



# **DNR State Lands Reforestation Program**

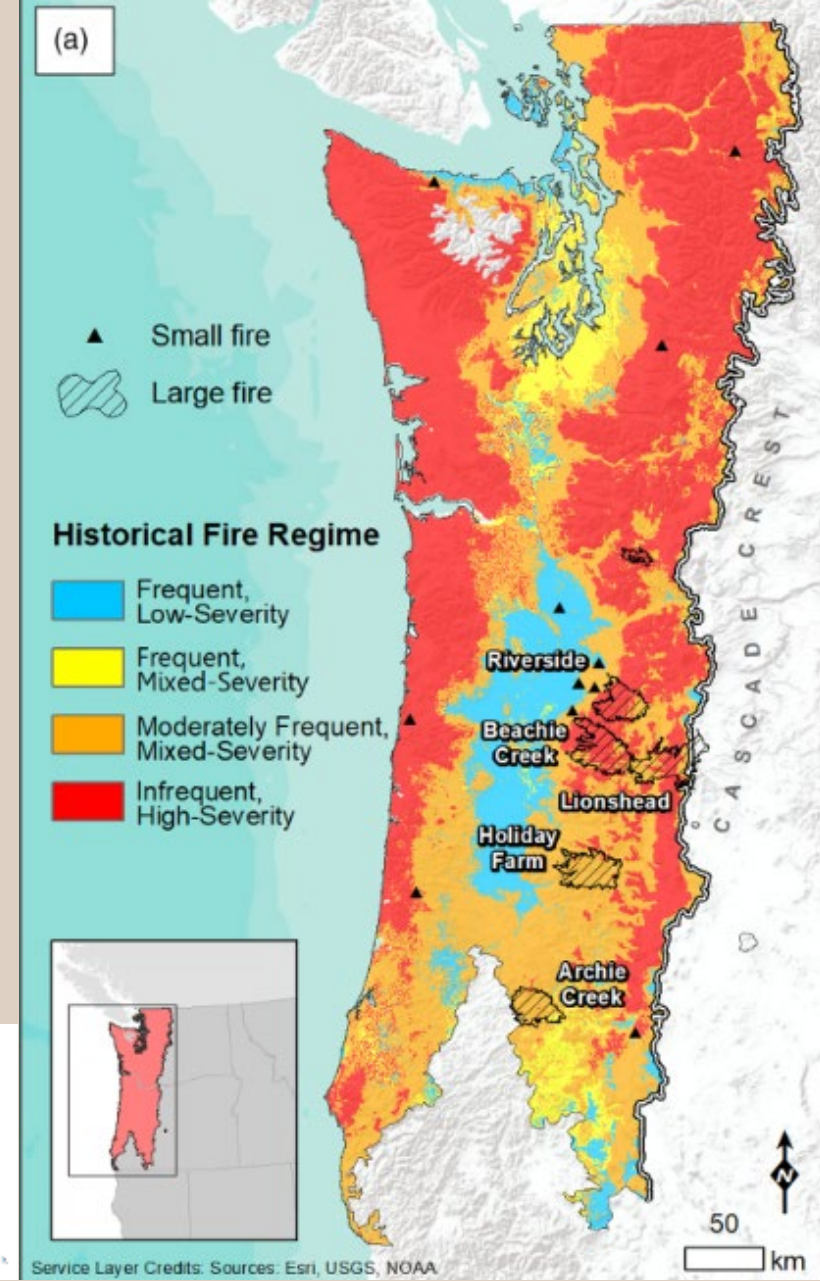
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# Ecological Context

“Large, infrequent high-severity fires are characteristic of historical fire regimes in mountainous areas of the westside” (M.J. Reilly et al. 2022)

Fire interval 100 – 500 years



# Ecological Context – Example Yacolt Burn



**Yacolt Burn in SW WA (1902); 239k acres burned; mostly virgin forest; 16 partial re-burns. Photo from 1937**



# Ecological Context – “Great Coastal Gale” (2007)



# Historic Context

- Extensive timber extraction and post-fire salvage logging
- First state nursery in 1936
- Forest Practices Act established in 1974
- Any planting and re-seeding efforts were focused on Douglas-fir

