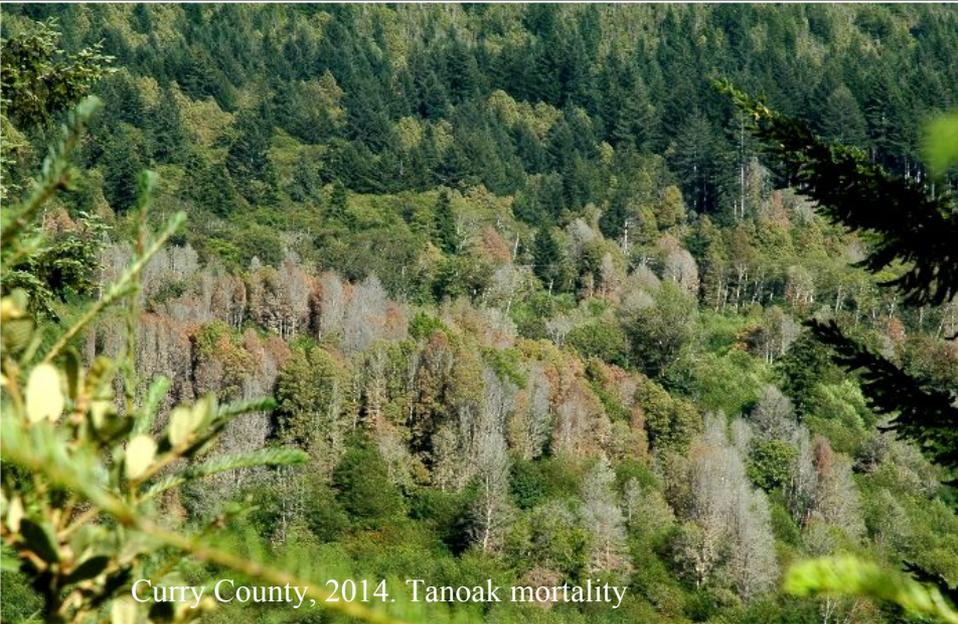


# Sudden Oak Death in Oregon Forests



Oregon Department of Forestry  
Oregon Department of Agriculture  
Oregon State University  
USDA - Forest Service  
USDI - Bureau of Land Management  
Association of Oregon Counties

# SOD in Oregon



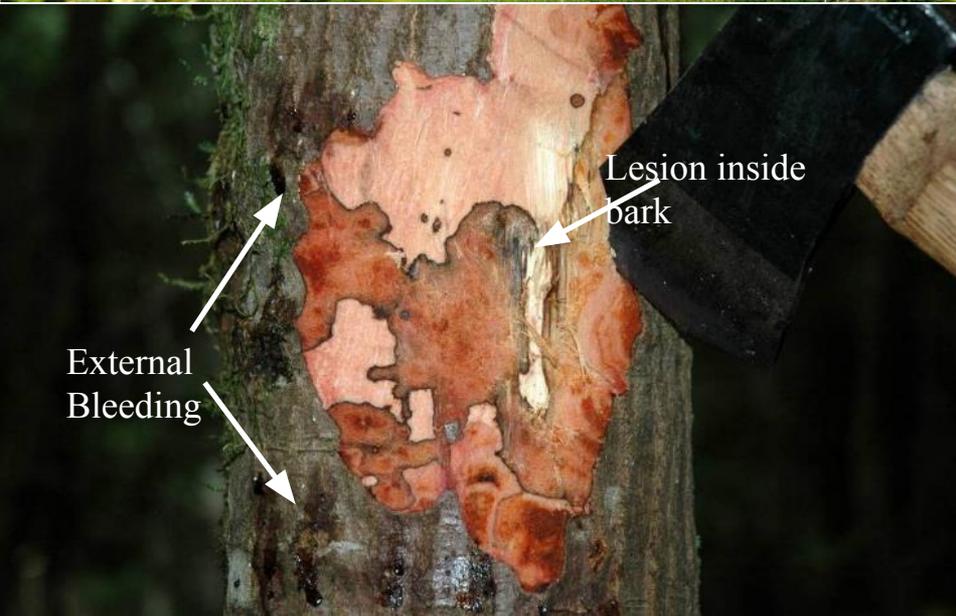
Curry County, 2014. Tanoak mortality

## Disease Biology

- *Phytophthora ramorum* (non-native)
- Tanoak is the key host species
- Many hosts infected (and regulated)
- Requires mild/moist environments for spore production and many pathways for dispersal

## Disease Management

- Treatment area buffers; 50 to 300+ ft, recently as small as 20 ft.
- Cut and burn tanoak, and other host species
- Costs : \$3,000-\$5,000 / acre



