2026 Swiss Needle Cast Cooperative Annual Tour

Highway 38 Corridor, Oregon

May 28th, 2026

9am-3pm

9am: Meet at the Safeway parking lot (1499 Oregon Coast Hwy, Reedsport, OR 97467) on highway 101 and north 14th Street.

I. Stop 1: SNCC Research Plot F03

   a. Introductions

   b. Swiss needle cast overview

   c. Foliage sample observation and discussion

II. Stop 2: Scottsburg County Park

Break and refreshments. Snacks and beverages will be provided

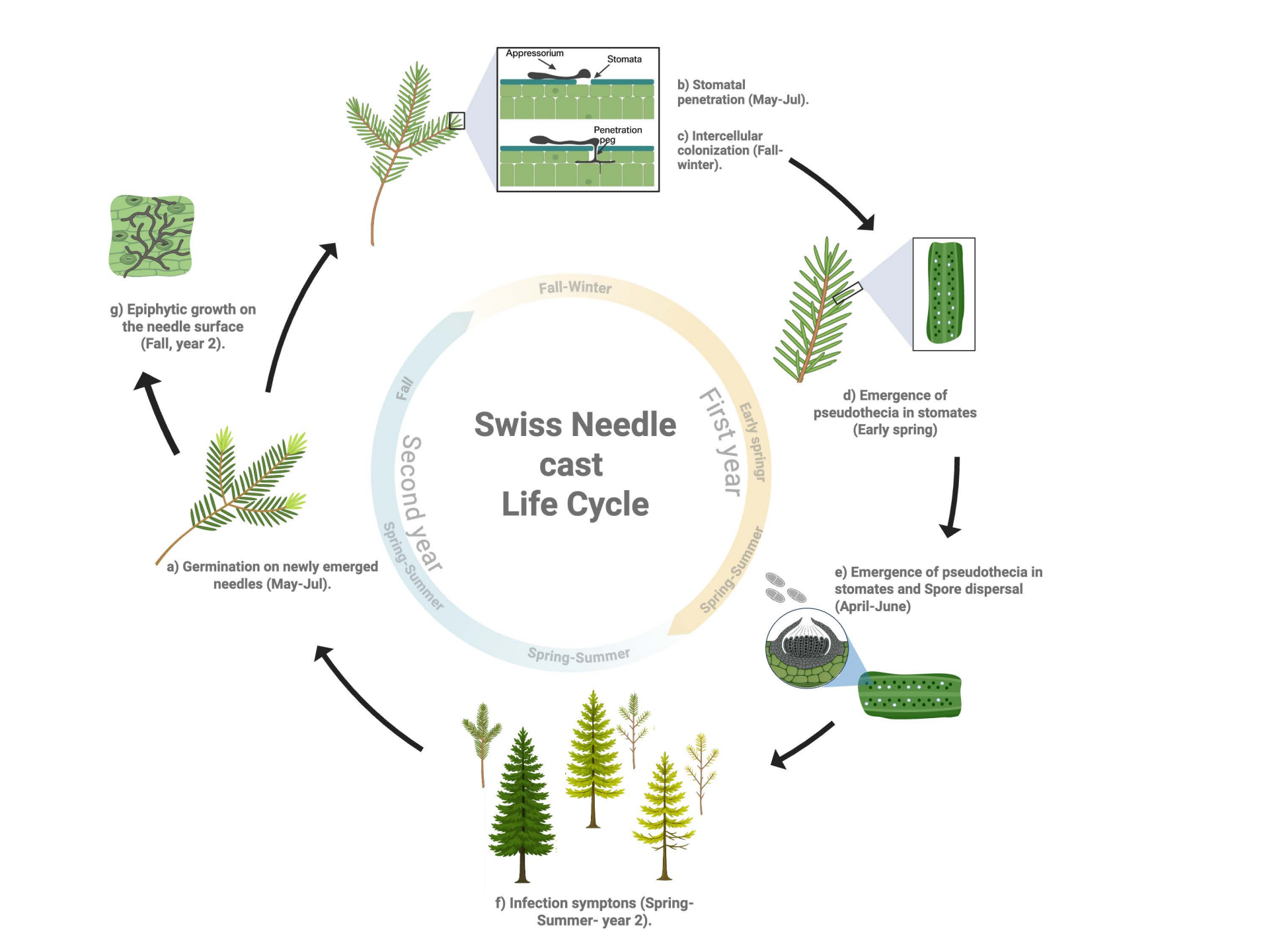
III. Stop 3: Sonic Tomographic Demonstration

