Swiss Needle Cast Cooperative

2020

David Shaw, Director

Gabriela Ritokova, Assistant Director

College of Forestry

Department of Forest Engineering, Resources, and Management

Forestry and Natural Resources Extension

Oregon State University

Swiss Needle Cast Cooperative

To conduct research on enhancing Douglas-fir productivity and forest health in the presence of Swiss needle cast and other diseases in coastal forests of Oregon and Washington.

Research

Epidemiology

Ecology

Silviculture

Models

Weather and climate

Douglas-fir

SNCC Research And Monitoring Plot Network

*Aerial Detection Survey
*Coast Range Plot Network
*Cascades Monitoring plots
*Weather Stations
*Collaborations

Collaboration

OSU Cooperatives
Washington SNC Group (UW)
Washington DNR
British Columbia SNC Group
University of British Columbia
BC Ministry of Forests
Forest Pathologists Everywhere
Western International Forest Disease Work Conference
IUFRO, 7.02.02 Foliage and Twig Diseases

Membership

Starker Forests
Oregon Dept of Forestry
Weyerhaeuser Corporation
USDA Forest Service, FHP
Stimson Lumber
Cascade Timber Consulting
Greenwood Resources, Inc.
Lewis & Clark Tree Farms, LLC

Public Funding To OSU/CoF/SNCC

Tree Improvement

Led by Pacific Northwest Tree Improvement Cooperative

Keith Jayawickrama, Director

Management

Collaborations with CIPS: modeling

Silviculture Research

Outreach and Education

Shaw is a Forest Health Specialist with Forestry and Natural Resources Extension.

Publications

Research Publications

Outreach

Organization of SNCC

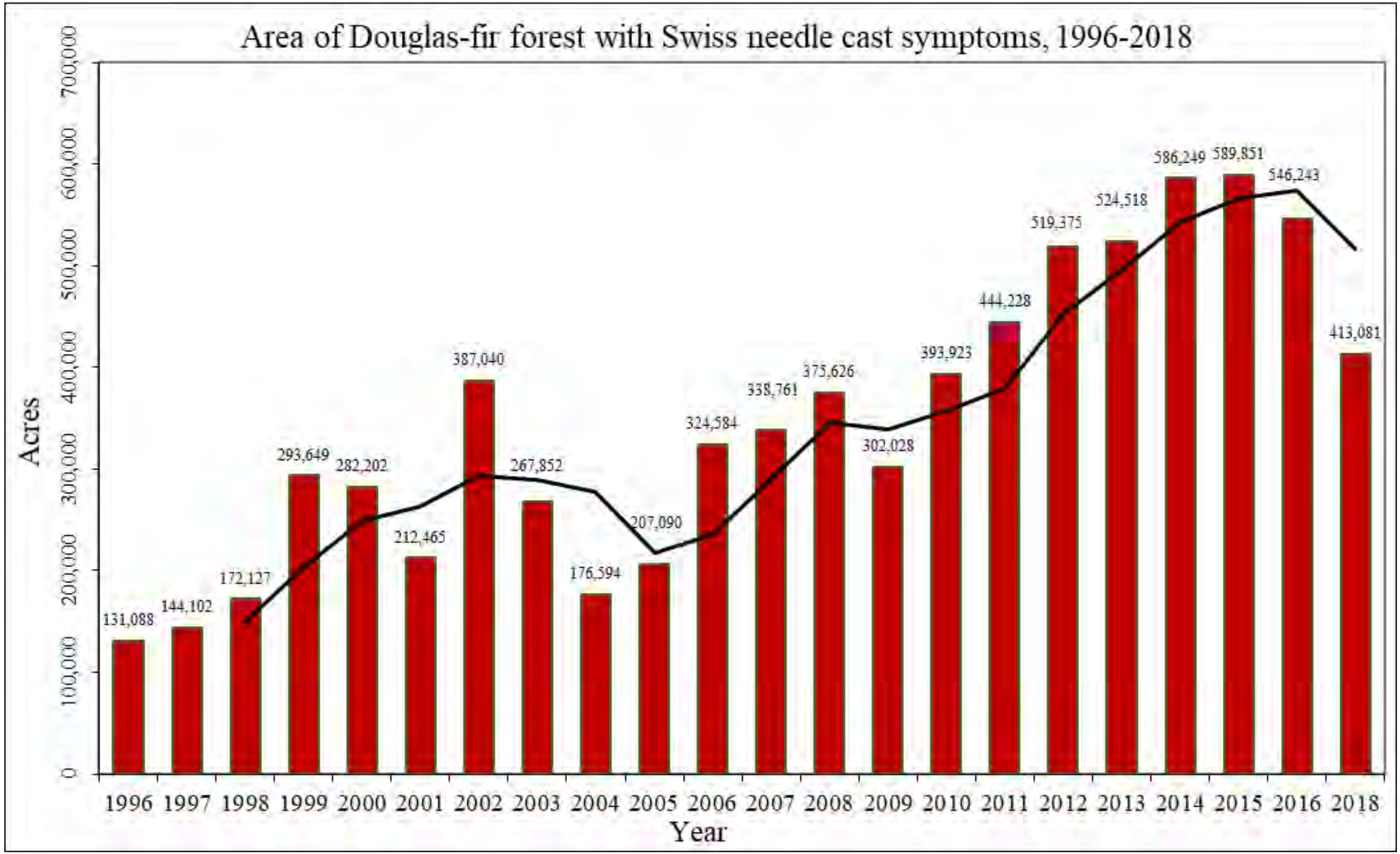
- David Shaw, Director
- Gabriela Ritokova, Assistant Director