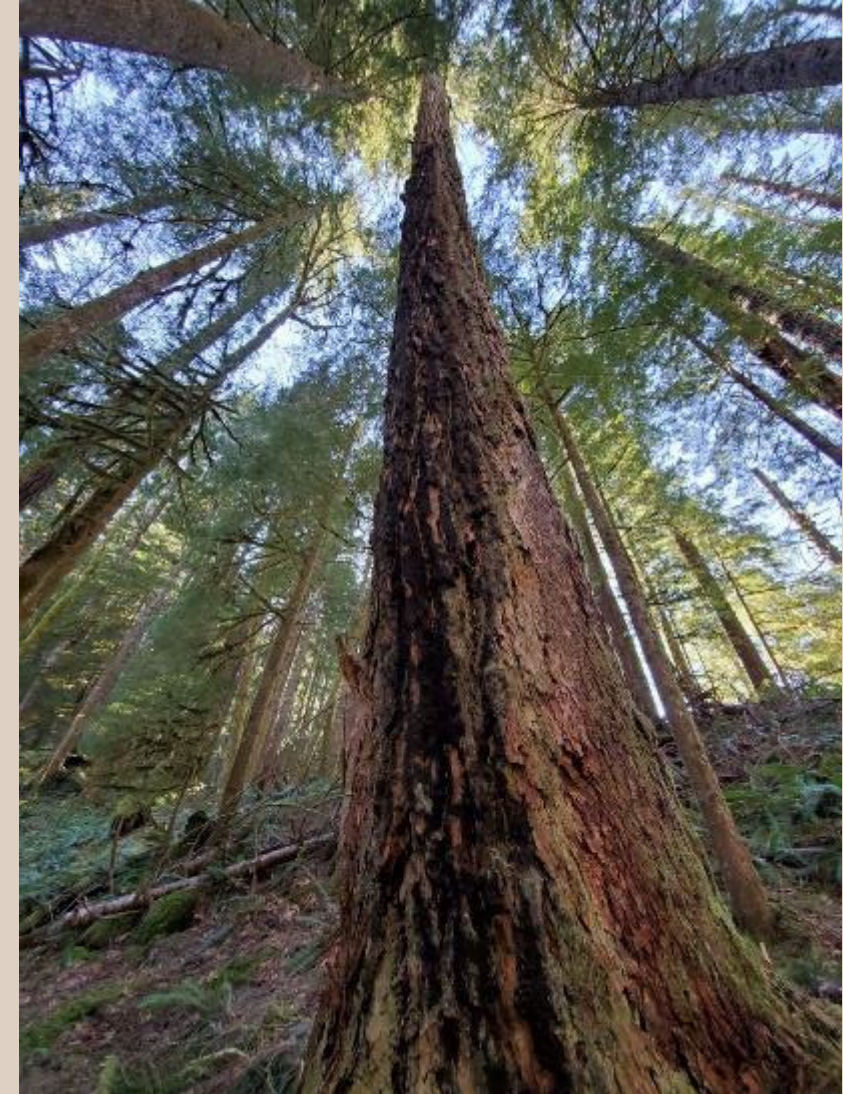


Photo credit:  
Darius  
Kinsey/Library of  
Congress – Puget  
Sound 1906

Photo credit: The Field  
Museum Library – Bridal Veil  
Lumber Company 1910

# Forests are a Reflection of their Past

- **Natural forest regeneration was slow and took decades – fewer, but bigger trees; large areas of early seral habitat for extended periods**
- **Large fires, salvage logging and extensive timber extraction created landscapes dominated by Douglas-fir (most fire resistant) and little (live) structural tree diversity**
- **Different time periods have created different kinds of forests**





# Yacolt Burn State Forest – low severity burn; pre- 1902 trees





# Yacolt Burn State Forest – 1930s to 1960s

(Larch camp established in 1956 to  
reforest Yacolt Burn)







# Post 1974 FPA– pre- HCP (1997)



# Post-HCP (1997)



# Current Policies & Procedures

- **Policy for Sustainable Forests (2006)**
  - Maintaining and improving forest health by actively managing species composition and stocking levels across forested landscapes
  - Developing fire and insect resistant forest stands to prevent significant forest resource losses;
- **General Silviculture Strategy (PO14-019)**
  - “DNR will use intensive and innovative silviculture...to simultaneously produce trust revenue and create structural diversity across the landscape”
- **Genetic Resource (PO14-015)**
  - “DNR will protect and enhance a diverse gene pool of native trees....”
- **Reforestation Procedure (PR 14-006-010)**
  - Prompt, planting first consideration, forest health “concept” of diversity and vigor, stocked to meet objectives; minimums 190 TPA Westside, 150 TPA Eastside

# Variable Retention Harvesting (VRH)

**Retention of diverse species & structures**

**Edges and legacies – natural regeneration**



# State Lands Reforestation Program



**Site-specific – based on ecology of site** (vegetation zone & plant association, soils, topography, elevation, climate, etc.)