# SUDDEN OAK DEATH CURRY COUNTY, OR

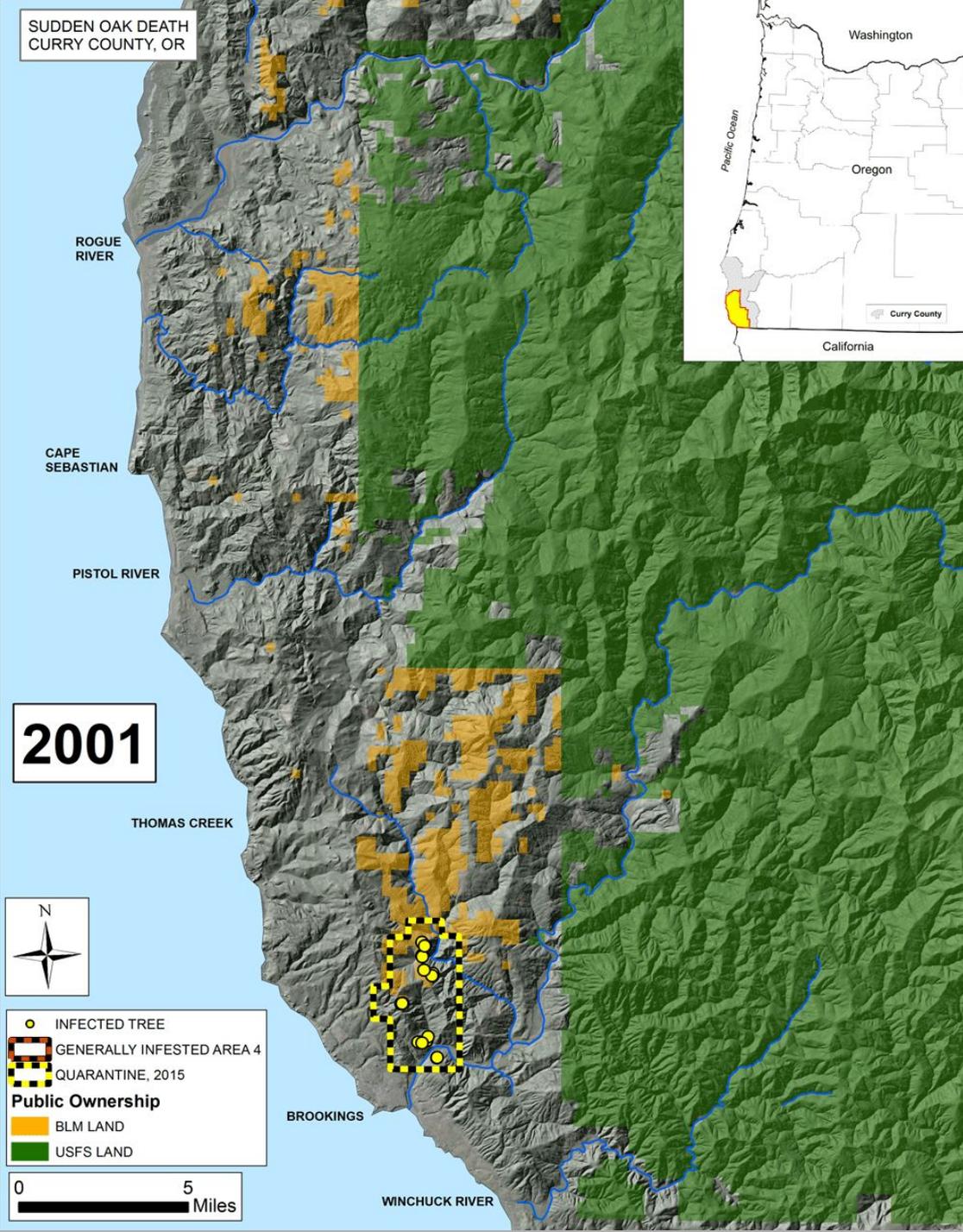


## SUDDEN OAK DEATH

Risk of sudden oak death is driven mostly by abundance of tanoak

Potential to spread throughout range of tanoak into Coos, Douglas, and Josephine counties

Eradication treatments can locally eliminate disease and stop spread if infestations are detected early and treatments are completed promptly and at the proper scale



SUDDEN OAK DEATH  
CURRY COUNTY, OR

09 NOVEMBER 2017



In 2016, 65 new infestations were detected at or beyond the GIA

In 2017, 38 new infestations were detected at or beyond the GIA

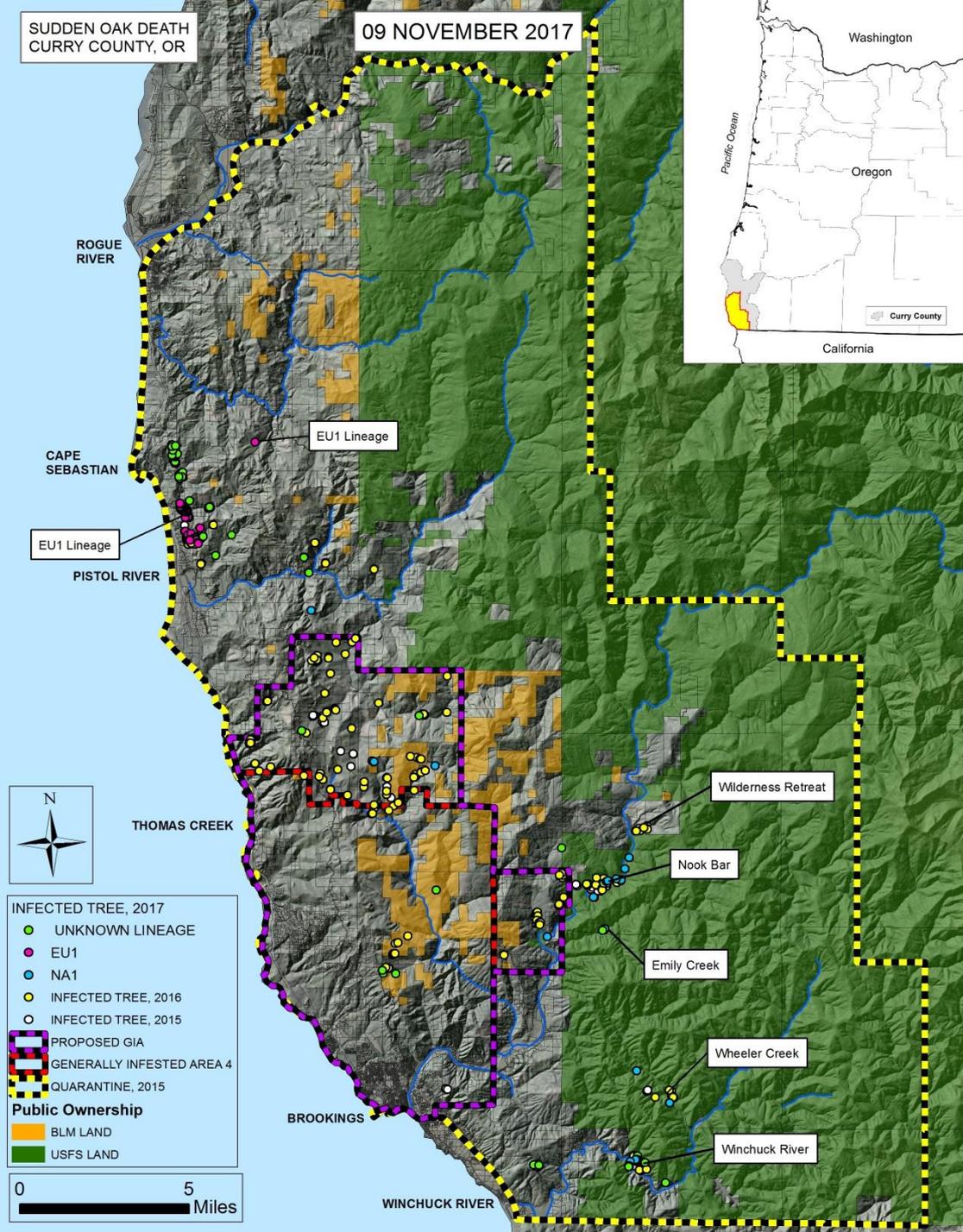
All known new infestations (2016 and 2017) are well within the new quarantine boundary.