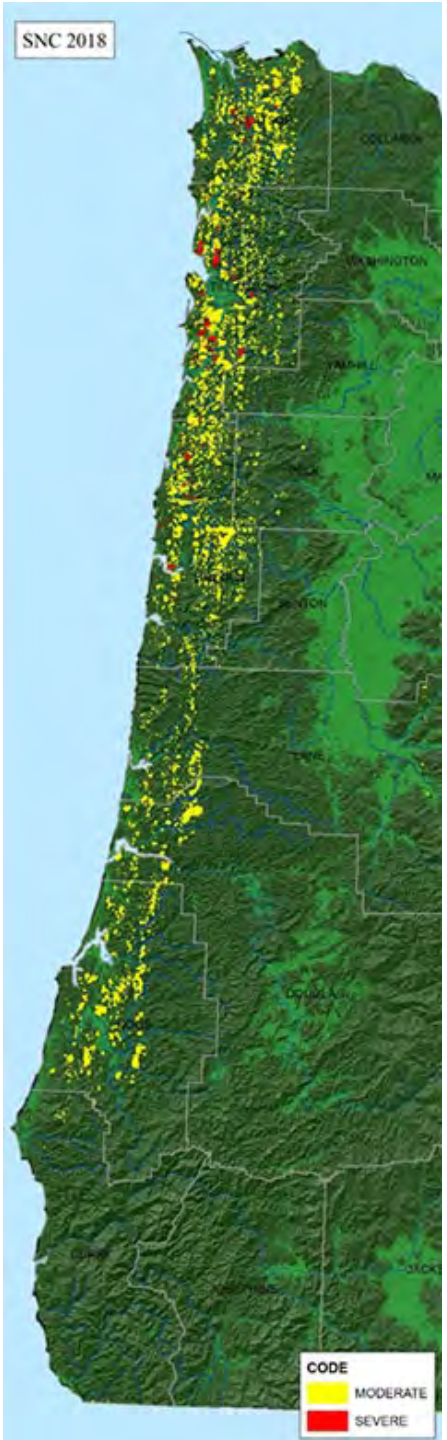
- Membership

- Collaborations

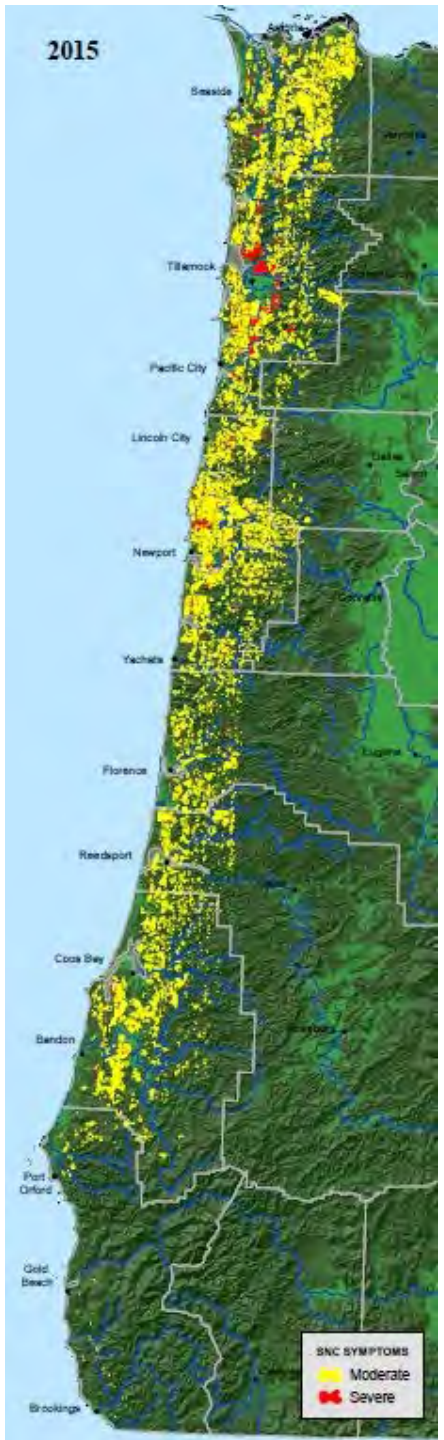
- Funding
  - Membership $11,000/yr 2020
  - $12,000/yr 2021
  - State Legislature-CoF
    - $95,000/year