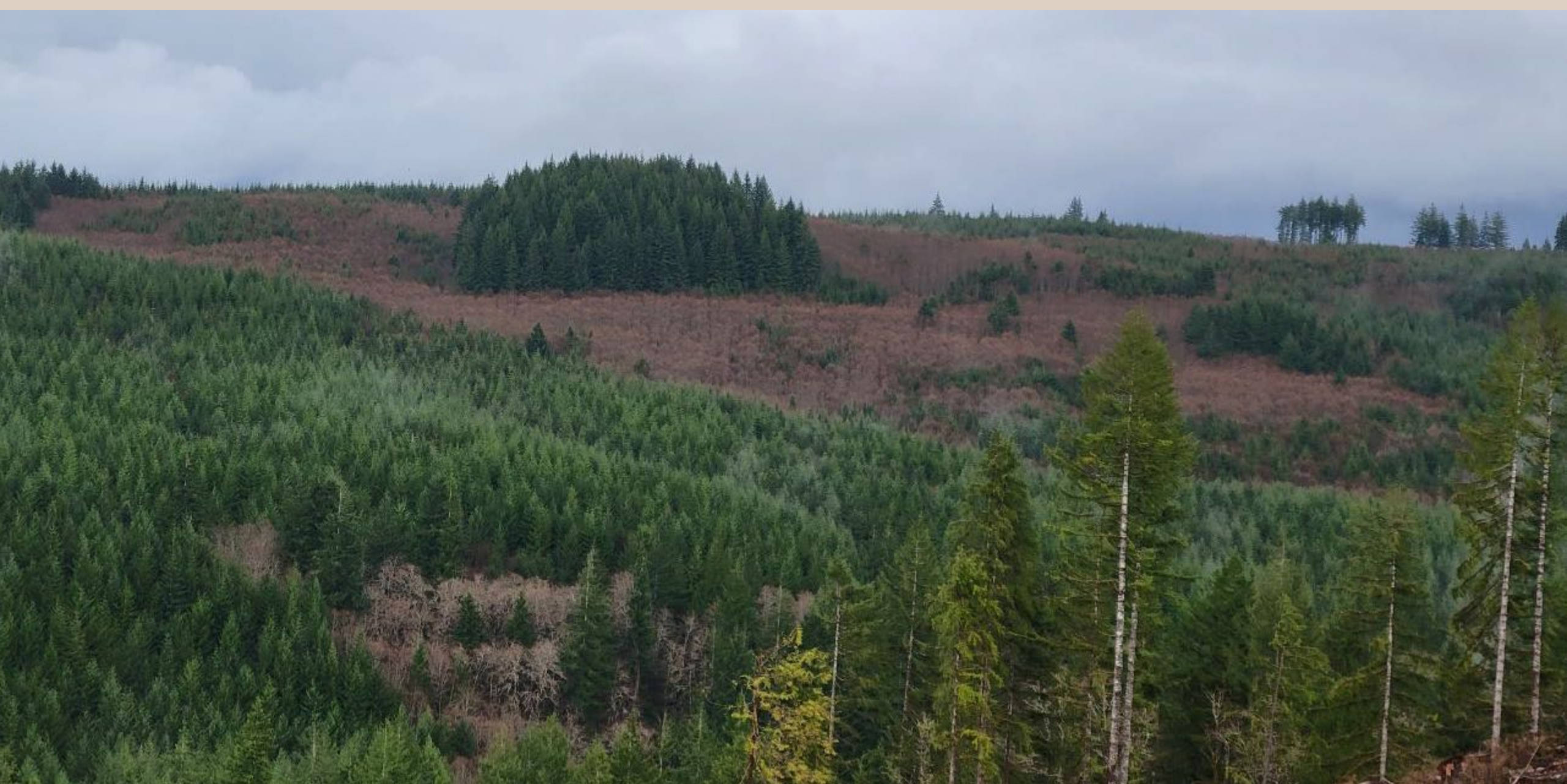
## Objectives

- 1. Diverse & resilient stands/landscapes – disease mitigation** (root diseases, Swiss Needle Cast, etc.)
- 2. Revenue generation**



