2025 Swiss Needle Cast Cooperative Research Progress, Activities & Updates

Adam Carson

2025 SNCC Annual Meeting

Swiss Needle Cast Cooperative

Oregon State University

2025 SNCC Timeline

Winter business meeting

2024 Annual report

RPN foliage sampling

Cascade foothills transects

SNC tolerance screening

Annual field tour

PCT plot network

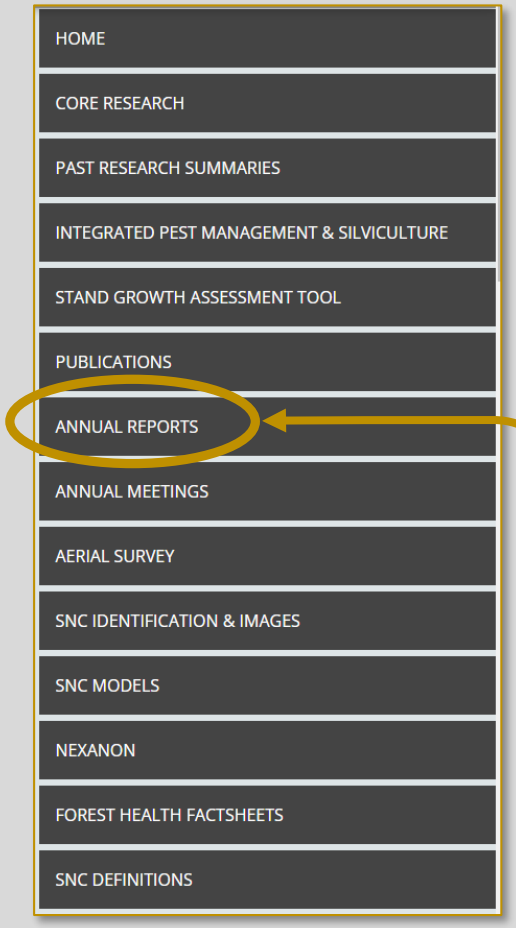
Pseudothecia counting

RPN growth measurements

Annual meeting

Winter — Spring — Summer — Fall

2025 SNCC Activities: 2024 annual report



Available on the SNCC website: https://sncc.forestry.oregonstate.edu/

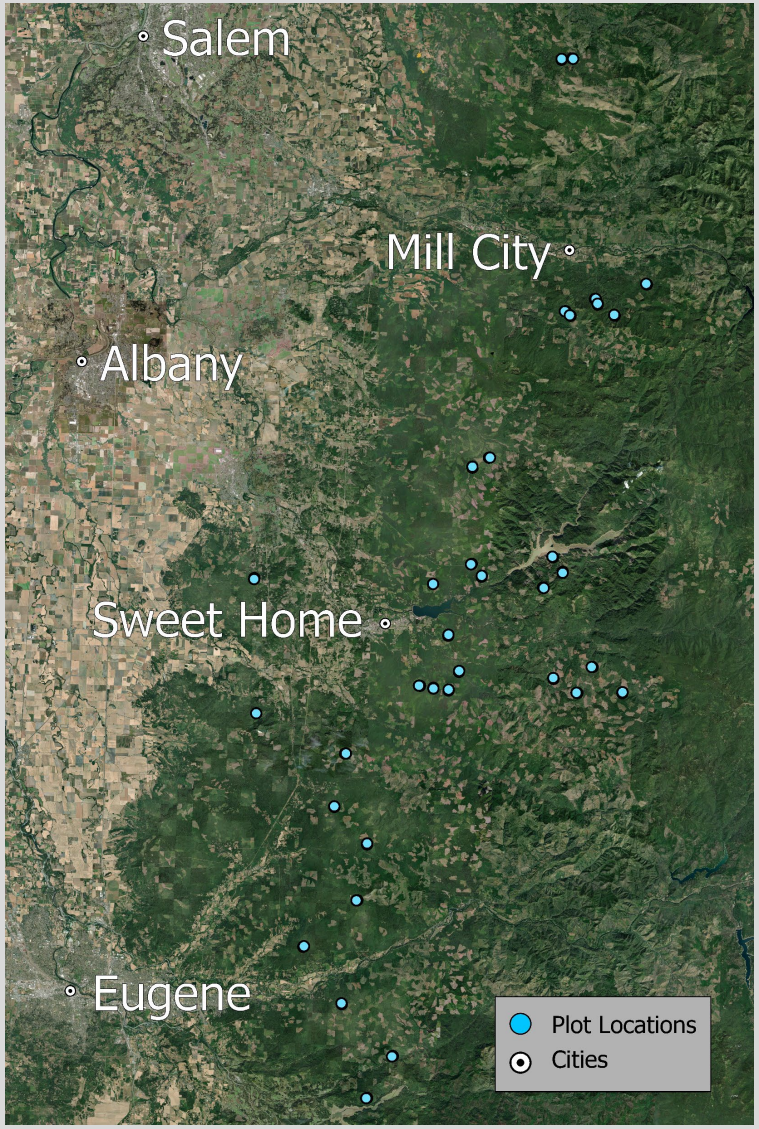
2025 SNCC Research: foothill transects

Objectives:

- Monitor SNC in the foothills of the Cascades
- Survey all transects annually for 5 years

Methods:

- Installation in 2023
- Douglas-fir dominated stands
- 100 meter transects (one per stand)
- Two trees sampled every 20 meters
- 10 trees sampled per stand
- 35 transects in total (350 trees)



2025 SNCC Research: foothill transects

2025 SNCC Research: foothill transects

Sampling Methods:

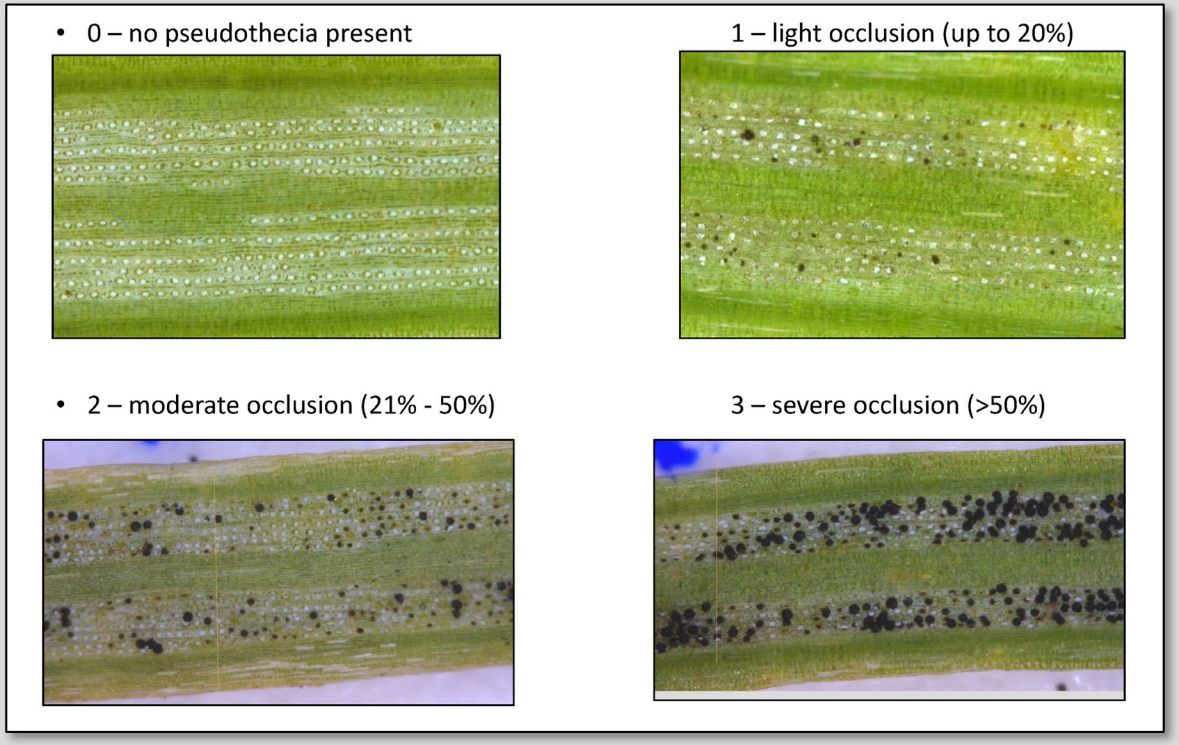
- Diameter at breast height

- Foliage retention (FR)
  - Estimation from live cut branch
  - Four cohorts of retention assessed
  - Proportional cohort ratings are summed for total retention (0-4)