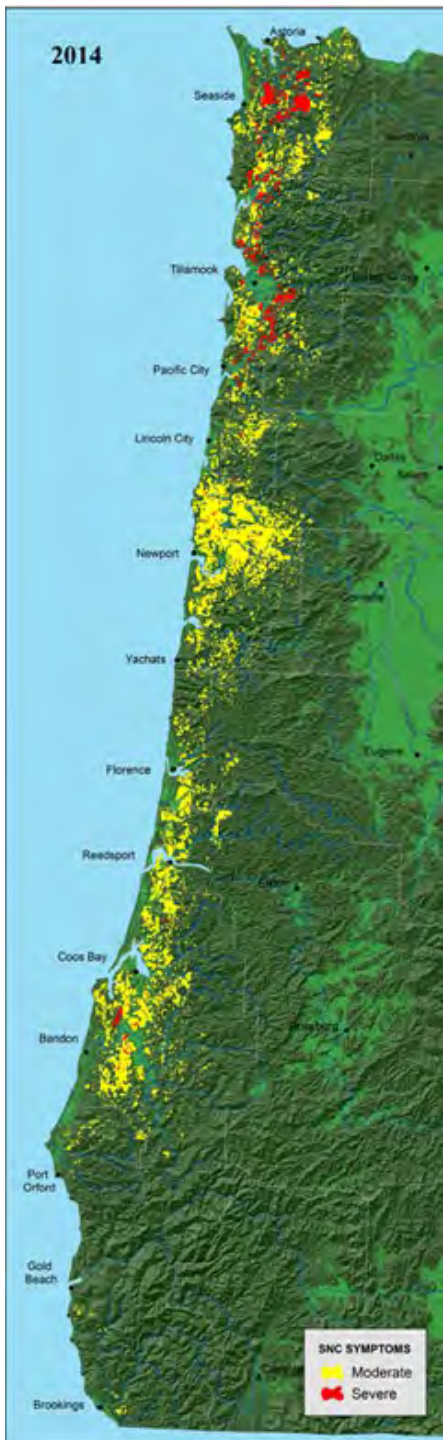
Group photo


Area of Douglas-fir forest with Swiss needle cast symptoms, 1996-2018
Acres
0
100,000
200,000
300,000
400,000
500,000
600,000
700,000
131,088
144,102
172,127
293,649
282,202
212,465
387,040
267,852
176,594
207,090
324,584
338,761
375,626
302,028
393,923
444,228
519,375
524,518
586,249
589,851
546,243
413,081
1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2018
Year