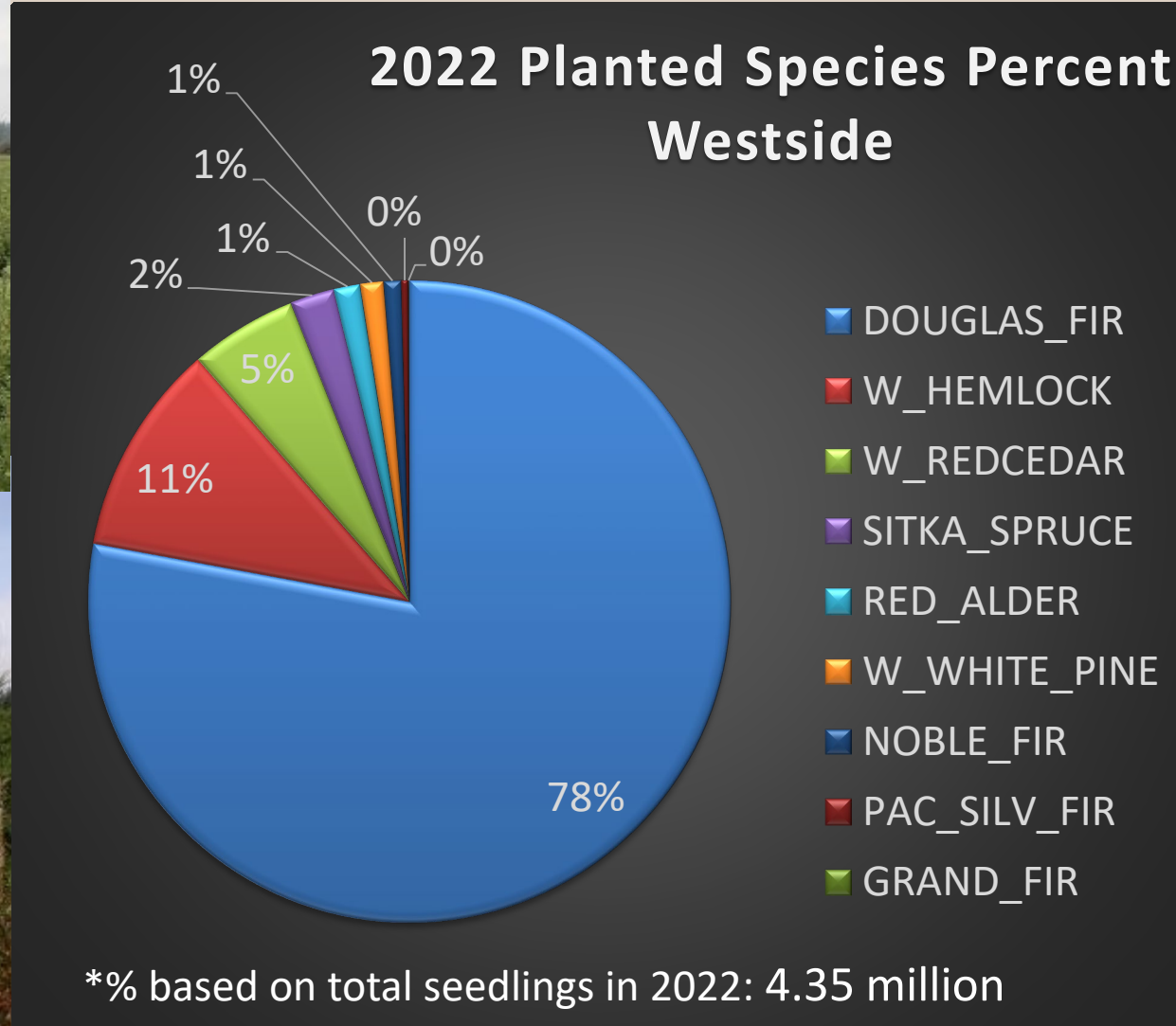
# VRH and Silviculture Strategy result in a mix of planted and natural regeneration of site-adapted species





