



State Forests Resource Assessments



Board of Forestry
September 5th, 2018

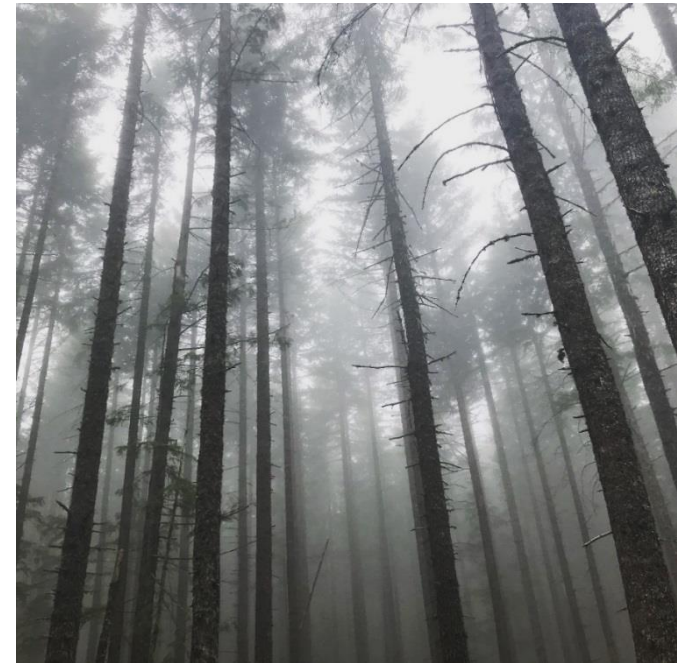
Jennifer Magby, Jeffrey Firman, Tod Haren, Daren Cone, Nick Palazzotto, Joshua Clark, Mike Buren, Justin Butteris, Liz Dent, Ty Williams, Tracy Calhoun, Mark Meleason, Mike Totey, and Robbie Lefebvre





Today's Goals

- History
- Ownership
- Geology, Slopes, and Soils
- Roads and Access
- Forest Condition
- Forest Health
- Timber
- Carbon
- Wildlife
- Aquatics
- Recreation, Education, and Interpretation
- District Snapshots



History



- Cut-over or burned-over, tax-delinquent
- Forest Acquisition Act
- 1940s – 70s: reforestation and restoration
- 1973: Tillamook State Forest



1950s

Photo Courtesy ELLIS LUCIA



2018

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Lands Managed by the State Forests Division



Districts

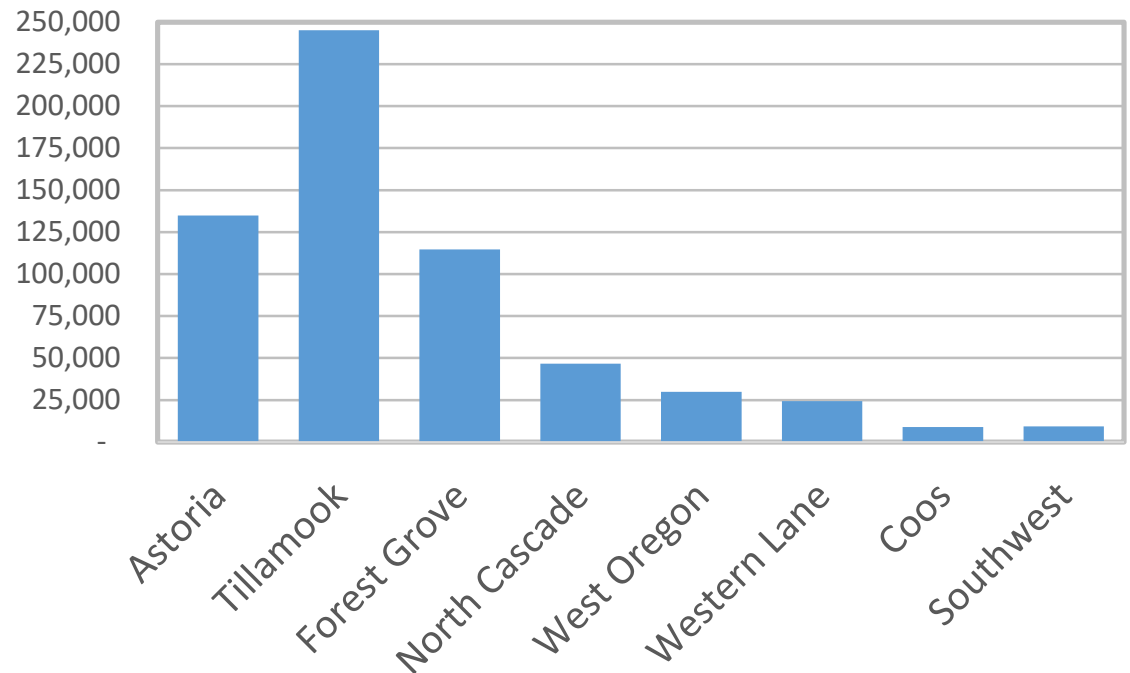
- Astoria
- Tillamook
- Forest Grove
- North Cascade
- West Oregon
- Western Lane
- Coos Unit
- Southwest Oregon



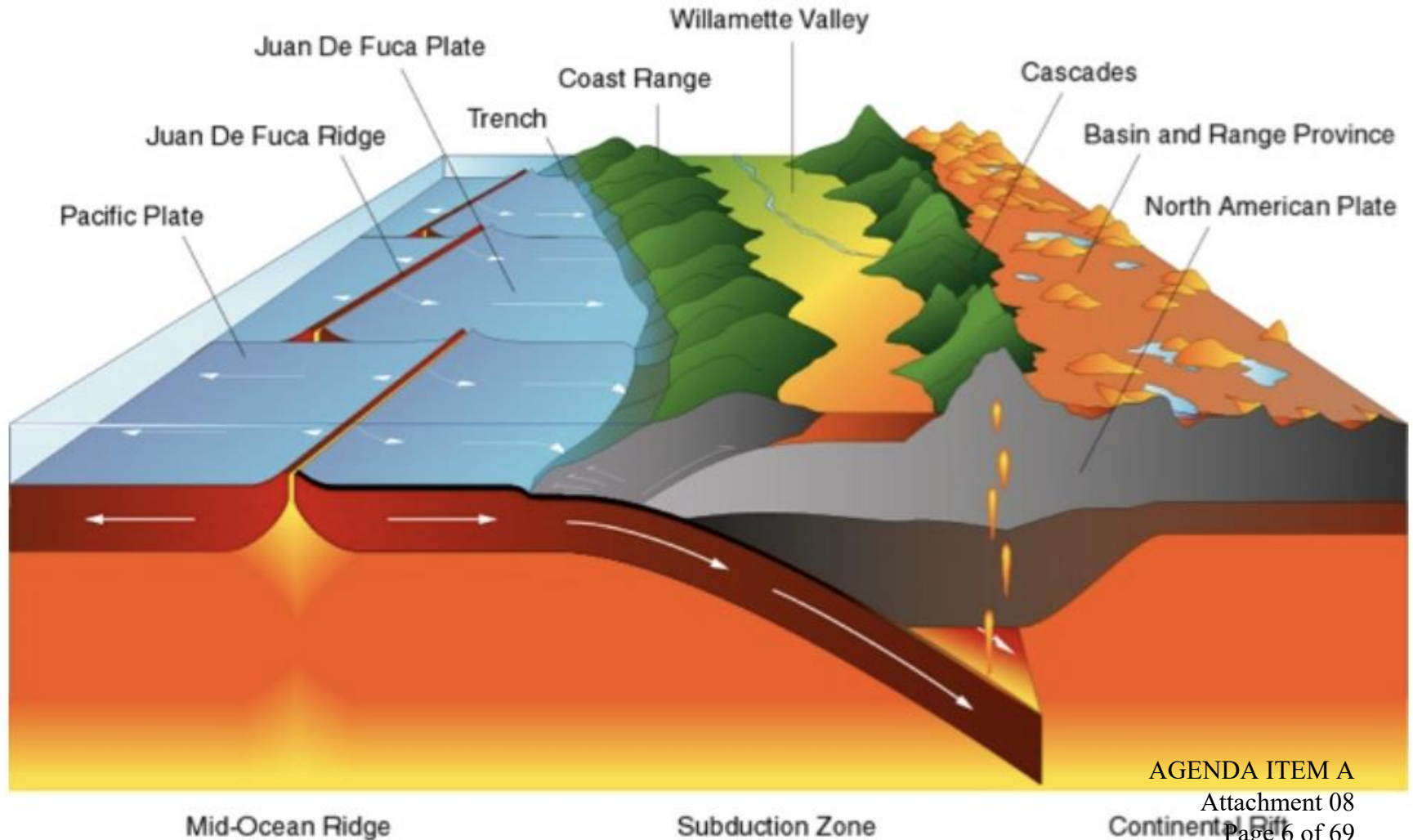
Ownership Patterns

- Blocked-up land: Tillamook and Clatsop State Forests
- Mixture: West Oregon and North Cascade
- Scattered: Western Lane, Coos and Southwest

Board of Forestry Acres



Present Day Geographic and Tectonic Context



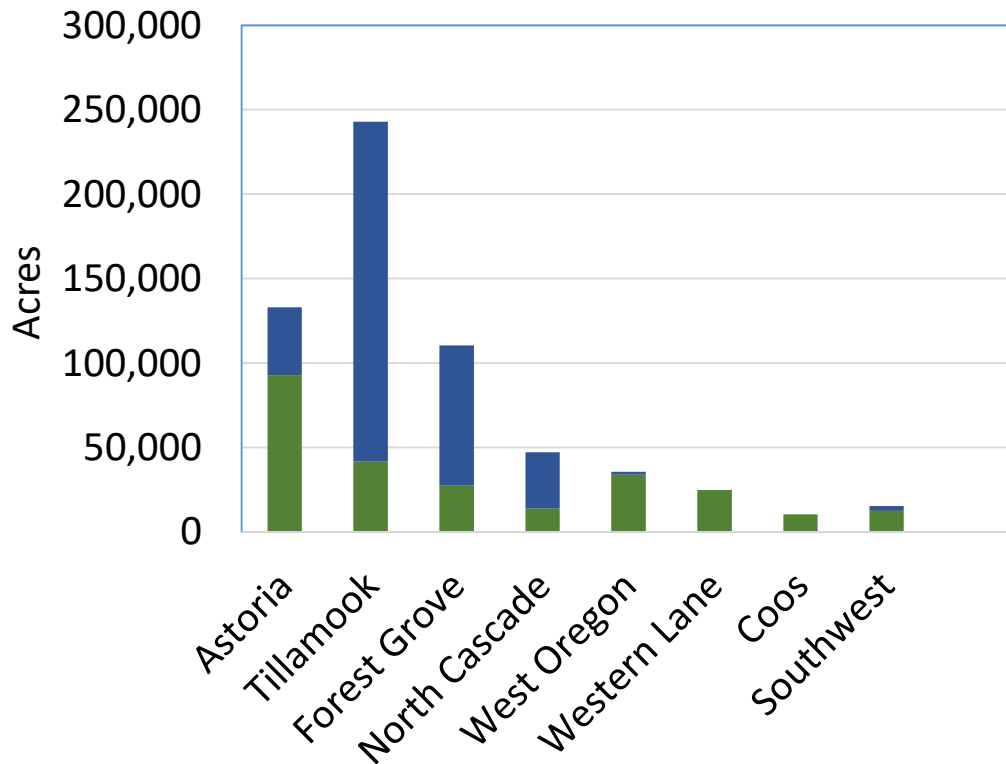
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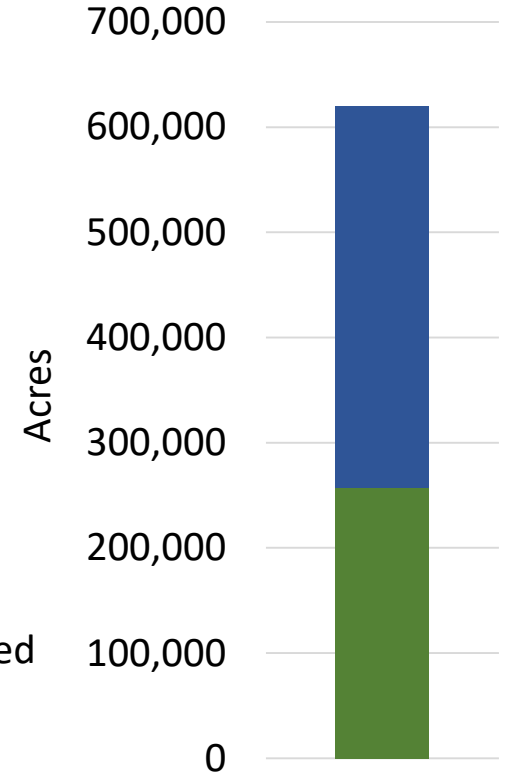


Soil Types



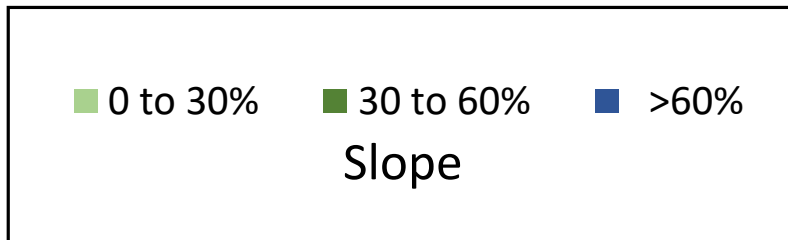
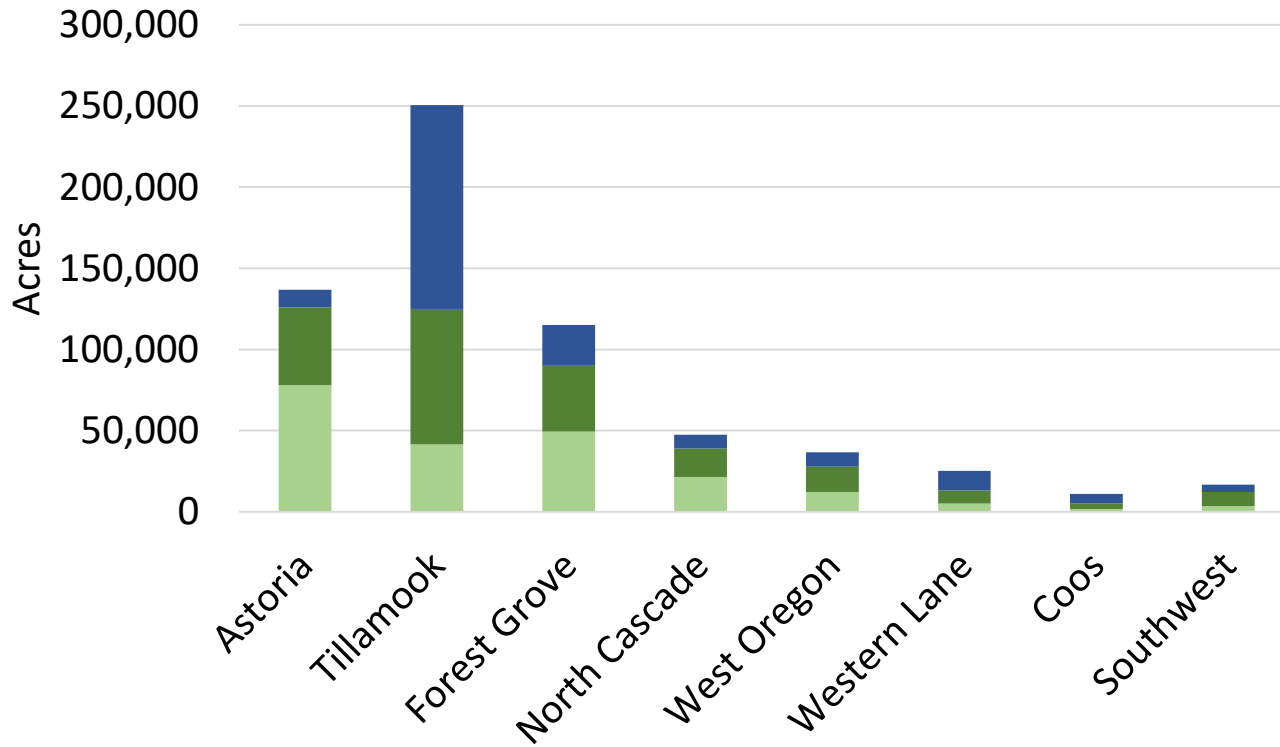
■ Coarse-grained
■ Fine-grained

