

How Do I Know If I Have SNC In My Stands?

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How Do I Know If I Have SNC In My Stands?

- SNC in Context
- Is my stand at risk?
- On the ground/in the stand.
- Quantitative Estimates of Growth Impacts.



Photo ODF

SNC in Context

- **YOU CAN FIND *P. gaeumannii* EVERYWHERE!**
- **The fungus that causes Swiss Needle Cast is:**
 - Native to North America
 - Common everywhere Douglas-fir grows
 - Only causes disease in certain geographic and stand settings
 - Because it is everywhere, disease intensification depends on climatic conditions that interact with host.

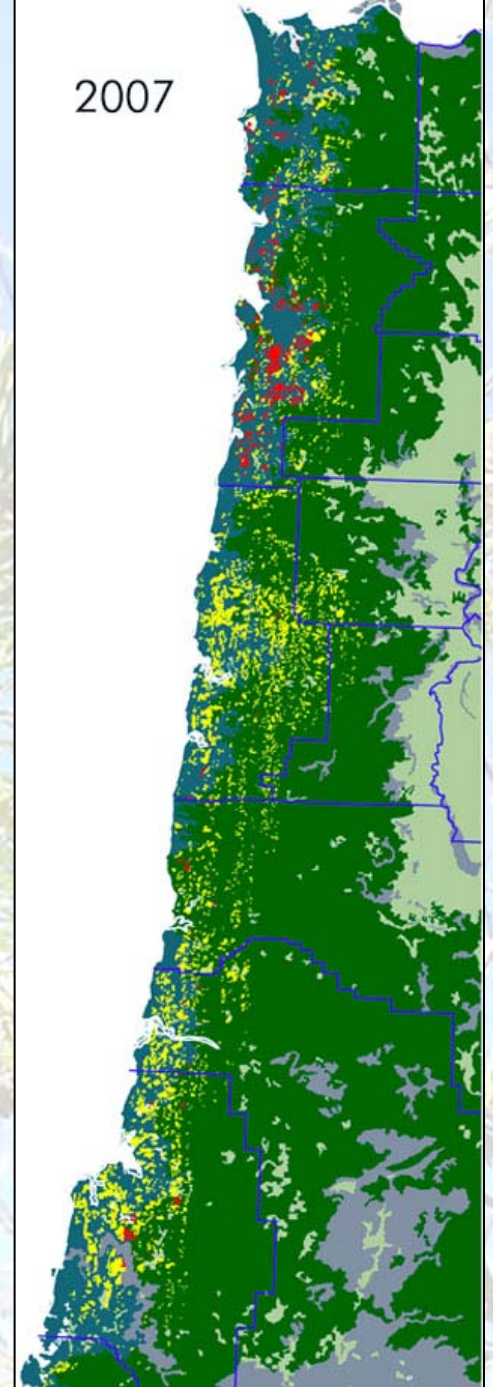
Is My Stand At Risk?

- Aerial detection survey
- Disease distribution models
- Needle retention models
- Distance from coast



