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| Agenda Item No.:      | 7   |
| Work Plan:            | State Forests Work Plan   |
| Topic:                | Northwest Oregon State Forests Management Plan  |
| Presentation Title:   | State Forests Resource Assessments  |
| Date of Presentation: | September 5, 2018   |
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## CONTEXT

The State Forests Division has developed an approach to revise the Forest Management Plan (FMP), approved by the Board of Forestry (BOF) in January 2018. The FMP Project Work Plan establishes a framework for the Board to develop the FMP elements required by the Forest Management Planning rule (OAR 629-035-0030) in the context of the Greatest Permanent Value (GPV) rule (OAR 629-035-0020). This approach is intended to efficiently develop an FMP that meets the requirements of the Planning Rule, is operationally feasible, and is found to meet GPV by the Board. The Division will host informational presentations to provide stakeholders and the public at large with updates including staff work to be presented at upcoming Board meetings.

## BACKGROUND AND ANALYSIS

The Forest Management Planning Rule requires the Forest Management Plan to provide a description and assessment of forest resources on the state forest lands within the planning area:

*OAR 629-035-0030(2)(b) Description and assessment of the resources on state forest lands within the planning area and consideration of the surrounding ownership in order to provide a landscape context. The description and assessment includes general statements of the current conditions of each of the resources, and the laws, policies, and programs that affect the resources and their management.*

The assessment of the forest resources will provide context for the range of forest conditions, as well as the variety of challenges and opportunities for managing these lands to achieve a full range of economic, social and environmental benefits to meet GPV.

The assessment of each of the major forest resources for all lands west of the Cascades is summarized in this staff report. The assessment addresses ownership, forest condition, forest health, wildlife habitat, aquatic habitat, timber, geology, roads, access, and recreation. Future analyses will examine more precise regional conditions, as well as minor forest resources.

## **Resource Assessments**

### **Ownership**

The Division manages two types of land acquired by the State of Oregon. The BOF owns 96% of state forest lands. The State Land Board owns the remaining 4%, known as Common School Forest (CSF) Lands. Each land ownership has a distinct set of legal and policy mandates. ODF manages land according to direction found in the Oregon Constitution (for CSF Lands) and statutory and administrative rules (for BOF Lands).

### **Areas and Districts**

ODF divides responsibility for forest management into three separate administrative areas, each led by an Area Director (Northwest, Eastern, and Southern Oregon Areas). Areas are further divided into Districts, each led by a District Forester.

This assessment covers only state forest lands west of the Cascades (i.e. does not include Eastern Oregon Area), and includes lands managed by the Astoria, Tillamook, Forest Grove, North Cascades, West Oregon, Western Lane, and Southwest Districts.

### **Forest Condition**

Current forest condition for lands managed by ODF has been heavily influenced by their history of large fires, extensive logging of old growth timber, fire suppression, and intensive forest management. As a result, state forest lands currently have an uneven age distribution (Figure 1). Stands 45-89 years old are most common (~64% or 409,000 acres), followed by stands less than 45 years old (~29% or 189,000). Stands greater than 90 years old (~6% or 36,000) are relatively uncommon.