Soil Types by Planning Area

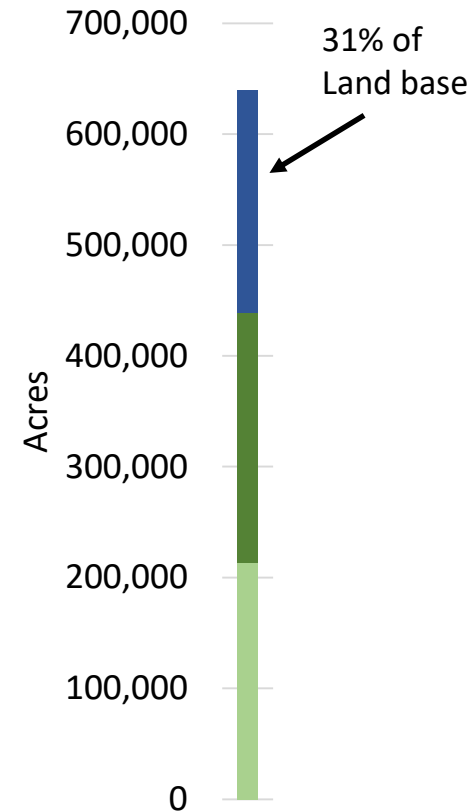




Slopes






Slopes by Planning Area

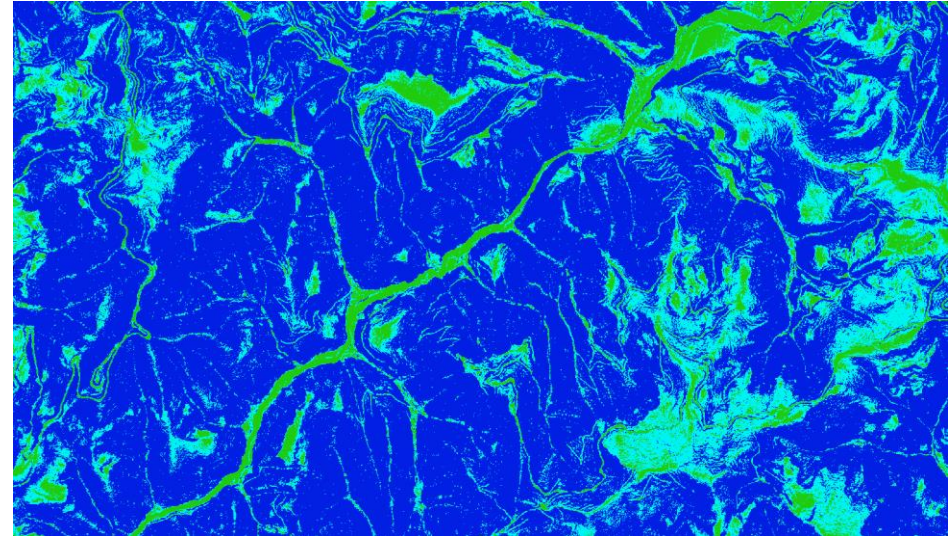
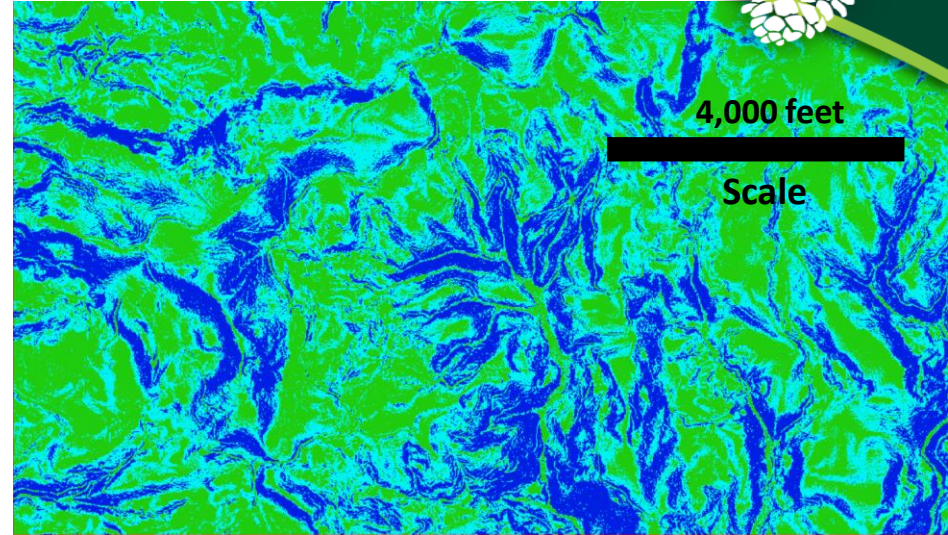




Astoria District

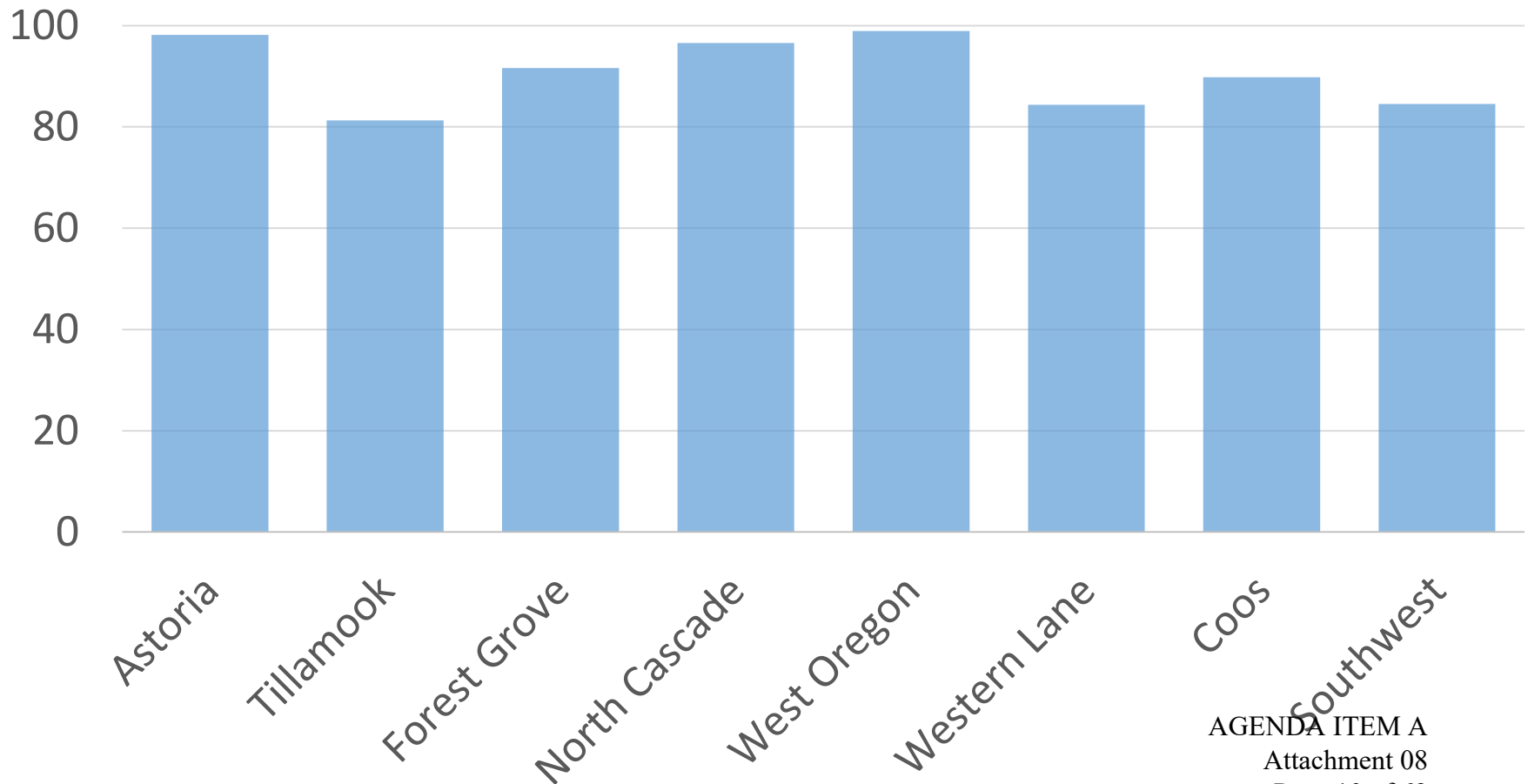
-  <30% Slopes
-  30 - 60% Slopes
-  >60% Slopes

Tillamook District



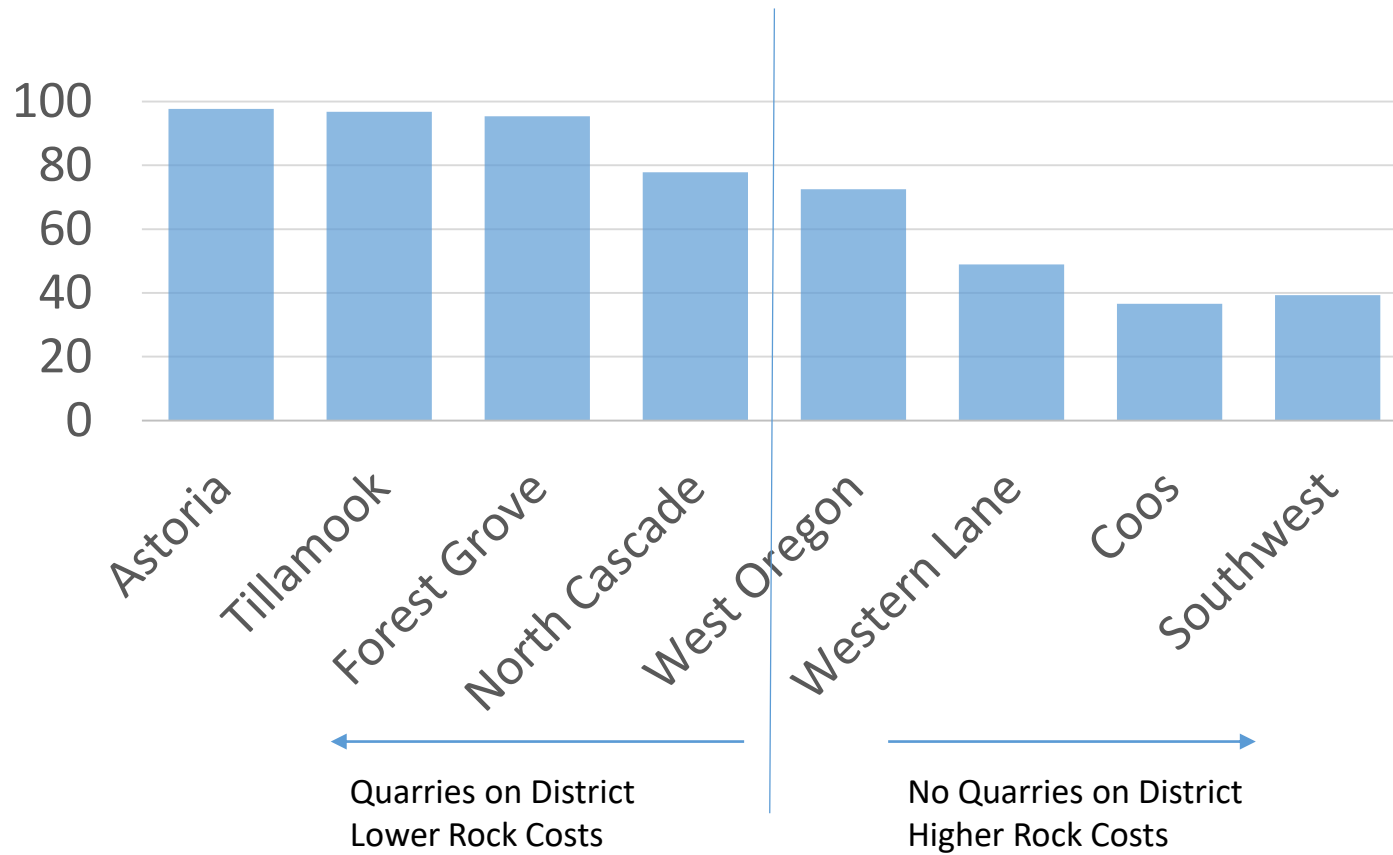


ACCESS PERCENT OF ACRES WITHIN ¼ MILE OF ROADS

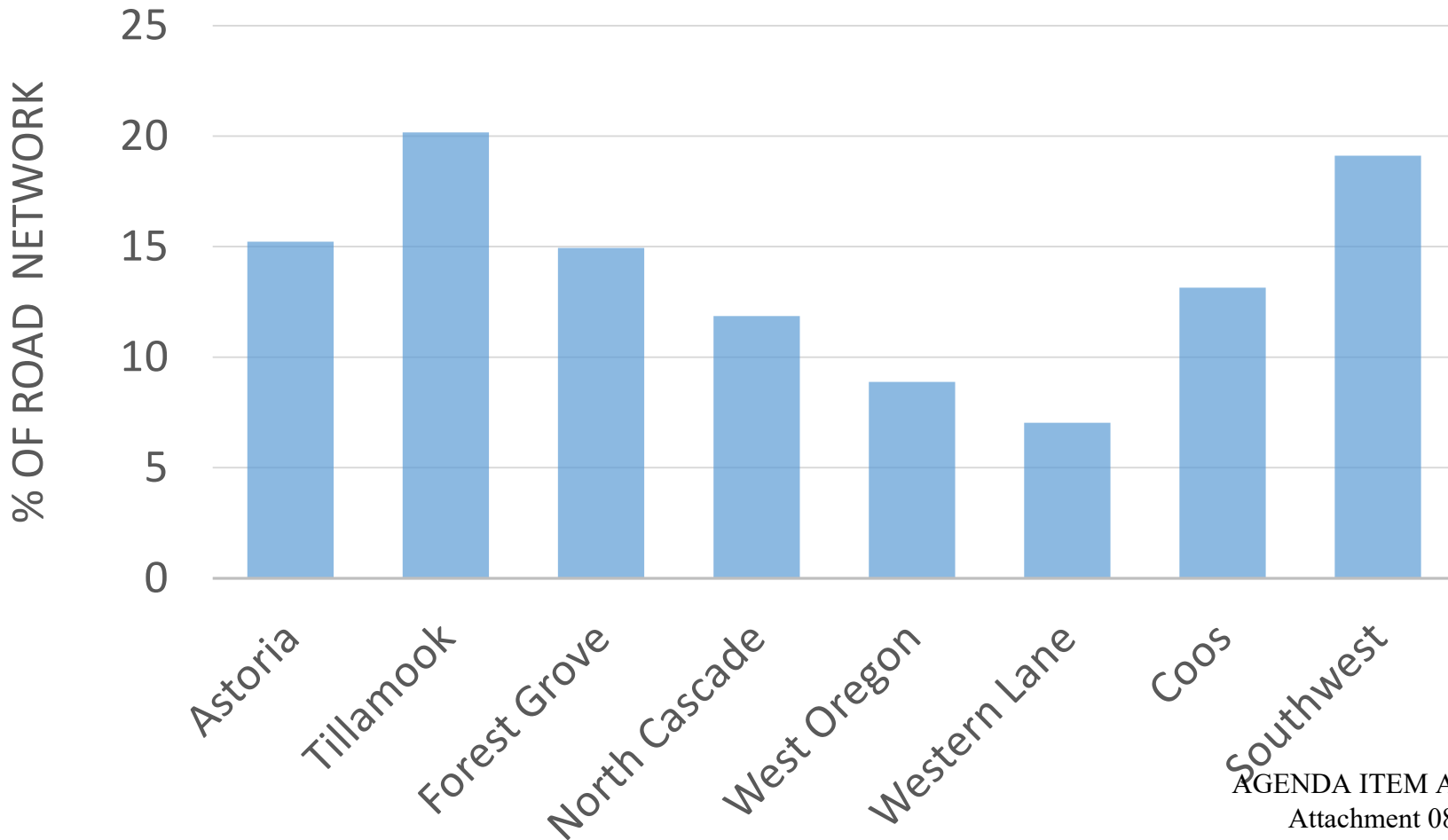




PERCENT ROAD NETWORK SURFACED



Percent of Roads within 100' of Streams





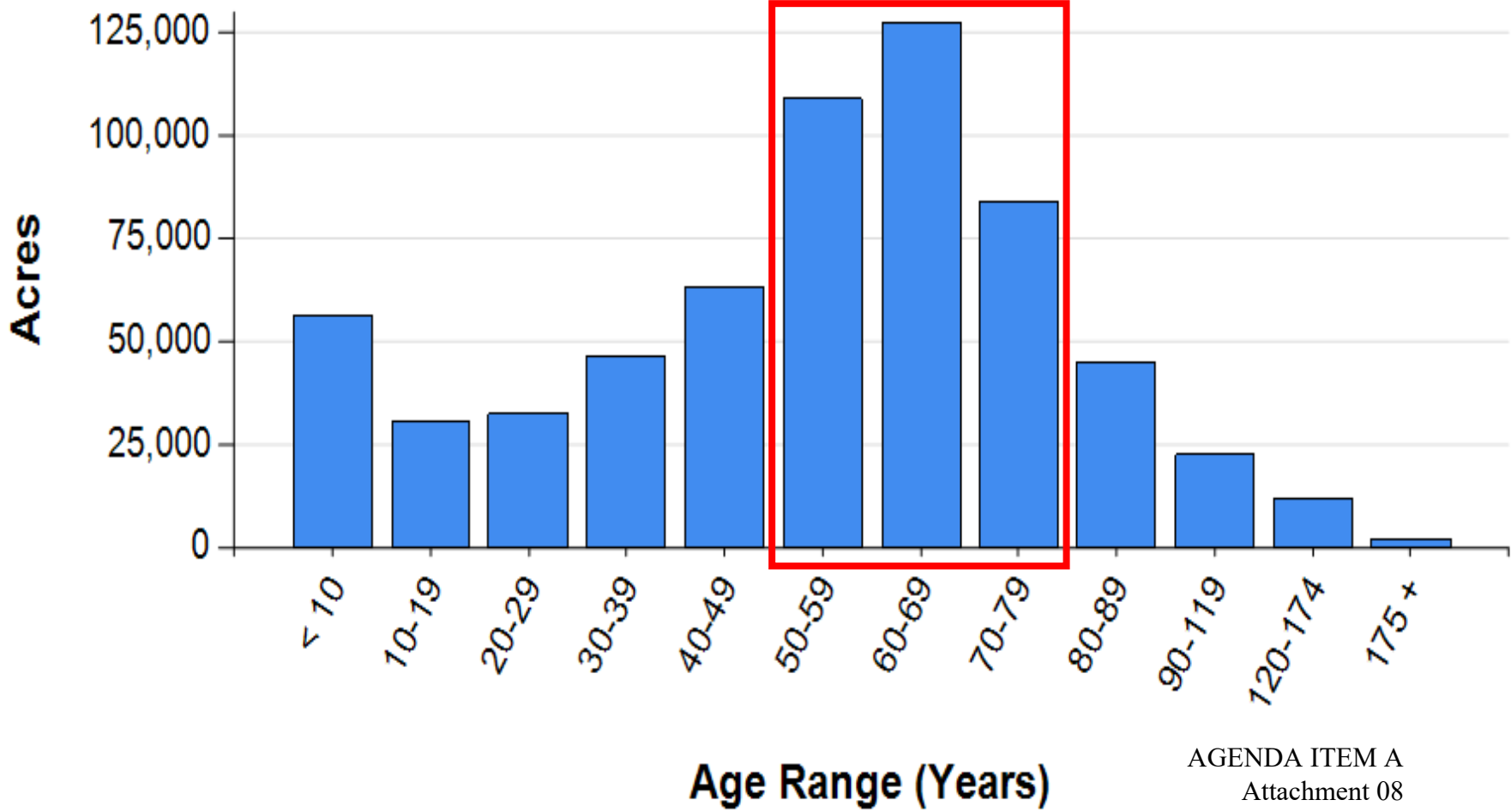
Forest Condition: Standing Volume

- Total Standing Volume: ~17 Billion Board Feet
- Constraints:
 - Physical Limitations
 - Regulatory Framework
 - Policy Decisions
- Available Board Volume: ~8 Billion Board Feet
- Average Volume/Acre: ~27.4 MBF/ac
- Varies by District, Forest Type and Stand Age