IV. Stop 4: SNCC Research Plot F155

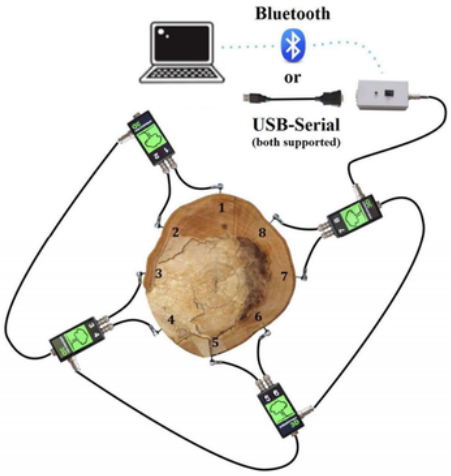
   a. Remote sensing for SNC demonstration

   b. Foliage sample observation and comparison

3pm: Concluding remarks

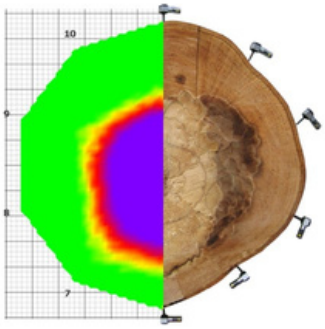

Swiss Needle cast Life Cycle
First year
Second year
Fall-Winter
Early springr
Spring-Summer
Spring-Summer
Fall
Spring-Summer
Appressorium
Stomata
Penetration peg
b) Stomatal penetration (May-Jul).
c) Intercellular colonization (Fall-winter).
d) Emergence of pseudothecia in stomates (Early spring)
e) Emergence of pseudothecia in stomates and Spore dispersal (April-June)
f) Infection symptons (Spring-Summer- year 2).
g) Epiphytic growth on the needle surface (Fall, year 2).
a) Germination on newly emerged needles (May-Jul).

SONIC TOMOGRAPHY



Sonic tomography is a minimally invasive technique that visualizes internal trunk defects and decay by measuring the speed of sound waves sent through wood.

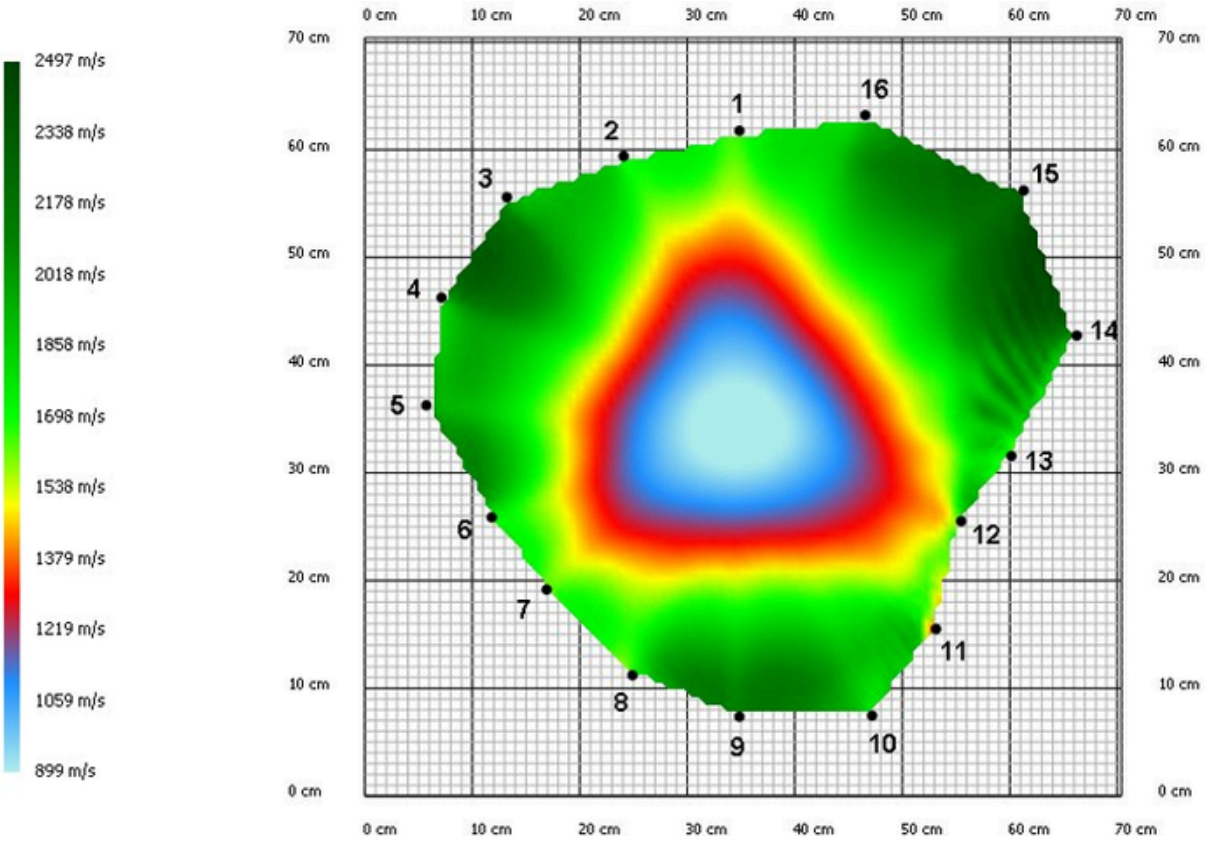
Sound waves move more quickly through solid wood than they do through decayed wood or hollow areas.