SNC 2018
CODE
MODERATE
SEVERE

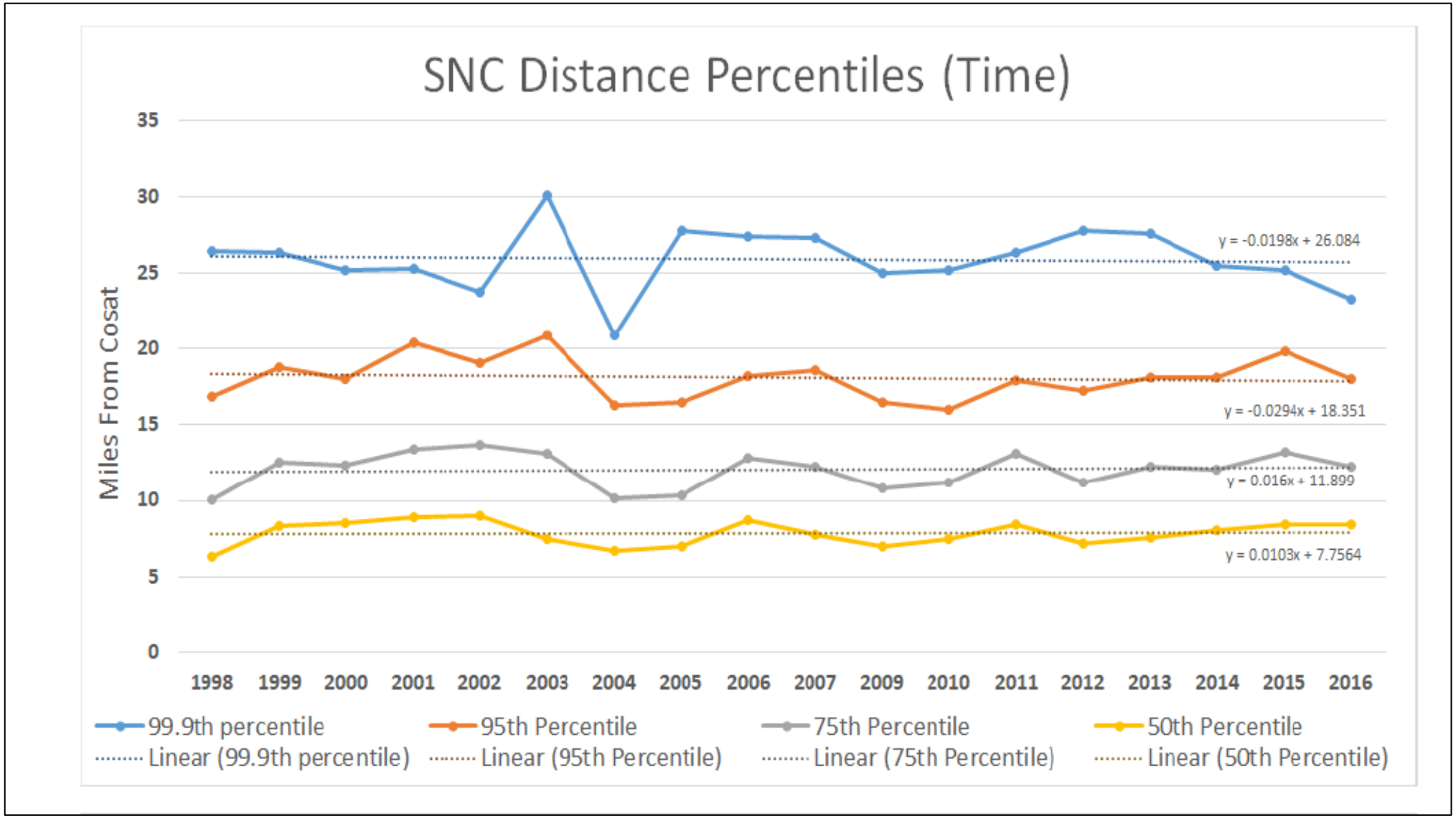

2016
ODF
Astoria
Seaside
Tillamook
Pacific City
Lincoln City
Newport
Yachats
Florence
Reedsport
Coos Bay
Bandon
Port Orford
Gold Beach
Brookings
SNC SYMPTOMS
Moderate
Severe


2015
Astoria
Seaside
Tillamook
Pacific City
Lincoln City
Newport
Yachats
Florence
Reedsport
Coos Bay
Bandon
Port Orford
Gold Beach
Brookings
SNC SYMPTOMS
Moderate
Severe