2025 SNCC Research: foothill transects

Sampling Methods:

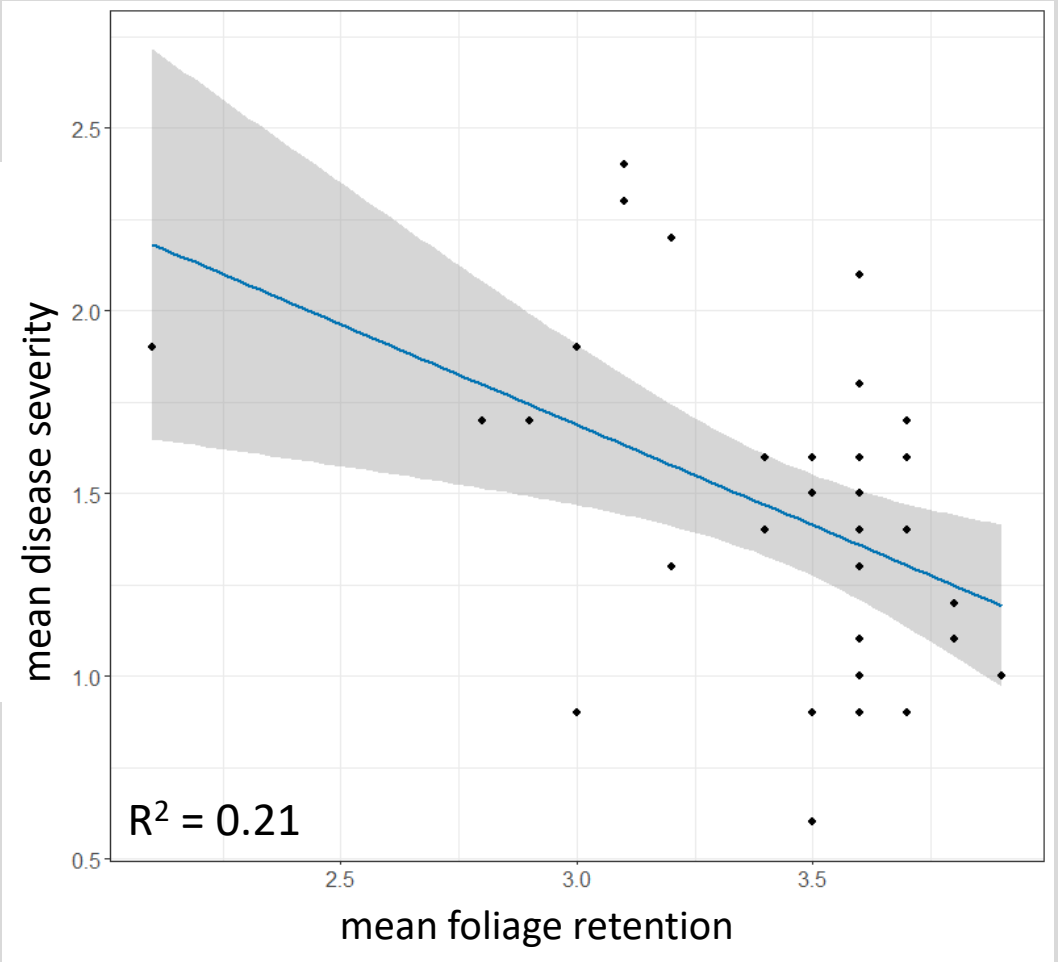
- Disease severity
  - Estimation from live cut branch
  - Pseudothecia density rated as an index (0-3) of proportion of stomatal occlusion
  - Measurements are made on 2-year-old needles only



2025 SNCC Research: foothill transects

2025 Results:

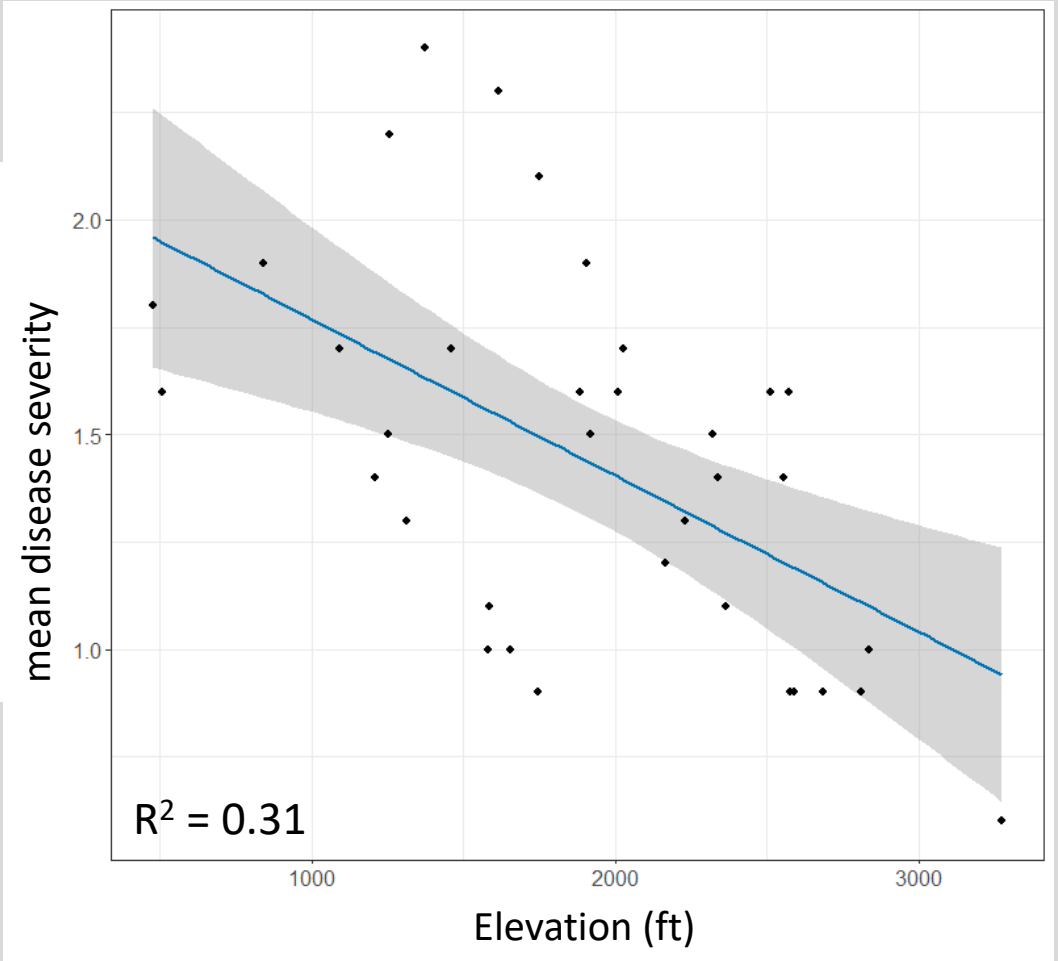
- Foliage retention
  - range 2.1-3.9 years
  - median = 3.6 years
- Severity ratings
  - range 0.6-2.4
  - median = 1.5
- Negative association
  - severity & foliage retention