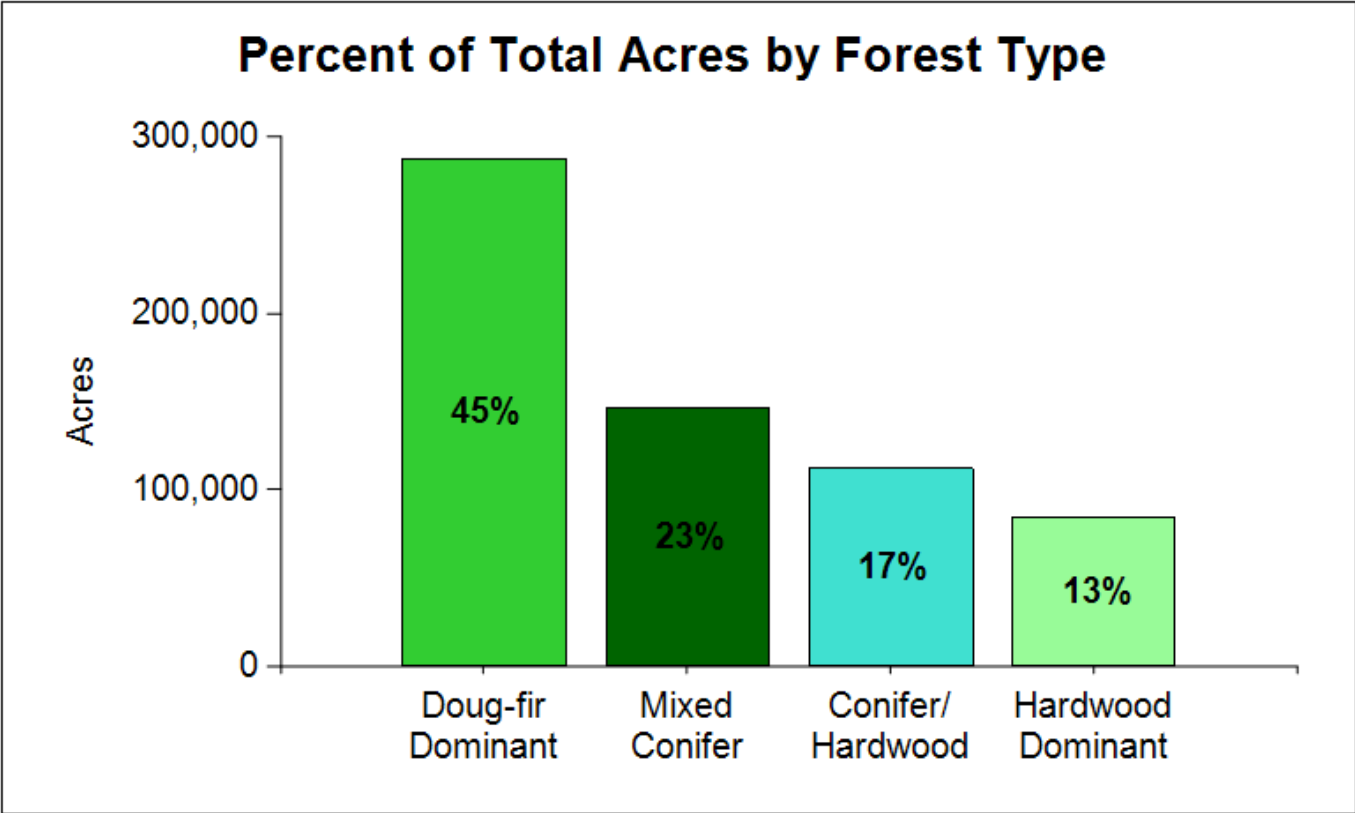
Forest Condition: Stand Age

Age Distribution





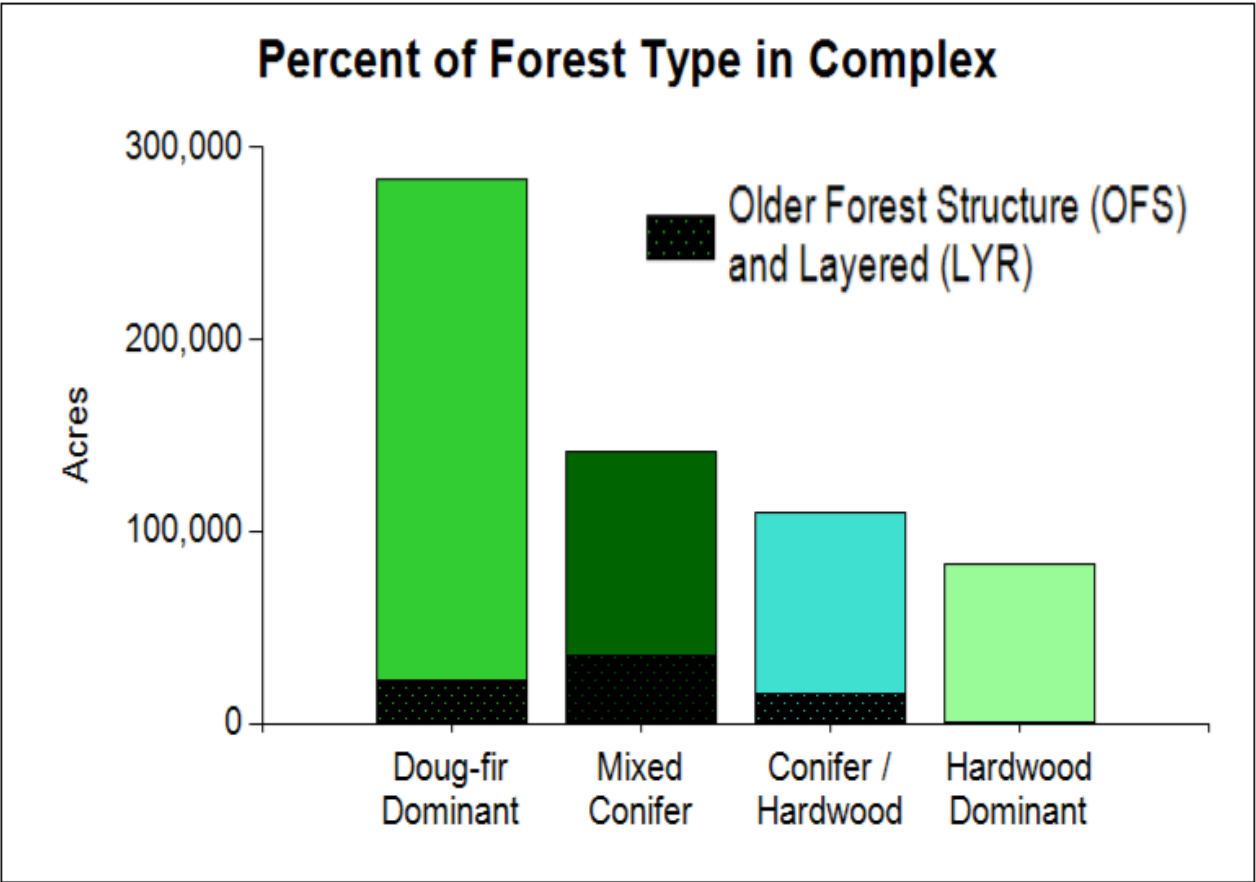
Forest Condition: Four Forest Types



Douglas-fir (*Pseudotsuga menziesii*) is the predominant species throughout Oregon State Forests, but the landscape supports a variety of forest types.



Forest Condition: Habitat Development Potential

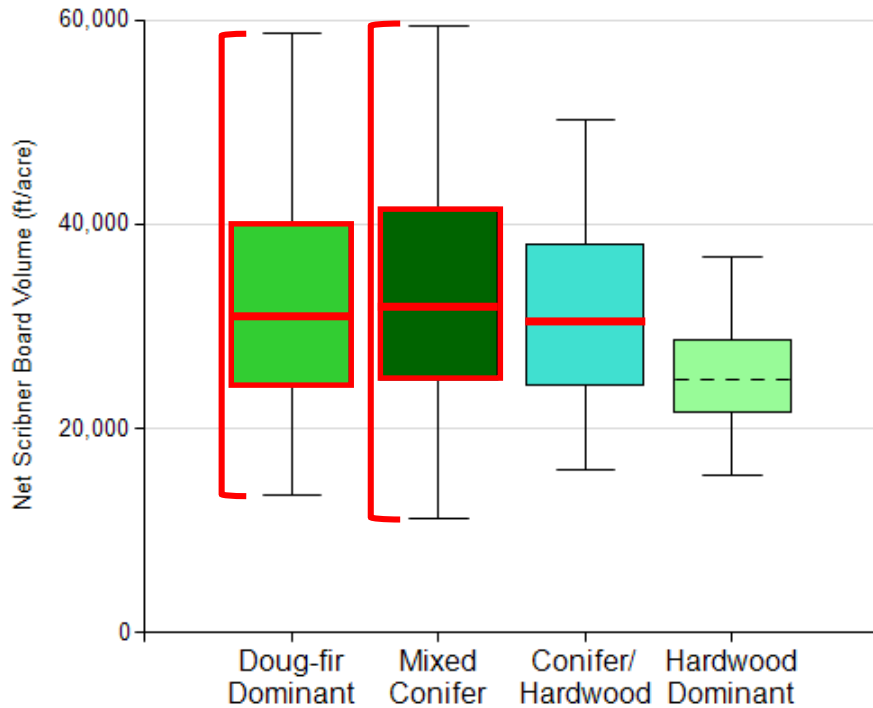


Different Forest Types Provide Unique Habitat Potential

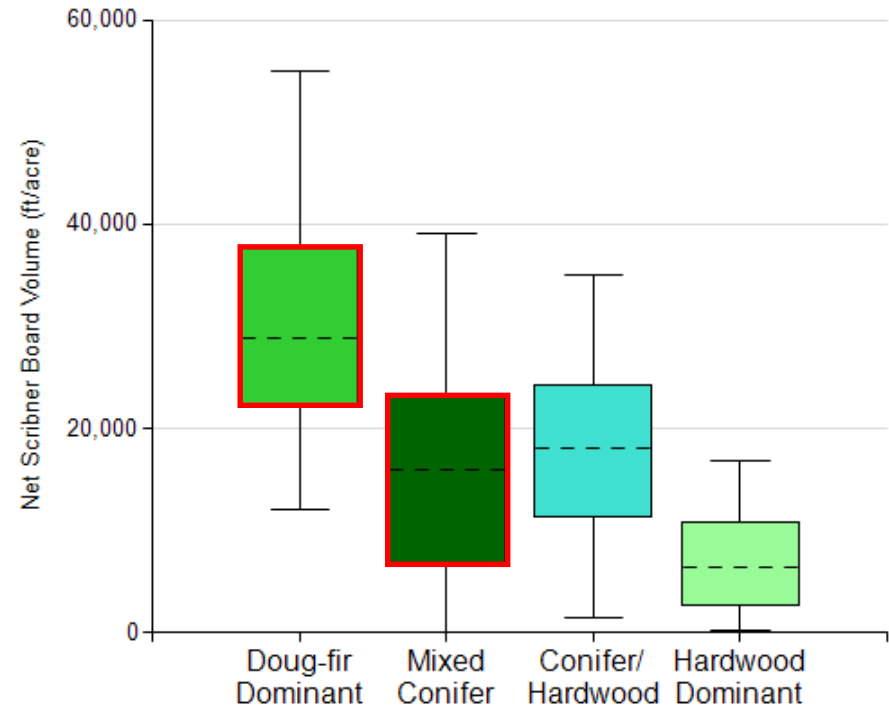


Forest Condition: Timber Production Potential

Total Volume/Acre (50-80 Year-Old Stands)

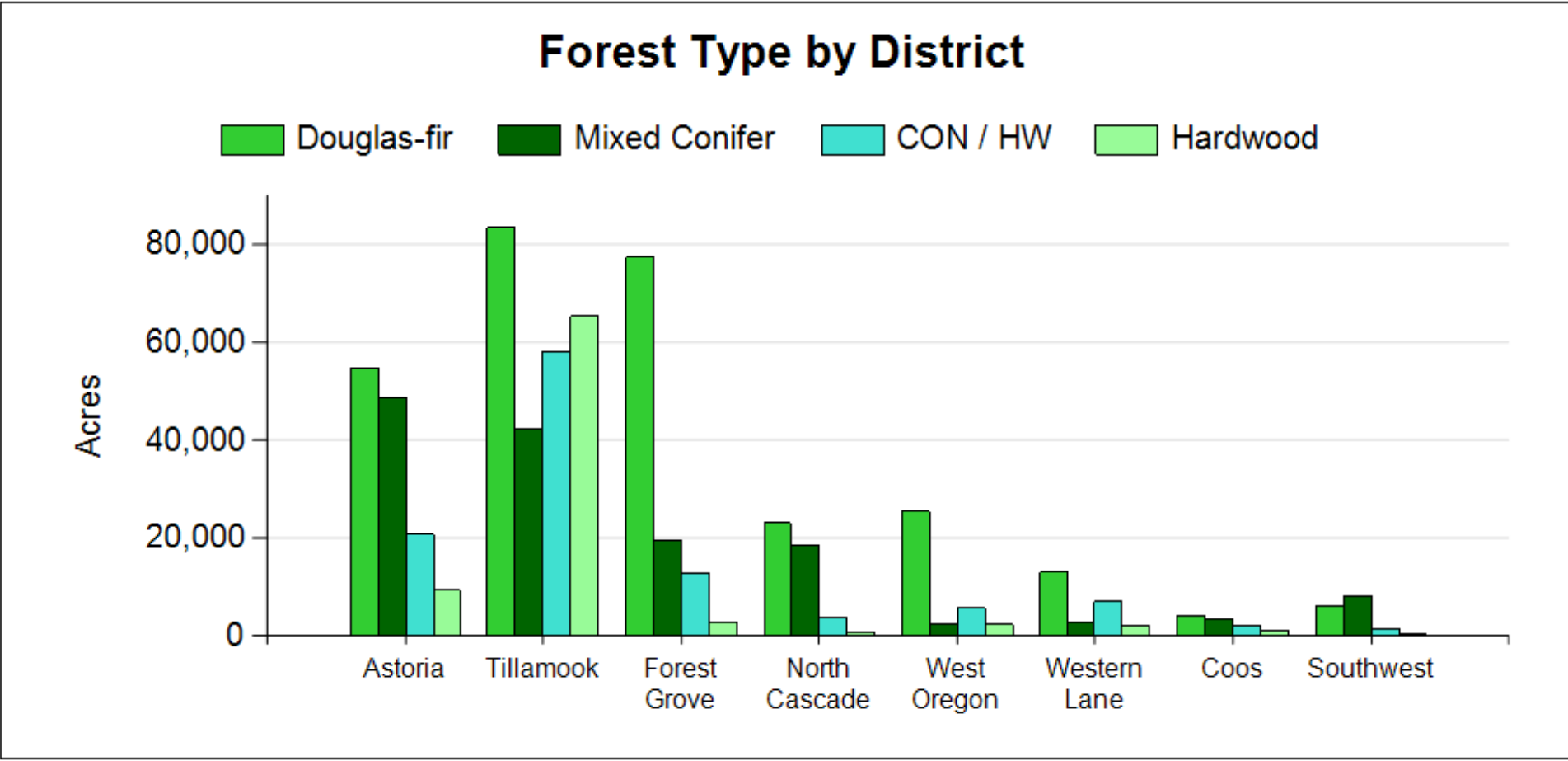


Douglas-fir Volume/Acre (50-80 Year-Old Stands)





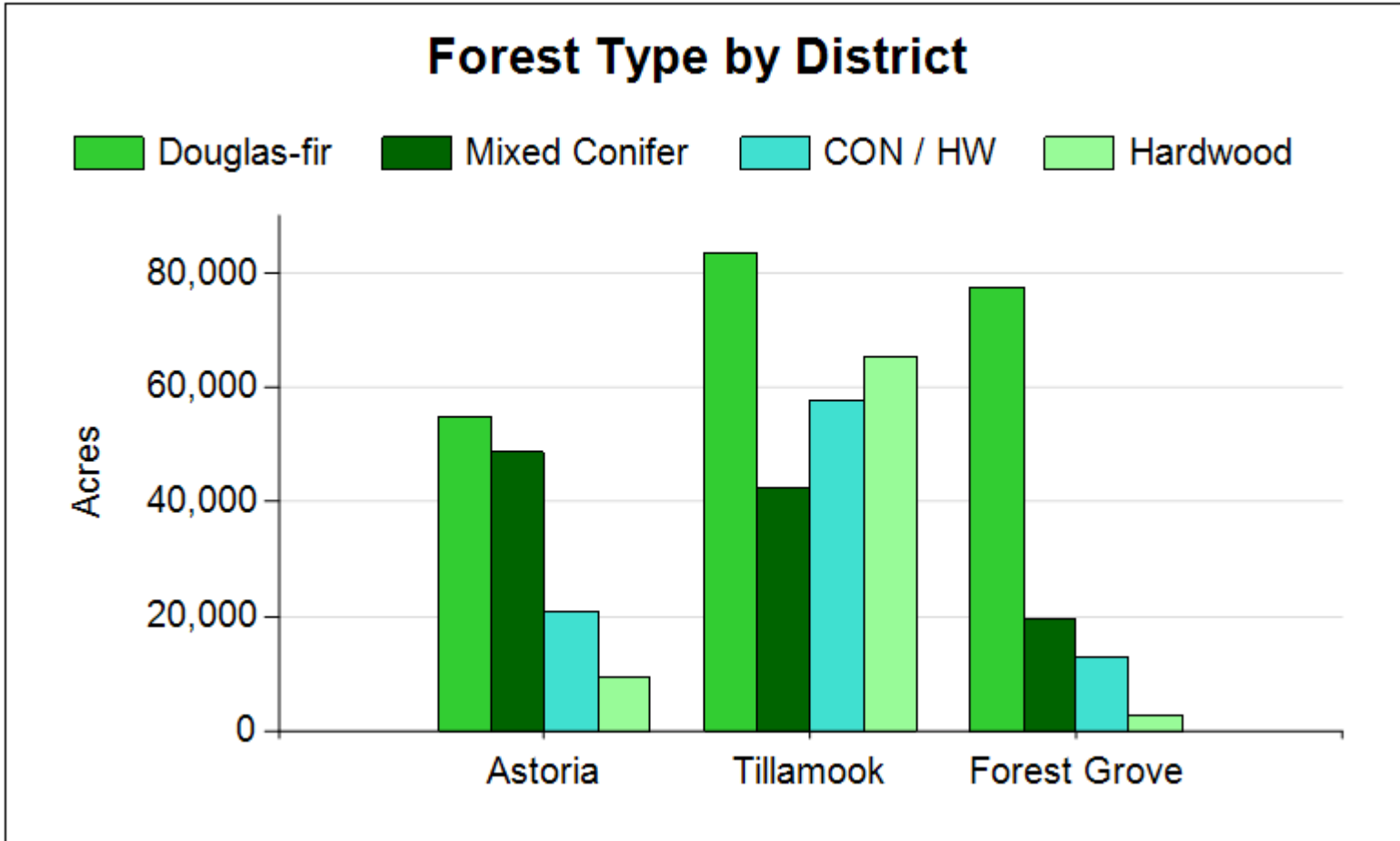
Forest Condition: Forest Type Distribution