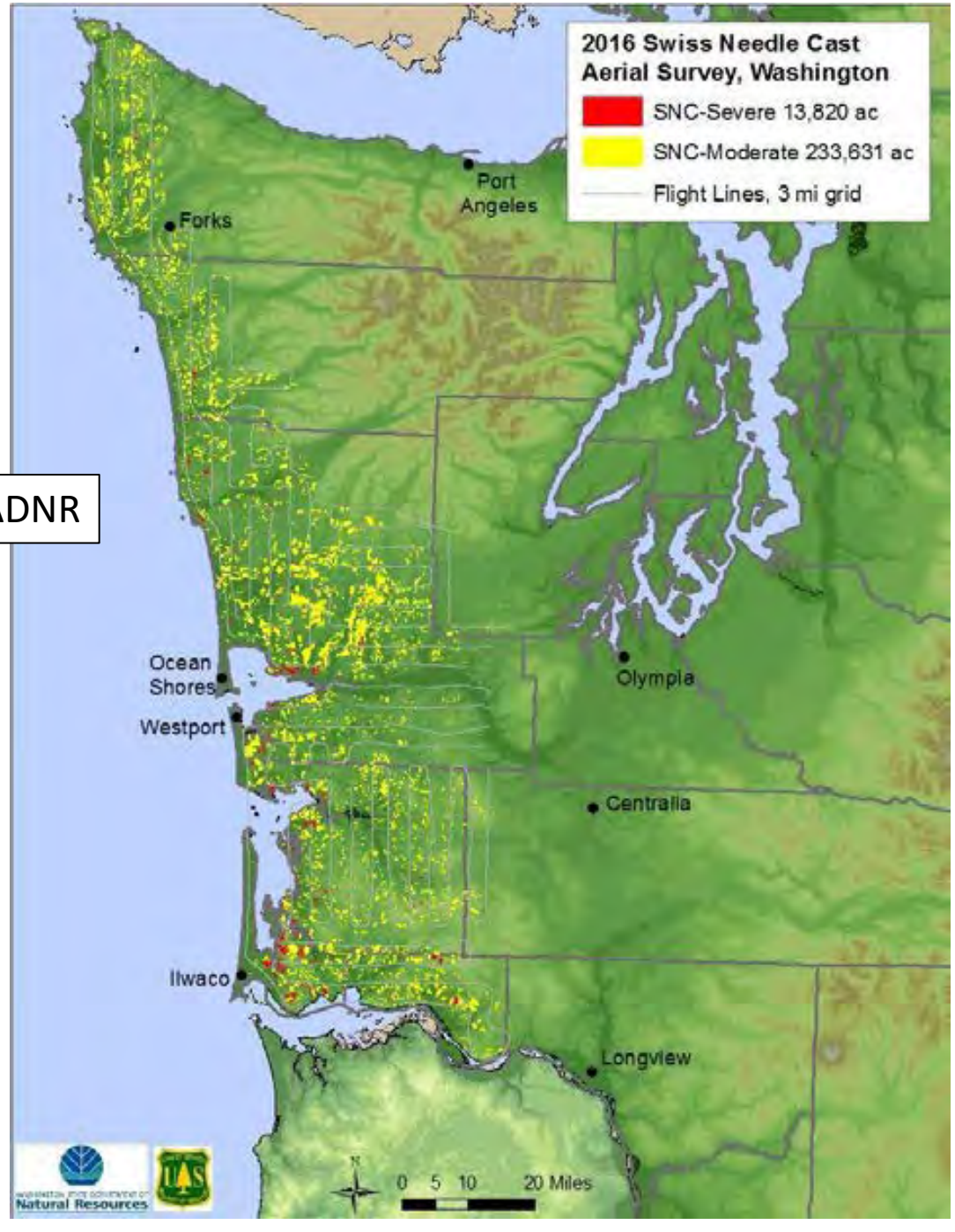

2014
Astoria
Seaside
Tillamook
Pacific City
Lincoln City
Newport
Yachats
Florence
Reedsport
Coos Bay
Bandon
Port Orford
Gold Beach
Brookings
SNC SYMPTOMS
Moderate
Severe