Aerial Survey

2007



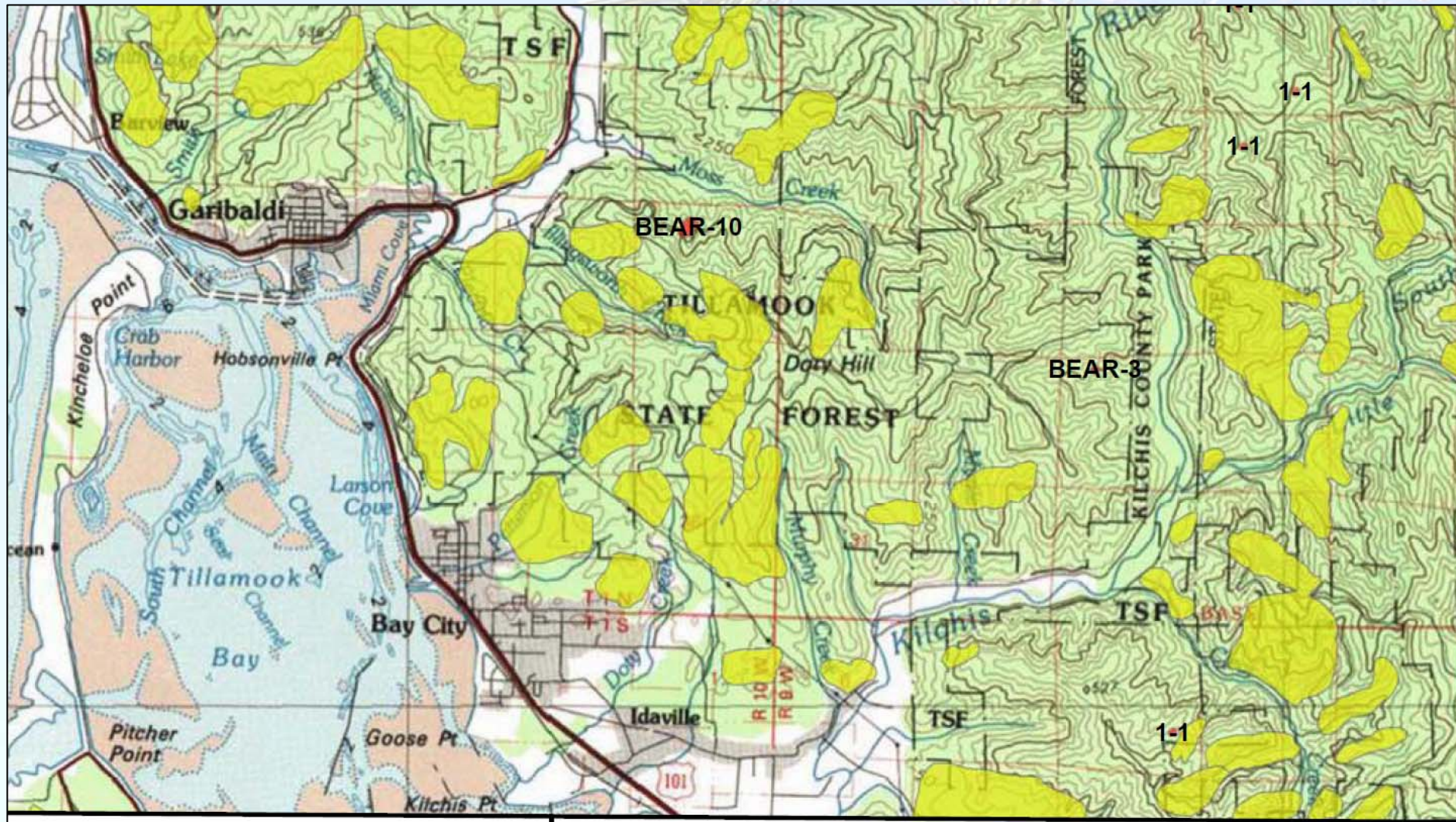
