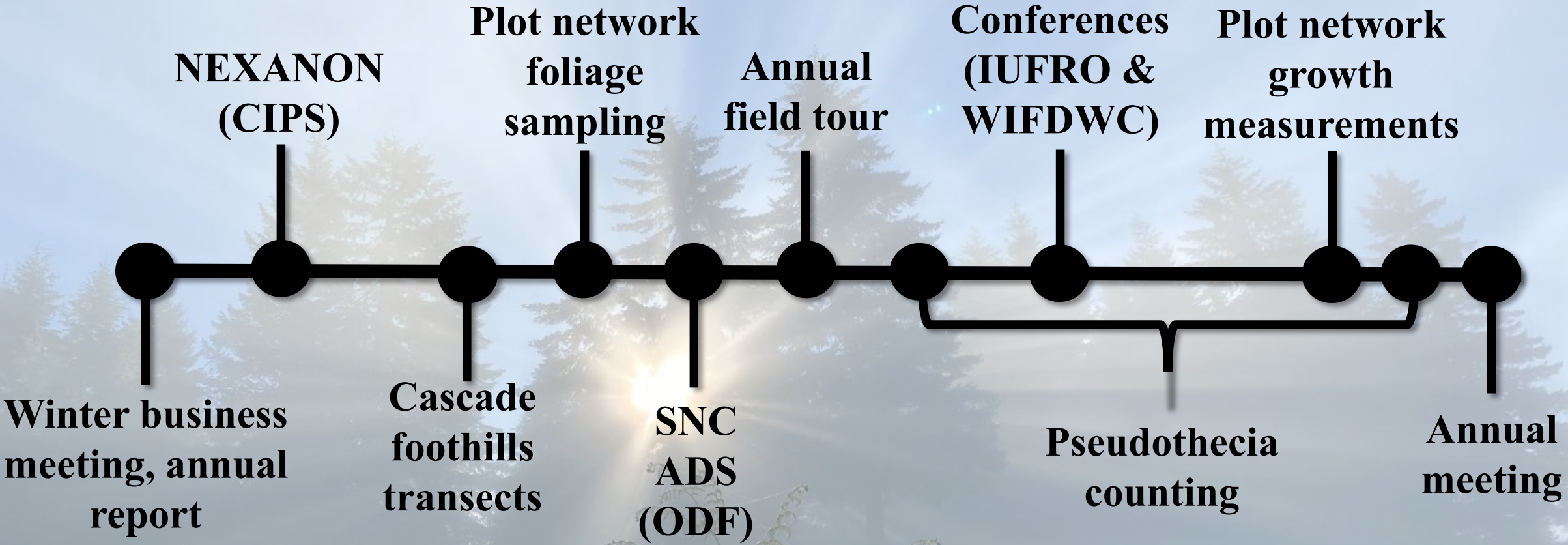


# 2024 Swiss Needle Cast Cooperative Research, Activities & Updates

Adam Carson  
2024 SNCC Annual Meeting



# 2024 SNCC Timeline



Winter



Spring



Summer

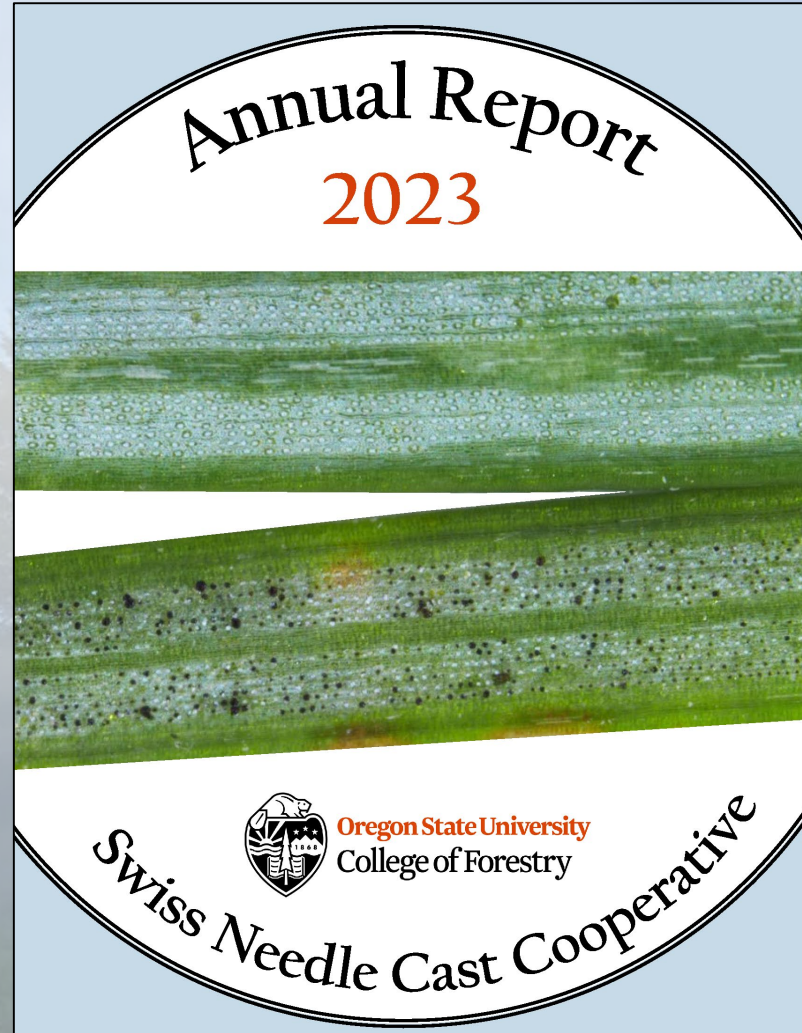


Fall





# 2024 SNCC Activities: 2023 annual report



HOME
CORE RESEARCH
PAST RESEARCH SUMMARIES
INTEGRATED PEST MANAGEMENT & SILVICULTURE
STAND GROWTH ASSESSMENT TOOL
PUBLICATIONS
<b>ANNUAL REPORTS</b>
ANNUAL MEETINGS
AERIAL SURVEY
SNC IDENTIFICATION & IMAGES
SNC MODELS
NEXANON
FOREST HEALTH FACTSHEETS
SNC DEFINITIONS