2025 SNCC Research: foothill transects

2025 Results:

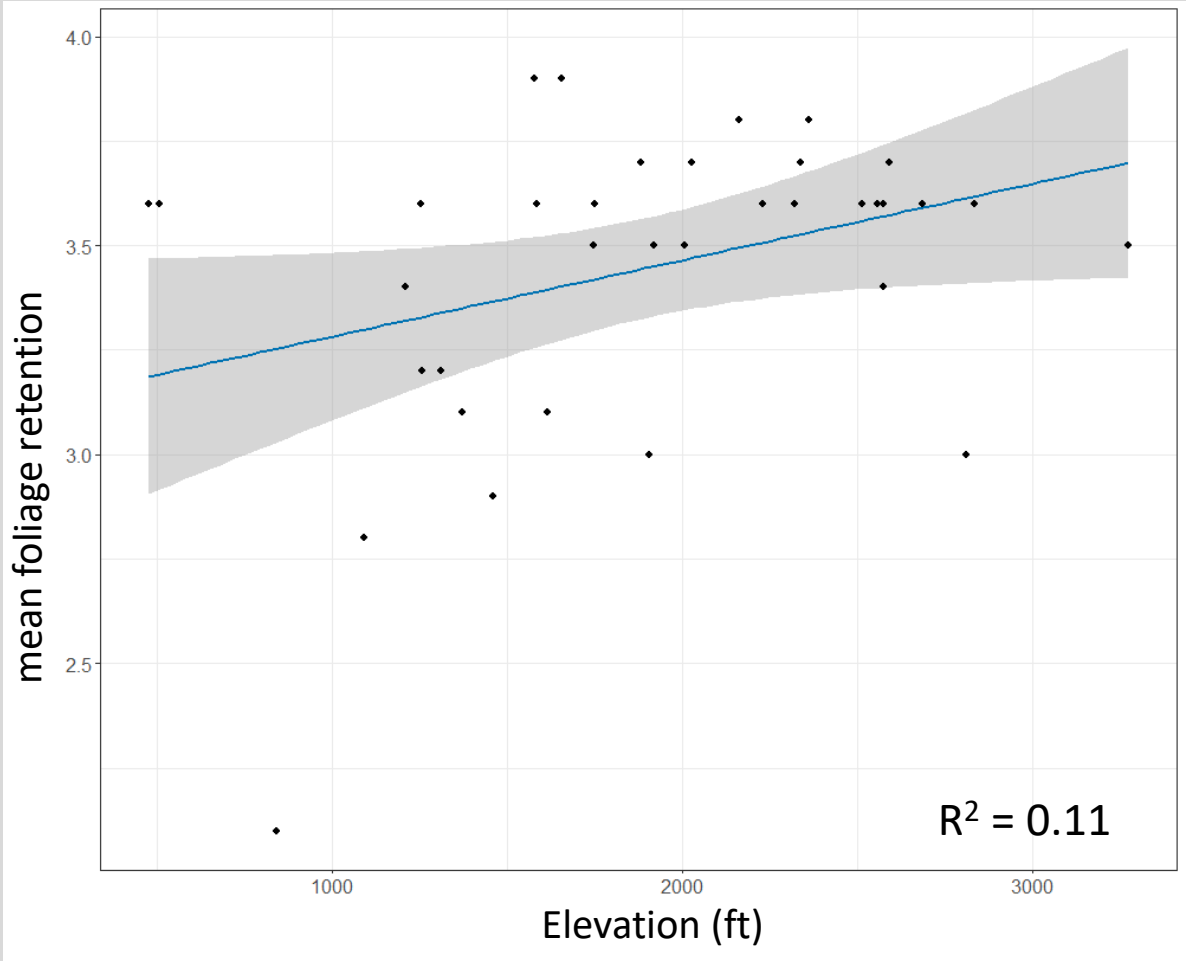
- Foliage retention
  - range 2.1-3.9 years
  - median = 3.6 years
- Severity ratings
  - range 0.6-2.4
  - median = 1.5
- Negative associations
  - severity & foliage retention
  - severity & elevation



2025 SNCC Research: foothill transects

2025 Results:

- Foliage retention
  - range 2.1-3.9 years
  - median = 3.6 years
- Severity ratings
  - range 0.6-2.4
  - median = 1.5
- Negative associations
  - severity & foliage retention
  - severity & elevation
- Positive association
  - foliage retention & elevation



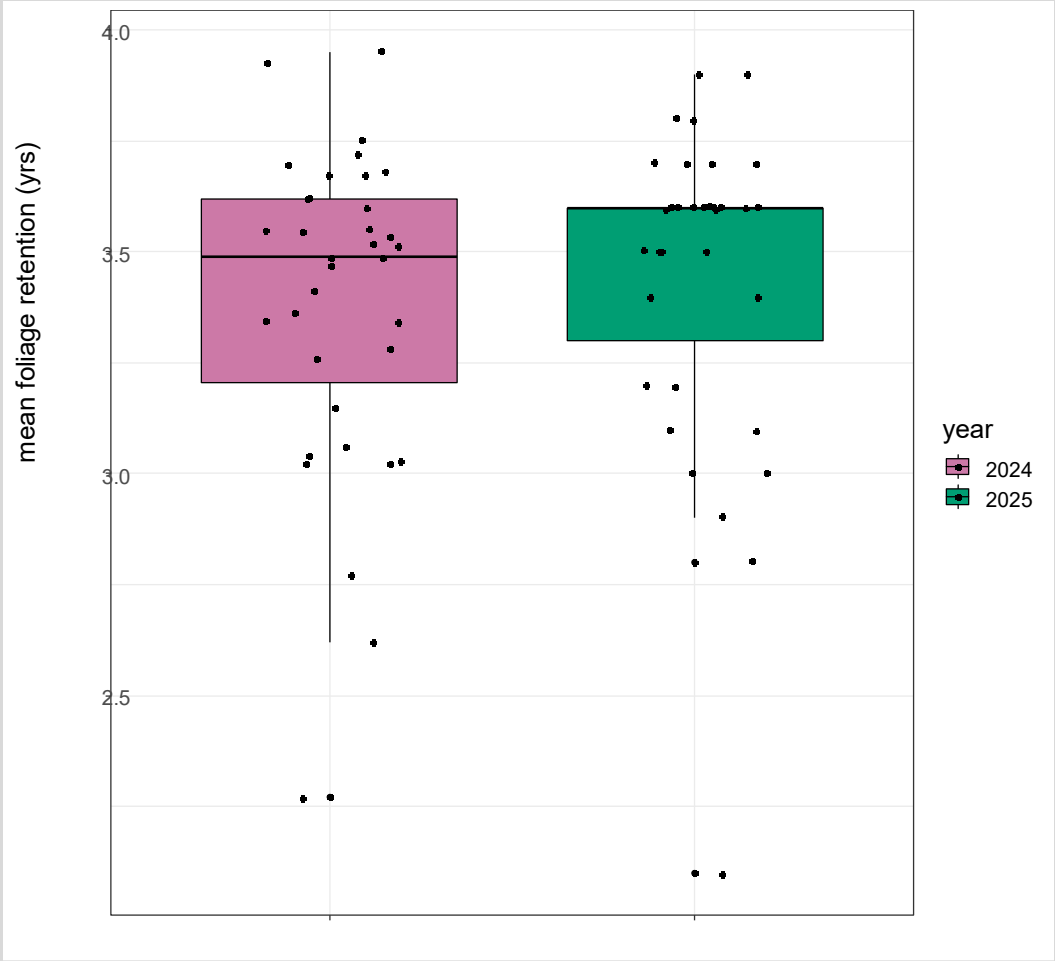
2025 SNCC Research: foothill transects

2024 vs. 2025

Foliage retention

Stand level:

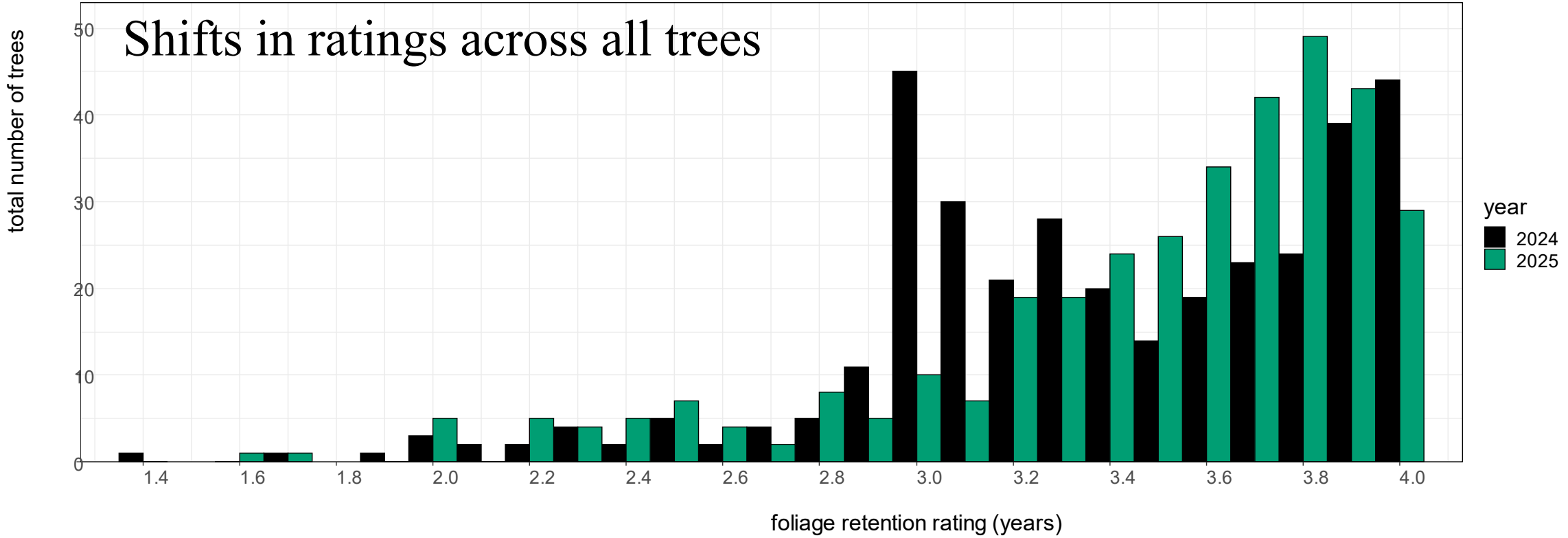
- Overall improvement
- Median 1-year increase of 0.1 years
- No significant difference between years p = 0.5