Spruce/hemlock

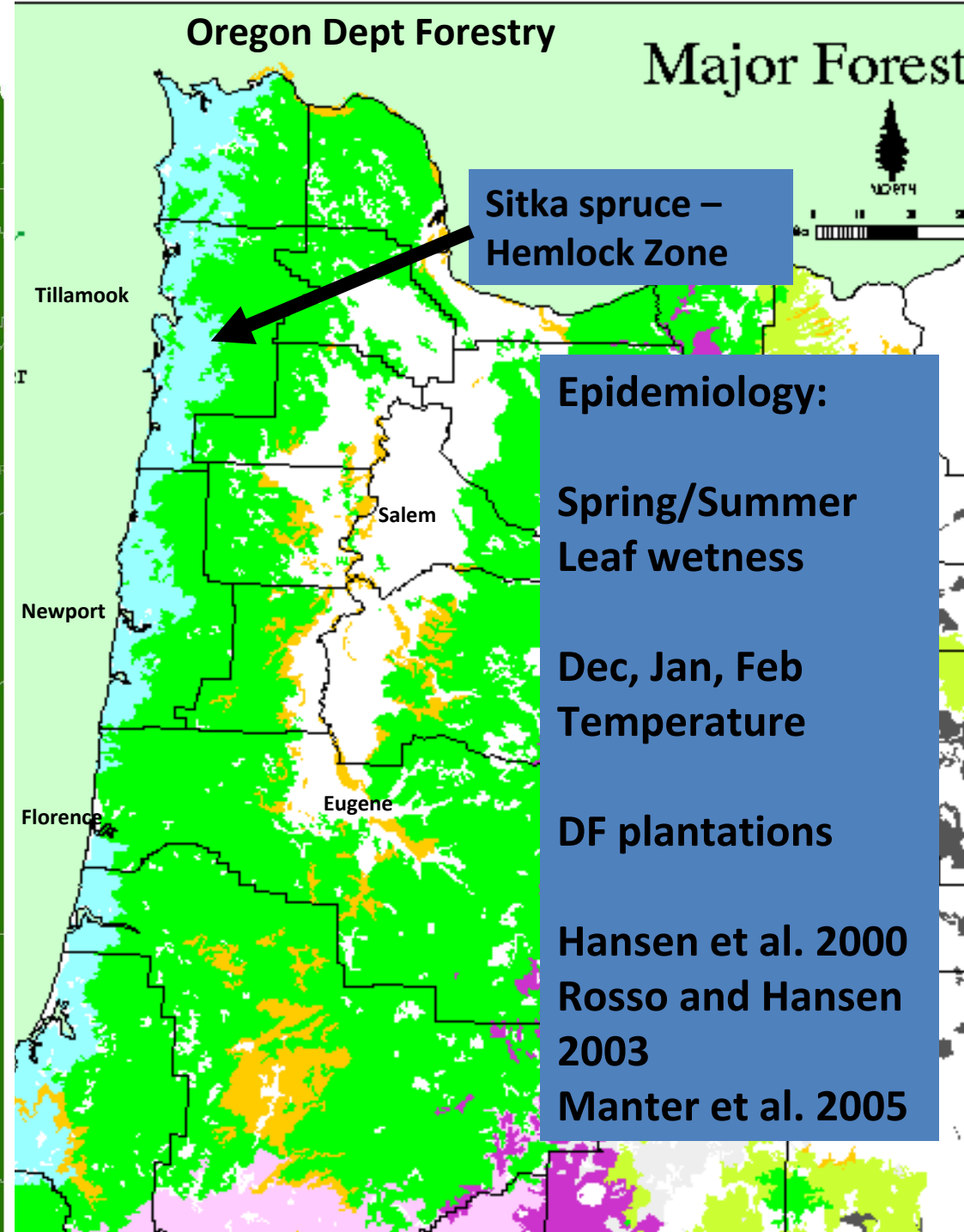