Forest Type Varies by District



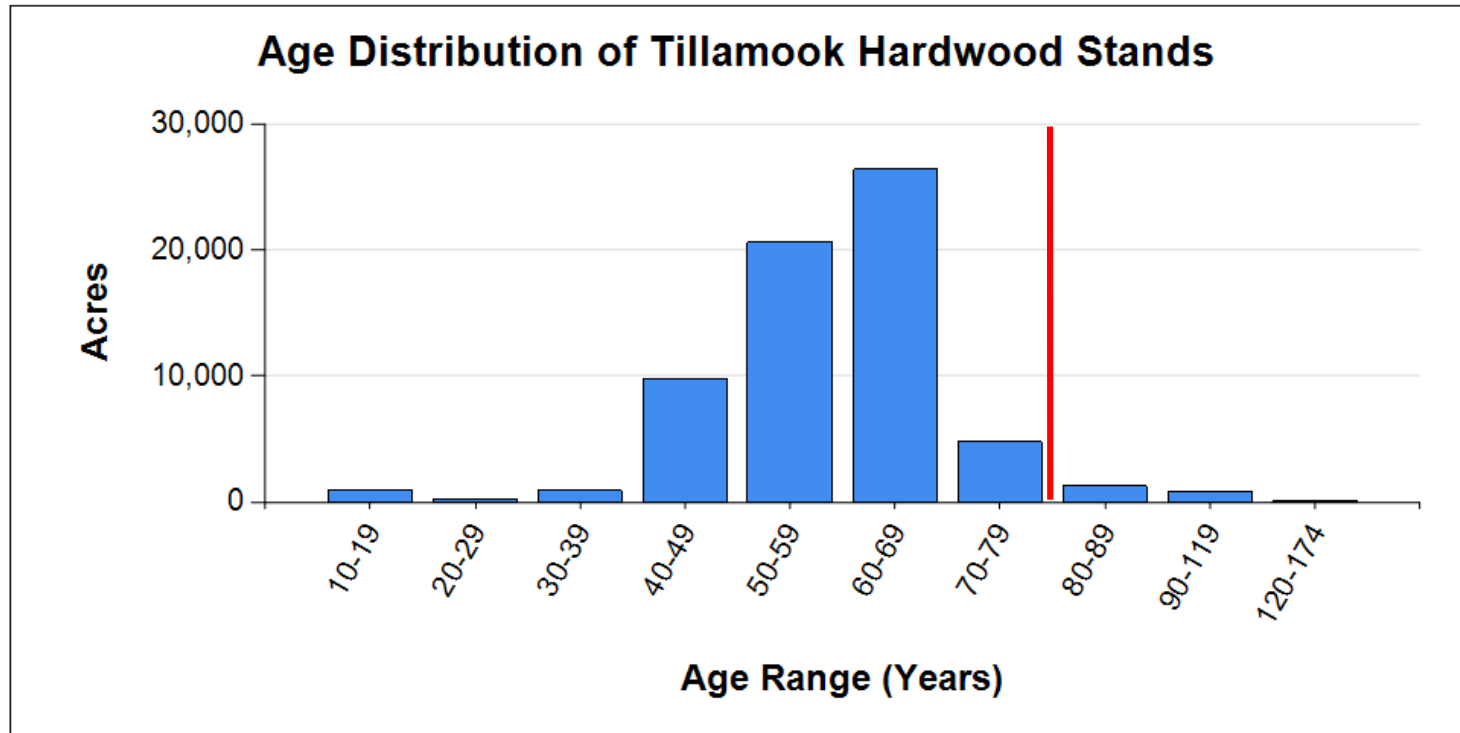
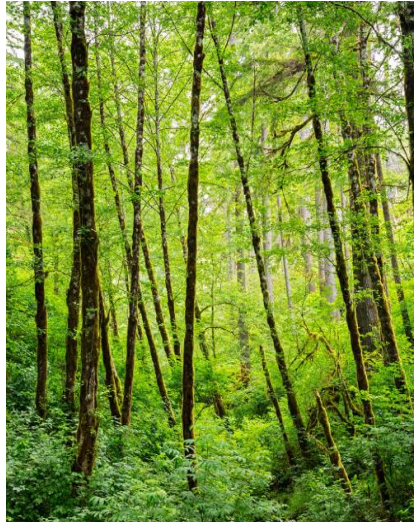
Forest Condition: Forest Type Distribution



Forest Type Varies by District



Forest Condition: Tillamook Hardwood Stands





Forest Health



Swiss Needle Cast



Drought-> Disease and Bugs

AGENDA ITEM A

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Swiss Needle Cast

What is it?

- Swiss needle cast is a foliage disease specific to Douglas-fir.
- Causes premature casting of needles, in severe cases only 1-year worth of needles remain on the upper crown.

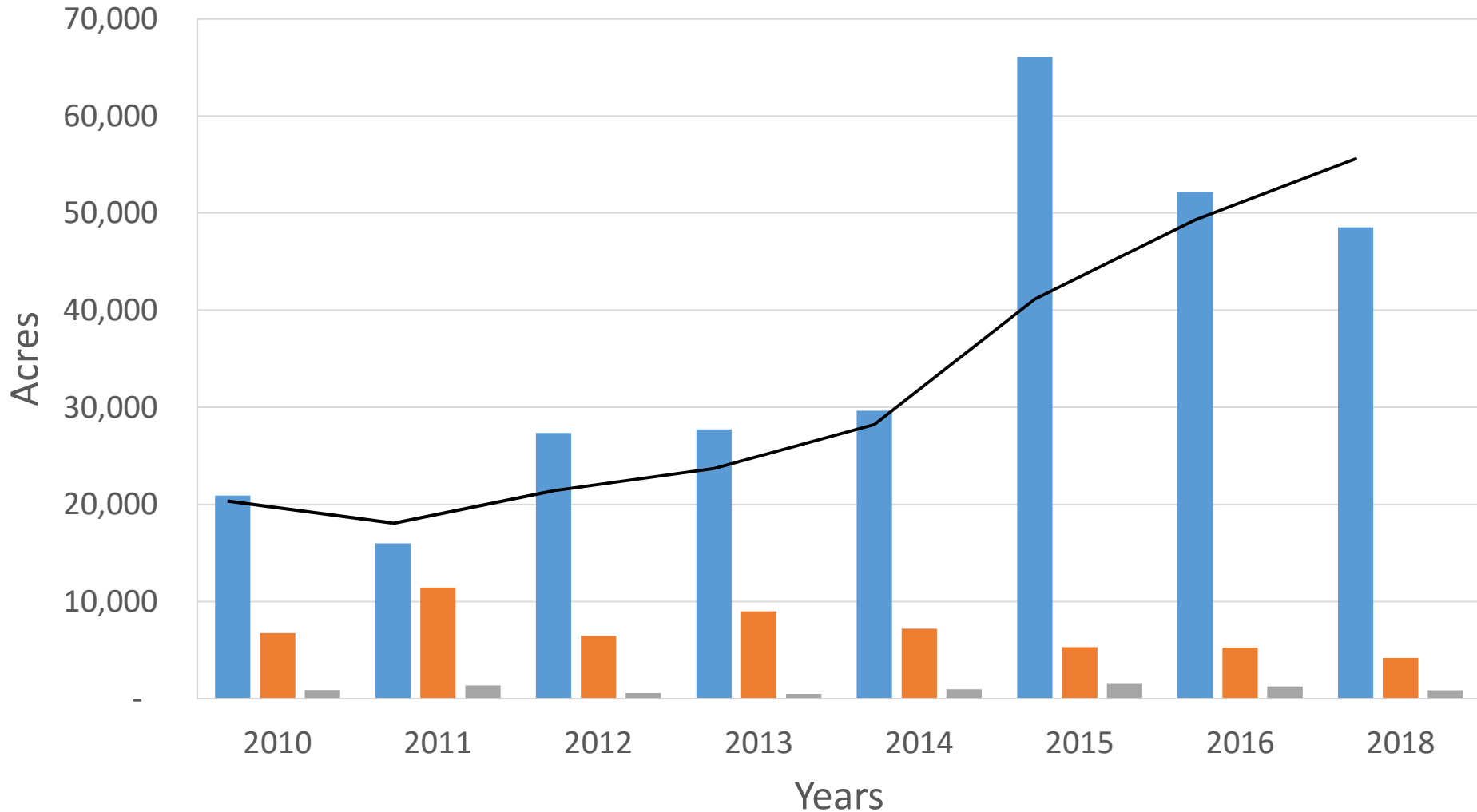
Effects

- Infected trees have 20-50% reduction of growth.
- In severe years, no growth can occur.





Swiss Needle Cast Acres by Year



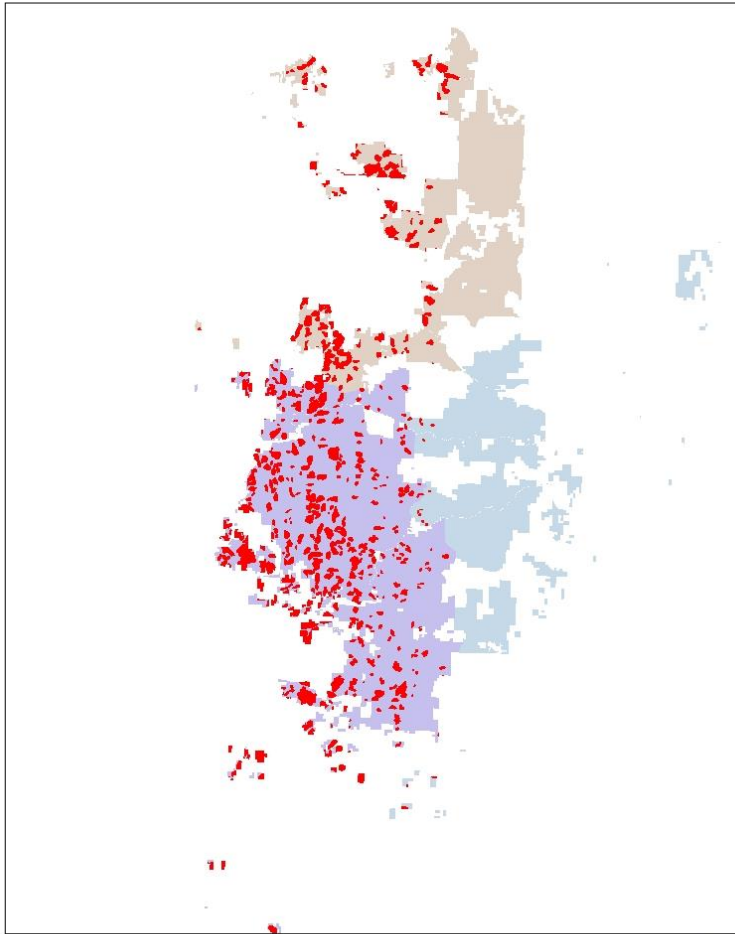
■ Northwest Oregon

■ West Oregon

■ Coos

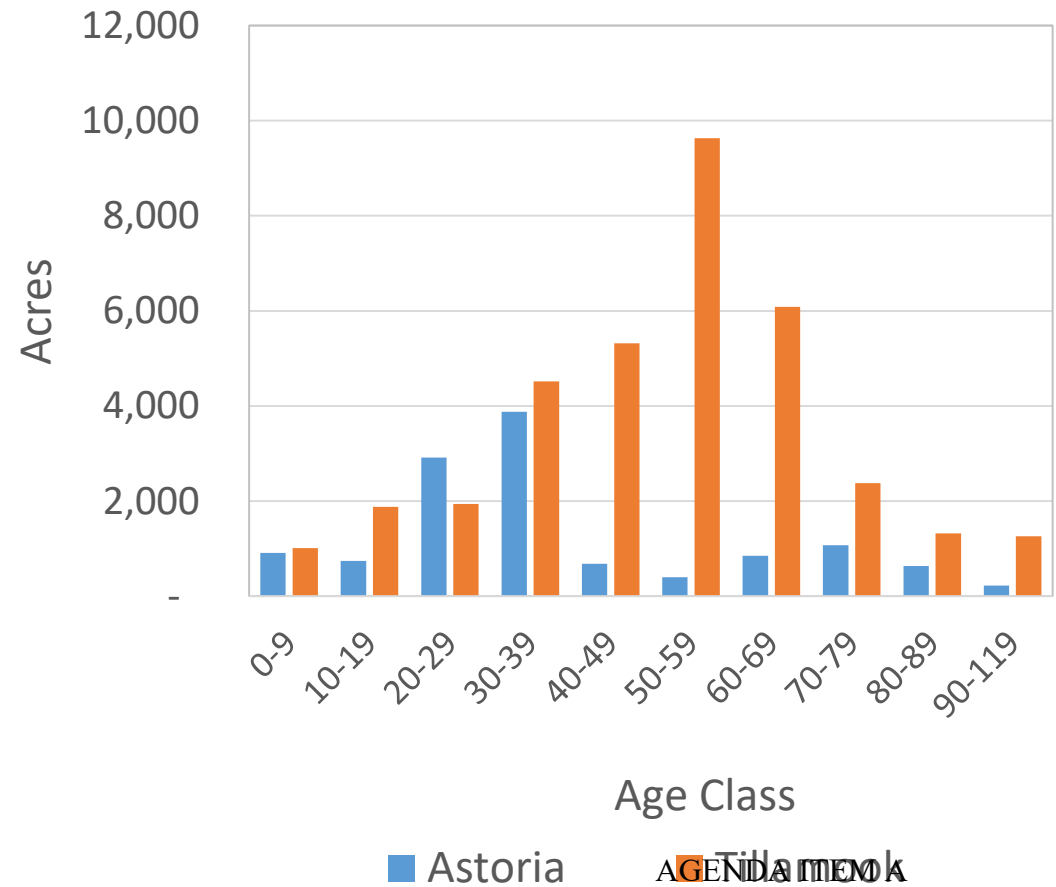


Swiss Needle Cast in Northwest Oregon



Date: 08/21/2018

Swiss Needle Cast on the Astoria and Tillamook Districts in 2018



Age Class

■ Astoria

■ Tillamook



Drought Stressed Trees

Drought Impacts

- Reduced growth and vigor
- Predisposes trees to attack by insects and disease

Climate Change

- Warmer winters
- Longer spring and summer conditions



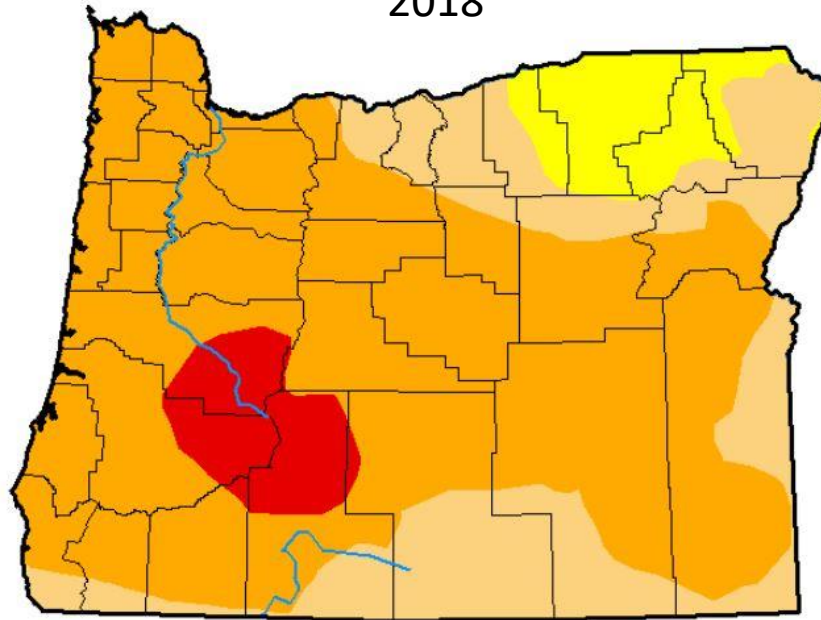
Drought damage in Douglas-fir






Drought




2018

Third week of August



Drought Intensities

-  None: No Drought
-  D0: Abnormally Dry
-  D1: Moderate Drought

-  D2: Severe Drought
-  D3: Extreme Drought
-  D4: Exceptional Drought

AGENDA ITEM A

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Forest Condition & Forest Health: Key Points

- Non-uniform age distribution
- Forest composition & age distribution vary by district
- Timber production & habitat development vary by forest type
- Tillamook red alder in decline due to age
- Swiss needle cast on north coast

Timber Harvest Management Program



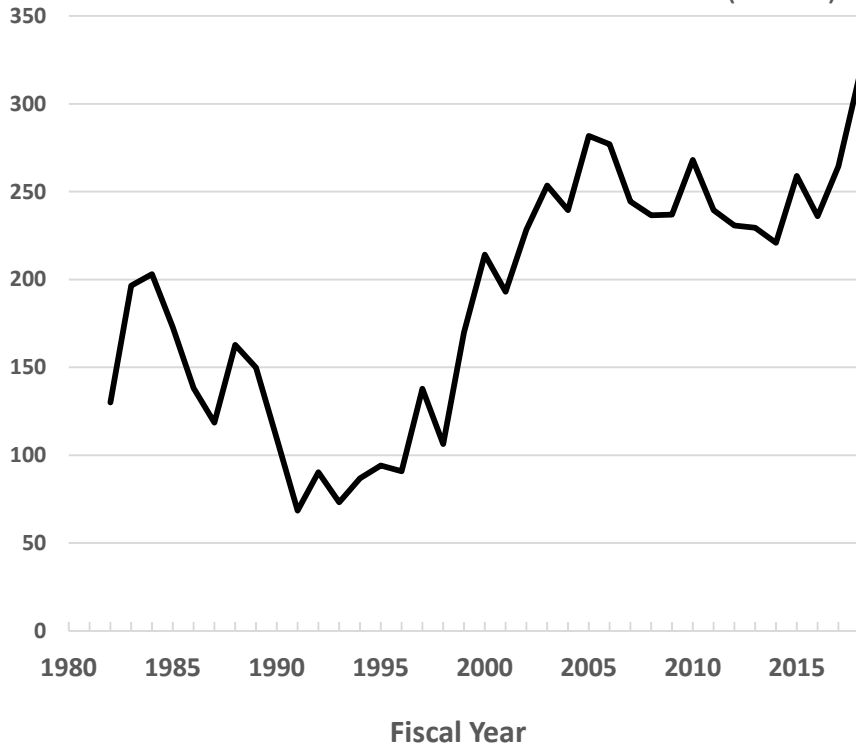
- Policies guide timber harvest
- Economic Benefits
 - Management, fire protection
 - 36.25%
 - Local counties, taxing districts
 - 63.75%
- Social Benefits
 - Local jobs, mills, communities