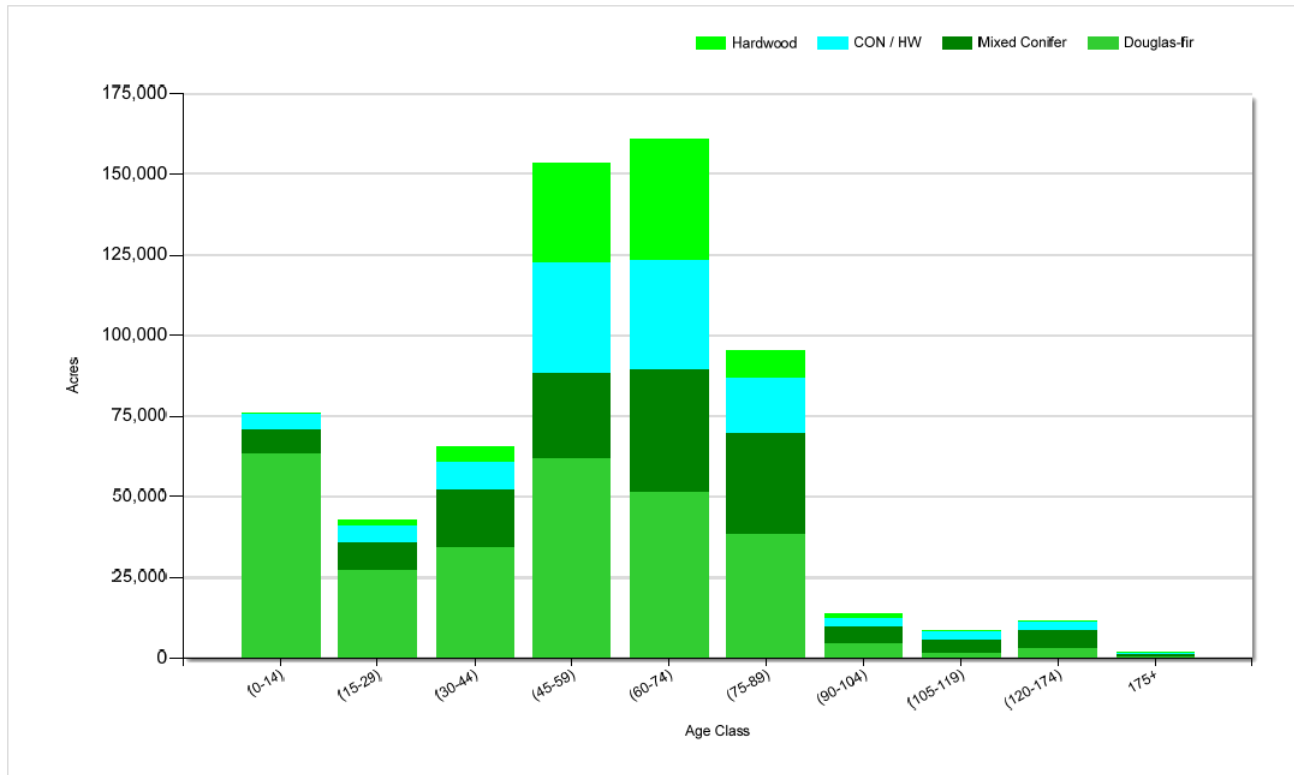


Figure 1. Summary of stand types by age class for state forest lands in Western Oregon.

While Douglas-fir is the predominant species across our ownership, the landscape supports a variety of forest types. Overall, nearly one-third of all stands (196,000) include a significant hardwood component (most commonly red alder), with the remaining two-thirds being primarily conifer. Among coniferous stands, roughly two-thirds (288,000 acres) are predominantly Douglas-fir and the remaining one-third is mixed conifer, often with a significant western hemlock component.

Due to a variety of factors, past management has focused heavily on conifer stands. As a result, nearly 90% of stands that are less than 45 years old are managed Douglas-fir or mixed conifer stands. This resulted in only 10% of the stands under 45 years old to have a significant hardwood component, while nearly 40% of 45-89 year old stands have significant hardwood component.

**Forest Health**

For state forest lands, the current condition can be ascertained by long-term trends in damage from major disturbance agents, including diseases, insects, weather and invasive species. Swiss needle cast (a foliage disease that affects Douglas-fir) causes serious growth decline and can inhibit stands from achieving characteristics that support older forest species. Laminated root rot (a fungus that affects Douglas-fir) is prevalent across the ownership. The amount and severity of laminated root rot are likely increased due to historic planting of Douglas-fir in affected stands. Black stain root disease once concentrated in southwest Oregon, has become widely distributed in northwest Oregon. The most significant insect pest is the Douglas-fir bark beetle, with outbreaks following major windthrow events. Drought takes a significant toll within ODF ownership and is often the primary cause of dead branches, tree tops or whole trees. It is possible that the number of disturbance agents will increase. For example, recreation users may introduce an invasive pest.