Aerial survey efforts in 2017 severely affected by weather and the Chetco Bar Fire; stream baiting affected by the Chetco Bar Fire

Ability to complete treatments on USFS and Private land affected by Chetco Bar Fire

Limited funding for treating NA1 on private lands

Recommendation to ODA to increase the GIA from 58 sq mi to 89 sq mi

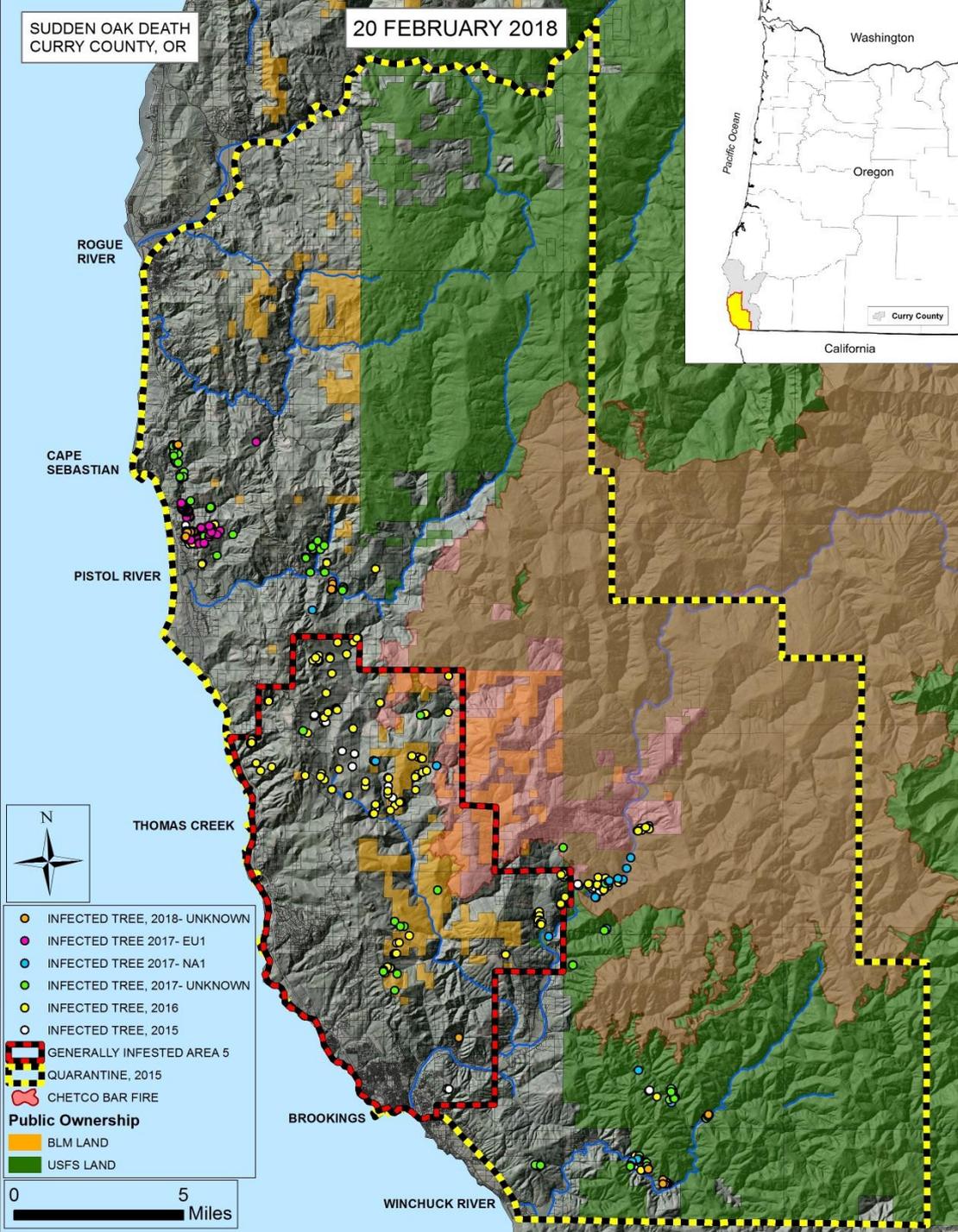


- INFESTED TREE, 2017
- UNKNOWN LINEAGE
- EU1
- NA1
- INFESTED TREE, 2016
- INFESTED TREE, 2015
- PROPOSED GIA
- GENERALLY INFESTED AREA 4
- QUARANTINE, 2015
- Public Ownership**
- BLM LAND
- USFS LAND