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



# 2024 SNCC Activities: NEXANON

- SMC-OREGONON tree-level growth and yield model, varies when projecting stands with SNC
- Accounts for tree height and height increment in SNC-infected stands
- Estimates SNC by coordinates or by inputting foliage retention manually
- Available on the SNCC website ([sncc.forestry.oregonstate.edu](http://sncc.forestry.oregonstate.edu))
- \* Please contact Adam directly to obtain the raster files.

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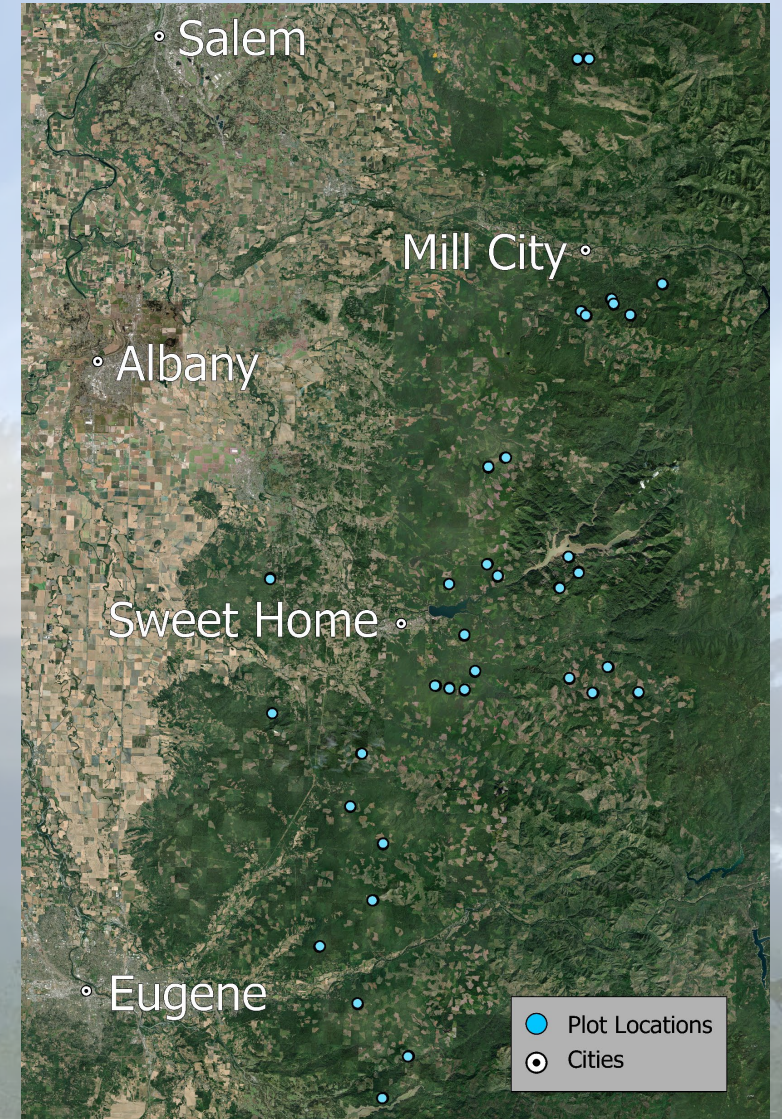
# 2024 SNCC Research: foothill transects