The software combines the sound wave velocities with species-specific density and reference velocity values to create the tomogram.

RESEARCH APPLICATIONS INCLUDE:

- Identifying and quantifying the extent of internal decay in trees.
- Estimating carbon loss and carbon sequestration in forests.
- Monitoring decay progression over time to study tree senescence and longevity.
- Hazard tree management in urban and recreation areas.
- Wildfire vulnerability and post-fire assessment.



FAKOPP

Remote Sensing for Swiss Needle Cast. Project Scope & Methodologies

Project Lead: Ben Campbell, Master's Student, College of Forestry, Oregon State University
Principal Investigator/Advisor: Dr. Jared LeBoldus, Oregon State University

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1. Project Overview

This research project, conducted through the College of Forestry at Oregon State University, focuses on advancing the monitoring of forest health in Douglas-fir plantations. Specifically, the study aims to test the utility of a UAS monitoring protocol for remotely measuring defoliation and chlorosis in Douglas Fir forests to assist in detecting stress caused by Swiss Needle Cast (SNC) at the stand level.

2. Value Proposition & Outcomes

The data collected during this field season will be used to establish the initial findings of a new SNC monitoring protocol. Upon completion of the research, these protocols and findings will be provided directly to the Swiss Needle Cast Cooperative (SNCC) to support broader regional stand management and disease mitigation strategies.

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3. Field Methodology

A. Aerial Data Collection (UAS) A commercial-grade Uncrewed Aerial System (UAS) will be utilized to map the forest canopy.

- **Equipment:** DJI Matrice series drone.
- **Payloads:** The drone will simultaneously carry a Zenmuse L1 LiDAR sensor (to extract 3D tree crowns) and a Zenmuse 6-band multispectral camera (to map canopy health and moisture indices).
- **Flight Parameters:** To ensure high point cloud density and crisp imagery, the drone will operate at a low altitude of 60 to 80 meters, moving at a slow speed of 3 to 5 m/s.
- **Licensure:** Ben Campbell has a current Part 107 Remote Pilot license issued by the FAA (certificate number 5229411)
- **Timing:** Flights are planned to occur around solar noon to minimize canopy shadows and ensure accurate spectral reflectance data.

B. Ground Survey Equipment Precise geolocation of plot centers will be captured and individual trees to align the aerial models with the physical trees.

- **Equipment:** An RTK Base Station and Rover will be temporarily deployed on-site.
- **Purpose:** This equipment records highly accurate, sub-centimeter GPS coordinates for the plot center and the exact locations of the individual trees being sampled by the ground team. All equipment is removed at the end of each field day.