0 5 Miles

SUDDEN OAK DEATH  
CURRY COUNTY, OR

20 FEBRUARY 2018



## Chetco Bar Fire and SOD

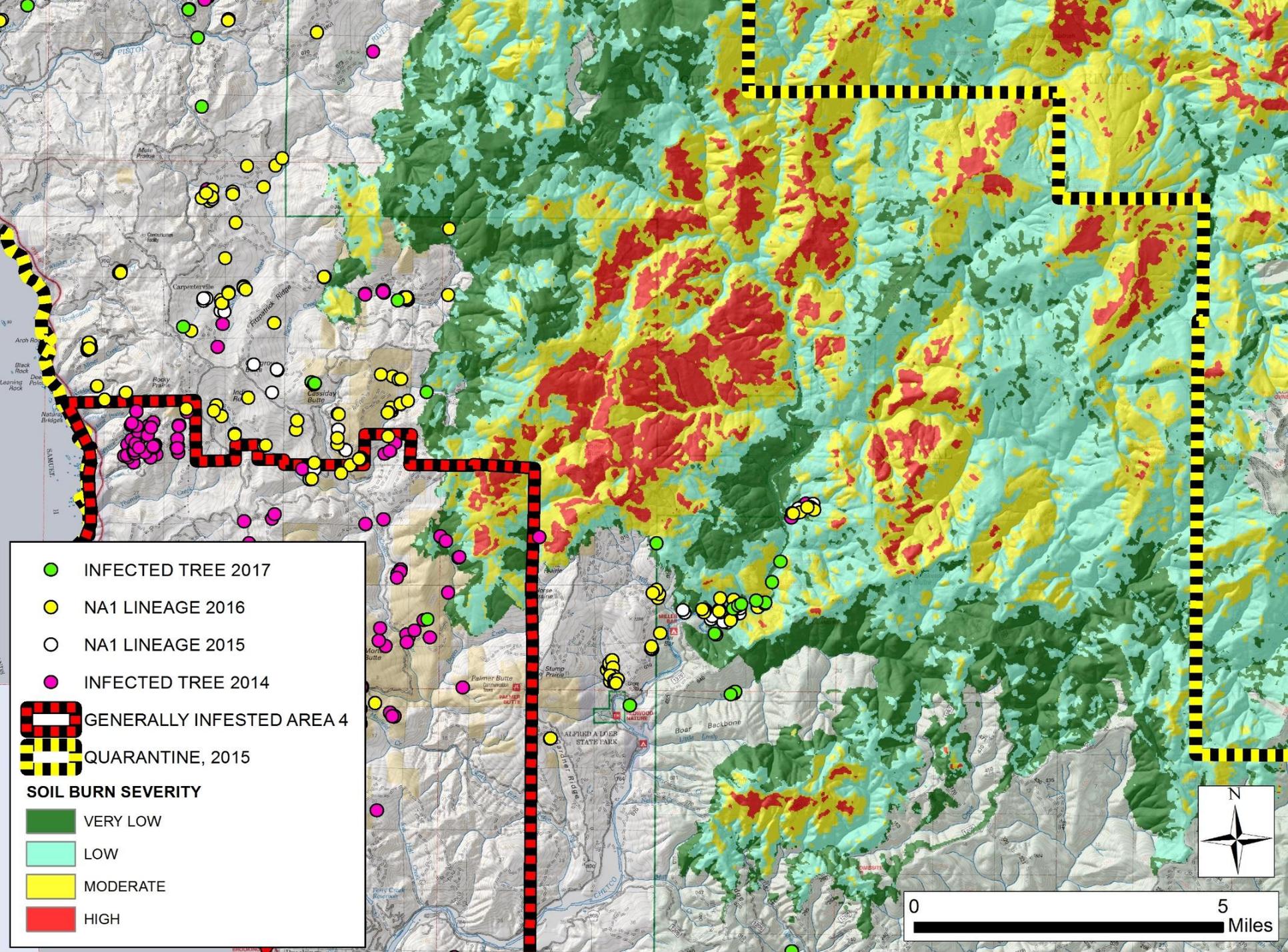
Infestations from 2014-2017  
burned= 27

Total infestations from  
2014-2017= 142

Ownership	Treatment acreage
BLM	34
Forest Service	96
Private	28

The fire will affect future aerial survey efforts in the area as tanoak mortality may be fire-related and not caused by SOD.