## Objectives:

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

## Methods:

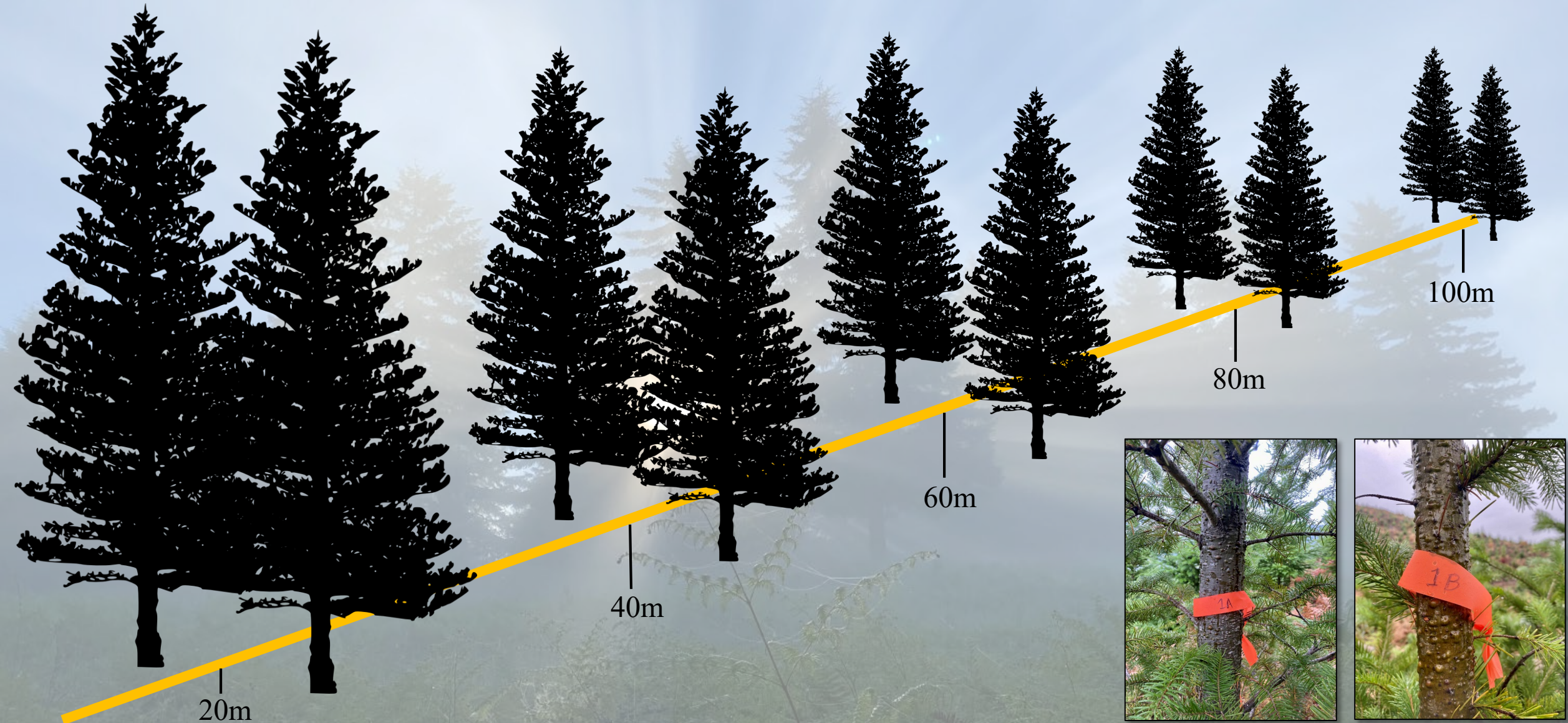
- Douglas-fir dominated stands
- 100 meter transects (one per stand)
- Two trees sampled every 20 meters
- 10 trees sampled per stand
- 35 transects in total (350 trees)
- Installation of the network occurred in 2023







# 2024 SNCC Research: foothill transects







# 2024 SNCC Research: foothill transects

## Sampling Methods:

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







# 2024 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

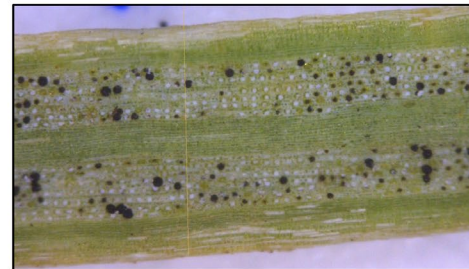
• 0 – no pseudothecia present



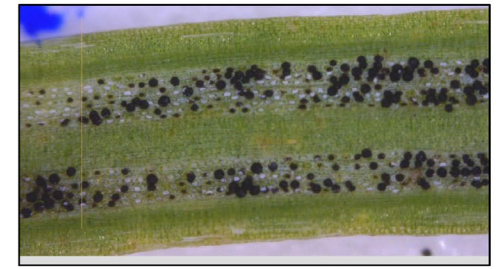
1 – light occlusion (up to 20%)



• 2 – moderate occlusion (21% - 50%)