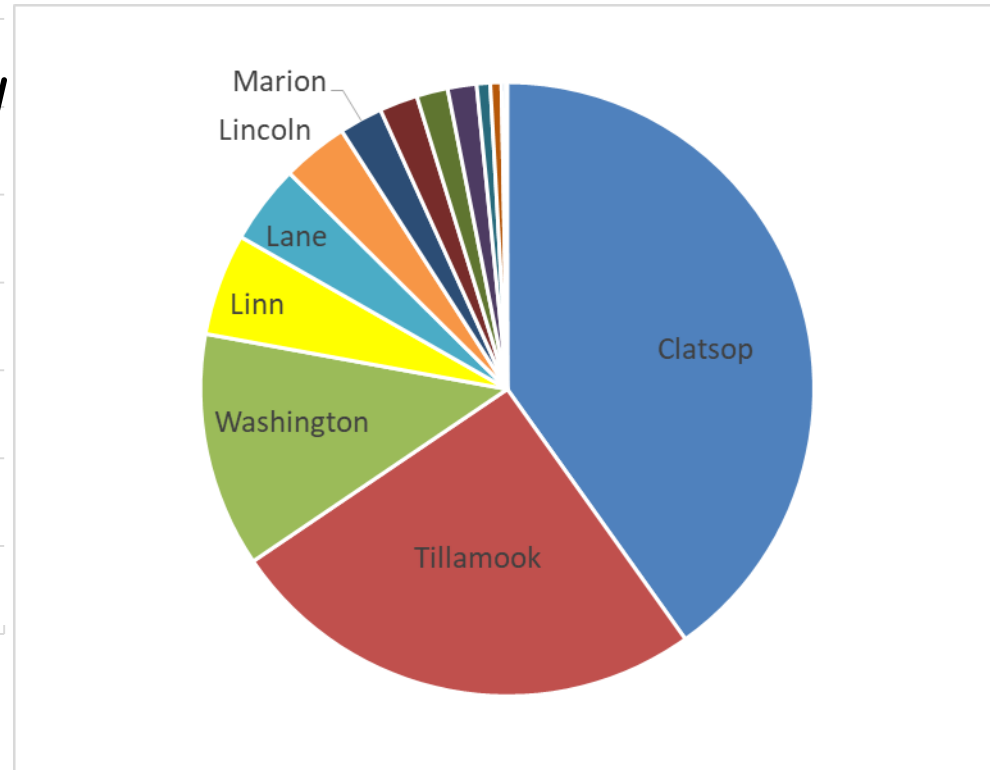
Timber Harvest Provides County Revenues



Harvest Volume on BOF Lands (mmbf)



Timber Revenue Distributed to Counties



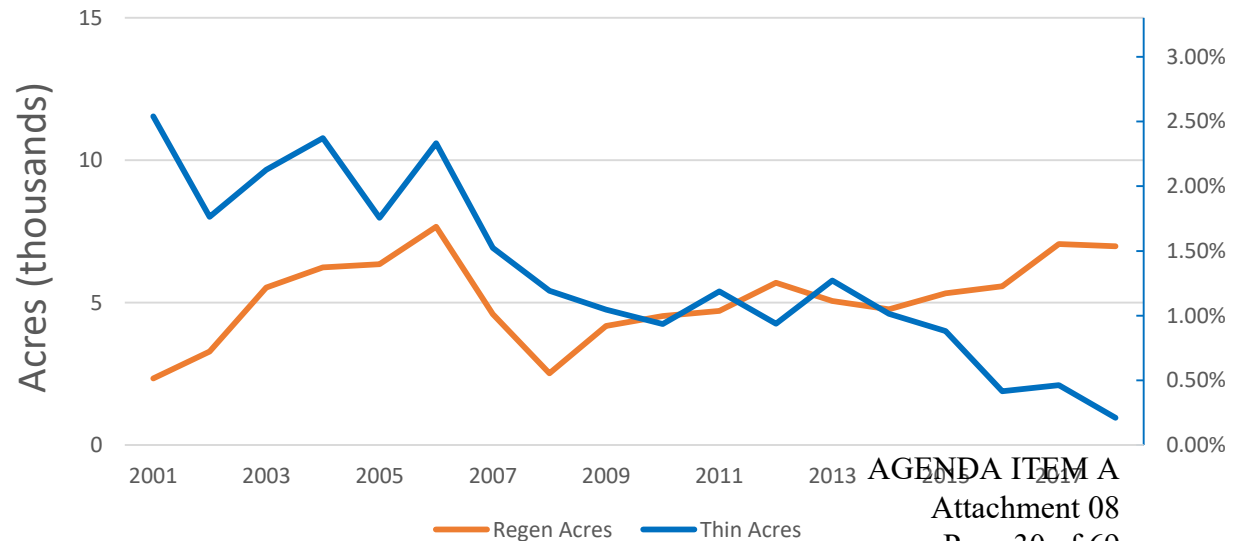
Area Harvested Annually



- Trends
 - Plan Initiation
 - Elevated thinning levels
 - Post-recession
 - Balance thin/regen
 - Last 3 years
 - Focus on financial viability



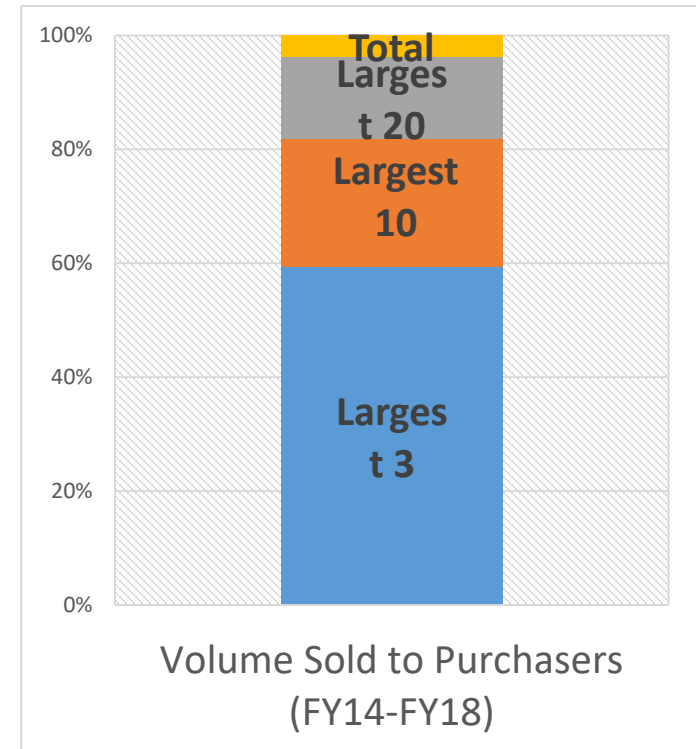
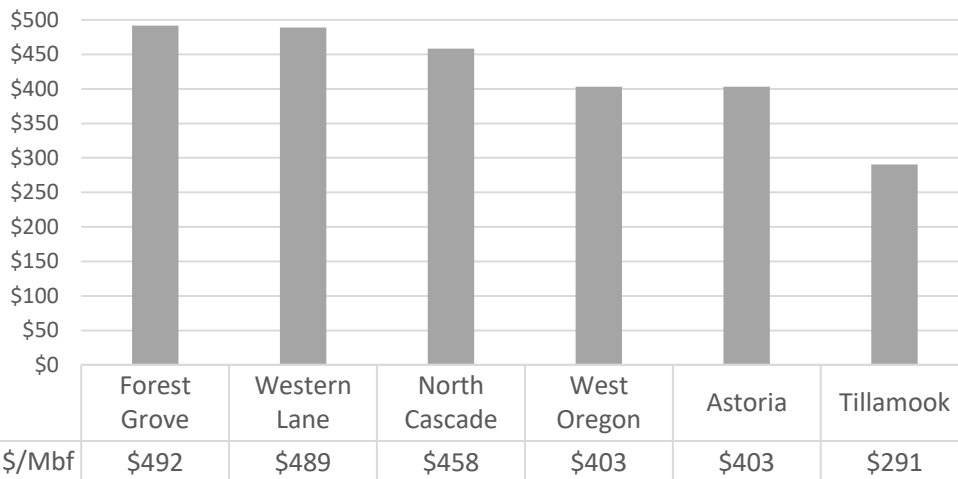
Acres of timber sold



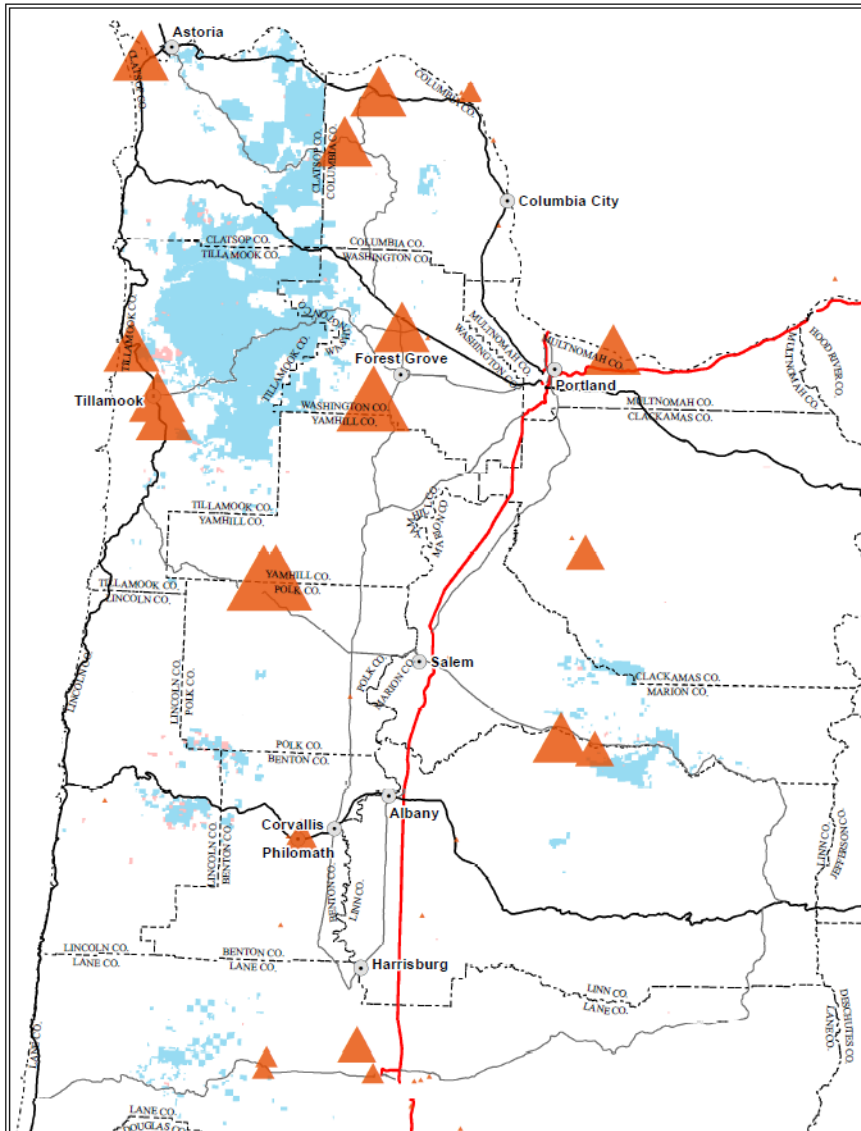
Timber Harvest Management Program



- Timber sold only for domestic processing (specified in OAR)
- Last 5 yrs: >40 purchasers
 - ~60% to three local purchasers
- Planning area bid prices vary

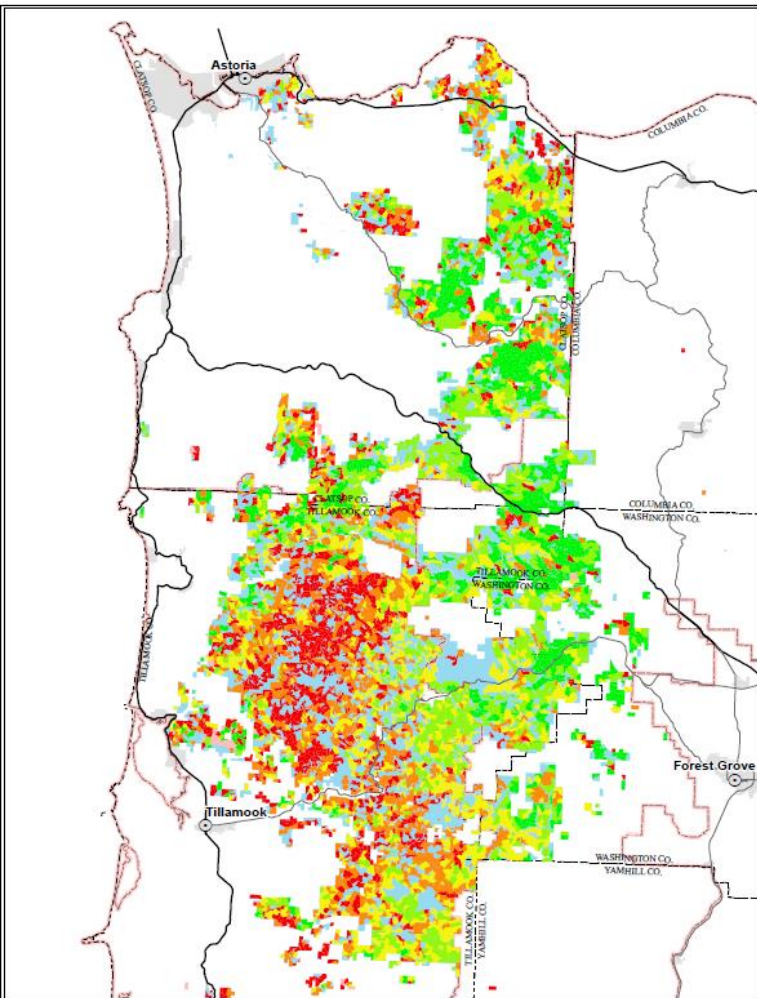


Where is Volume Delivered?



- Concentrated around North Coast and I-5 corridor
- Proximity to mills is one contributor to bid prices for timber sales

Timber Value Varies Across The Landscape



Affected by landscape, events, and management



Young Stand Management Cost



- Reforestation is largest single variable cost for State Forests
- Initial planting
 - Variables: topography, accessibility, labor, seedlings, etc.
 - Tillamook: \$230/acre
 - Forest Grove: \$129/acre
- Other activities
 - Site prep, trapping, etc.
 - Tillamook most expensive



Timber Summary

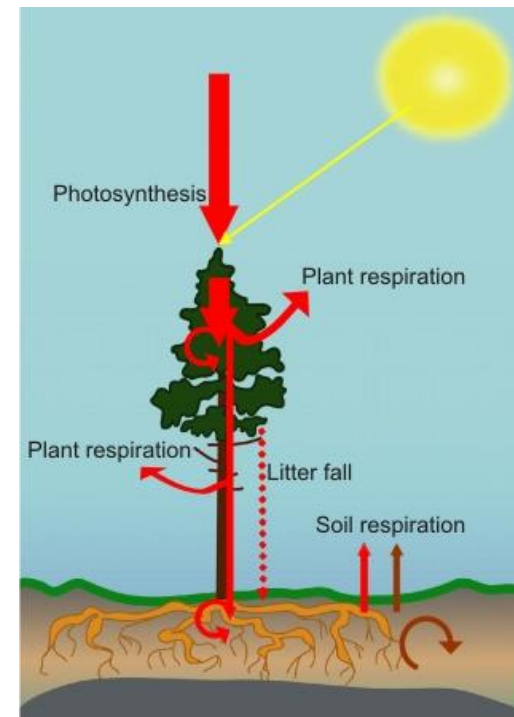


- Reliable and sustainable local timber harvest
- Revenue to local counties and taxing districts
- Reforestation and reinvestment in the forest is integral
- Unique challenges, especially Tillamook District

Forest Carbon



- Forest carbon is affected by
 - Forest growth
 - Mortality and decay
 - Disturbance
- Forest carbon
 - Grouped into five pools
- Above ground
 - Correlated with inventory
- Below ground
 - More uncertain