The Chetco Bar Fire limited access to 7 out of the 16 stream baits during second half of stream baiting season



- INFECTED TREE 2017
- NA1 LINEAGE 2016
- NA1 LINEAGE 2015
- INFECTED TREE 2014

- ▭ GENERALLY INFESTED AREA 4
- ▭ QUARANTINE, 2015

- SOIL BURN SEVERITY**
- VERY LOW
  - LOW
  - MODERATE
  - HIGH

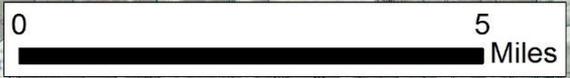
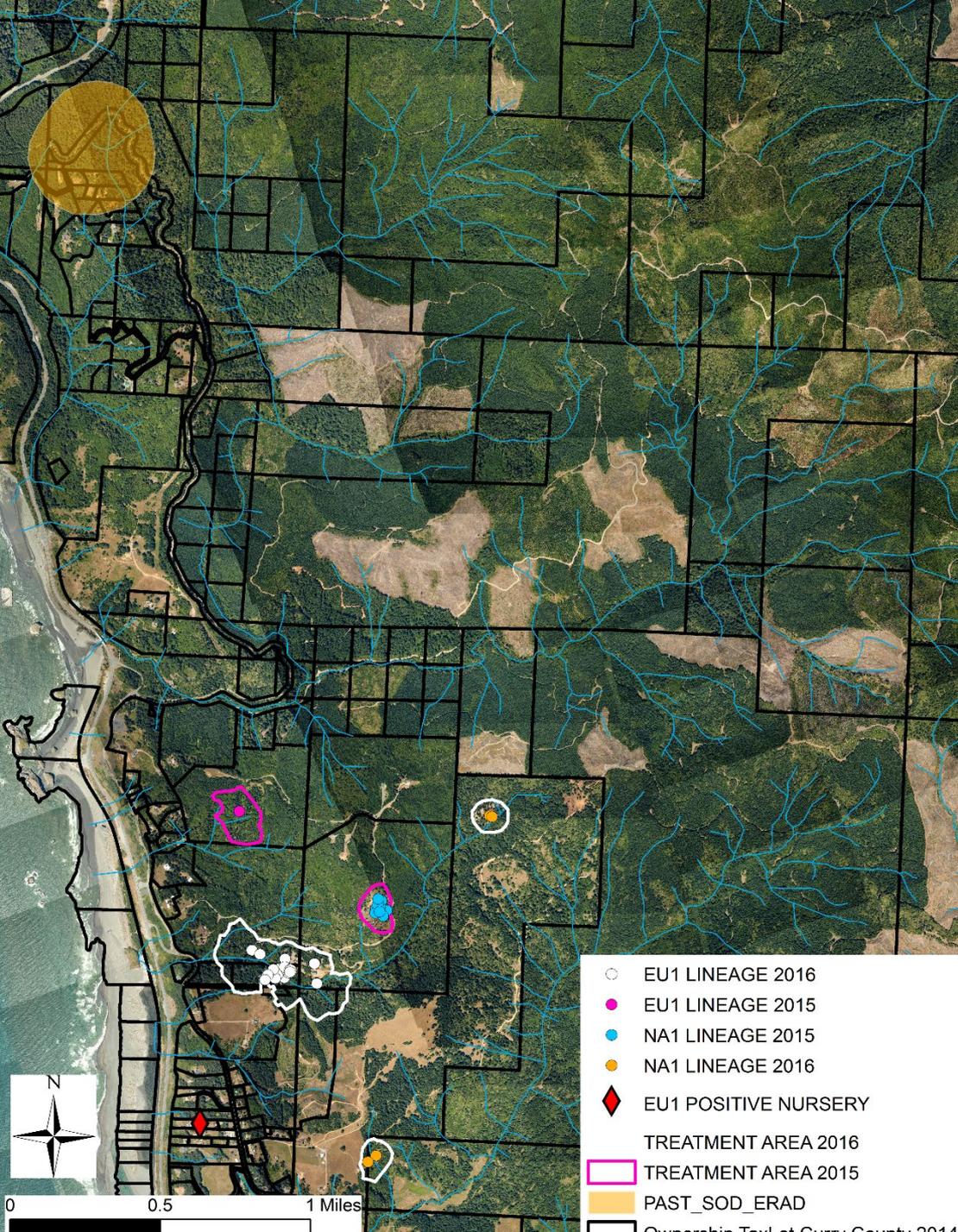








Photo by Jes Burns Earthfix OPB



## EU1 Infestation- 2015-2016

Single tanoak infected with the EU1 clonal lineage of *P. ramorum* found in May 2015.