### Forest Health – Swiss Needle Cast

Swiss needle cast is a native foliage disease specific to Douglas-fir. The disease causes the premature loss of needles, reducing tree vigor and growth by 20-50% depending on the severity of infection. While found in all Douglas-fir forests, the disease is especially problematic within a 28-mile zone from the coast extending eastward, which includes approximately 550,000 acres of state forest lands. Aerial surveys show an increasing occurrence of Swiss needle cast on state forest lands (Figure 2), with the most recent survey in 2016 detecting over 58,000 acres of moderate to severe occurrence. Affected acres are concentrated on Tillamook District (38,000 acres) and Astoria District (13,500 acres) (Figure 3).

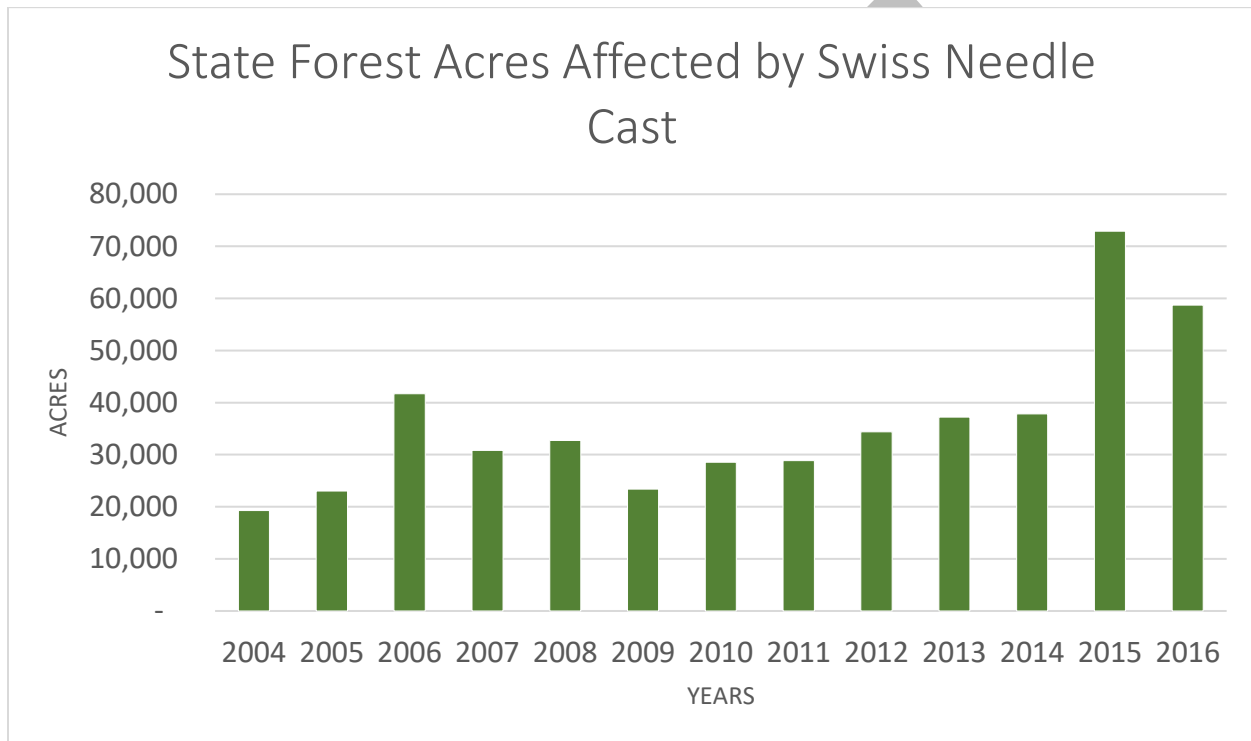


Figure 2. Acres of Swiss needle cast detected by aerial surveys on state forest lands.