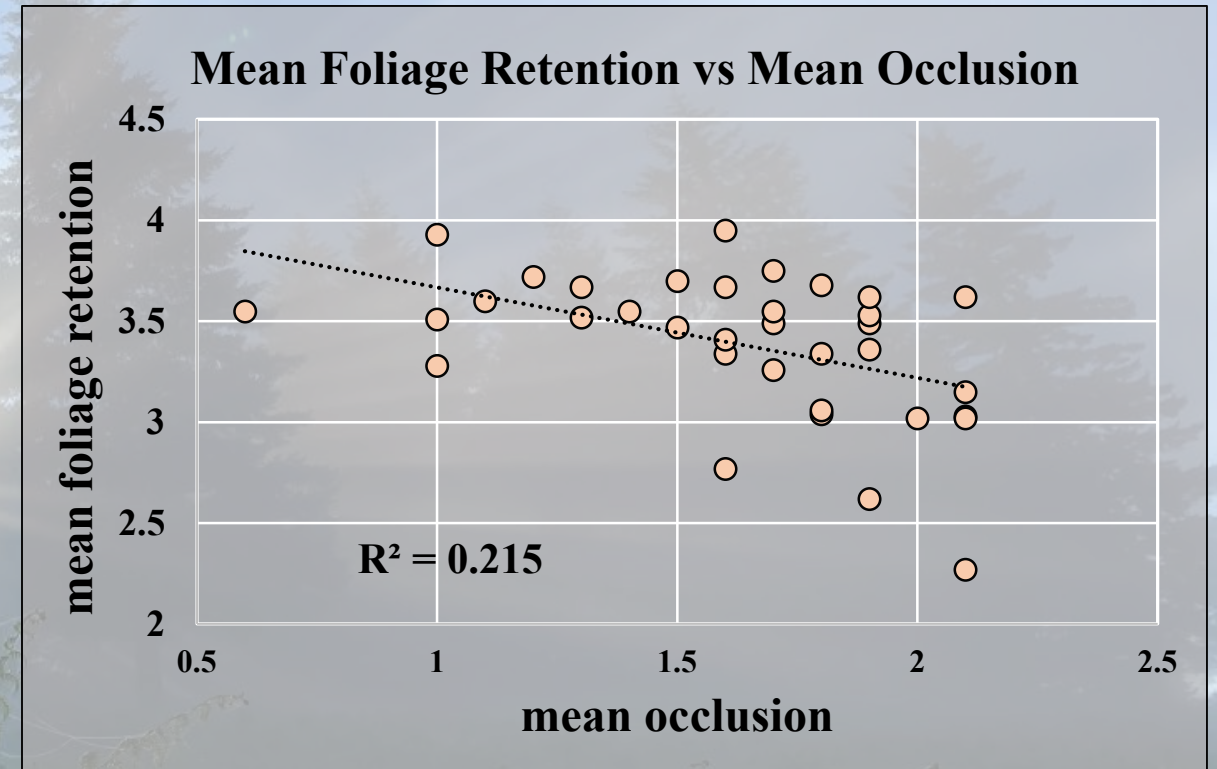
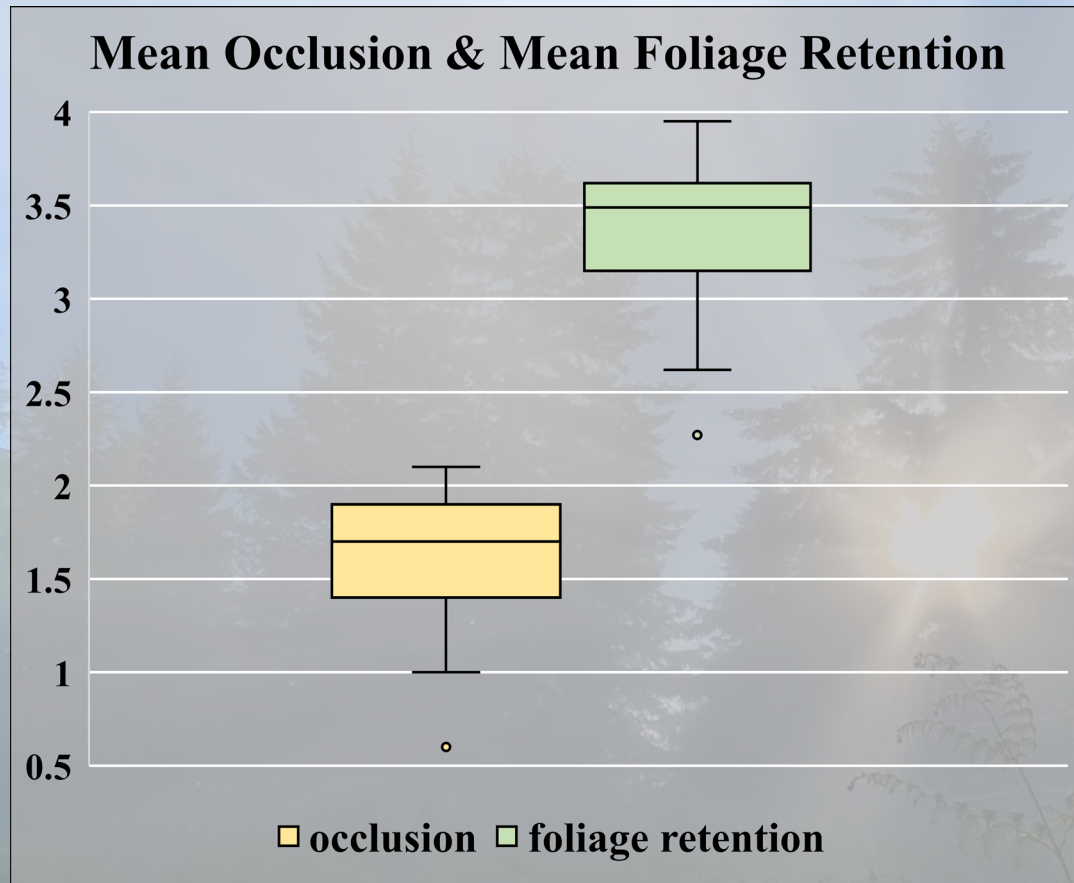


3 – severe occlusion (>50%)



