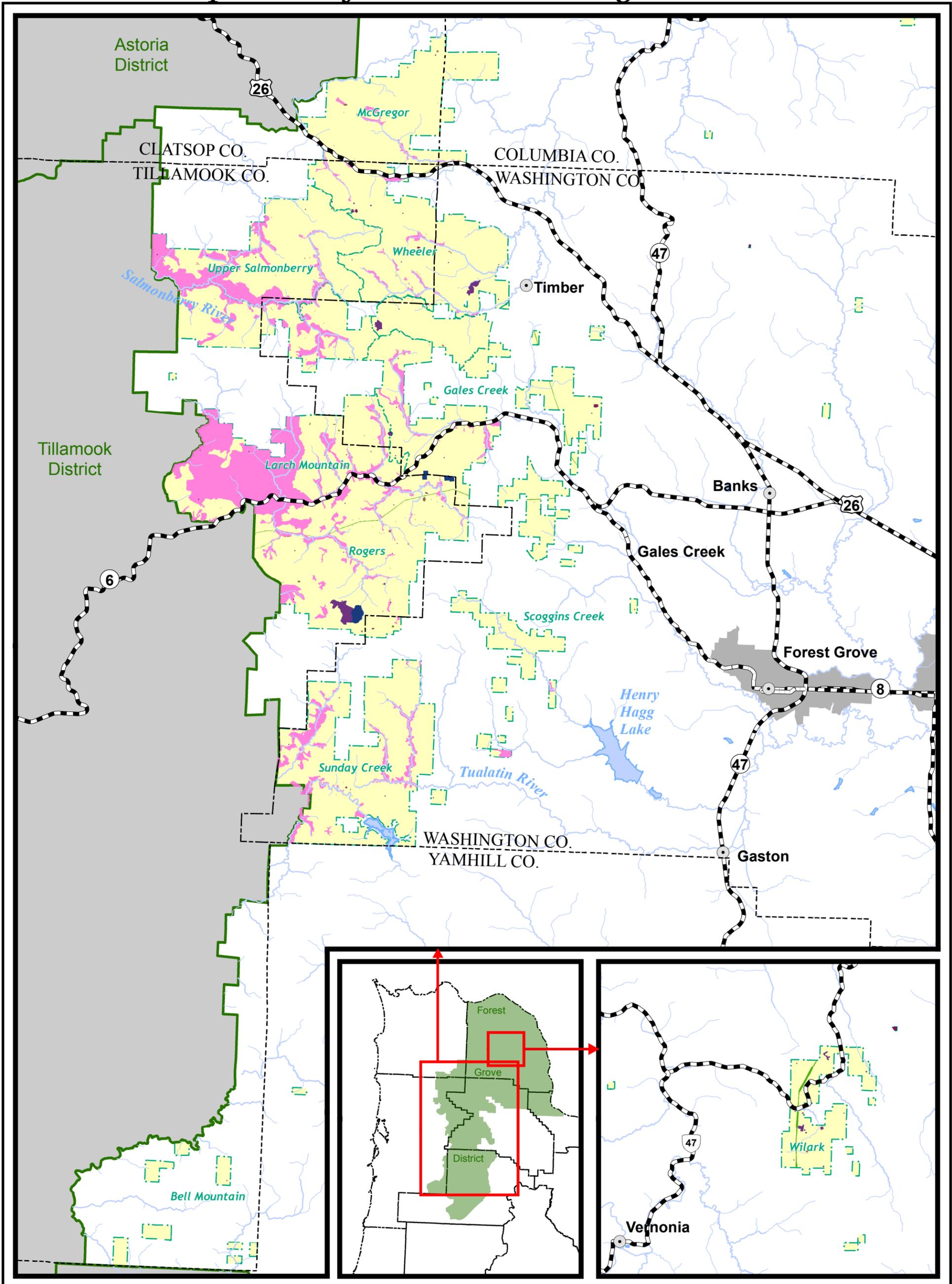
- Towns
- Roads
- Streams, Large
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- Adjacent Districts
- Management Basins



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Forest Grove District

Stewardship Classifications - Management Subclasses



Special Use

- Cultural Resources
- Research/Monitoring
- Administrative Sites
- Transmission
- Easements
- Operationally Limited
- Energy and Minerals