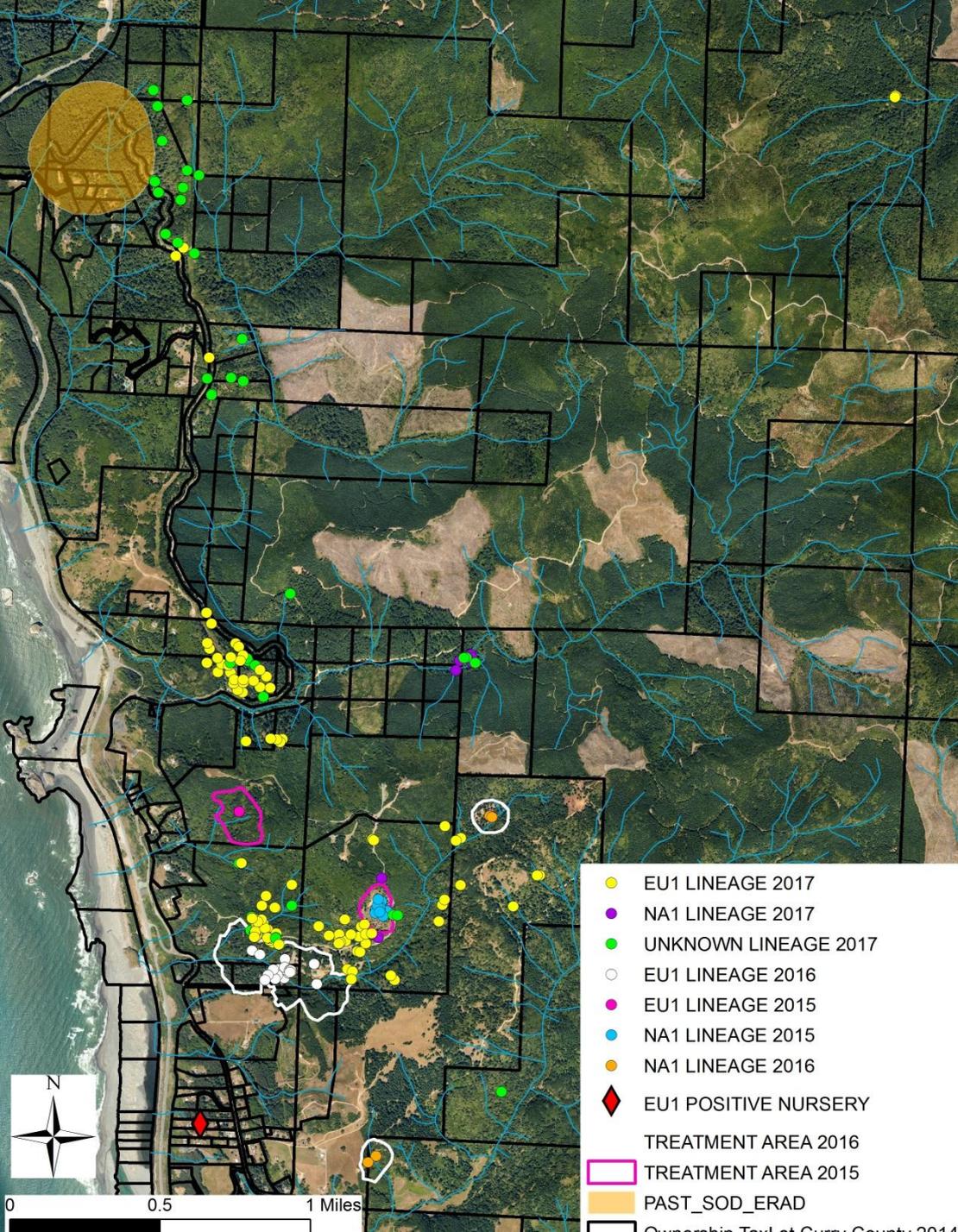
– 13 acres treated

First report of EU1 clonal lineage in US forests

EU1 lineage damages conifers in Europe and is potentially more damaging than other lineages

In 2016, 25 trees were detected ½ mile south of 2015 tanoak.