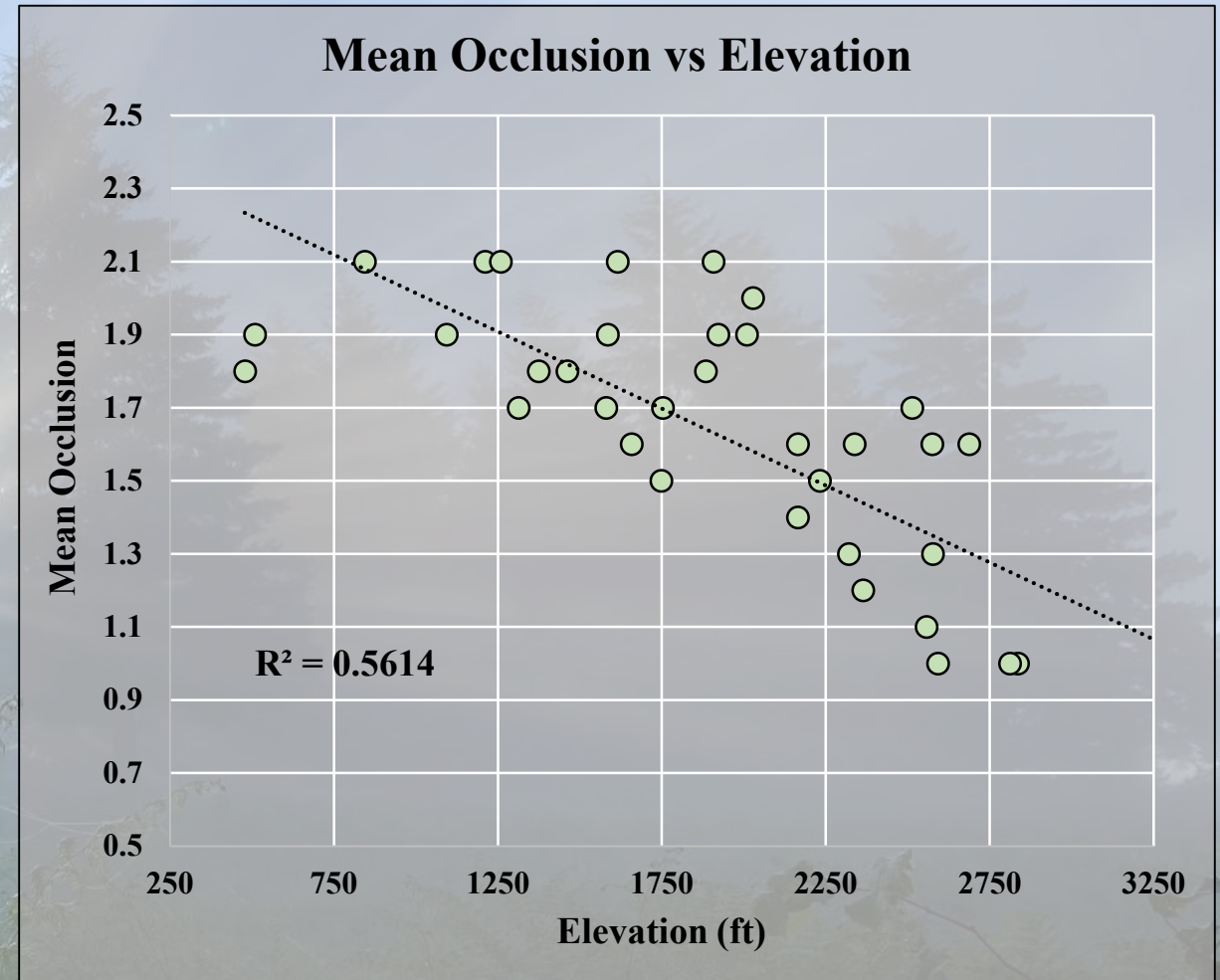
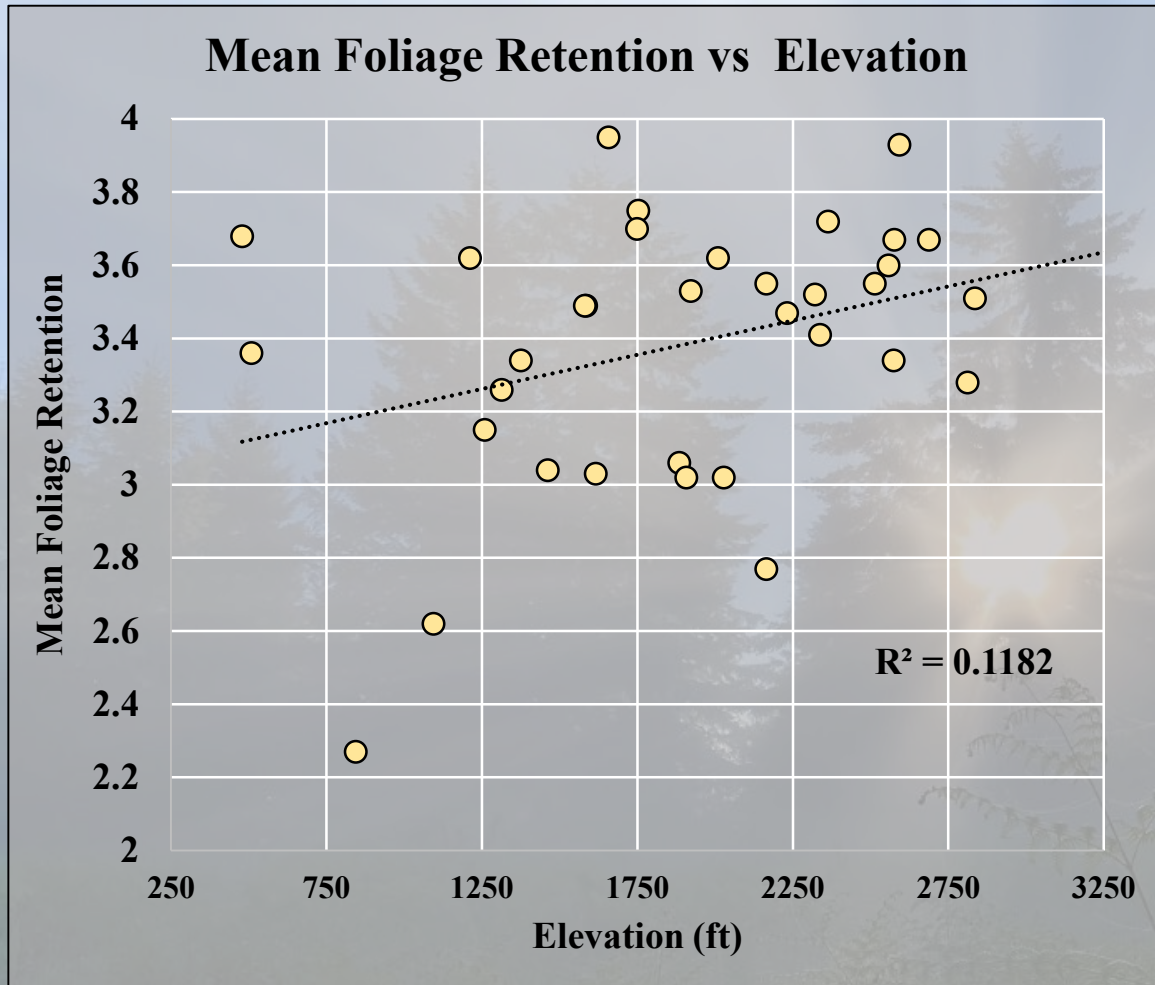