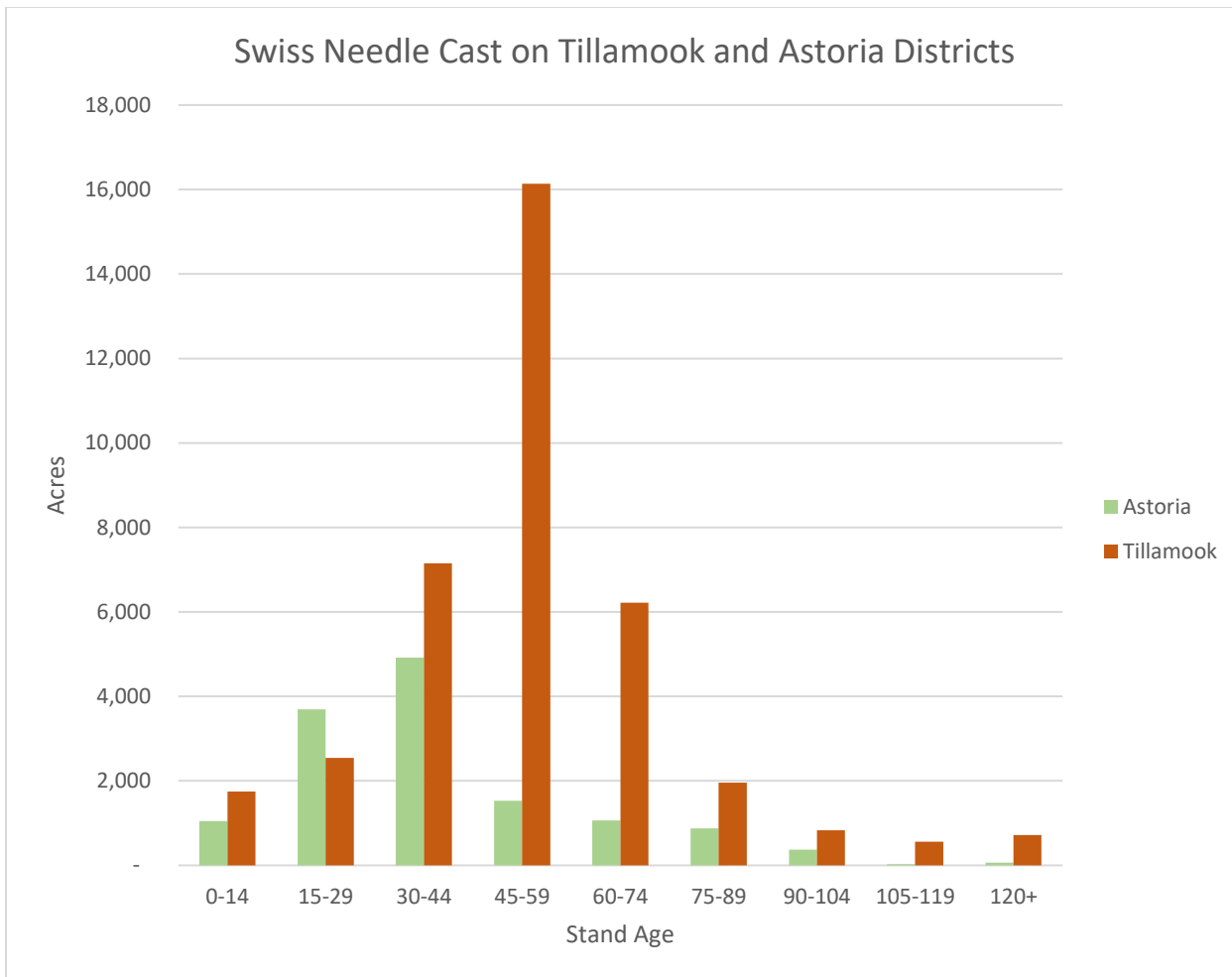


Figure 3. Swiss needle cast occurrence on Tillamook District and Astoria District.