# Species Diversity 2022 Planting Westside

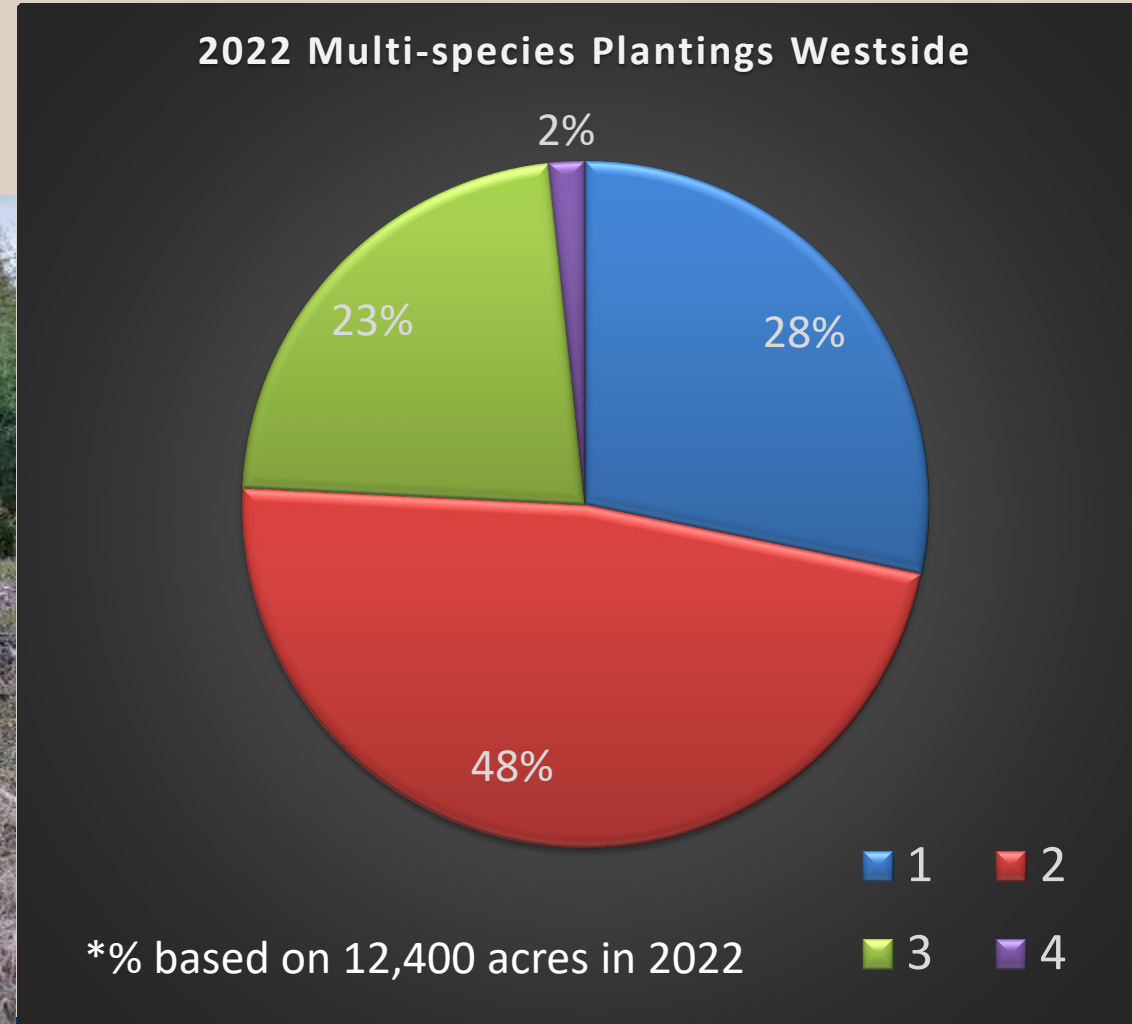
- **78% Douglas-fir**
- **11% Western hemlock**
- **5% Western redcedar**