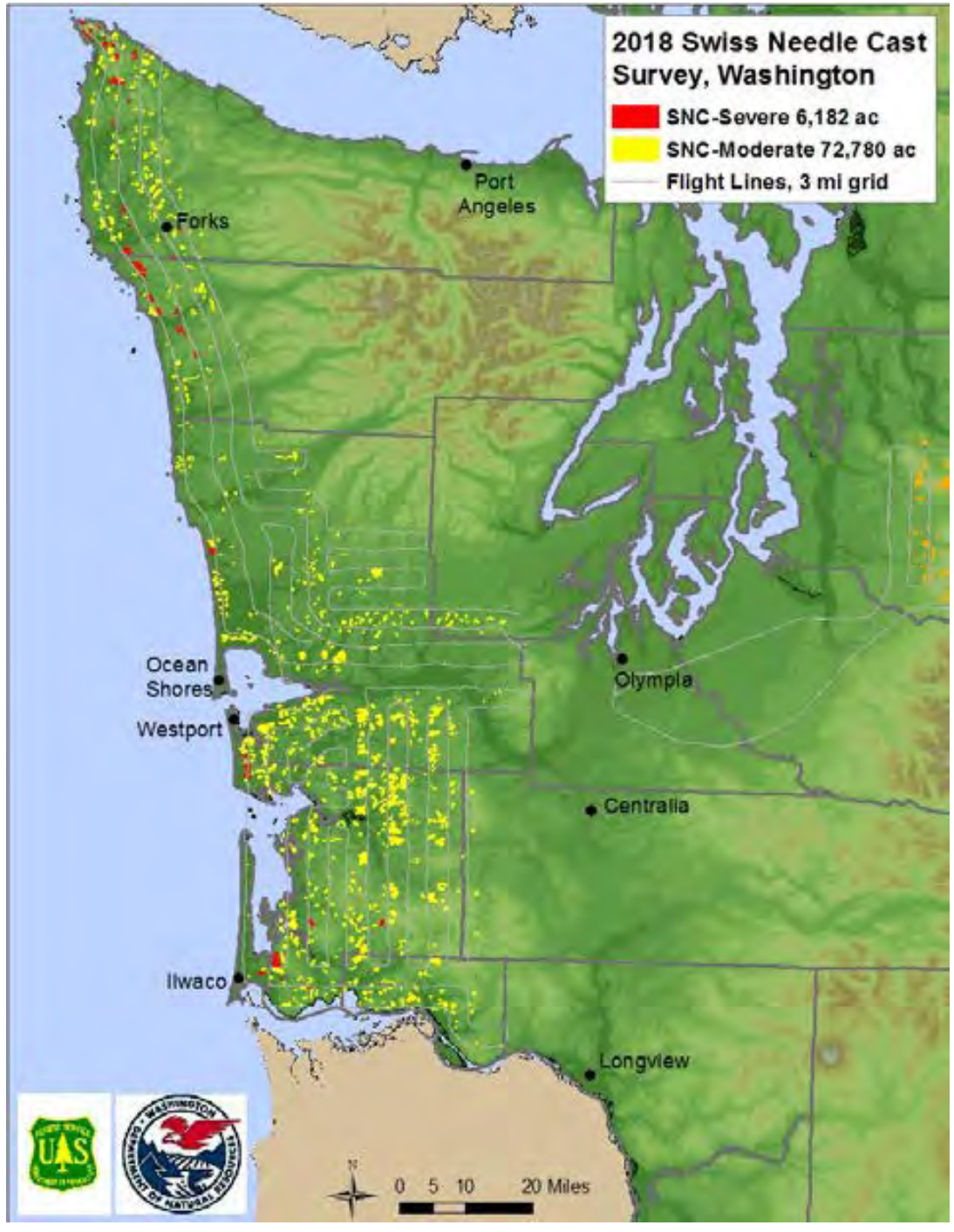

1996
Astoria
Seaside
Tillamook
Pacific City
Lincoln City
Newport
Yachats
Florence
Reedsport
Coos Bay
Bandon
Eugene
Corvallis
Salem
Dallas
Roseburg
SNC SYMPTOMS
MODERATE
SEVERE

Andrew Russo MF, new analysis of ADS

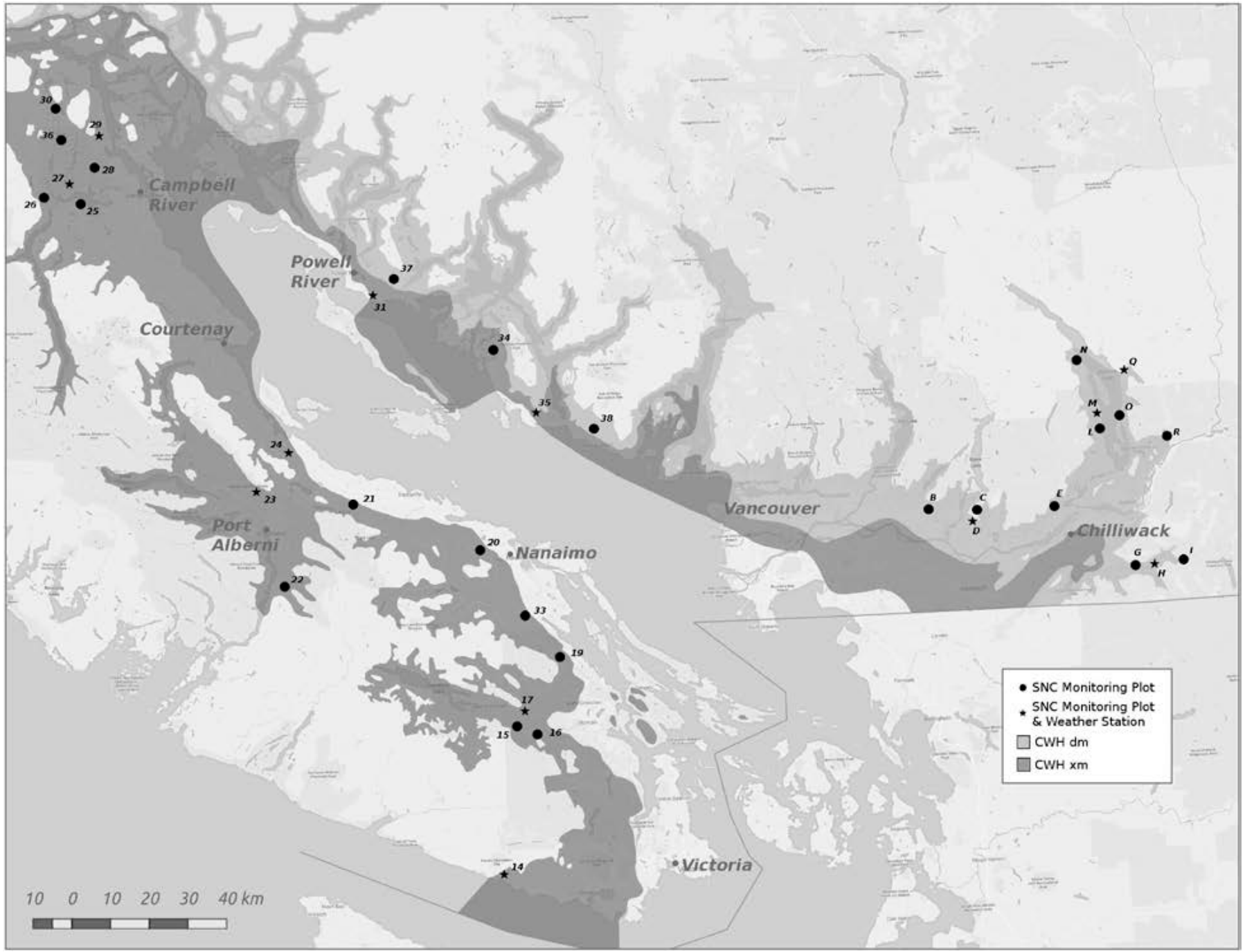


WADNR


2016 Swiss Needle Cast
Aerial Survey, Washington
SNC-Severe 13,820 ac
SNC-Moderate 233,631 ac
Flight Lines, 3 mi grid
Port Angeles
Forks
Ocean Shores
Westport
Olympia
Centralia
Ilwaco
Longview
0 5 10 20 Miles
Natural Resources