Focused

- Research/Monitoring
- Cultural Resources

Towns

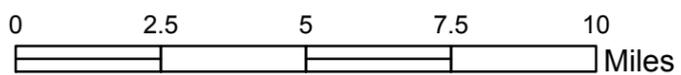
Roads

Streams, Large

Streams, Medium

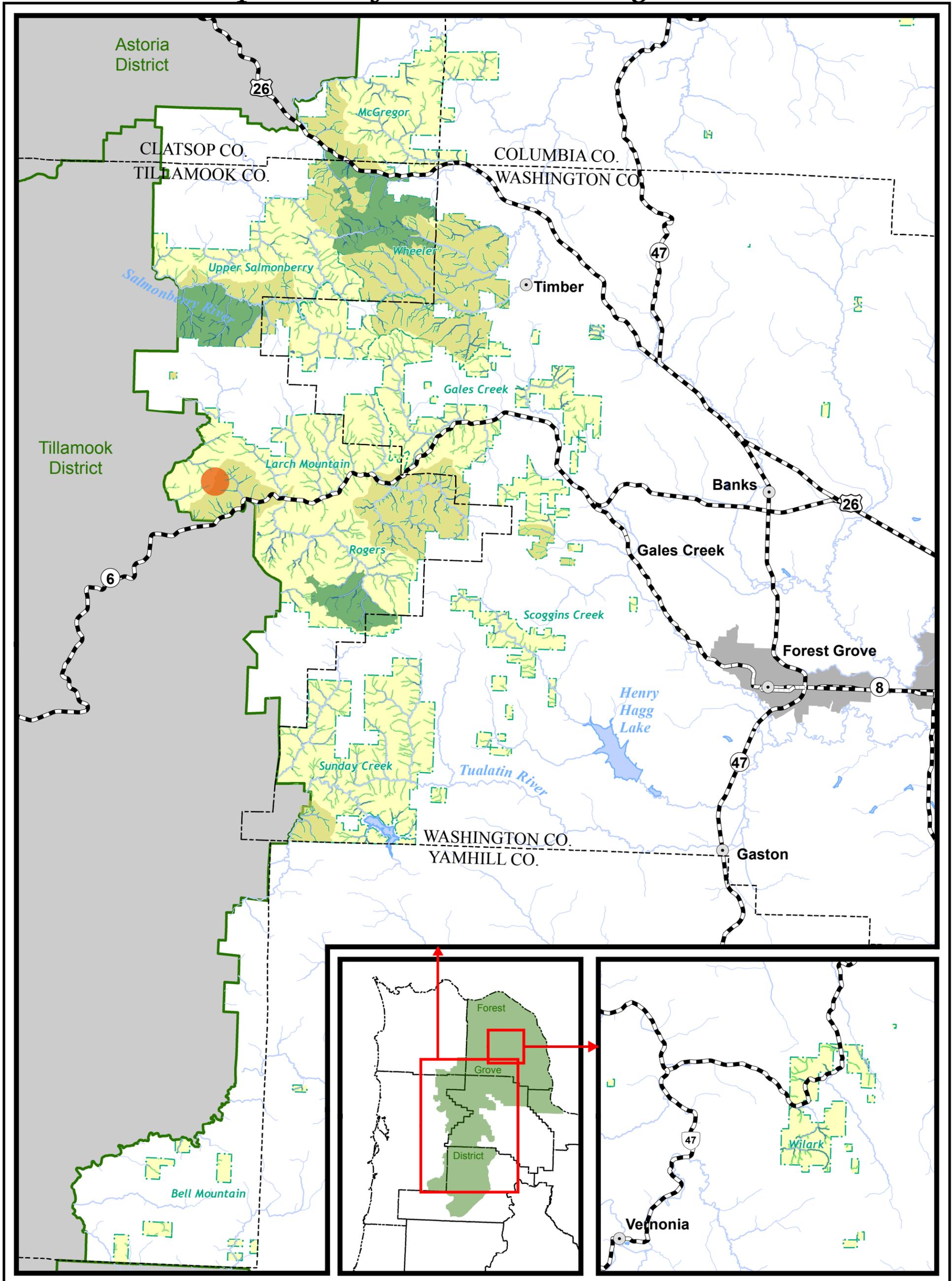
Adjacent Districts

Management Basins



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Forest Grove District Stewardship Classifications - Biological Subclasses



High Value Conservation Area

- Aquatic and Riparian Habitat
- Wildlife Habitat
- Plants

Focused Stewardship

- Aquatic and Riparian Habitat
- Wildlife Habitat
- Plants

Towns

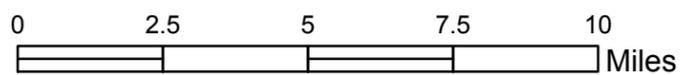
Roads

Streams, Large

Streams, Medium

Adjacent Districts

Management Basins



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