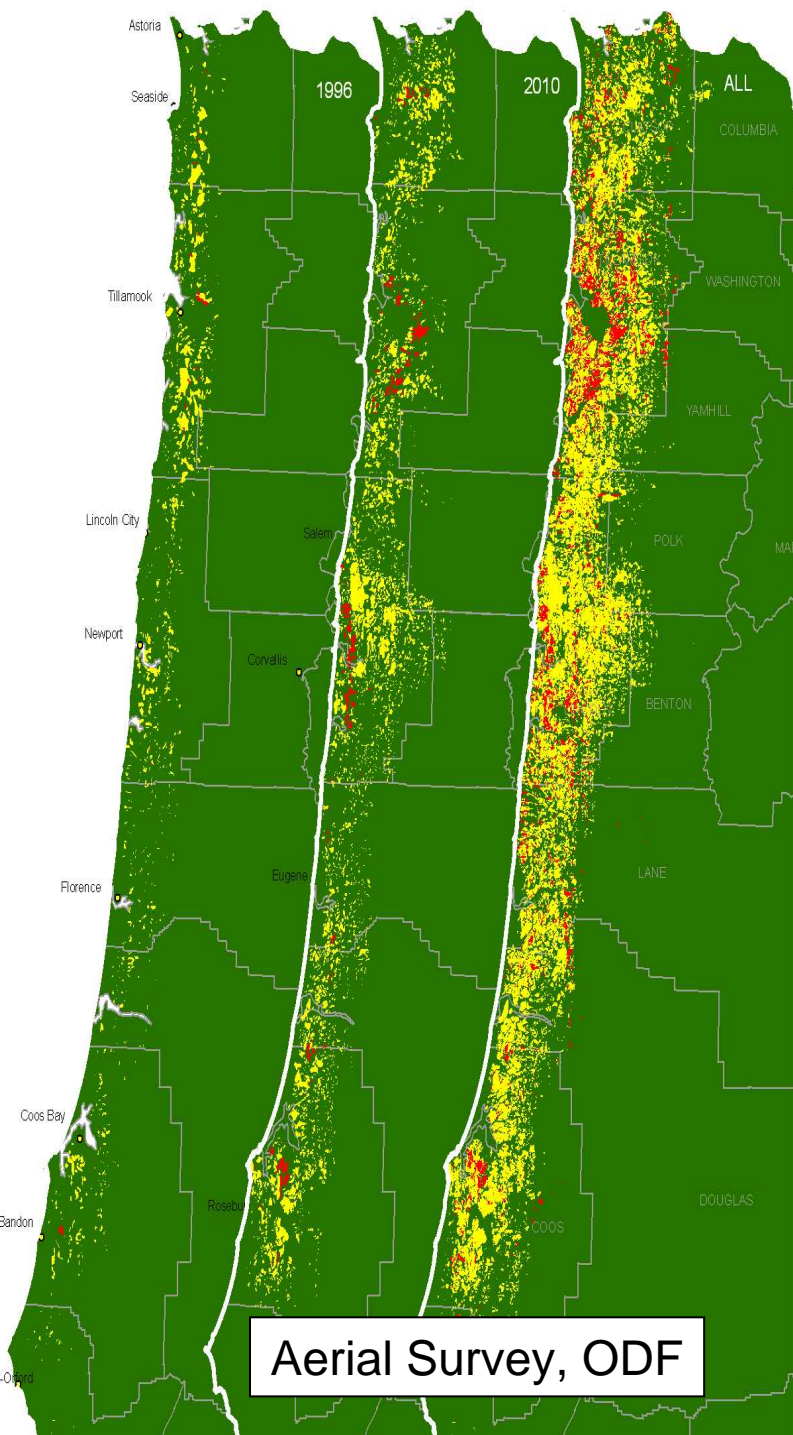
Douglas-fir
plantation