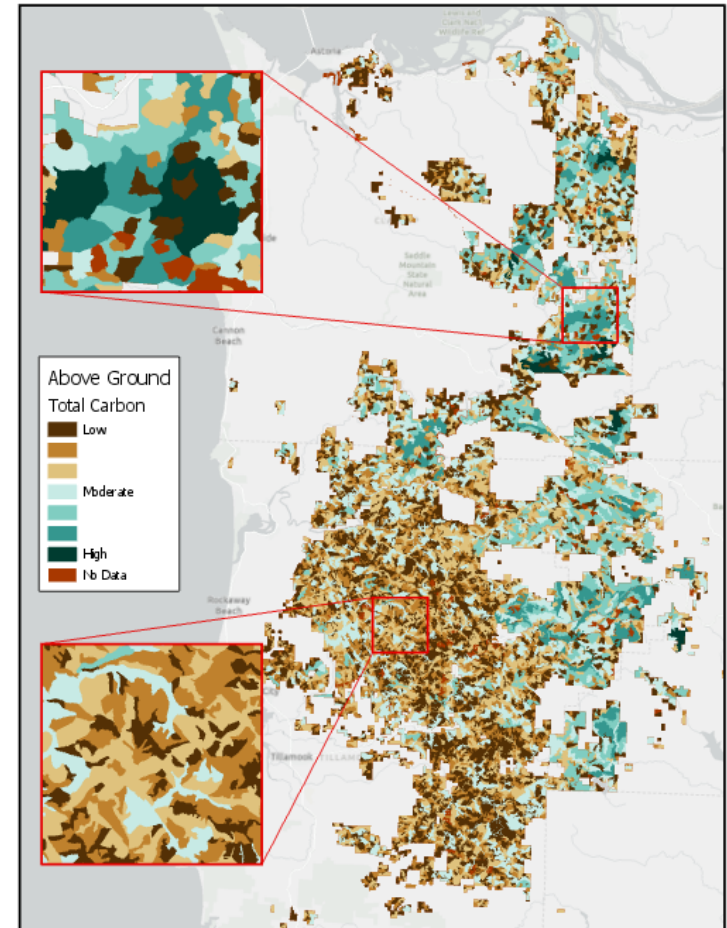
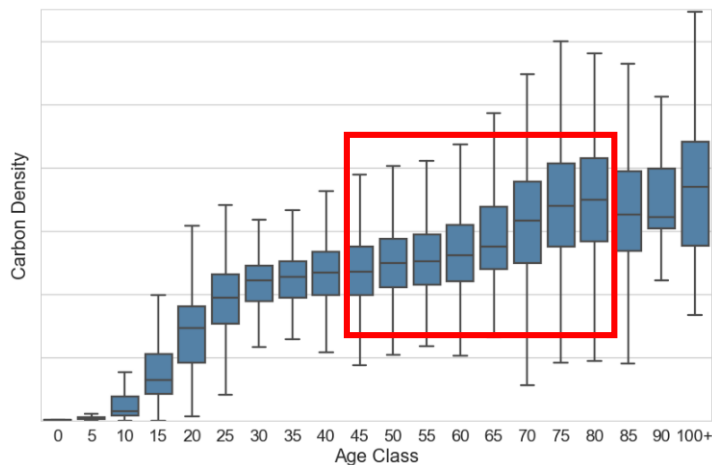


Credit: <http://hiilipuu.fi/articles/carbon-cycle>



Above Ground Carbon

- Related to stand condition and disturbance history
- Older stands have more carbon
- Most carbon in stands age 45-80

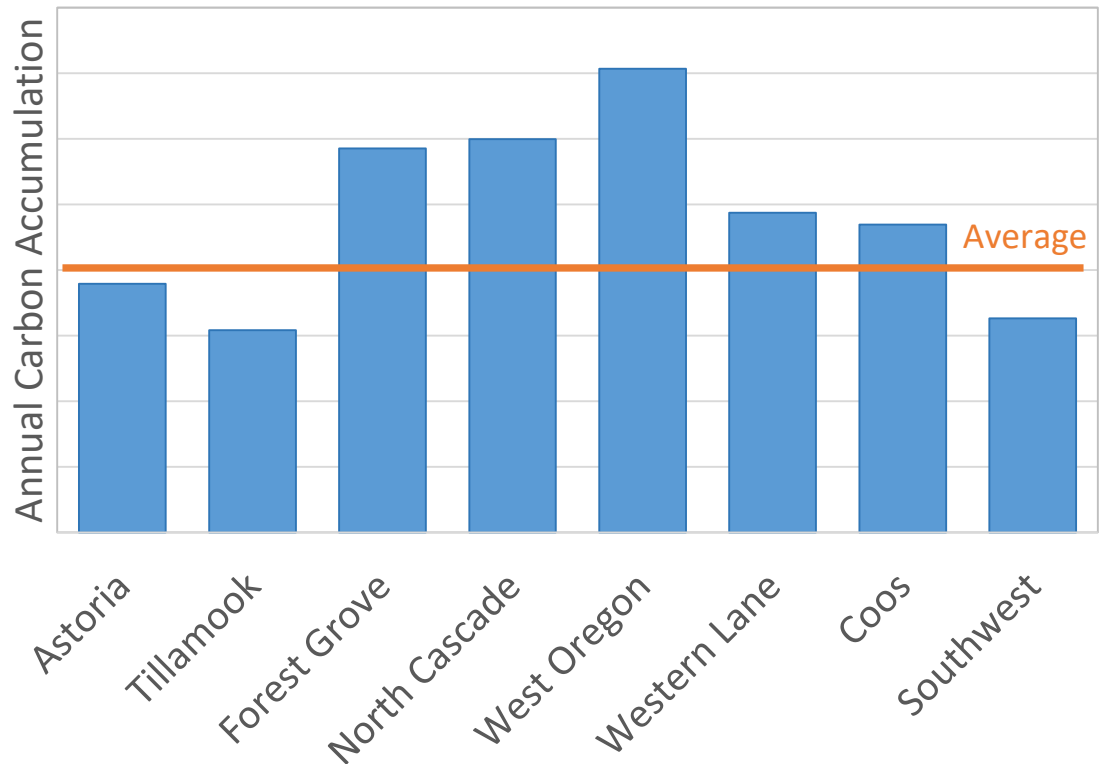




Above Ground Carbon Sequestration Per Acre

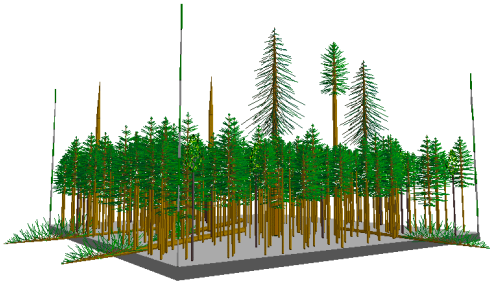
Factors that affect sequestration

- Current inventory
- Age class distribution
- Site productivity
- Stand type
- Past management
- Pathogens
- Disturbance

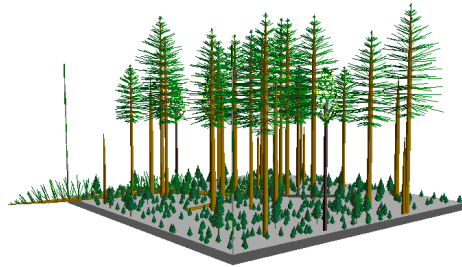




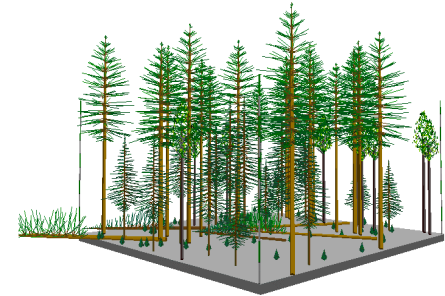
Wildlife and Habitat on State Forests



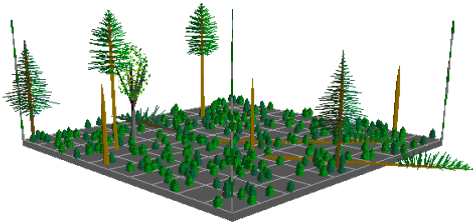
Closed Single Canopy (CSC)



Understory Development (UDS)



Layered (LYR)



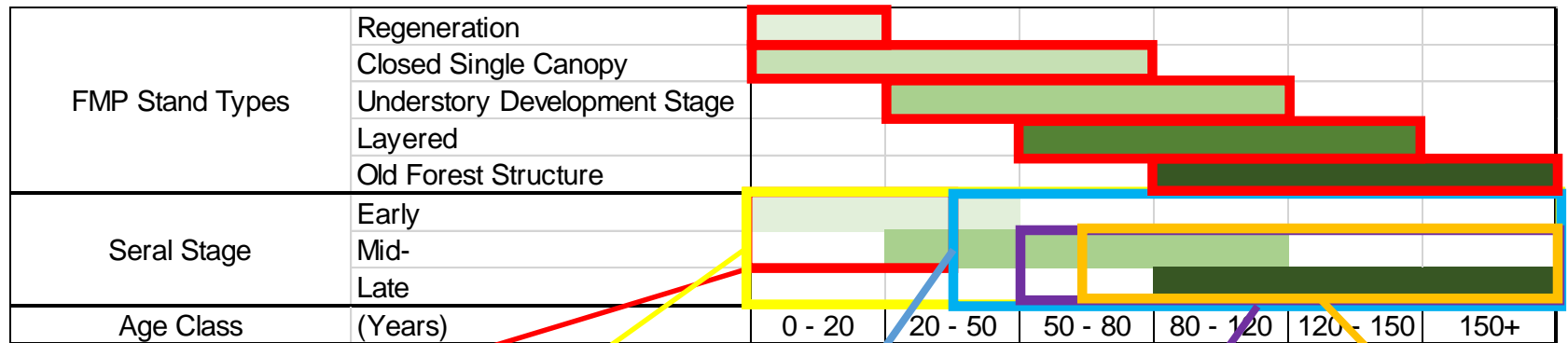
Regeneration (REG)



Older Forest Structure (OFS)

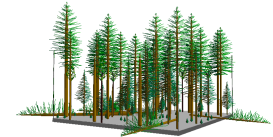
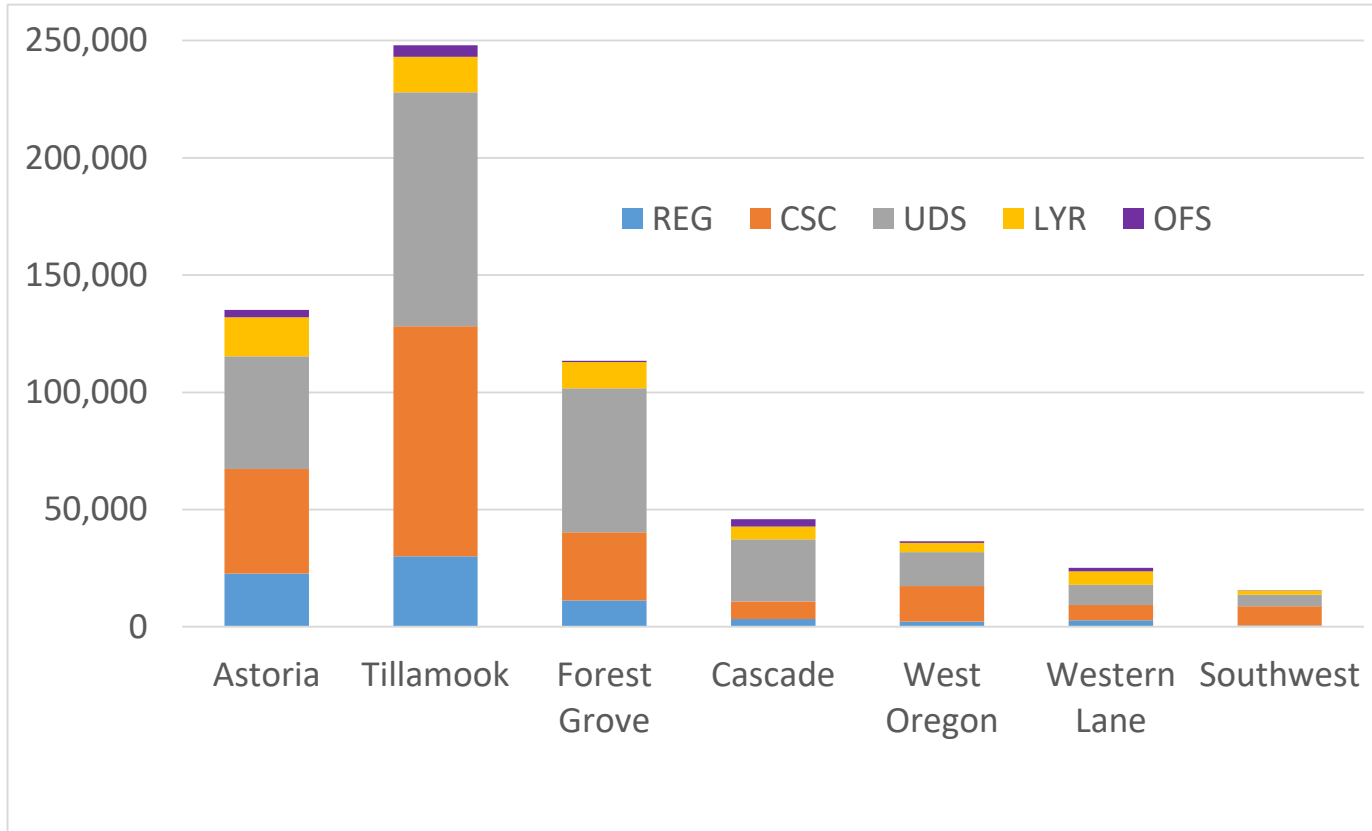


Wildlife and Habitat on State Forests

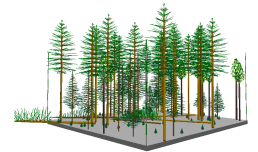




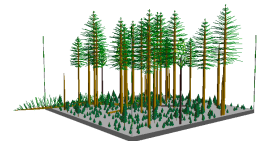
District Acres by Structure Type



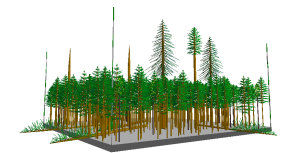
Older Forest Structure (OFS)



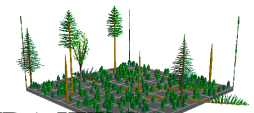
Layered (LYR)



Understory Development (UDS)



Closed Single Canopy (CSC)



AGENDA ITEM A
Regeneration (REG)
Attachment 08

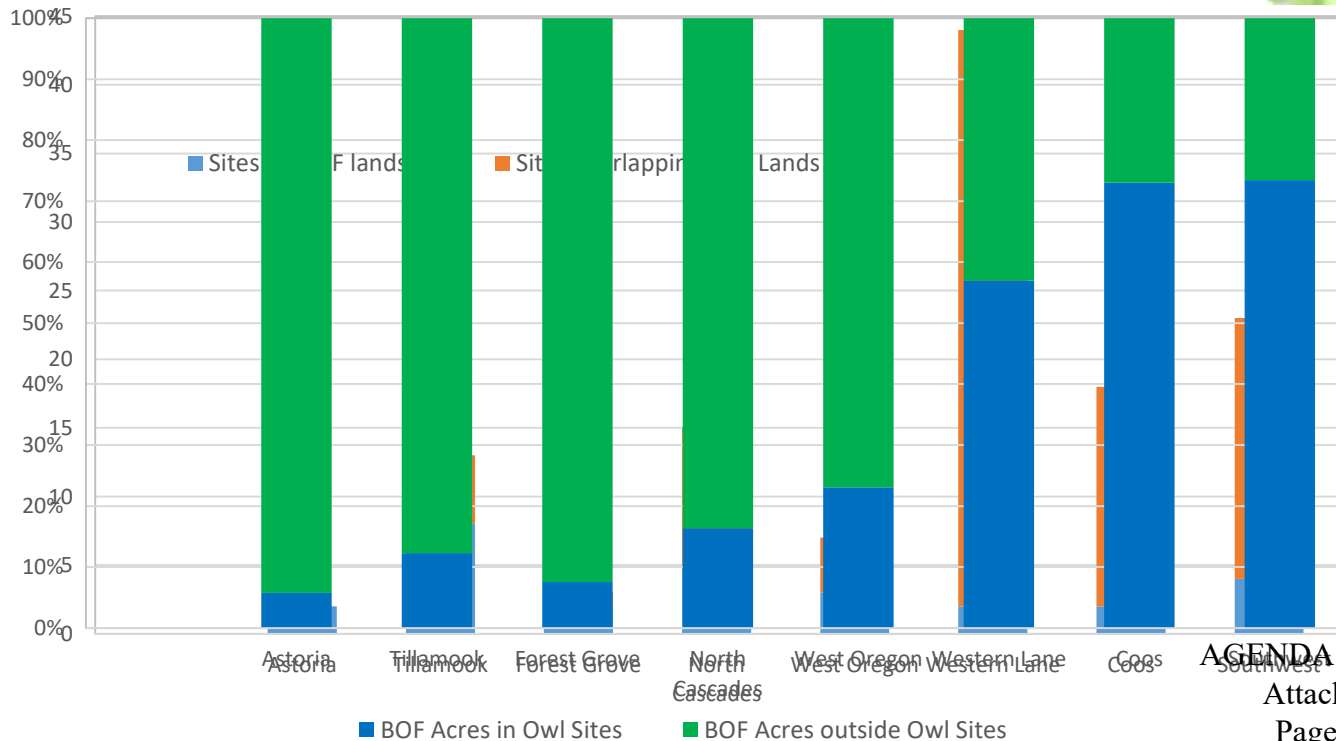
Spotted Owls on State Forests



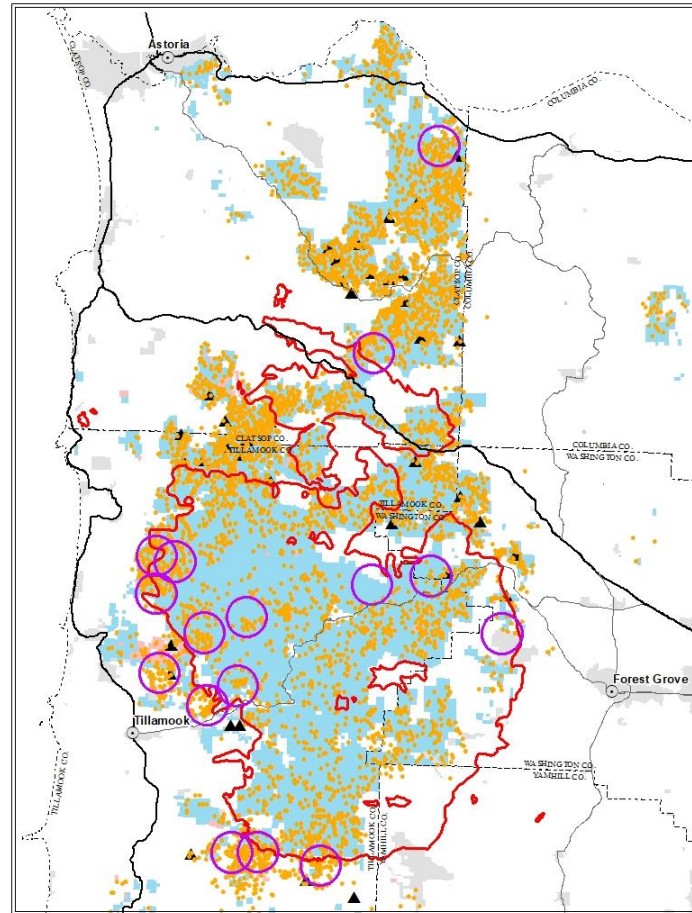
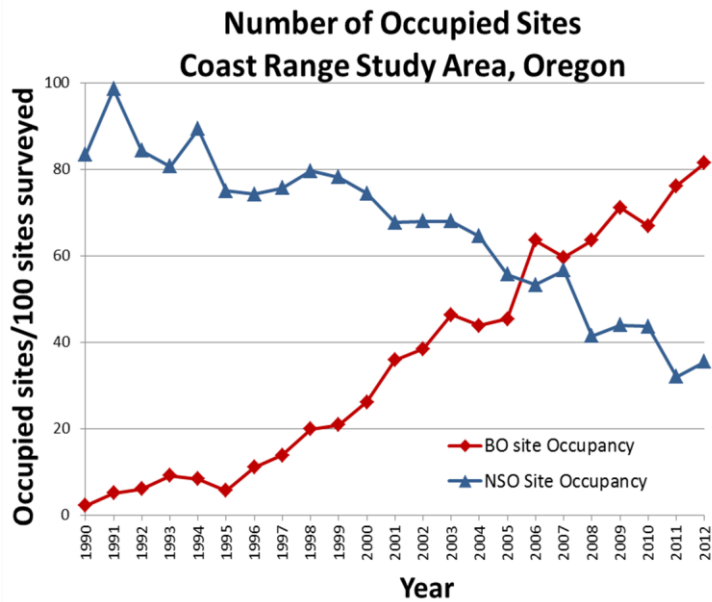
- 28 active sites on BOF lands (18 pairs)
- 97 sites on adjacent lands (85 pairs)
- 88,000 acres in owl sites
- 14.4% of total BOF acres