# 2024 SNCC Research: foothill transects





# 2024 SNCC Research: foothill transects





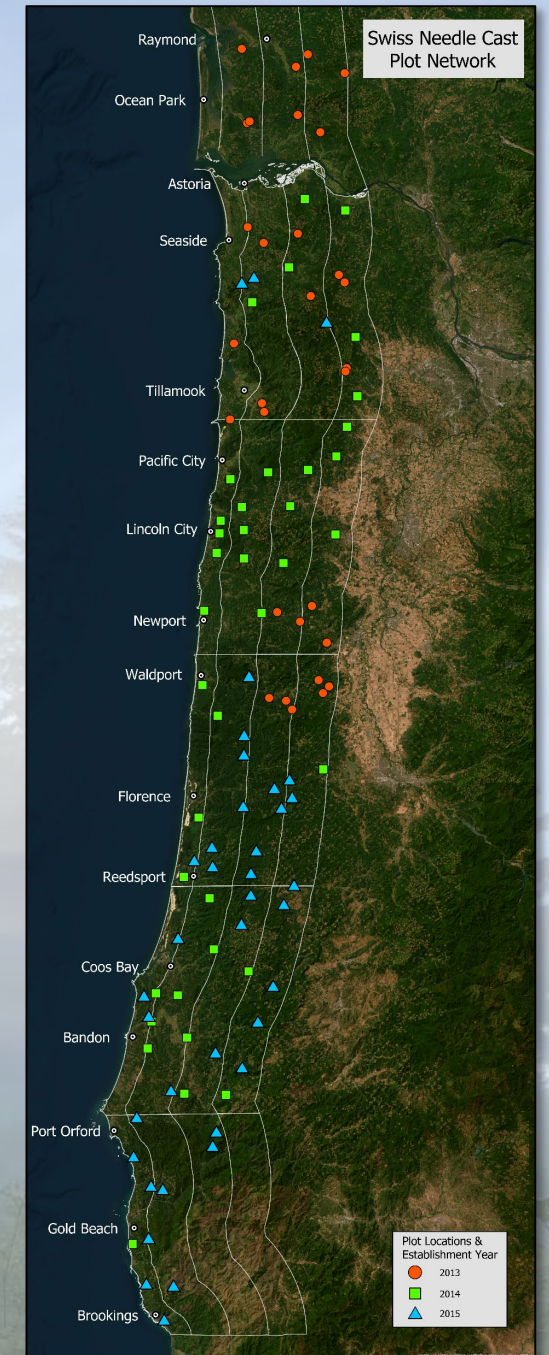
# 2024 SNCC Research: coast range research & monitoring plot network