Figures from Oregon Dept of Forestry

Aerial Survey Data published annually on more detailed
1:100,000k maps (yellow is SNC):

<http://www.fs.fed.us/r6/nr/fid/as/quad09/index.shtml>





Predictive models
are also available,
such as this Needle
Retention Map
from Greg Latta

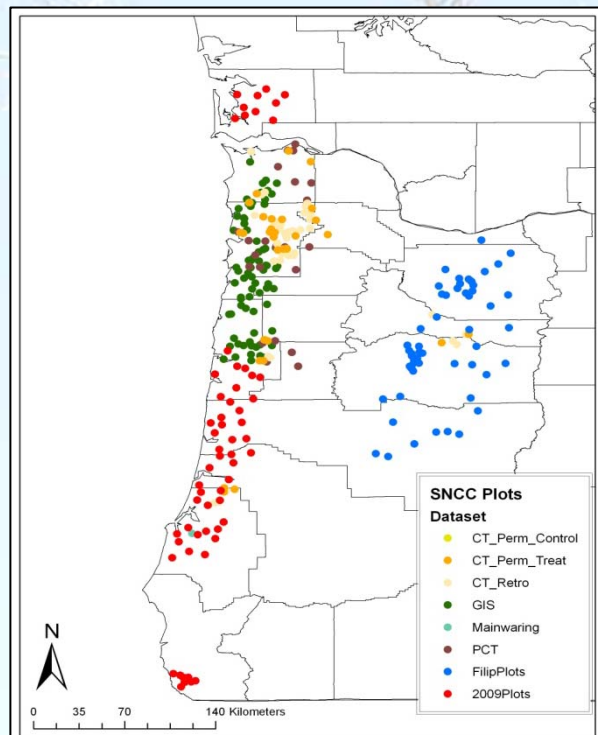
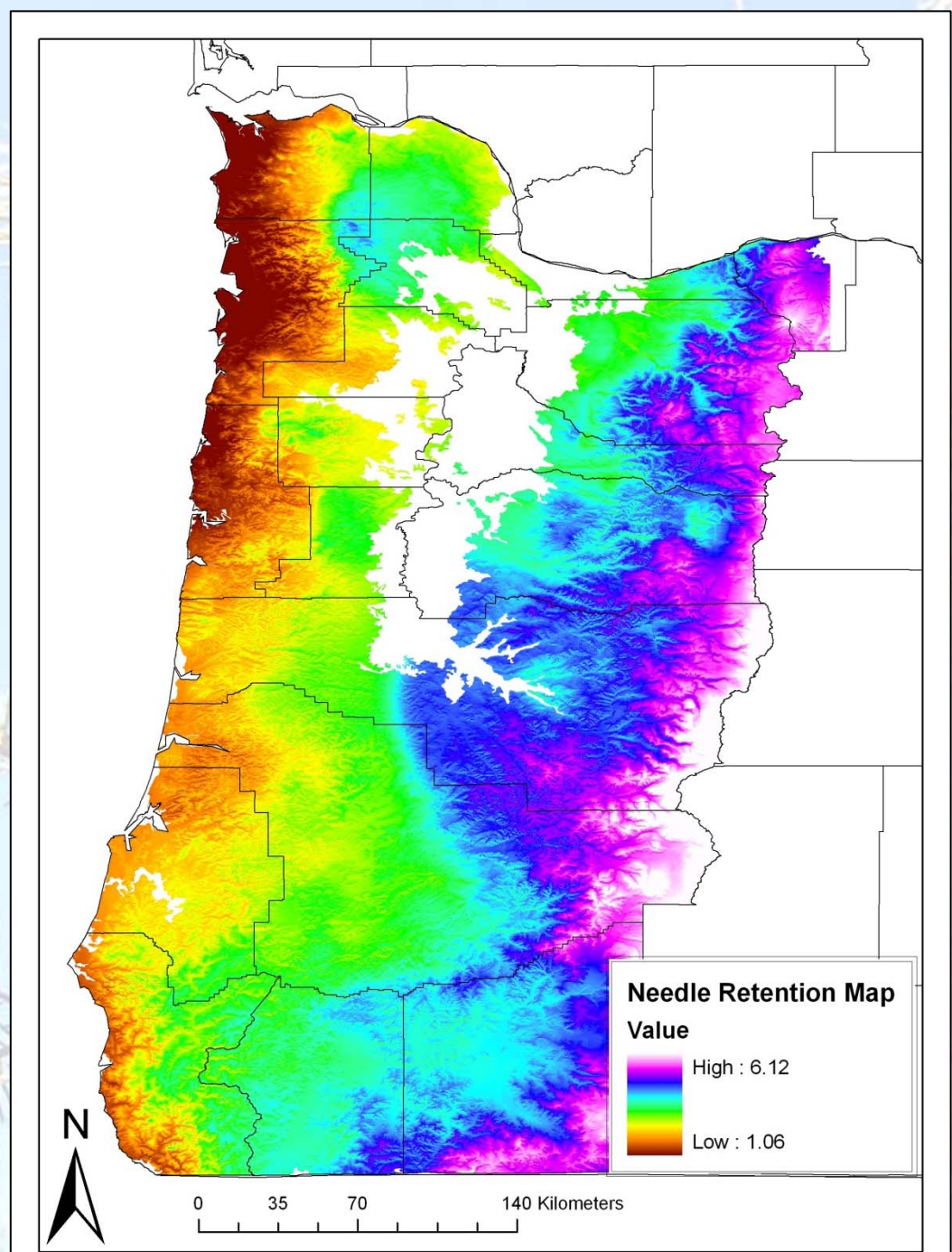


Figure 1. SNC Plot Location



On the ground/in the stand

- Visible look of stand prior to budbreak in spring especially.
- After budbreak, stand may green-up until winter when begins to go chlorotic again.



On the ground/in the stand: Visible symptoms



Visible stand symptoms



Visible symptoms of the stand





On the
ground/in
the stand

Yellowing
foliage
(chlorosis)