**Forest Health – Red Alder on Tillamook District**

There are 84,000 hardwood acres on state forest lands, primarily on Tillamook District (~78% or 65,500 acres). The dominant hardwood is red alder, a pioneer species that naturally seeded into the forest after the Tillamook Burn. Most hardwood stands (~ 86% or 56,000 acres) are 45-74 years old, which is the age at which red alder reaches biological maturity; red alder rarely lives more than 100 years (Figure 4). The natural succession of red alder is highly dependent on the understory, requiring shade-tolerant conifers in the understory to convert to a conifer dominated stand. Without understory conifers, the stand will shift to a shrub-dominated community in the absence of a disturbance event.

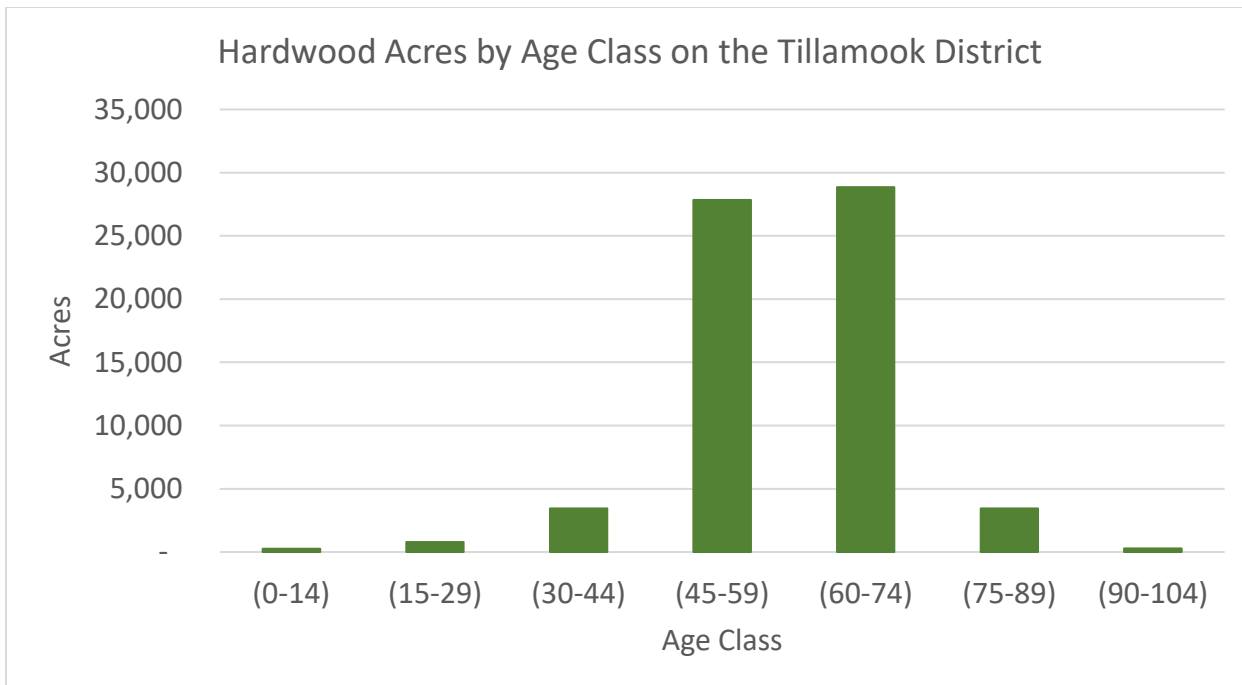


Figure 4. Hardwood acres by age class on Tillamook District. The dominant hardwood is red alder.