– 52 acres treated



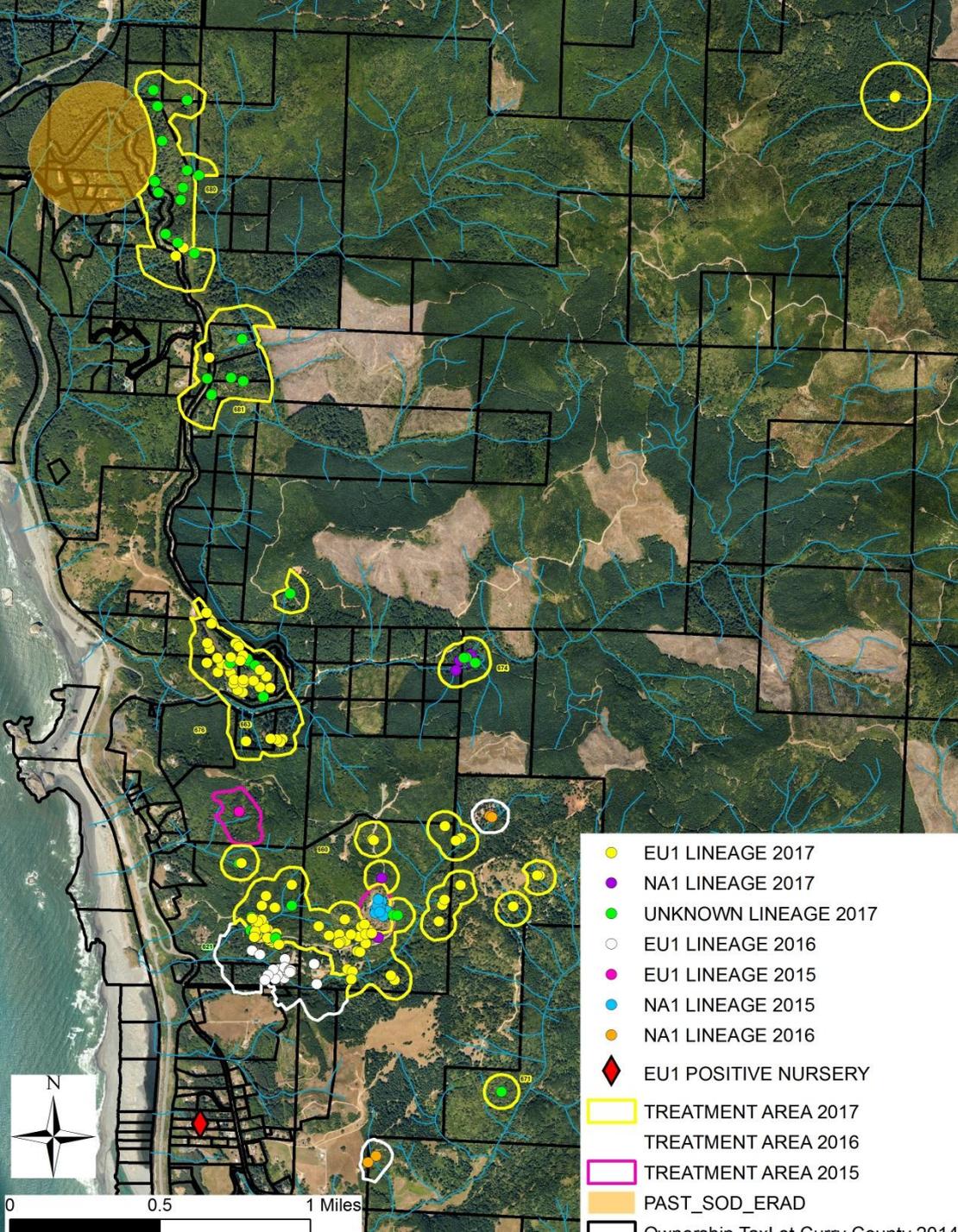
## EU1 Infestation-2017

In 2017, 119 confirmed EU1 positive trees have been detected north and north east of the previous infestations

Awaiting lineage testing on 43 trees in the same area

Intensive ground surveys of the Cape Sebastian/ Pistol River area were conducted late summer

**EU1 infestations are ODF's top priority.**



## EU1 Infestation-2017-2018

ODF will be treating 330 acres of EU1 infested areas

Working with both OPRD and ODOT to treatment their ownerships under IAAs

Landowner resistance in two cases



## Current EU1 Studies at OSU

Multiple studies comparing the aggressiveness of EU1 and NA1.

- Log inoculations of DF, tanoak, Oregon white oak, western hemlock, Sitka spruce, and madrone.
  - Logs of Douglas-fir, tanoak, western hemlock, cankers caused by EU1 were twice the size of cankers caused by NA1
- In a laboratory sporulation study, EU1 produced two to three times more spores than NA1 on tanoak seedlings.
- Seedlings of Douglas-fir, Sitka spruce, and western hemlock, were planted under EU1 infected tanoaks and NA1 infected tanoaks.
  - At the conclusion of the experiment, three to four times more trees were infected under EU1 than NA1.



# Larch Mortality in the United Kingdom Aerial Survey, 2012



Photos courtesy of Ben Jones, Forestry Commission England



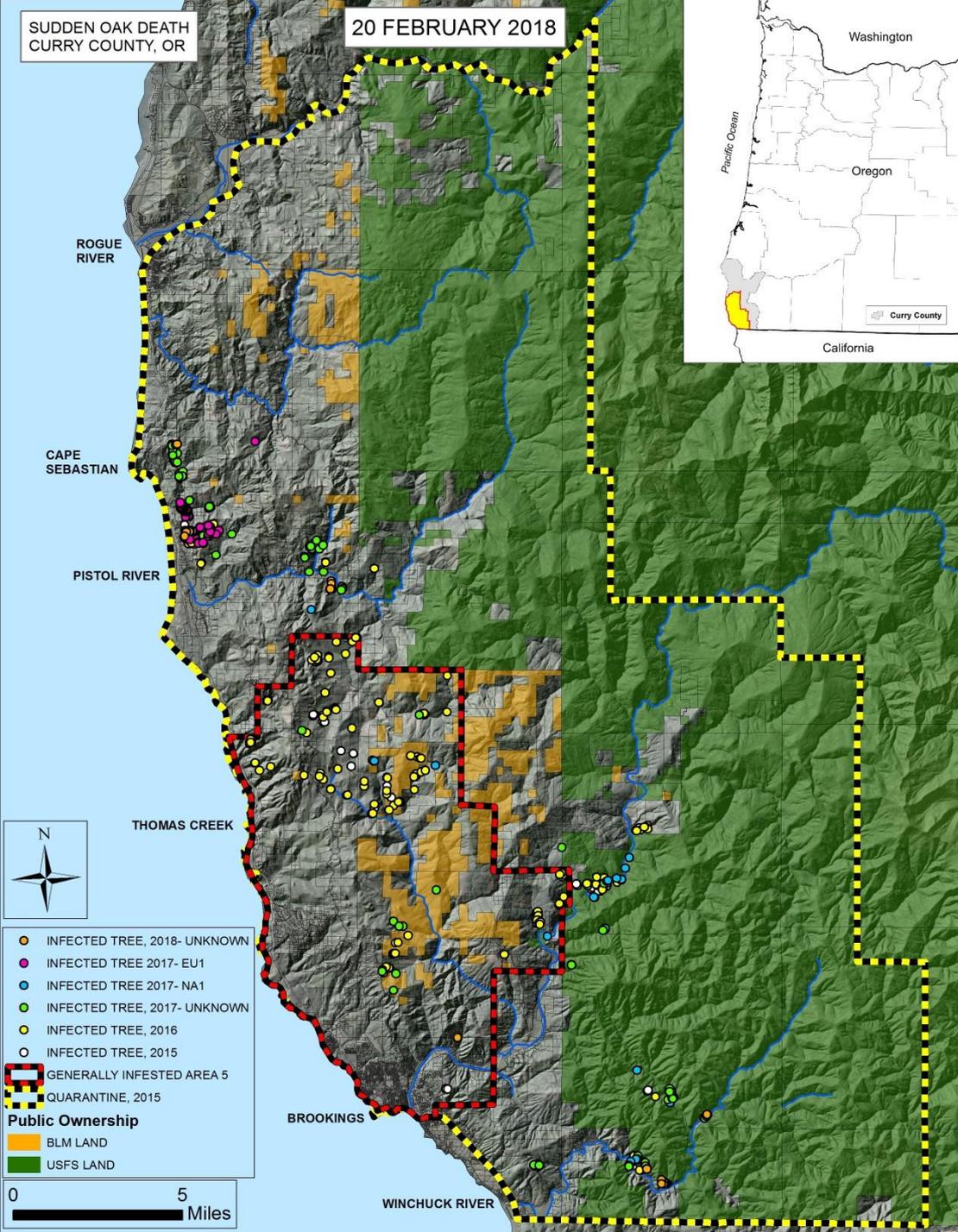
More than 30,000 acres of larch have been clear-cut to control the disease in the UK.