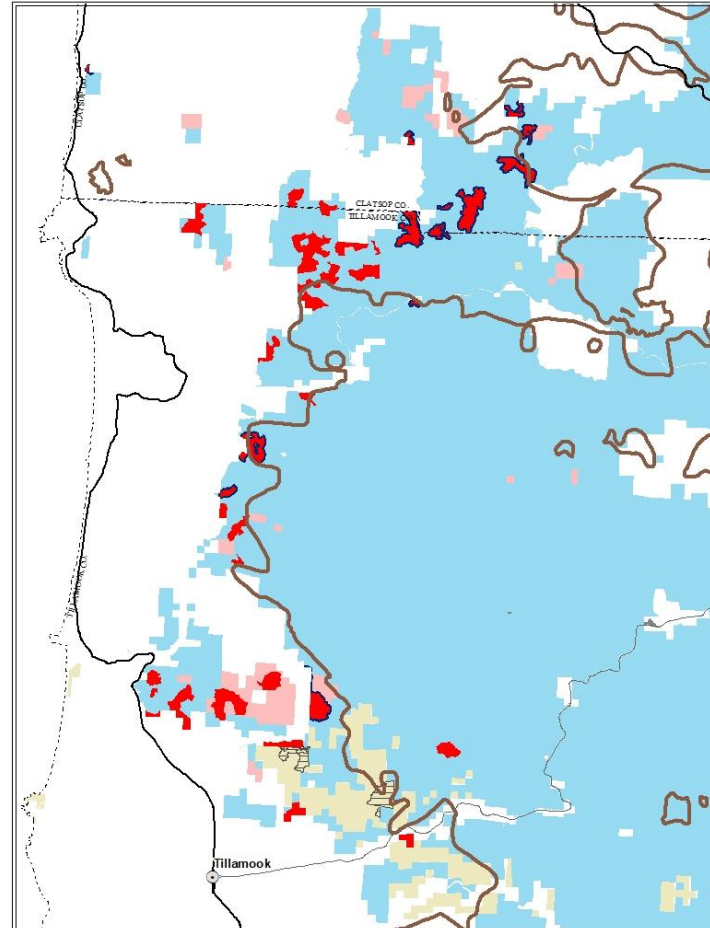
Number of Spotted Owl Sites by District



Spotted Owls and Barred Owls



Marbled Murrelets on State Forests

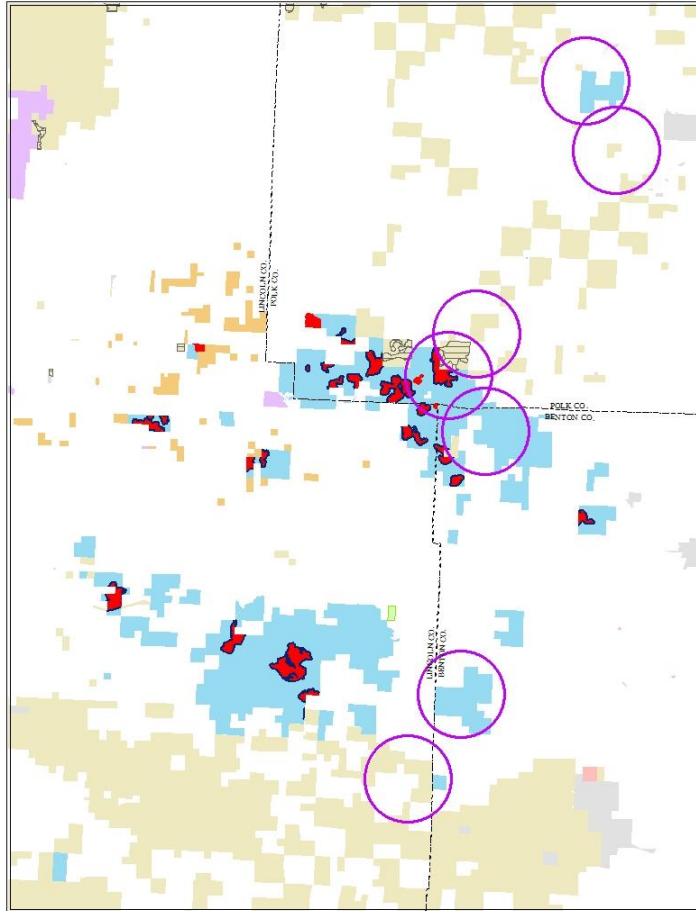


- 32,000 visits to 1,300 sites over 26 years
- 16,000 acres in 107 MMMAs (2.6% of BOF acres)
- Occupancy patterns vary

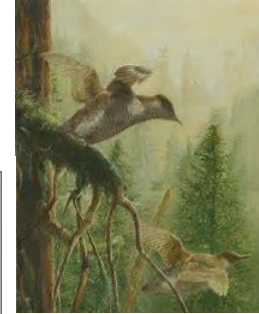
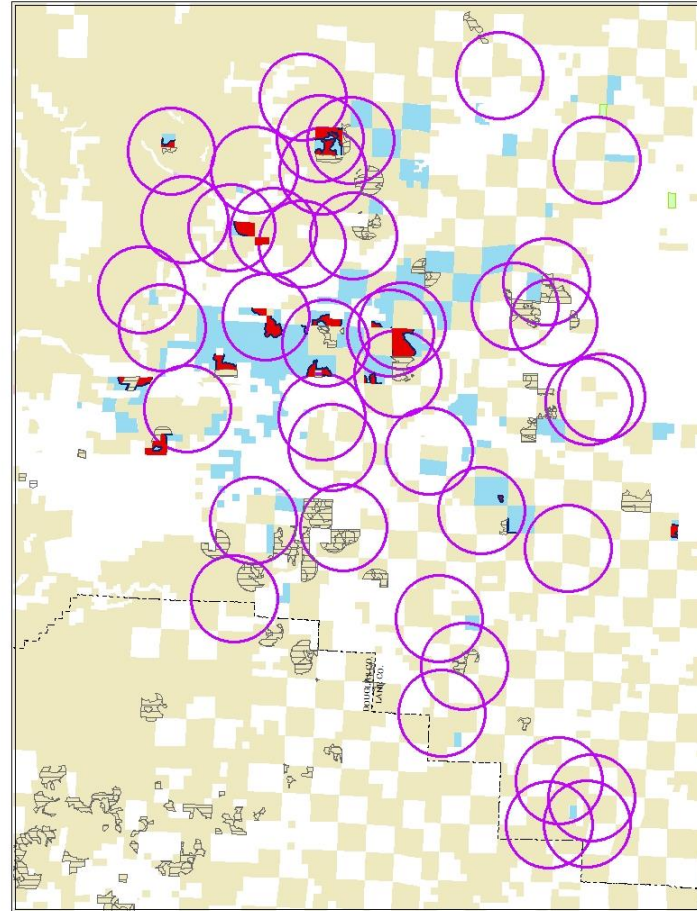
Owls and Murrelets – Landscape Context



West Oregon



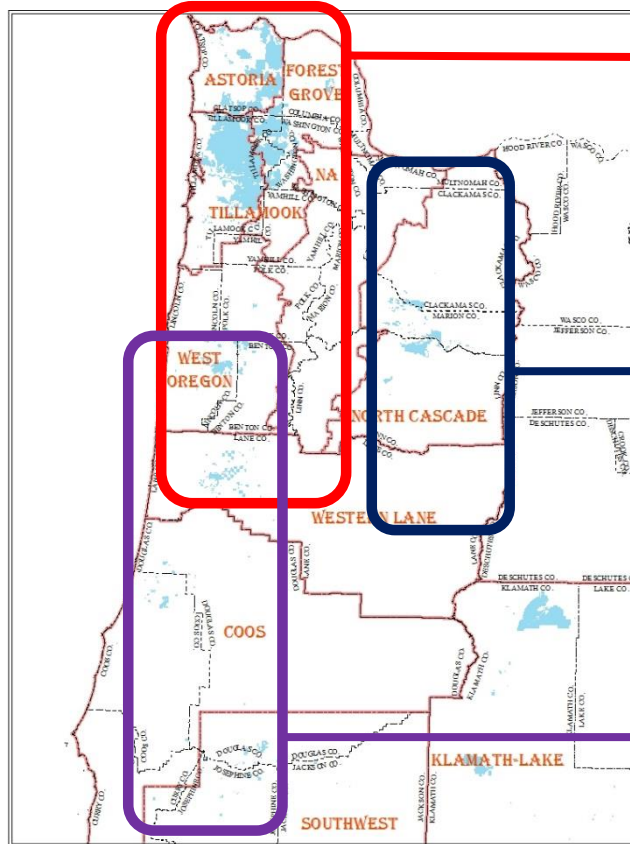
Western Lane





Other Species of Concern on State Forests

- Red tree vole
- Oregon slender salamander
- Pacific marten
- Others
- Differential effects of listing decisions



Wildlife and Habitat on State Forests – Summary



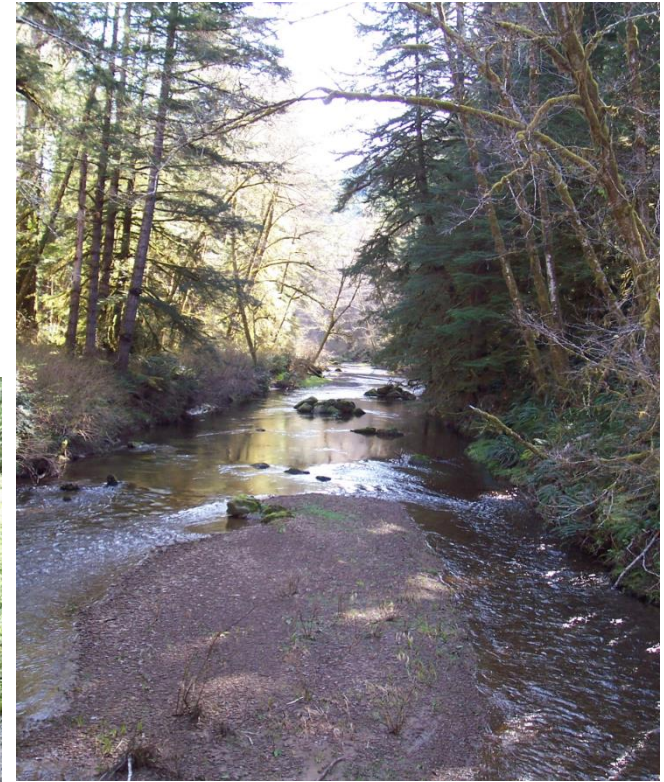
- Young forests
- Diverse habitats
- Landscape context
- Highly variable effects





Aquatic Resources

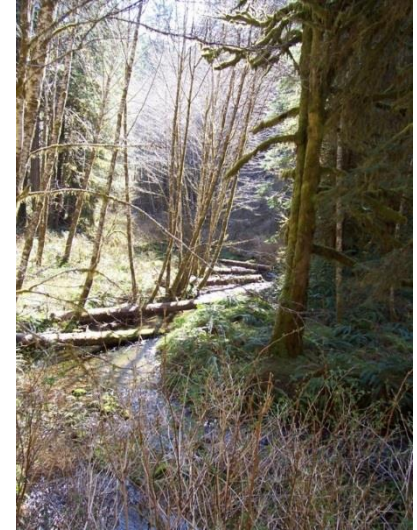
- Rivers, streams, lakes, ponds, springs, seeps and wetlands
- Highly variable
- Disturbance: wildfires, windstorms, debris flows, landslides, and floods





Riparian Vegetation

- Hardwood and young-conifer dominated
- Functions: shade, bank stability, nutrients, large wood recruitment, sediment routing
- Manage to maintain and restore properly functioning aquatic systems
- Watershed processes





Diverse Aquatic Organisms

- 28 species of fish
- 32 species of reptiles and amphibians
- Mammals, invertebrates, mollusks, aquatic plants, etc.