## 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 infections levels on volume growth of Douglas-fir

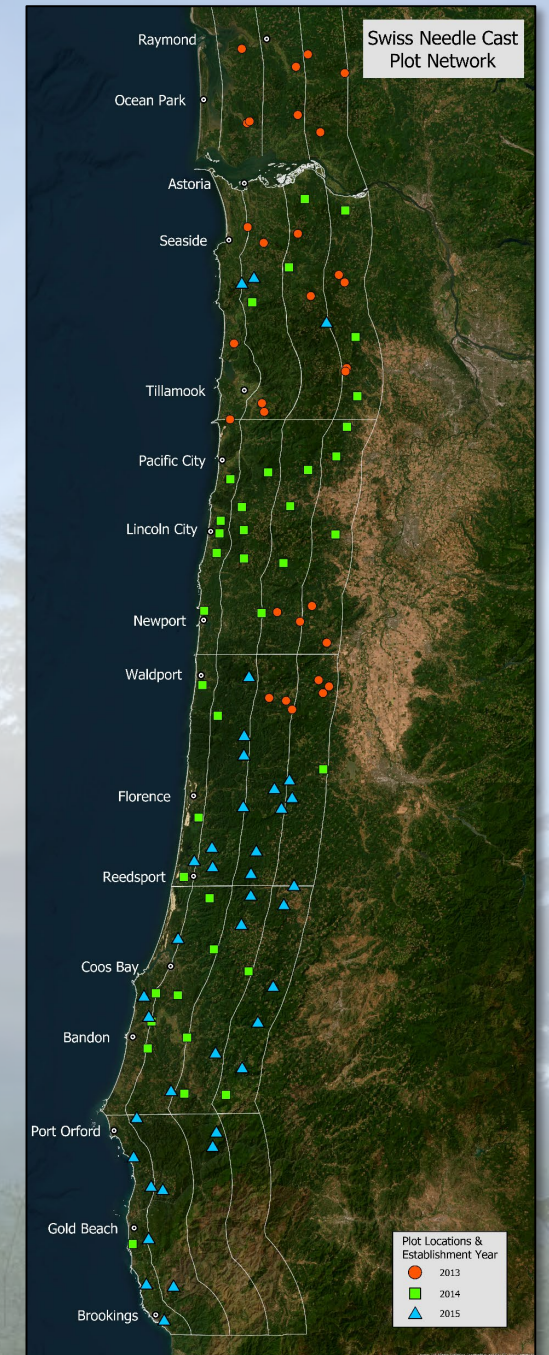




# 2024 SNCC Research: coast range research & monitoring plot network

## 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 began in fall 2023 and will conclude in spring 2026, representing 10 years of growth
- Growth measurements for first 1/3 of plots in fall 2023, foliage samples collected in spring 2024







# 2024 SNCC Research: foliage sampling

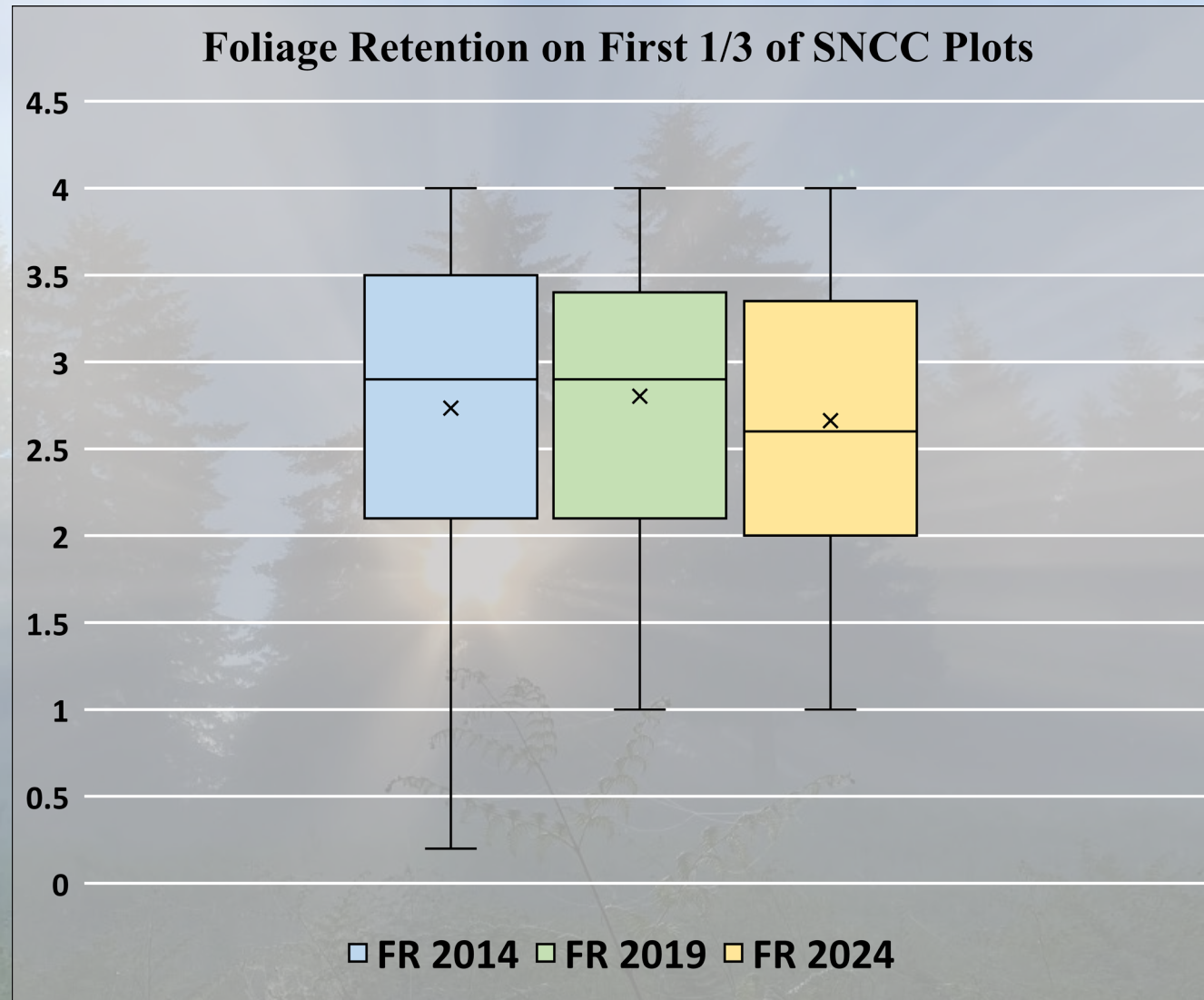
## Sampling methods:

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





# 2024 SNCC Research: foliage sampling





# 2024 SNCC Activities: annual field tour





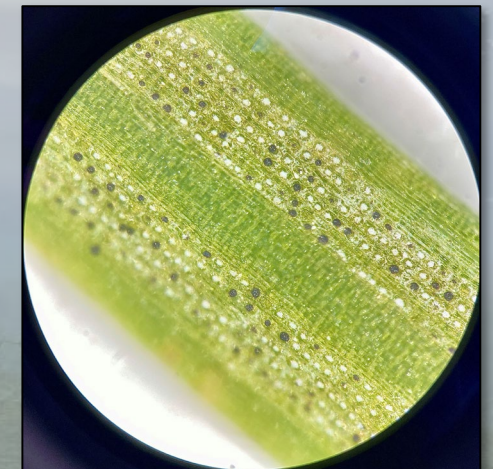
# 2024 SNCC Research: pseudothecia counts



- 50 randomly selected 2-year-old needles per tree
- Needles mounted on index cards, stomata facing up
- Infection incidence (percent of infected needles)
- Occlusion counts on 10 infected needles at 3 randomly selected locations
- 2024 results on the way!



Erlin Mansfield





# 2024 SNCC Research: plot network growth measurements

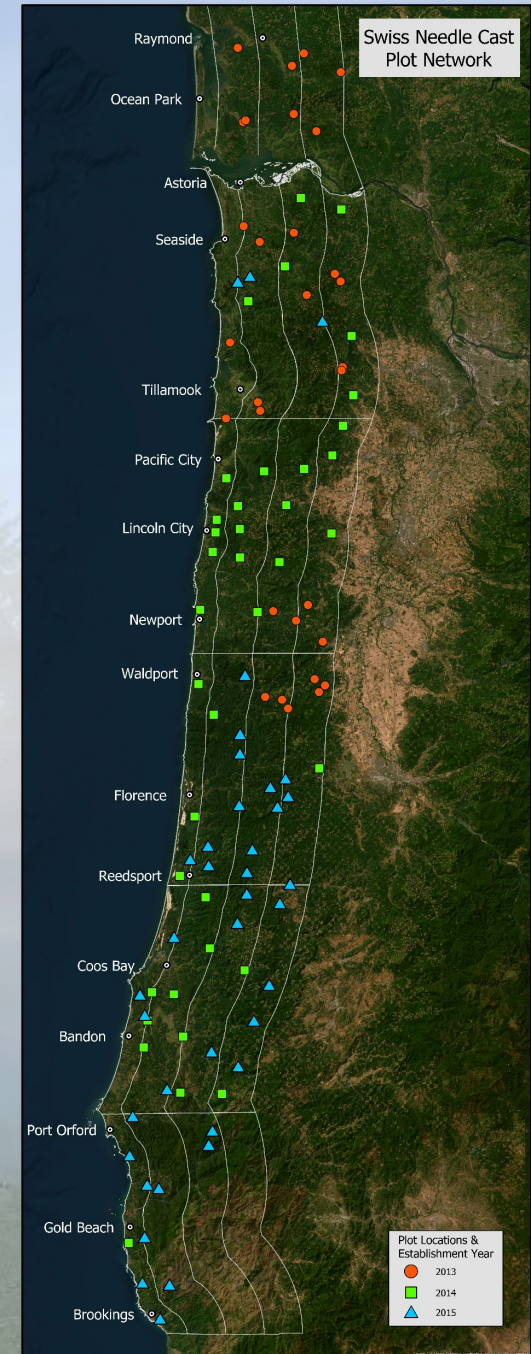
- Second 1/3 of the plot network
- Wide geographic distribution

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
- \*2024 mensuration results will be presented by Doug Mainwaring



Anna Merzenich





# 2025 SNCC Plans & Timeline:

- Winter business meeting & 2024 Annual Report (winter)
- SNCC new hire! Christian González (spring)
- Cascade foothills measurements (spring)
- Foliage collection, second 1/3 of the plot network (spring)
- SNCC annual field tour (spring)
- Pseudothecia counting (summer)
- Growth measurements, last 1/3 of the plot network (fall)
- Annual meeting (fall)





A scenic background of a forest with a sunburst effect. The sun is low on the horizon, creating a bright glow and rays of light that filter through the trees. The trees are mostly evergreens, and the overall atmosphere is soft and hazy.

**To all of our members and  
collaborators, thank you!**