2025 SNCC Research: foothill transects

2024 vs. 2025

Foliage retention



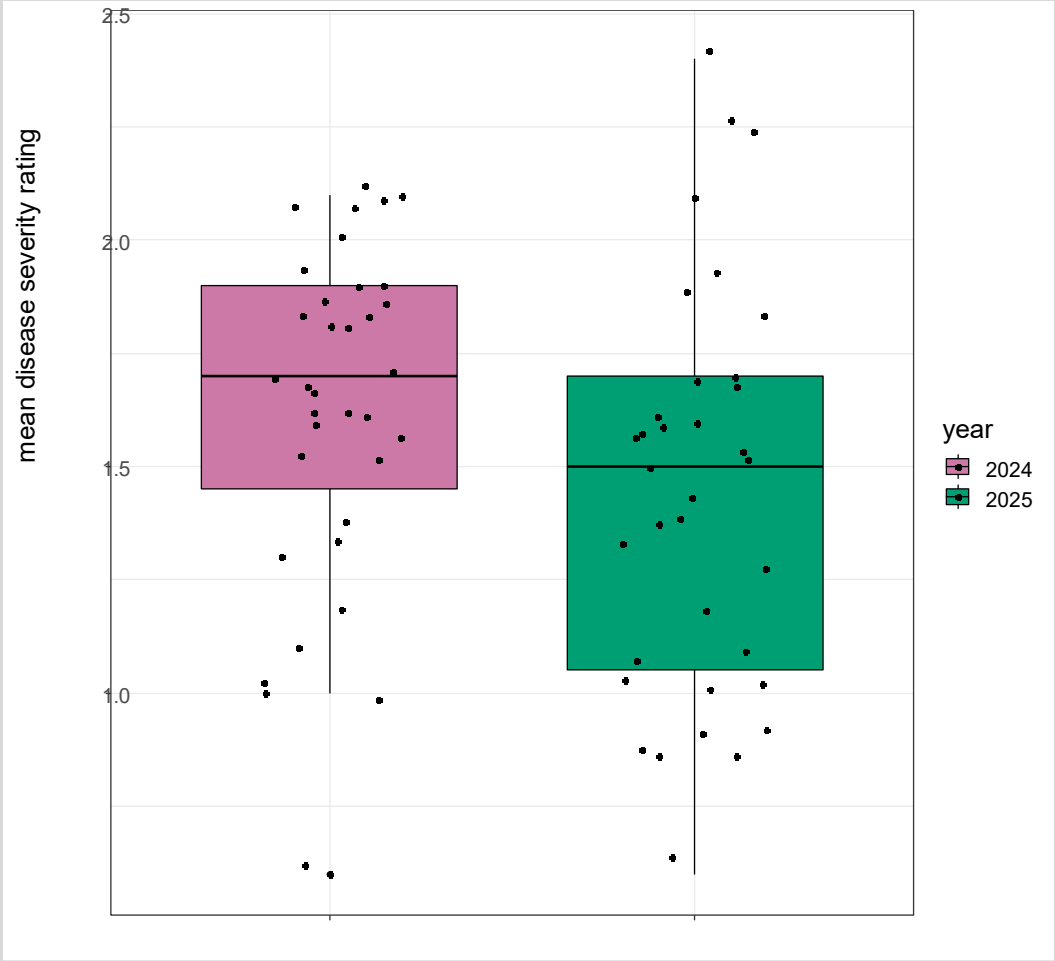
2025 SNCC Research: foothill transects

2024 vs. 2025

Disease severity

Stand level:

- Overall improvement
- Median 1-year decrease of 0.2 rating
- Difference between years p = 0.07



2025 SNCC Research: foothill transects

2024 vs. 2025

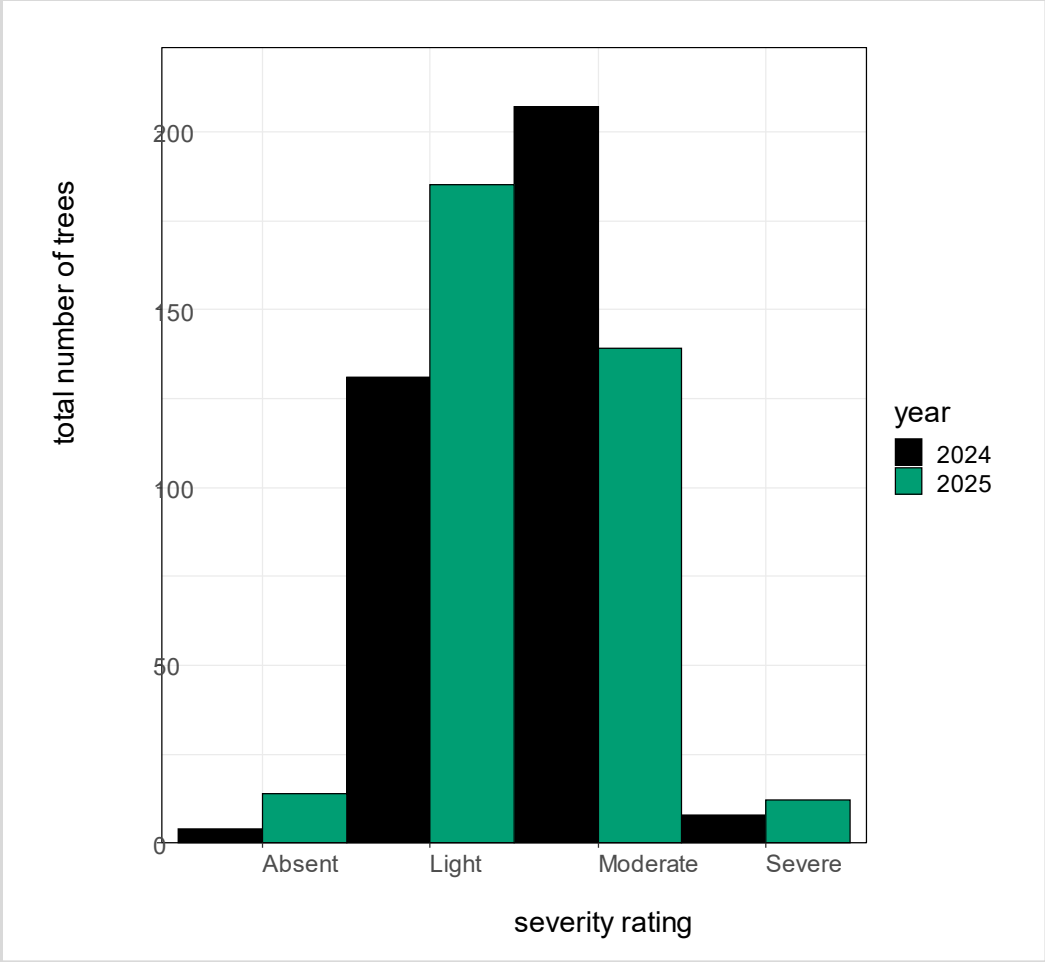
Disease severity

Across all trees:

30% reduction

12% increase

58% no change



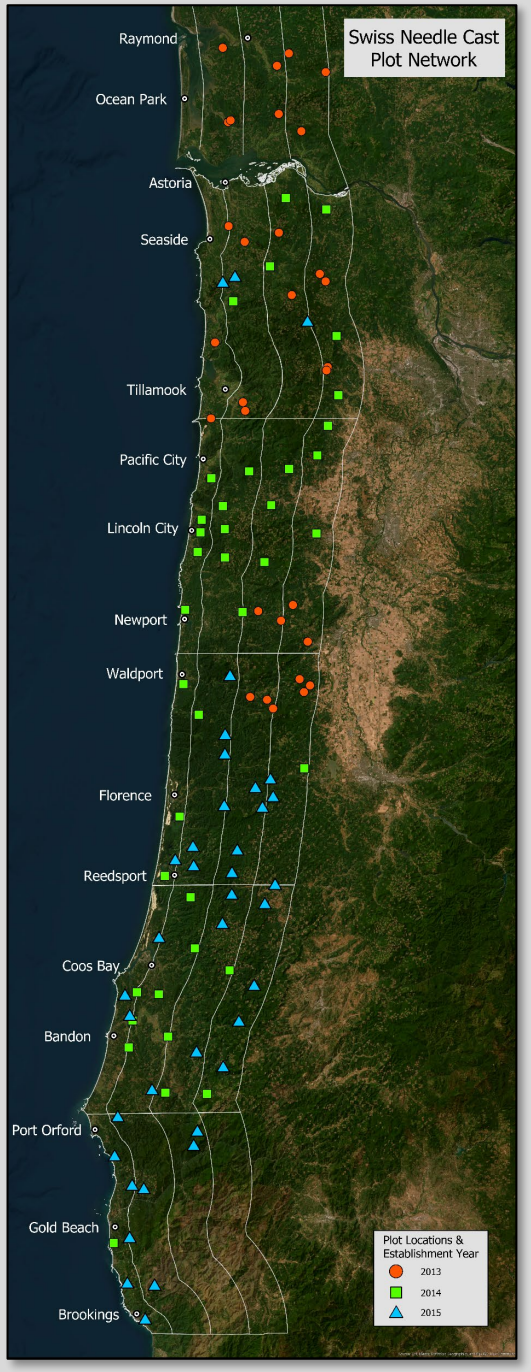
2025 SNCC Research: coast range research & monitoring plot network

Background:

- 106 research & monitoring plots (0.08 ha)
- Established between 2013-2015
- CA border to southwest WA, 35 miles from the coast

Objectives:

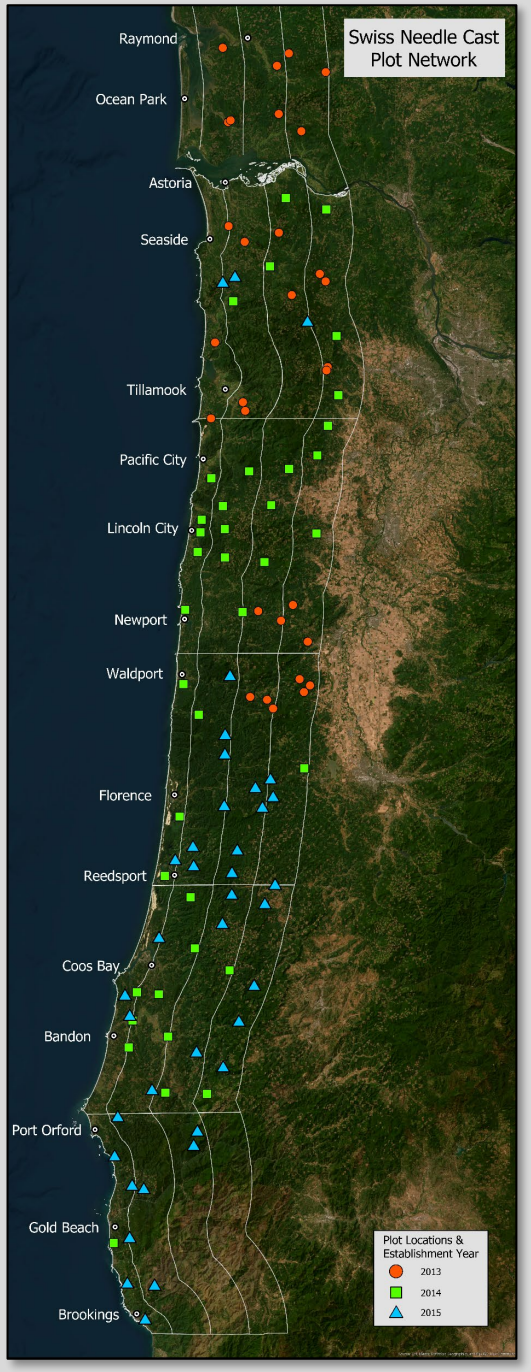
- Assess the relationship between foliage retention and disease severity
- Assess the impact of SNC infection levels on volume growth of Douglas-fir



2025 SNCC Research: coast range research & monitoring plot network

Data Collection:

- Measurement of all plots takes 3 years to complete
- Plots measured at the time of establishment
- Plots remeasured 5 years after installation
- Third remeasurement underway and will conclude spring 2026



2025 SNCC Research: foliage sampling

Sampling methods:

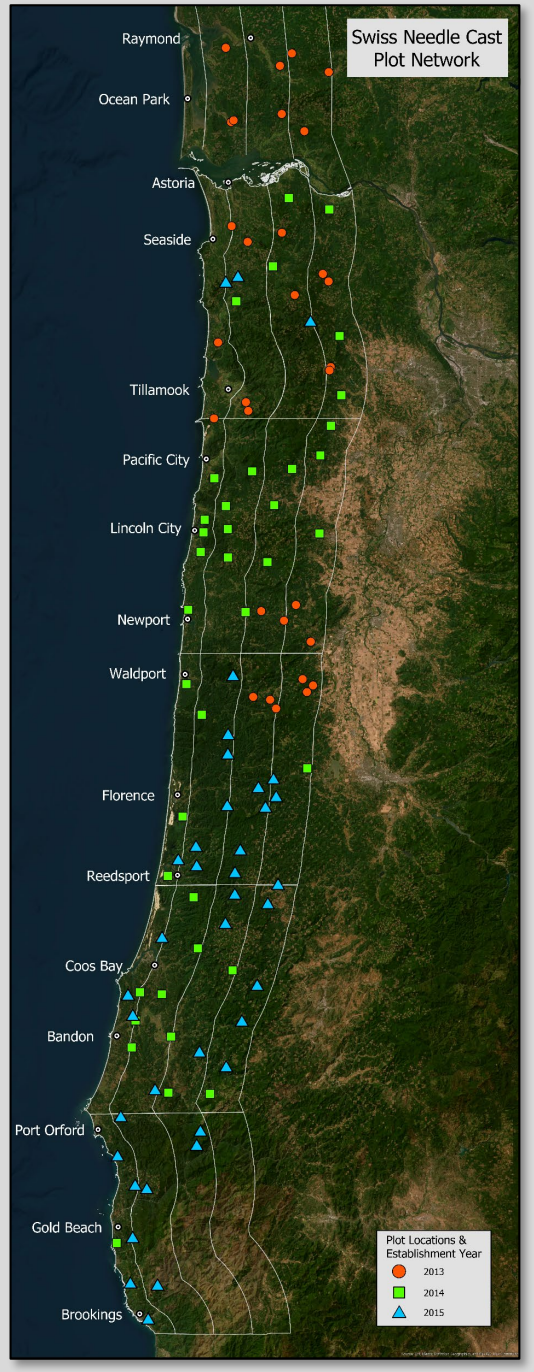
- Prior to budbreak
- Mid-crown on the south side
- Four-year-old secondary lateral branches
- Foliage retention assessed in the field
- Occlusion assessed in the lab

2025 SNCC Research: foliage sampling

Preliminary foliage retention results:

- Includes two thirds of the plot network
  - plots installed in 2013 & 2014

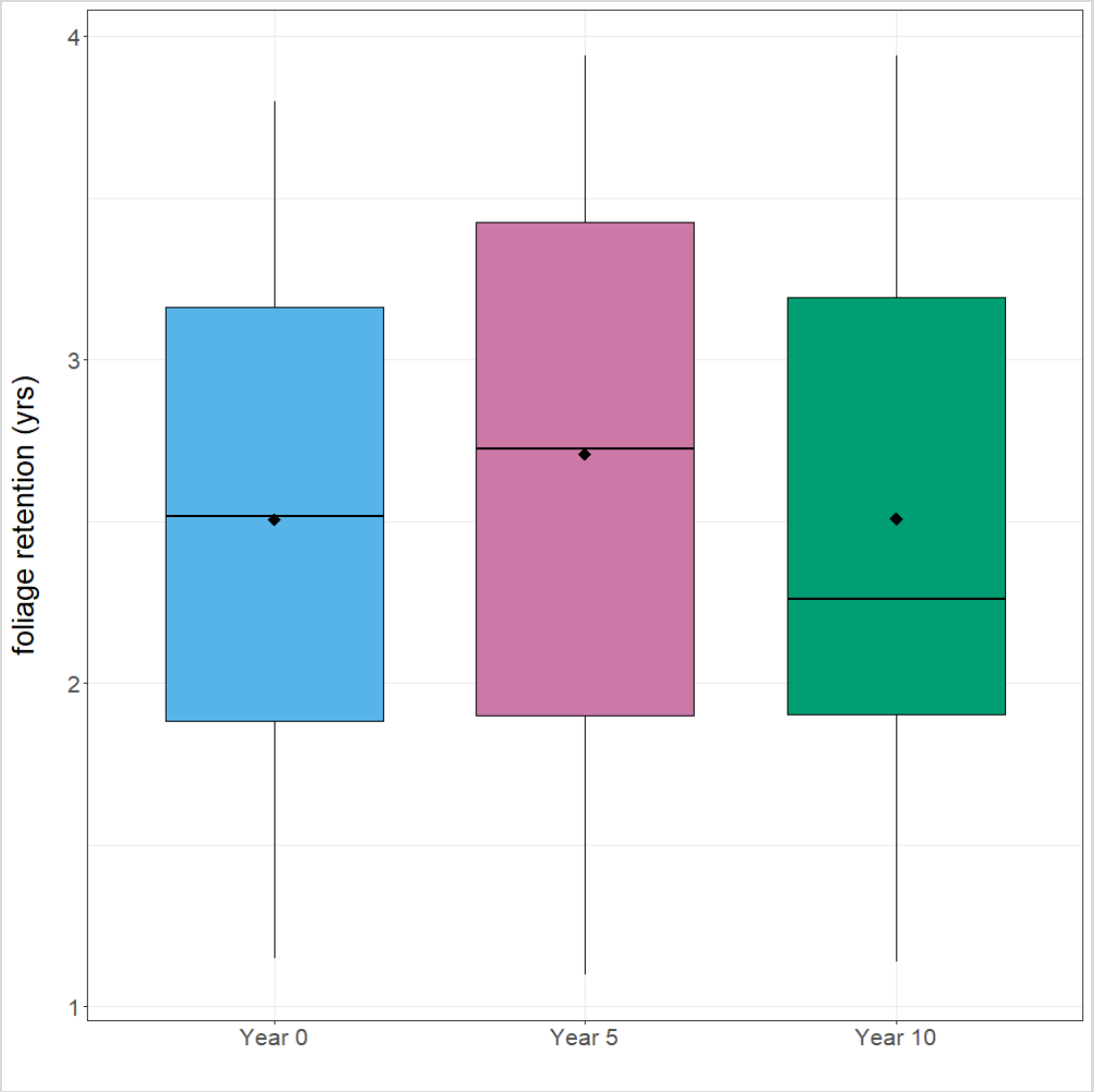
- Many southern plots not yet sampled
  - ~ half Florence zone
  - ~ half Coos Bay Zone
  - most of Gold Beach zone



2025 SNCC Research: foliage sampling

Preliminary foliage retention results:

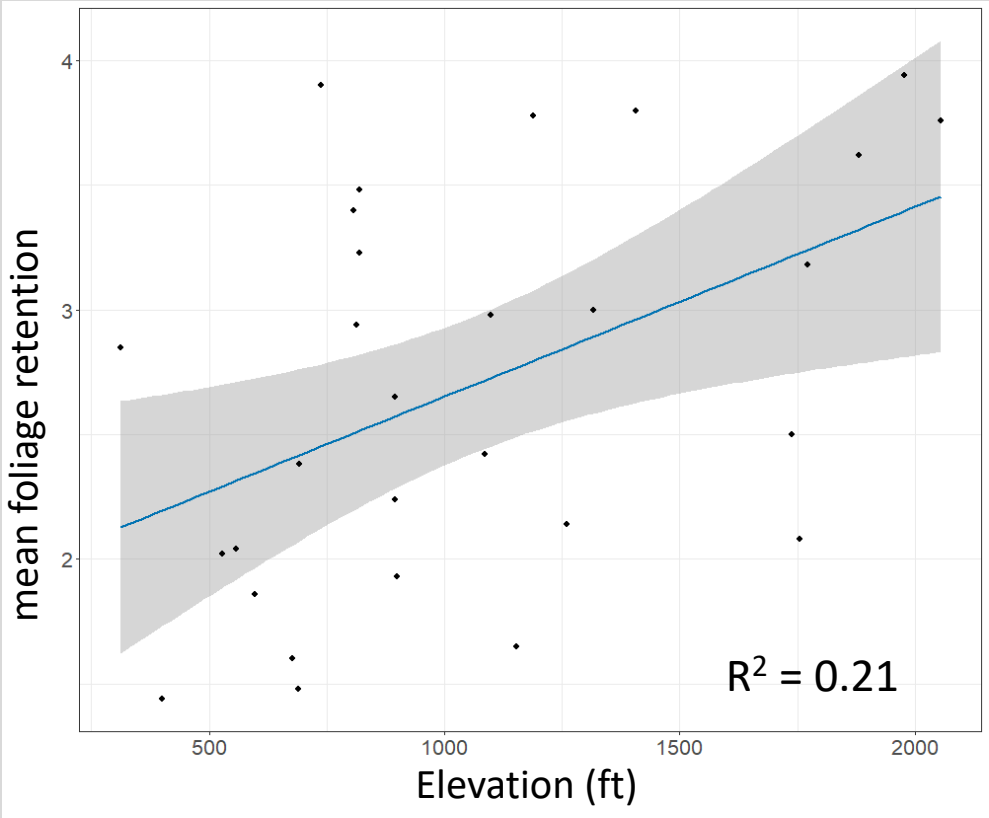
- Year 0
  - range: 1.15-3.8 years
  - mean: 2.51 years
- Year 5
  - range: 1.10-3.94 years
  - mean: 2.71 years
- Year 10
  - range: 1.14-3.94 years
  - mean: 2.51 years
- No significant difference between years ($p = 0.25$)



2025 SNCC Research: foliage sampling

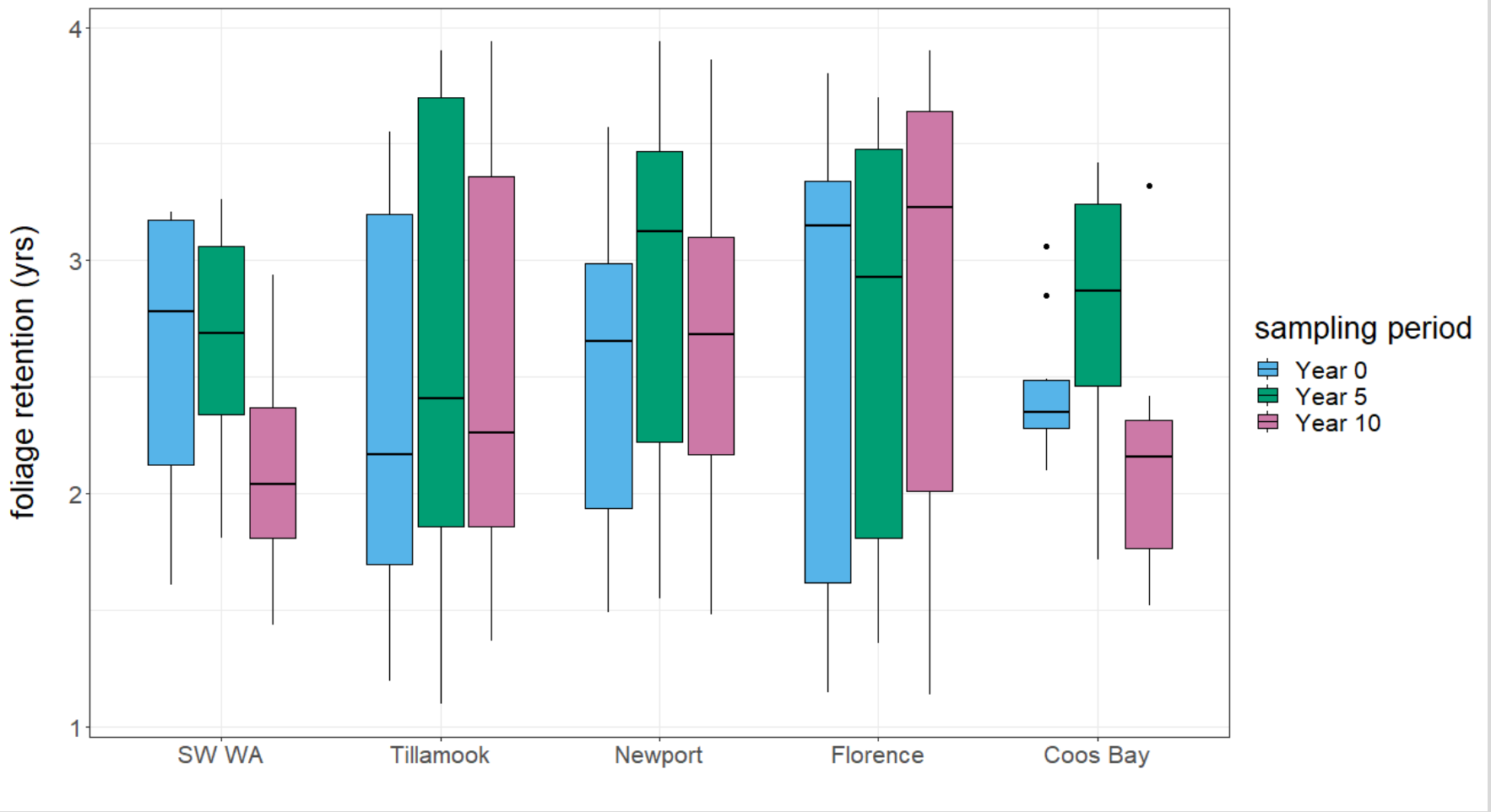
Preliminary foliage retention results:

- Positive association between foliage retention & elevation for all years



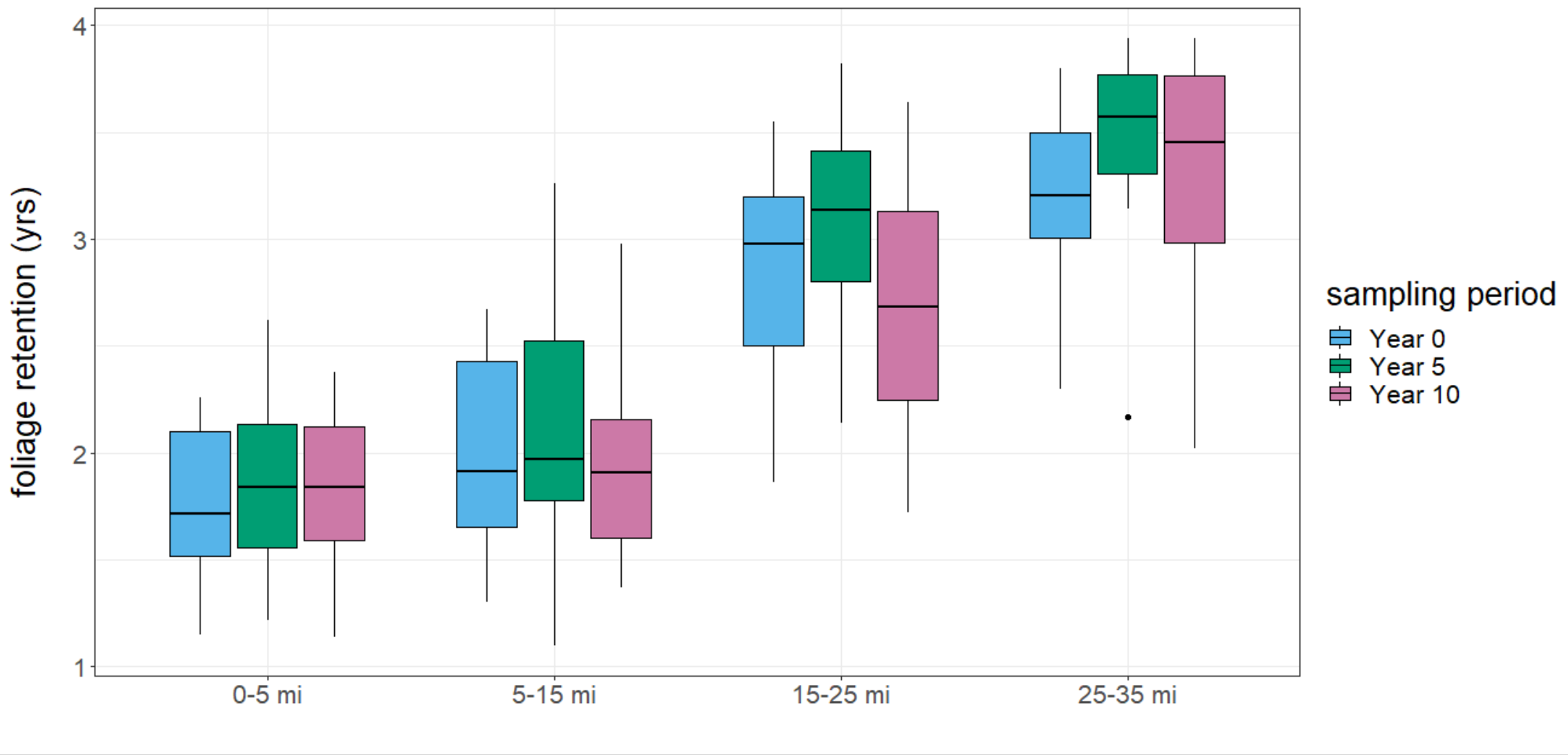
2025 SNCC Research: foliage sampling

Preliminary foliage retention results: Latitude Zone & Sampling Period



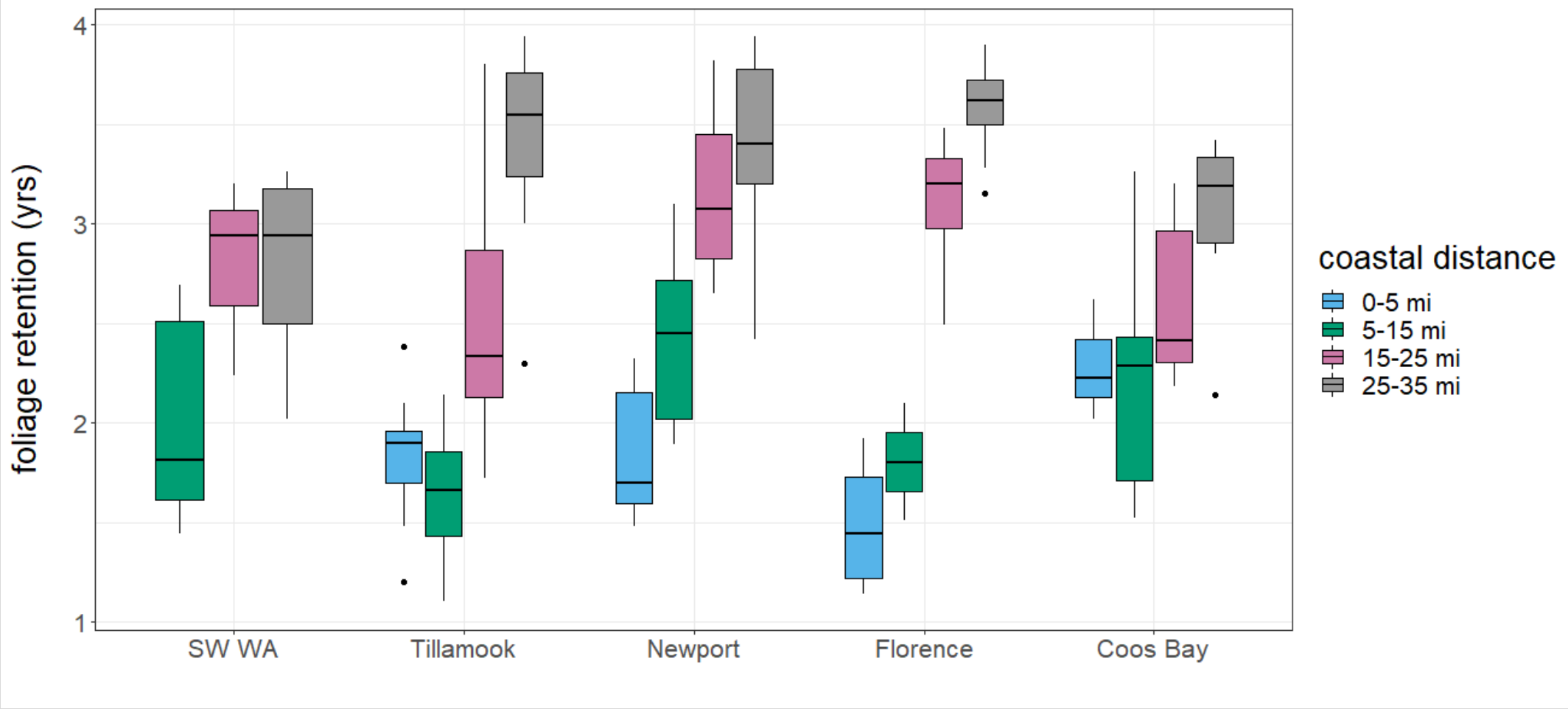
2025 SNCC Research: foliage sampling

Preliminary foliage retention results: Coastal Distance & Sampling Period



2025 SNCC Research: foliage sampling

Preliminary foliage retention results: Latitude Zone & Coastal Distance

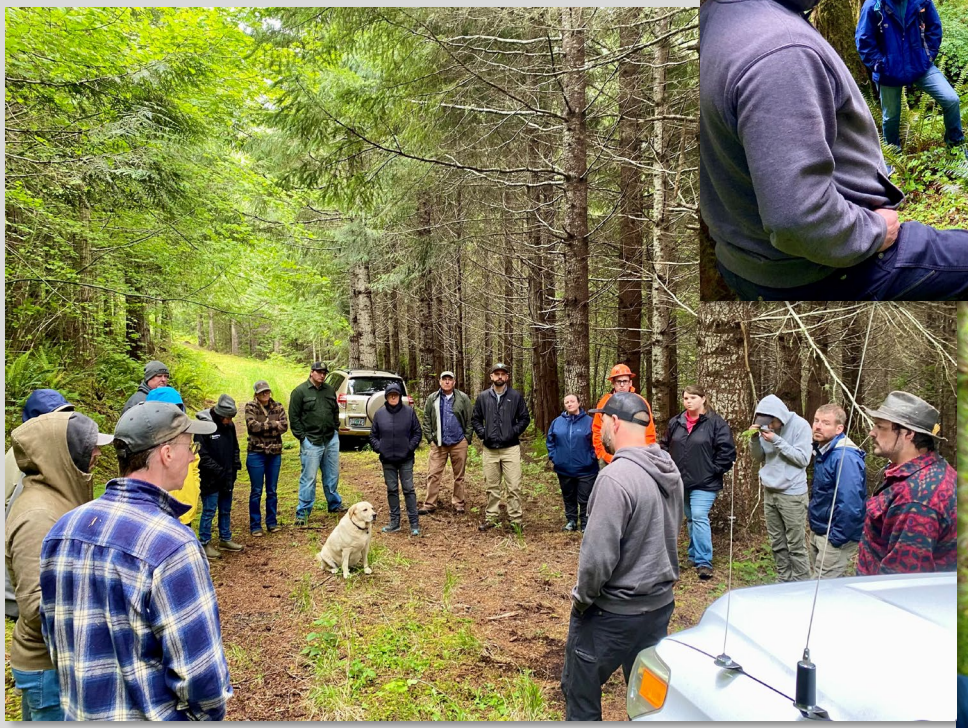


2025 SNCC Activities: annual field tour

Starker Forests, Inc.

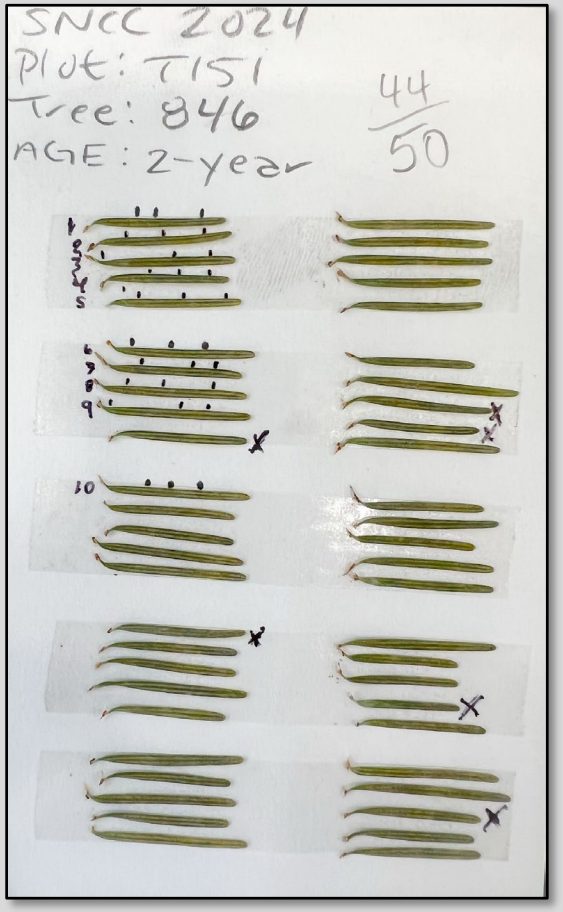
Sites & activities:

- SNC observation
- 2 species trials
- Cedar plantation
- *Phytophthora pluvialis* baiting site
- Laminated root rot research plot