Stream Classification



Stream Size

- Small
- Medium
- Large

Flow Duration

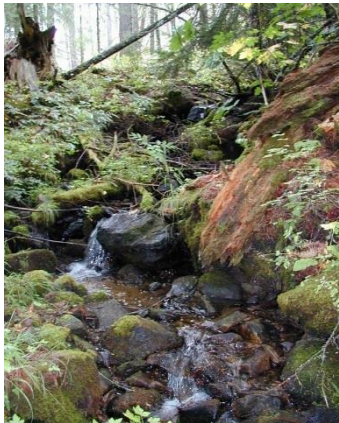
- Perennial
- Seasonal

Fish Presence

- Fish
- Non Fish

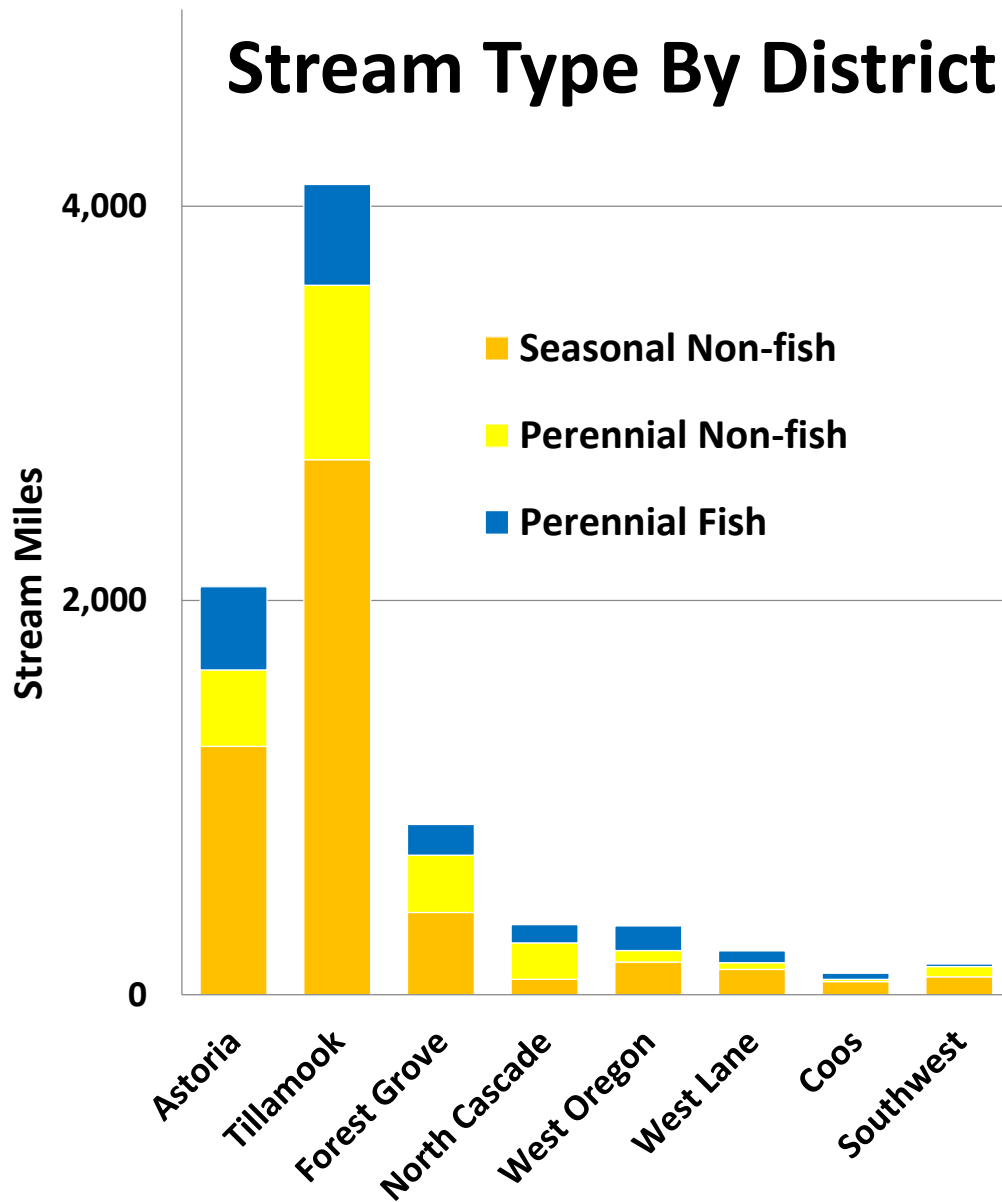
Other

- High Energy
- Debris Flow Prone

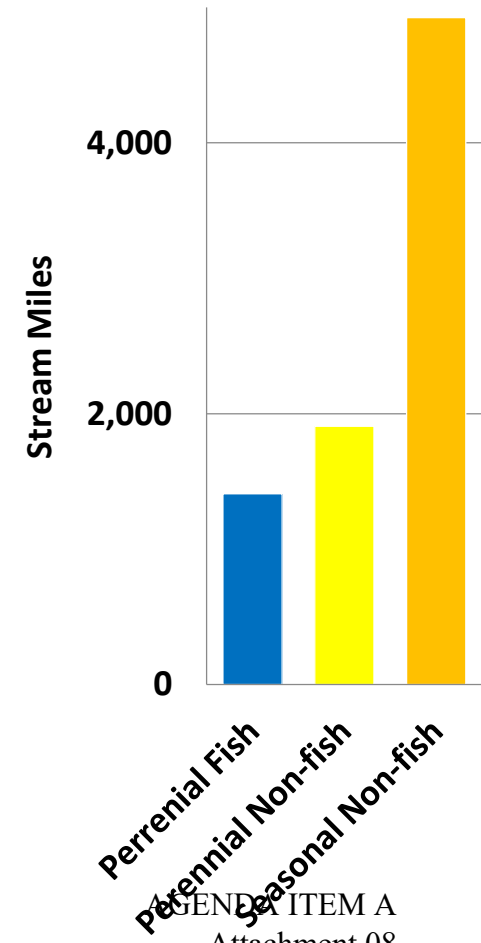




Stream Type By District

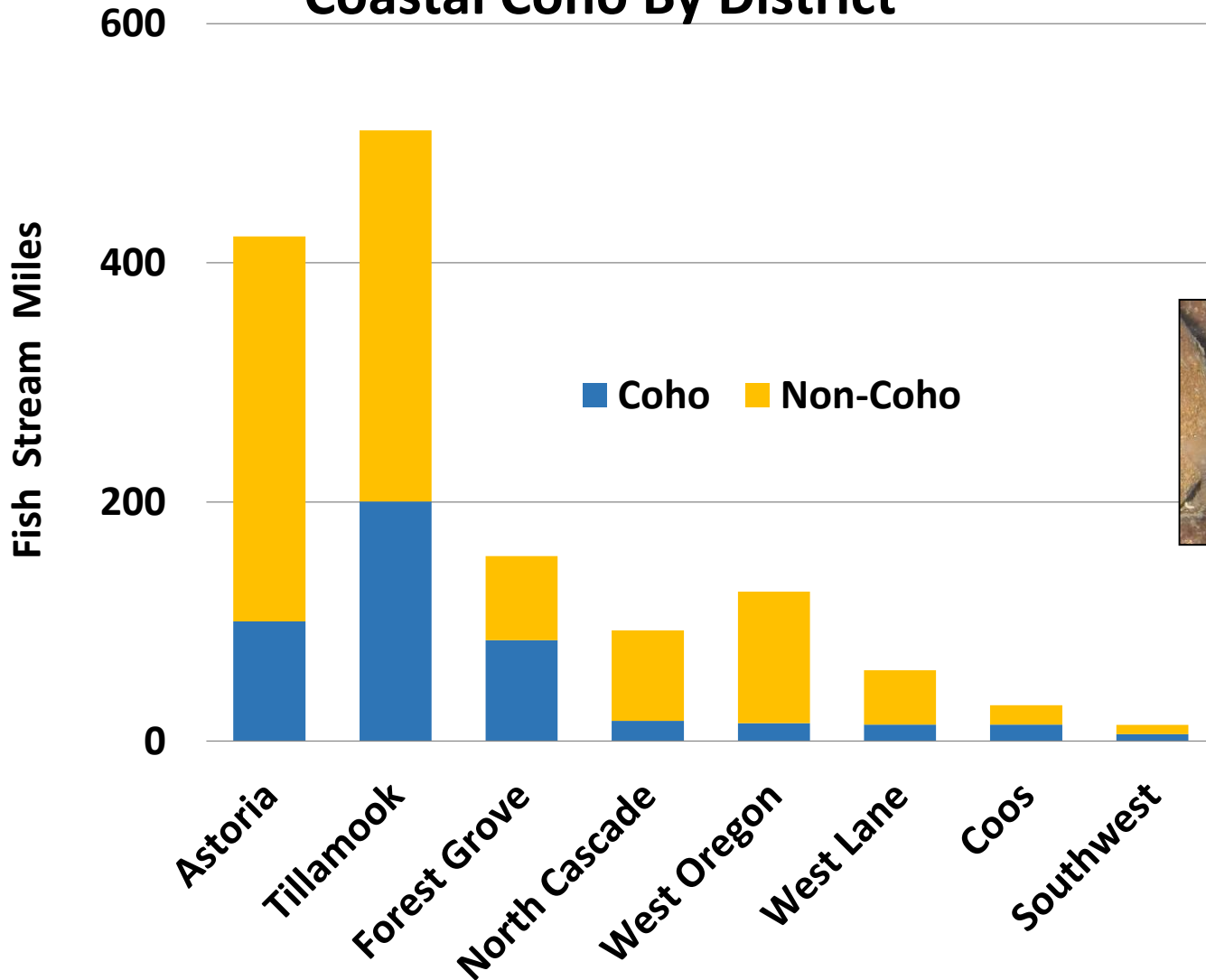


Stream Type By Planning Area





Coastal Coho By District



Forest Wide Recreation Use



- Fishing & hunting
- Dispersed camping
- Target shooting
- River use: kayaking/rafting/swimming
- Bird watching, mushroom picking
- Off-Road Vehicle Use
- Hiking, Biking, Horseback Riding
- General Public Access



Facilities



- Interpretive facilities
- 22 campgrounds/designated campsite fee areas
- 31 trailheads/day use areas
- 144 miles non-motorized trails
- 461 miles OHV trails
- 3 waysides/rest areas/overlooks





Recreation Use Increasing



| 2017 Campground Statistics/Tillamook Forest Center Visitors | |
|---|-----------------------|
| Santiam | 1,101 visitor nights |
| Forest Grove | 9,960 visitor nights |
| Astoria | 14,673 visitor nights |
| Tillamook | 22,491 visitor nights |
| Tillamook Forest Center | 53,885 visitors |

Challenges



- Safety & sanitation
- Resource protection
- Target shooting
- Increased antisocial behavior
- Staffing & funding



North Coast Districts



- Only significant public lands
- Largest amount of ownership
- Lands blocked-up
- Legacy of the Tillamook Burn
- Significant public use pressure due to proximity to Portland
- Majority of revenues





Astoria District

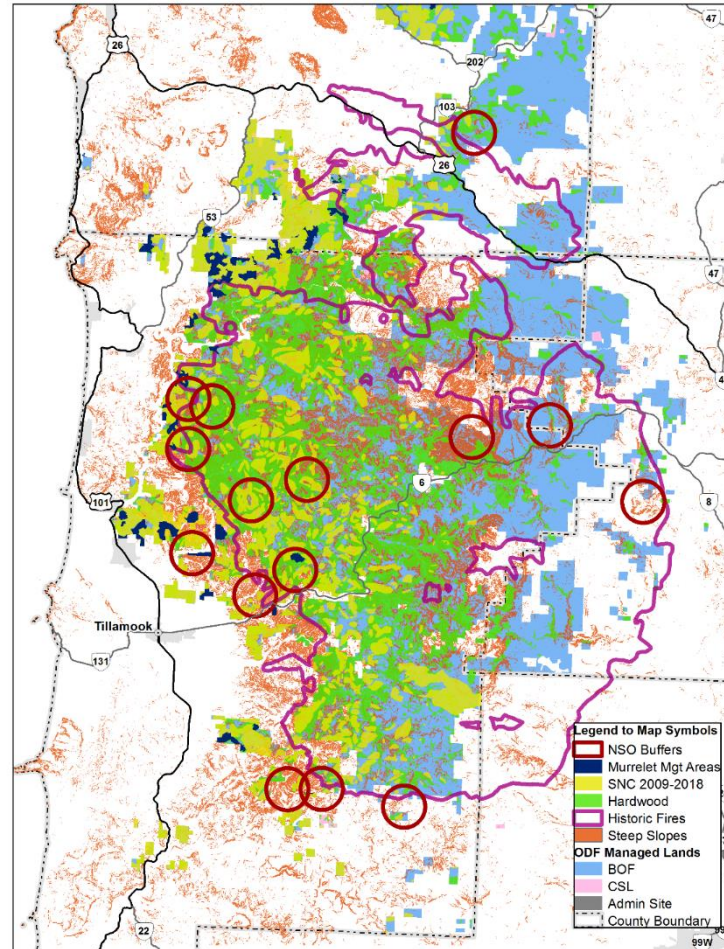
- Inventory
 - 43% in 60-90 year age class
 - Some impact from Swiss Needle Cast
 - High site/Productive ground
- Landscape Context
 - Blocked in parcels
 - Major public landowner in county
- Challenges
 - ESA species
 - Socio-political factors



Tillamook District



- Disproportionately Rugged Topography
- Fire History 1933-1951
- Prevalent Hardwood
- Swiss Needle Cast
- Marbled Murrelets
- Northern Spotted Owls



Forest Grove District



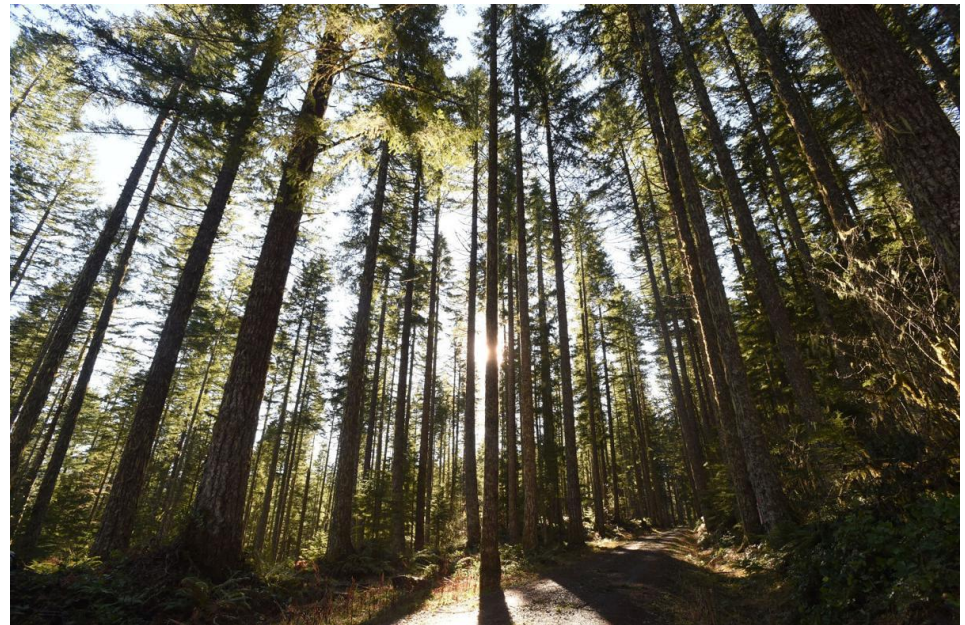
- Inventory
 - 66% in 50-80 year age class
 - Douglas-fir dominated forest
- Landscape Context
 - Southern 2/3 of District within Tillamook Burn
- ESA
 - No Marbled Murrelet constraints
 - NSO Sites
- Recreation
 - Substantial use from Portland-Metro Area
 - Managing social behaviors is challenging





Scattered Tracts Districts

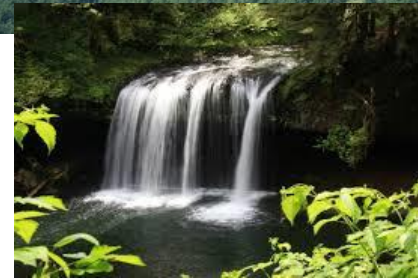
- Scattered parcels, some blocking
- Relatively small portion of BOF lands
- ESA-listed species (NSO, MAMU)
- Age class distribution varies
- Largely influenced by adjacent Federal lands





North Cascade District

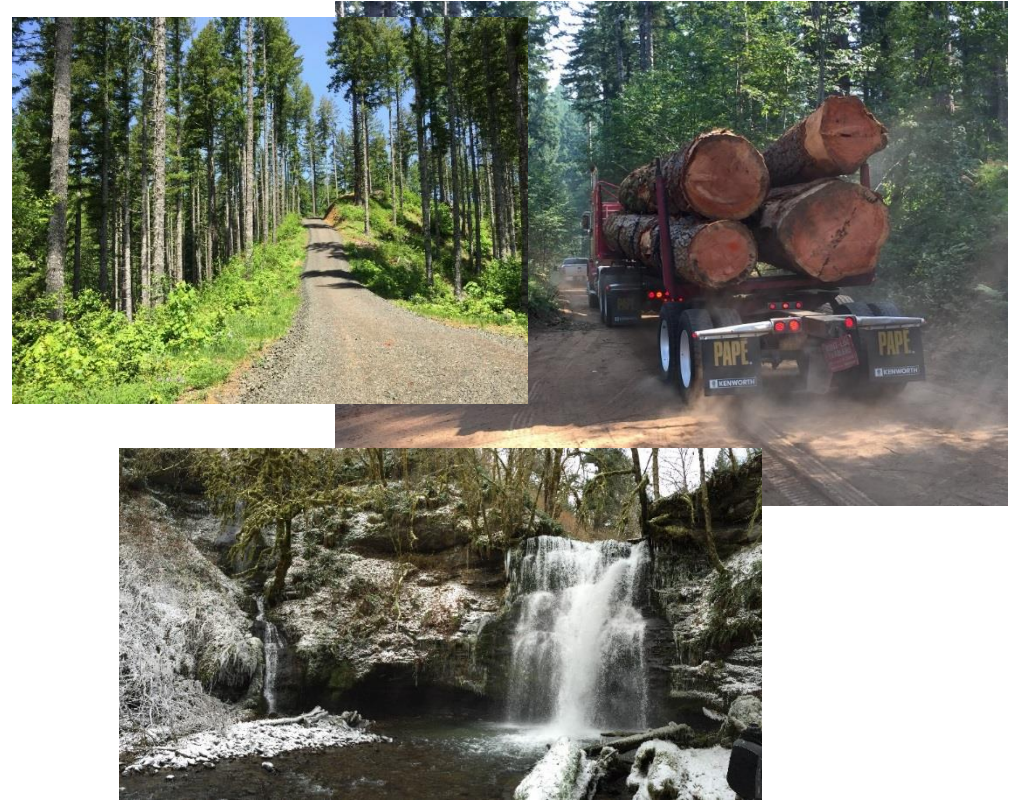
- Inventory
 - 30% of forest over 80 years old
 - Higher elevation/low productivity stands
- Landscape Context
 - Distributed across three counties
- ESA
 - 15 Northern Spotted Owl Sites
 - 16% of land base in NSO Circles





West Oregon District

- Inventory
 - Age class distribution is a function of harvest in 80s
 - Predominant age class is 20-49 years
 - CSFL ~ 15%
- Landscape Context and ESA
 - Increasingly constrained by Marbled Murrelets over the last decade
 - Federal lands have Northern Spotted Owl impacts



Western Lane



- **Inventory**

- 71% of stands greater than 60 years old

- **Landscape Context**

- Only 1% of public lands in Lane County
- Largely influenced by Federal lands
- Managing Coos and Southwest out of this district

- **Challenges**

- ESA Species
- Socio-political factors



Coos Unit



- Inventory
 - Roughly 11,000 acres
 - Evenly distributed across age classes
- Landscape Context
 - DSL took over management of the Elliott July 2017
 - Remaining acres are managed out of the Western Lane District
- ESA Impacts
 - Most merchantable timber constrained by Northern Spotted Owls and Marbled Murrelets



Southwest Oregon District



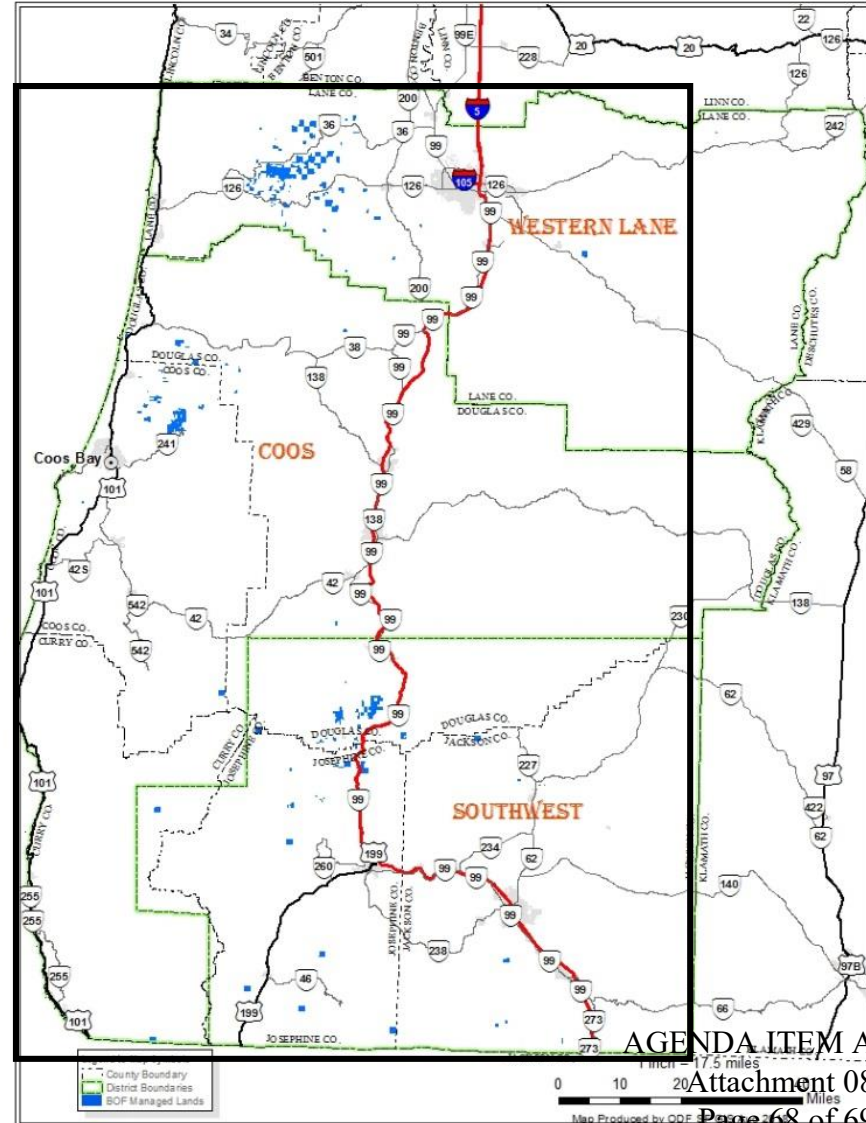
- Inventory
 - Even split between middle age classes
 - Low site ground
- Landscape Context
 - Widely scattered parcels, California to Canyonville
 - Lands comprise only one percent of forested landscape in the district
- Challenges
 - High density of Northern spotted owl on adjacent federal lands
 - Fire has a long history on this landscape



Western Lane



- Management Shift
 - All Coos Unit and Southwest lands will be managed by the Western Lane District
 - Widely scattered from northern Lane County to the California border



Summary



- Variability is the theme
- High expectations
- Adaptive management