2018 Swiss Needle Cast
Survey, Washington
SNC-Severe 6,182 ac
SNC-Moderate 72,780 ac
Flight Lines, 3 mi grid
Port Angeles
Forks
Ocean Shores
Westport
Olympia
Centralia
Ilwaco
Longview
0 5 10 20 Miles

British Columbia. SNC is emerging there



BC, near Chilliwack

SNCC Research and Monitoring Plot Network

- 2013 – 2015 installed 106 plots.
- From California border to SW Washington and 35 miles inland
- Ten-year project
- Disease severity, needle retention, soil and foliage nutrients.
- Growth and yield impacts/models

Network is being used to make new predictions on distribution and epidemiology

New Maps:

Needle retention

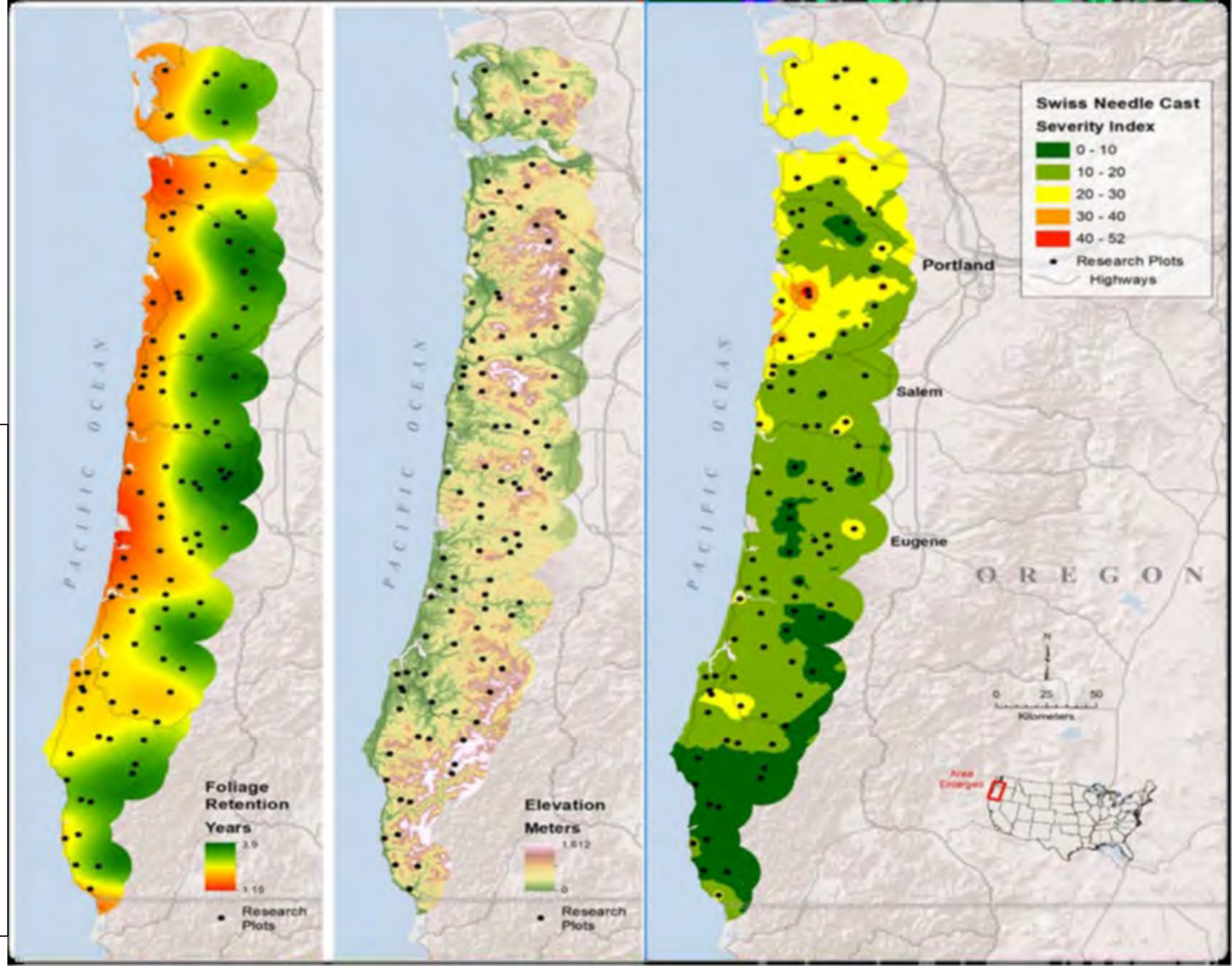
Disease severity

Publications

Ritóková, G., D.B. Mainwaring, D.C. Shaw, and Y.-H. Lan. 2021. Douglas-fir foliage retention dynamics across a gradient of Swiss needle cast in Oregon and Washington. Canadian Journal of Forest Research: Just in: Oct 12, 2020. https://doi.org/10.1139/cjfr-2020-0318