### Wildlife

Oregon state forests currently have habitat suitable for most native species found in forests of the Oregon Coast Range and Cascade Mountains. The variety of stand types resulting from ODF’s management of state forest lands provides diverse habitat well-dispersed across the landscape at regional scales, and broad connectivity to and between older forests on federal lands, as well as habitat where comparatively little other public forest lands exists (relative to other parts of the Coast Ranges and in Oregon). Young stands and associated early-seral characteristics are important for diverse game and non-game species including many of state or federal concern. Older stands on the landscape foster and support a variety of late-seral associates such as northern spotted owls, marbled murrelets and red tree voles. Forests in mid-seral stages (e.g. 20 – 80 y.o.) provide habitat for most native forest species, including early- and late-seral associates, and enhance broader landscape function. Additional variation in stand composition and structure due to stand development, management history, site productivity, topography, region, and numerous other factors contributes to diversity across spatial scales. Riparian areas, wetlands and other aquatic habitats, and rare or unique habitats such as talus slopes and caves add to diversity and thus also to broader ecological function and associated resilience.

Wildlife habitat and related conservation needs vary by district. Disturbance history and ownership patterns play a large role in local patterns of occupancy. Examination of the complex interplay of patterns of occupancy, forest age, composition, health, history, and ownership patterns can facilitate identification of conservation and production opportunities and constraints across each district.

## **Aquatic**

Aquatic resources include surface waters such as rivers, streams, lakes, springs, seeps and wetlands as well as subsurface waters such as aquifers and groundwater. At the landscape scale, the aquatic resources within the planning area can be divided into two distinct hydrologic areas: the Coast Range and the Cascades. The Coast Range has a maritime climate, with wet winters and relatively dry summers. Coast Range streams generally have steep gradients in their headwater sections and flat gradients in their lower reaches. Stream densities are high in this region, ranging from two to three miles of stream per square mile. Streams that drain the west slopes generally flow into the Pacific Ocean, and streams that drain the east slopes are tributaries to the Willamette River. On the North Coast, a number of streams drain north into the Columbia River.

The inventory of streams and rivers has been estimated to be around 8,300 miles within the planning region. Approximately 1/3 of the streams are perennial and half of the perennial streams contain fish. Inventories for the other aquatic resources are not as well defined but are common in the Pacific Northwest and support a wide variety of biological communities that include fish, amphibians, stream insects, and aquatic plants. There are seven federally listed fish species within State Forests. However, the Coastal Oregon Coho is the most common in State Forests.

## **Timber**

Timber harvest management on state forest lands follows general policies based on direction from the Oregon Constitution (CSF Lands) and Oregon Statute (BOF Lands).

CSF Lands are managed “with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management.” (Oregon Constitution Article VIII, Section 5(2)).

BOF Lands are managed to provide “greatest permanent value” (ORS 530.050), which the BOF defines as “sustainable and predictable production of forest products that generate revenues for the benefit of the state, counties, and local taxing districts; properly functioning aquatic habitats for salmonids, and other native fish and aquatic life; habitats for native wildlife; productive soil, and clean air and water; protection against floods and erosion; and recreation.”

Timber on Oregon state forests is a valuable commodity. Revenue from timber sales supports counties, local taxing districts, the Common School Fund. Administrative rules require land management to be environmentally sound while providing sustainable timber harvest and revenues to these government entities. Prudent management of the timber resource is an essential theme in both forest planning and management.

Timber harvested from state forest lands is prohibited from export for both BOF Lands ([OAR 629-031-0005 through 629-031-0045](#)) and CSF Lands ([OAR 141-016-0000 through 141-016-0045](#)).

Timber resources vary across state forest lands in terms of species, size and quality. Geology, geography, climate, past harvest practices, and catastrophic events all impact timber resources managed by ODF. Physical locations of these stands affect which markets are available and impact stumpage prices as much as geography and species composition.