- Black stain find

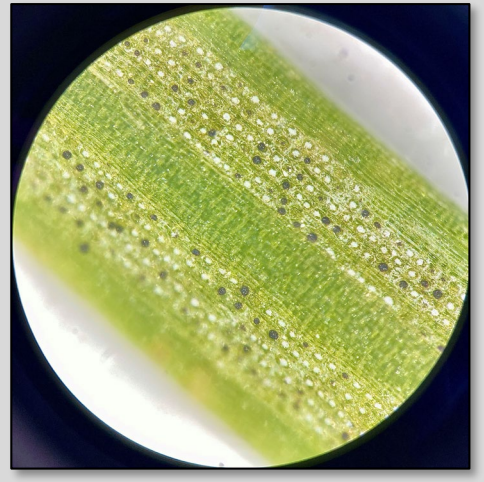


2025 SNCC Research: pseudothecia counts

- 50 randomly selected 2-year-old needles per tree
- Needles mounted on index cards, stomata facing up
- Infection incidence (proportion of infected needles)
- Occlusion counts on 10 infected needles at 3 randomly selected locations
- Results on the way!



Erlin Mansfield



2025 SNCC Research: plot network growth measurements

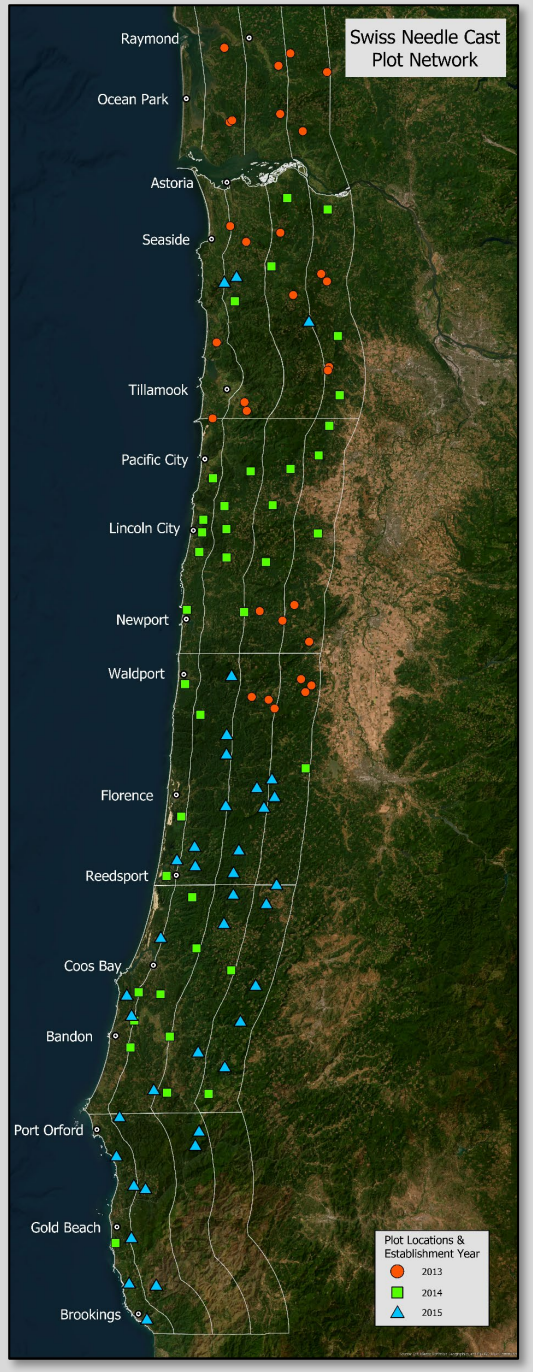
- Final third of the plot network!

Methods for data collection:

- Collected in the fall
- Diameter at breast height
- Total height & height to crown base collected from a subset of 40 trees

* Growth impact assessment fall 2026

Sahalie Pittman




To all of our members and collaborators, thank you!