Especially in
spring before
bud-break

On the ground/in the stand

- Yellowish
- Thin crown
- Lion's tail effect
on foliage
distribution



**Poor foliage
retention.**



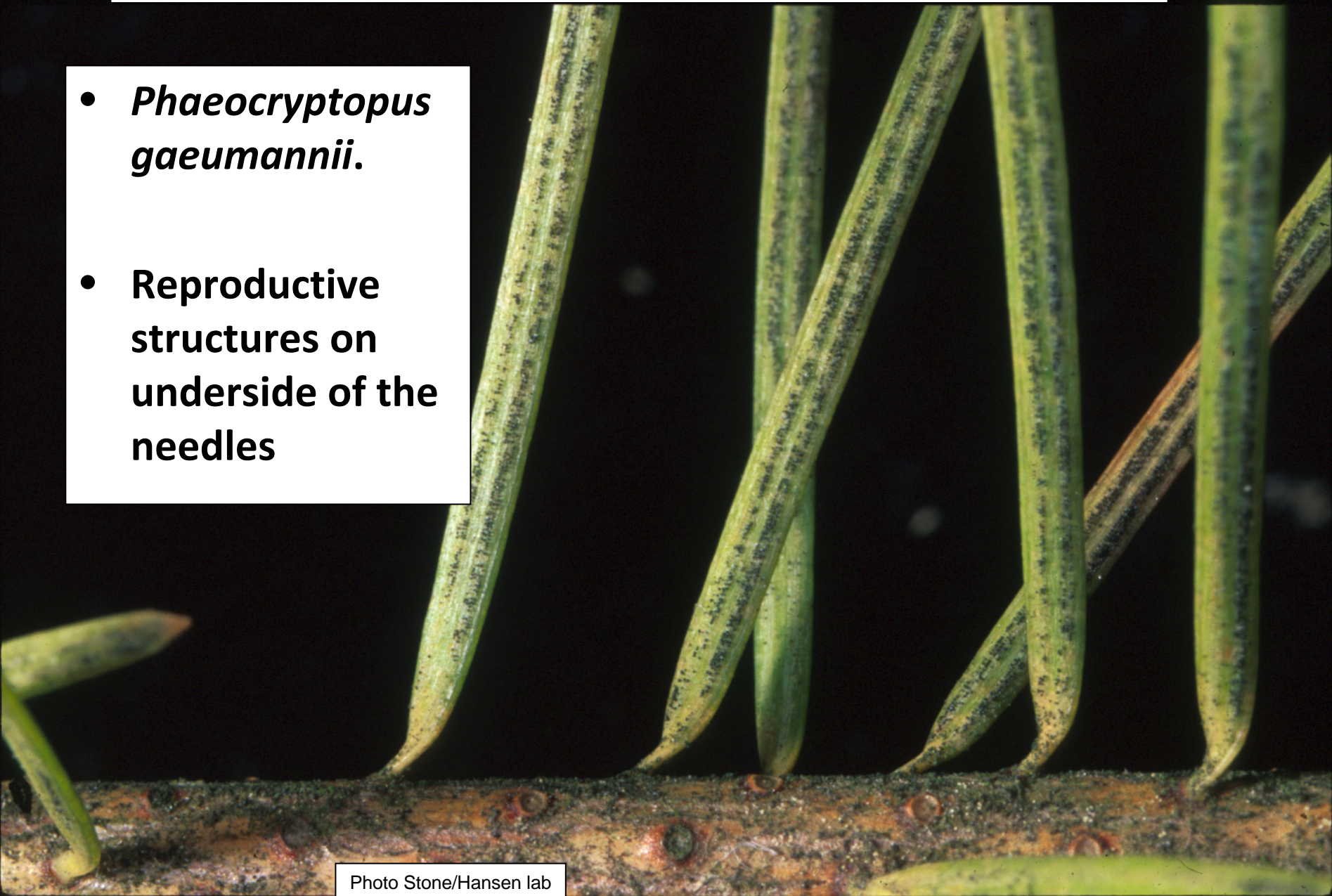
Healthy Foliage Retention



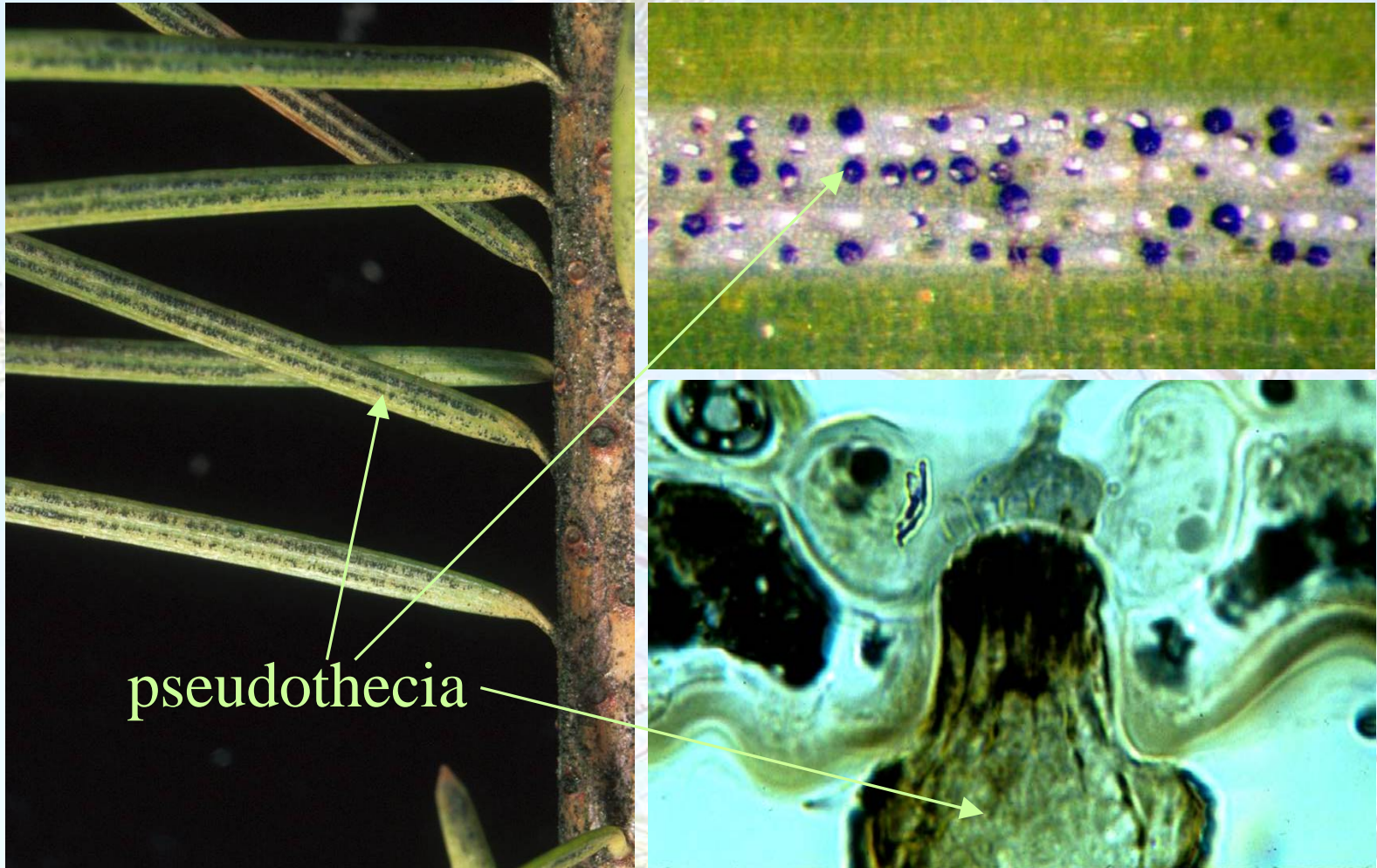


On the ground/in the stand: 10x/hand lens

- *Phaeocryptopus gaeumannii*.
- Reproductive structures on underside of the needles



Phaeocryptopus gaeumannii



Photos Stone/Hansen lab

A close-up photograph of a Douglas fir branch. The branch is covered with numerous green, needle-like leaves. Many of these needles show signs of damage, appearing brown, reddish-brown, or yellowish, which is characteristic of Rhabdocline Needle Cast. The background is a soft, out-of-focus grey.