## **Geology**

The planning area is influenced heavily by the convergent tectonic margin off the coast of Oregon. This influence created a diverse and complex assemblage of both volcanic and sedimentary rock types. Mountain building through uplift and volcanism influenced the deposition of geologic formations where submarine volcanism deposited material adjacent to marine sediments. Compression at the plate margin uplifted these formations formed beneath the surface of the ocean hundreds or thousands of feet above sea level to form the Coast Range. Later, volcanism continued further east in the planning area to form the present-day Cascades.

## **Topography**

Erosion modified this uplifted terrain to the highly dissected topographic expression that we observe today. Erosion by landslides, along with down-cutting and transport of sediment by streams fueled by heavy rainfall, are the primary processes. The tallest peaks within the Coast Range and Cascades are composed of resistant volcanic materials. These peaks represent the center of ancient volcanic activity which stand tall and steep, resistant to erosion, while the surrounding marine sediments were more easily eroded away forming more subdued topography. Concurrent tectonic activity to the west produced periodic large earthquakes which may have triggered many of the largest deep seated ancient landslides observable in the planning area today. Large swaths of land area in northwest Oregon have been altered by these landslides.

## **Soils**

More recent erosion and in-place decomposition of geologic materials, along with abundant biological activity, have created a productive blanket of soils. Soils form the substrate from which our forests grow and significantly influence forest productivity. Site class productivity depends largely on soil profile depth, gravel content, geology, topographic position, and soil parent material. In general, productivity can be ranked into five Classes (Class I, II, III, IV, V), with Class I the most productive and Class V the least productive.

Most Coast Range soils vary from Site Class I for Douglas-fir to Site Class III. There are also Site Class IV and V soils, with many located on or near steep rocky outcrops.

Most Western Cascades soils vary from Site Class II to Site Class V for Douglas-fir and western hemlock.

## **Roads and Access**

The access system for state forest lands includes state highways, county roads, private and state forest roads, and recreational trails. The state forest land access system is necessary to achieve forest protection and management goals, and provides public access for numerous recreational activities. State forest roads and trails are large, long-term capital investments. They must be maintained while minimizing impacts on other resources such as water quality, soil, and wildlife.

Roads on state forest lands are constructed and maintained primarily to provide access to timber sales, facilitate forest management activities, and support forest fire suppression efforts. Roads on state forest lands also provide access for a wide variety of recreational users and serve as alternative routes for emergency services unrelated to fire suppression. The transportation system is a network of roads that has been constructed and/or improved over the history of management of these forests. For most state



forest lands, the road system is essentially complete. However, additional collector roads and spurs are needed to access future timber sale units. In addition, older existing forest roads may need improvement, reconstruction or decommissioning to meet road maintenance standards and prevent damage to water and soil resources.

### **Recreation**

Demand for outdoor recreation in Oregon is increasing and is growing fastest near population centers such as the Portland metropolitan area and southwest Washington. On state forest land, recreation demand exceeds supply during the peak season. Popularity of specific recreation activities changes over time, reflecting changes in user demographics. New uses have been introduced, such as side-by-side ATVs. There is also increasing interest in “rails-to-trails” type developments for disused transportation networks. State forest recreation facilities tend to fall into either semi-primitive non-motorized, semi-primitive motorized, or roaded natural settings, with most falling into the roaded natural category. The largest concentration and heaviest use of recreation facilities occurs in the North Coast Area and the northern portion of the Santiam State Forest, with more limited and lighter use available in the Willamette Valley Area districts.

### **RECOMMENDATION**

- Information Only

### **NEXT STEPS**

The Division will next return to:

- Present initial recommendations of information needs that inform the Board’s policy decisions.
- Present recommendation on the geographic scope of the plan.
- Provide an update on the development of potential forest management goals.