# 2022 Multi-species Planting Westside

- **28% One species**
- **72% Two or more species**

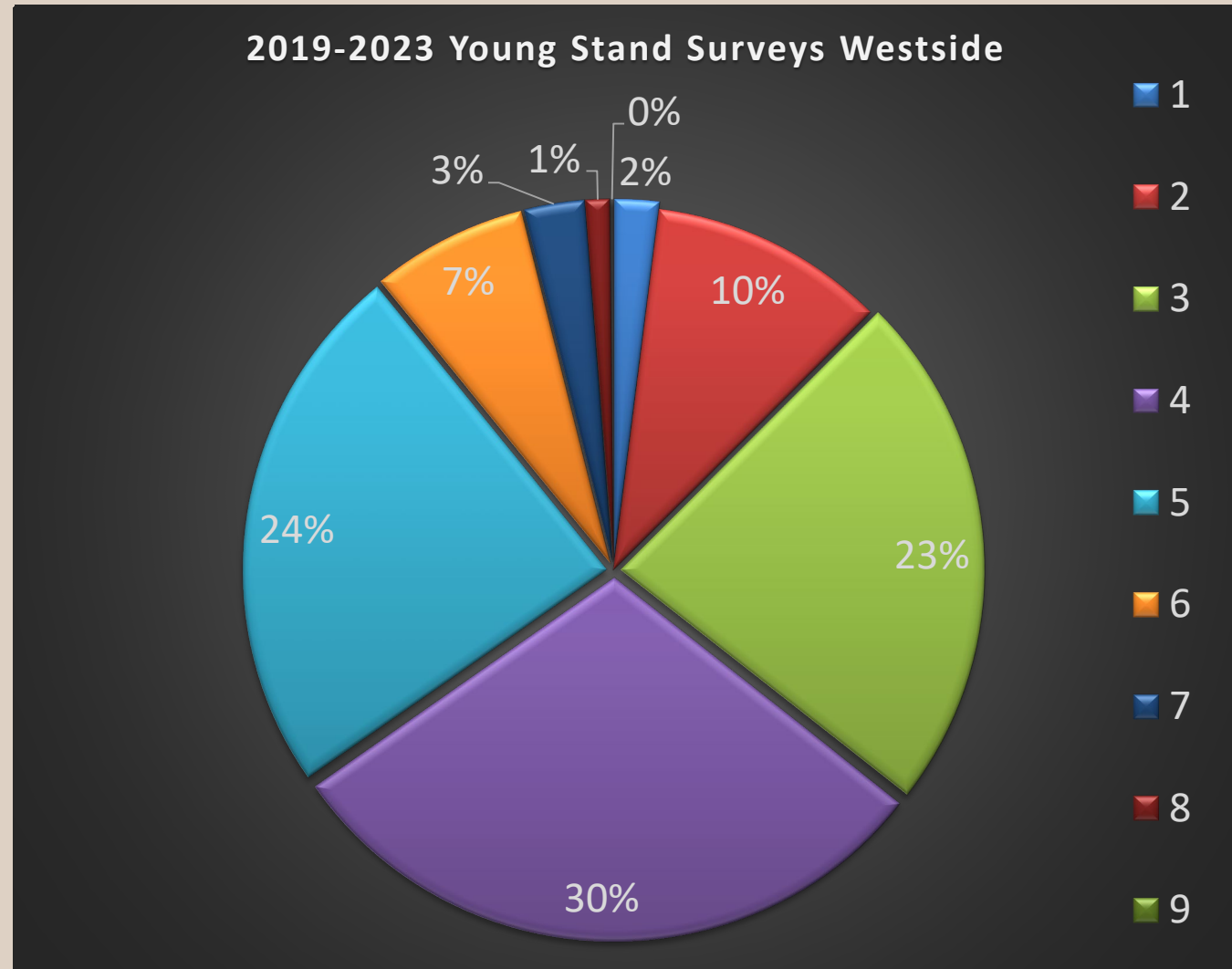


# 2019-2023 Young Stand Surveys Westside

- **Natural regeneration adds considerable species diversity**
- **88% of surveyed “young” stands have 3 species or more; 35% 5+ species**
- **Pre-commercial thinning (if needed) leaves “best tree”**

\*% based on 15,196 acres surveyed with electronic data recorders; 242 westside stands

\*\* Young stands: 5-8 years old



# Genetic Diversity

## Seed management designed to maintain genetic adaptation and genetic diversity

- **Adaptation: “right plant, right place”.**  
**Appropriate species and seed zone**
  - **155 species/seed zone/elevation band combinations**
- **Genetic diversity: adequate number of parent trees in each seed lot.**
  - **Woods-run (cones collected in the woods): climbers pick from enough different trees.**
  - **For seed orchards: many parents to capture broad genetic diversity.**



# 25 Years on a Path to new Forests



# Research Cooperatives (Westside)

- **University of Washington**
  - **Stand Management Cooperative**
- **Oregon State University**
  - **Center for Intensive Planted Silviculture**
  - **Vegetation Management Research Cooperative**
  - **Hardwood Silviculture Cooperative**
  - **Pacific Northwest Tree Improvement Cooperative**
  - **Pacific Northwest Tree Improvement Research Cooperative**
  - **Swiss Needle Cast Cooperative**