Lan Y-H, Shaw D.C., Ritóková G, Hatten J. 2019. Associations between Swiss Needle Cast Severity and Foliar Nutrients in Young-Growth Douglas-Fir in Coastal Western Oregon and Southwest Washington, USA. Forest Science. Fxz022

Bennett P, Stone J.K.. 2019. Environmental variables associated with *Nothophaeocryptopus gaeumannii* population structure and Swiss needle cast severity in Western Oregon and Washington. Ecology and Evolution. 9(19):11379-11394.



Swiss Needle Cast causes growth loss, not mortality

From Maguire et al. 2011. CJFR

Chlorosis and low foliage retention from Swiss needle cast

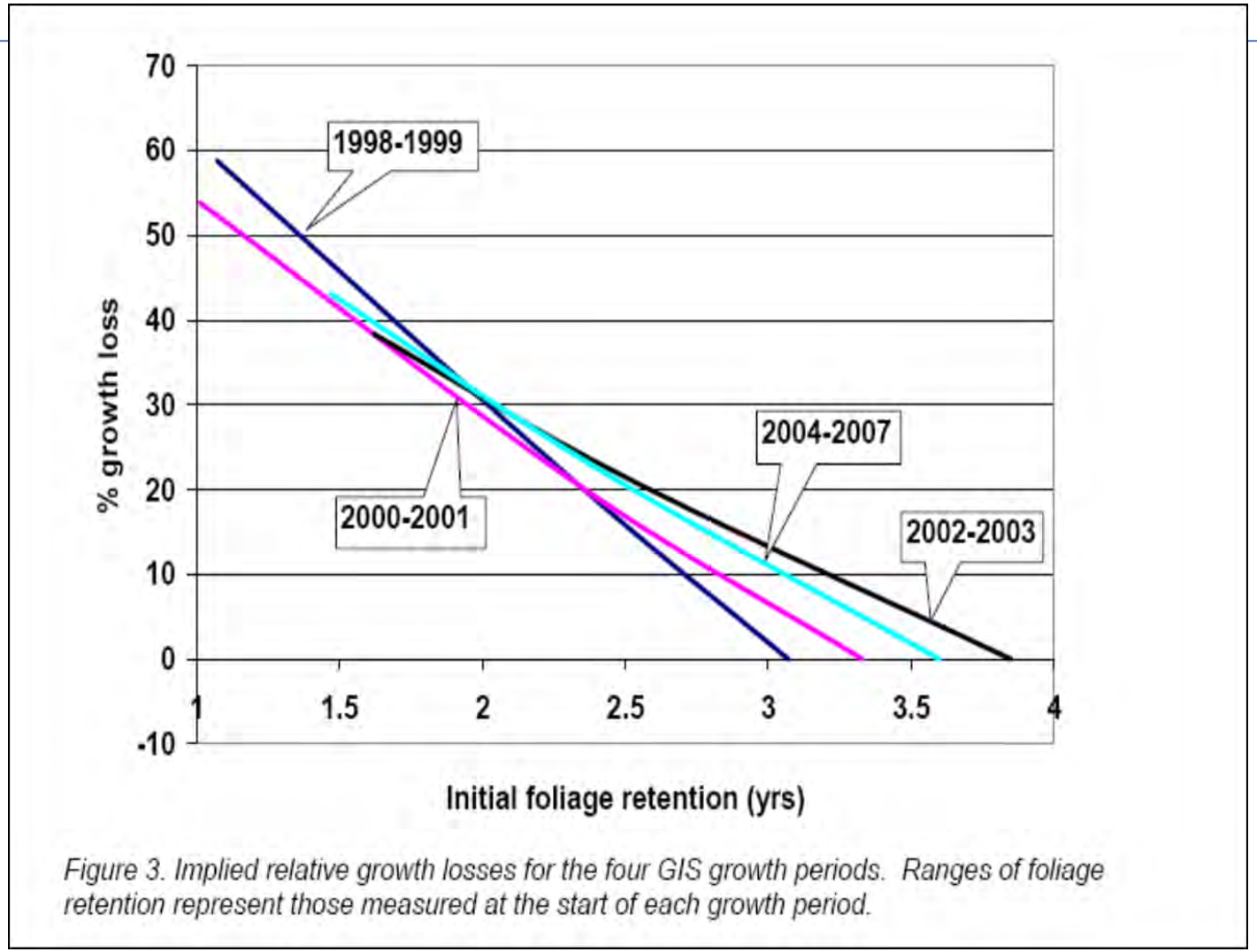


Figure 3. Implied relative growth losses for the four GIS growth periods. Ranges of foliage retention represent those measured at the start of each growth period.