FYI: The Other Foliage Disease of Doug fir

Rhabdocline Needle Cast
caused by: *Rhabdocline* species



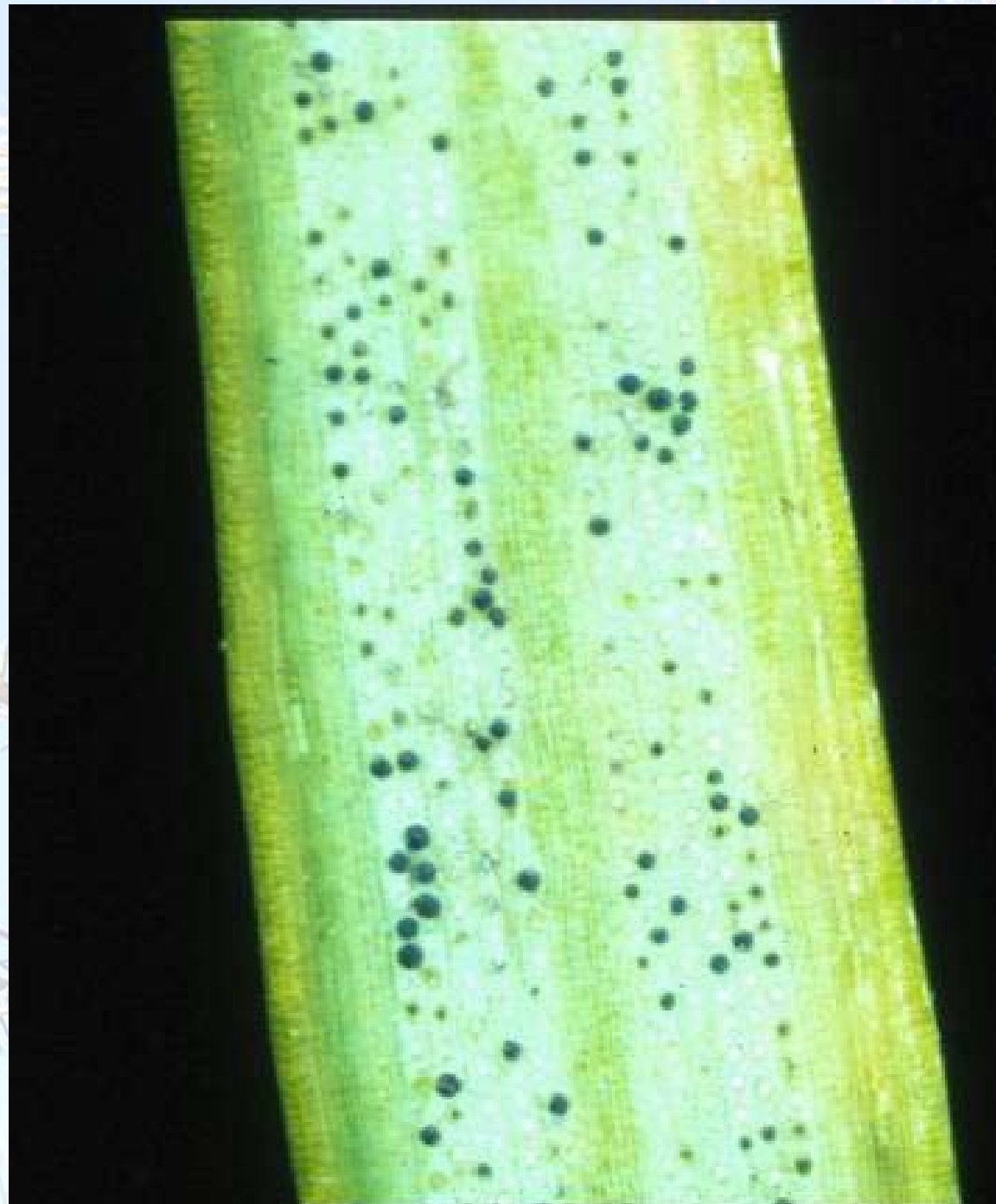
Rhabdocline Needle Cast
caused by: *Rhabdocline* species

- Rhabdocline spores are released when flaps of leaf epidermis fold back on either side of the midrib.
- Symptoms seen late spring, then leaf falls off.



On the ground/in the stand

- **10x/hand lens characteristics**
- **Pseudothecia mature in May/June/July, best seen then. Late summer and fall may not appear.**
- **Impacts of disease is rare if pseudothecia are not present on 2 or 3 yr old needles.**
- **i.e. if pseudothecia are appearing on one-yr old needles that would be a bad thing.**



Measured Estimates of Growth Impacts Are Essential

- Permanent plots in your stand are a great way to keep track of growth.
- Stand assessments can be made by cruising and increment coring trees to determine past basal area growth.
- Must take into account density and site index, age etc, so use a growth model like ORGANON to estimate normal growth.
- Disease impacts are estimated based on deviation from normal.



WE DO NOT RECOMMEND
SPECIALIZED MANAGEMENT ACTION
UNLESS A QUANTITATIVE ESTIMATE
OF GROWTH IMPACTS IS KNOWN!!!



SNC affected, note greater
proportion of latewood



OSU Oregon State University
College of Forestry

STAND GROWTH ASSESSMENT TOOL

INTRODUCTION AND
PROCEDURES

DATA ENTRY AND REPORT

CALCULATE SITE INDEX

CLOSE
PROGRAM



UGA2251045

For questions or additional information contact Doug Robin with Oregon Department of Forestry or Doug Mainwaring with Oregon State University

Spreadsheet based tool.

Developed by OSU and Oregon Dept. of Forestry.

Stand growth assessment tool if available at the SNCC website:
<http://www.cof.orst.edu/coops/sncc/index.htm>