We do not fully understand this pathogen and its potential for damage

SUDDEN OAK DEATH  
CURRY COUNTY, OR

20 FEBRUARY 2018



# SUDDEN OAK DEATH 2018

ODF SOD Program received an additional \$450,000 from the state legislature to treat EU1 infestations

Back up to two full time SOD Forester in Brookings.

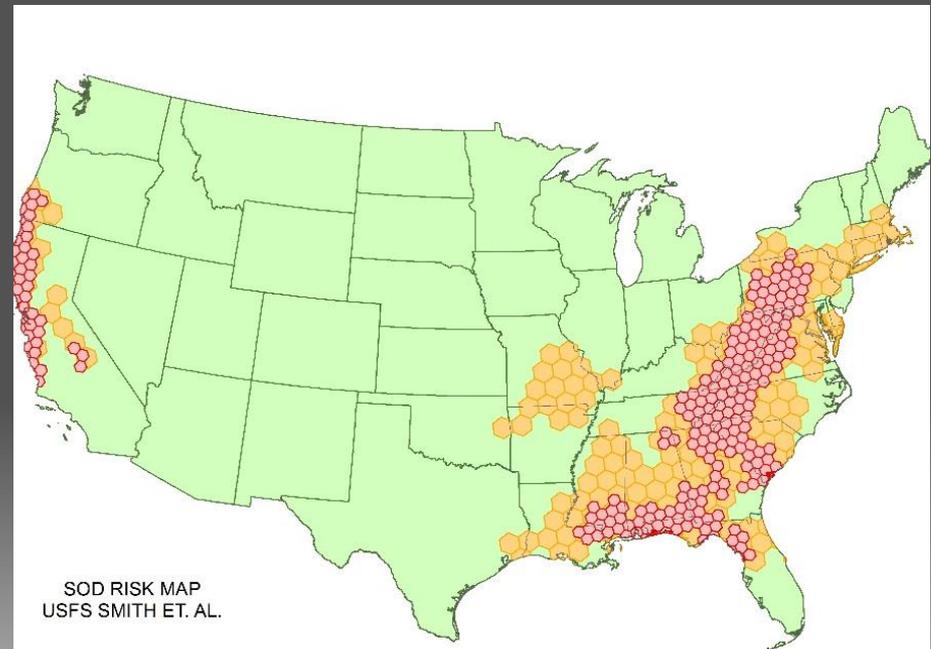
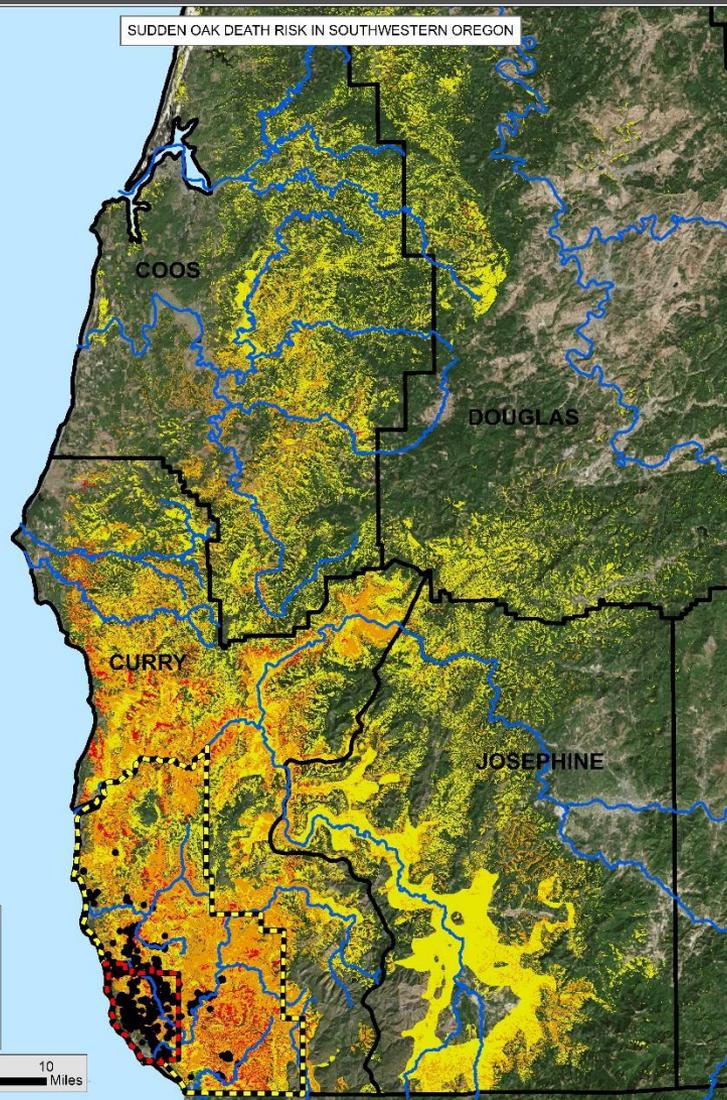
1 new infestation detected and intensification of 2 2017 infestations

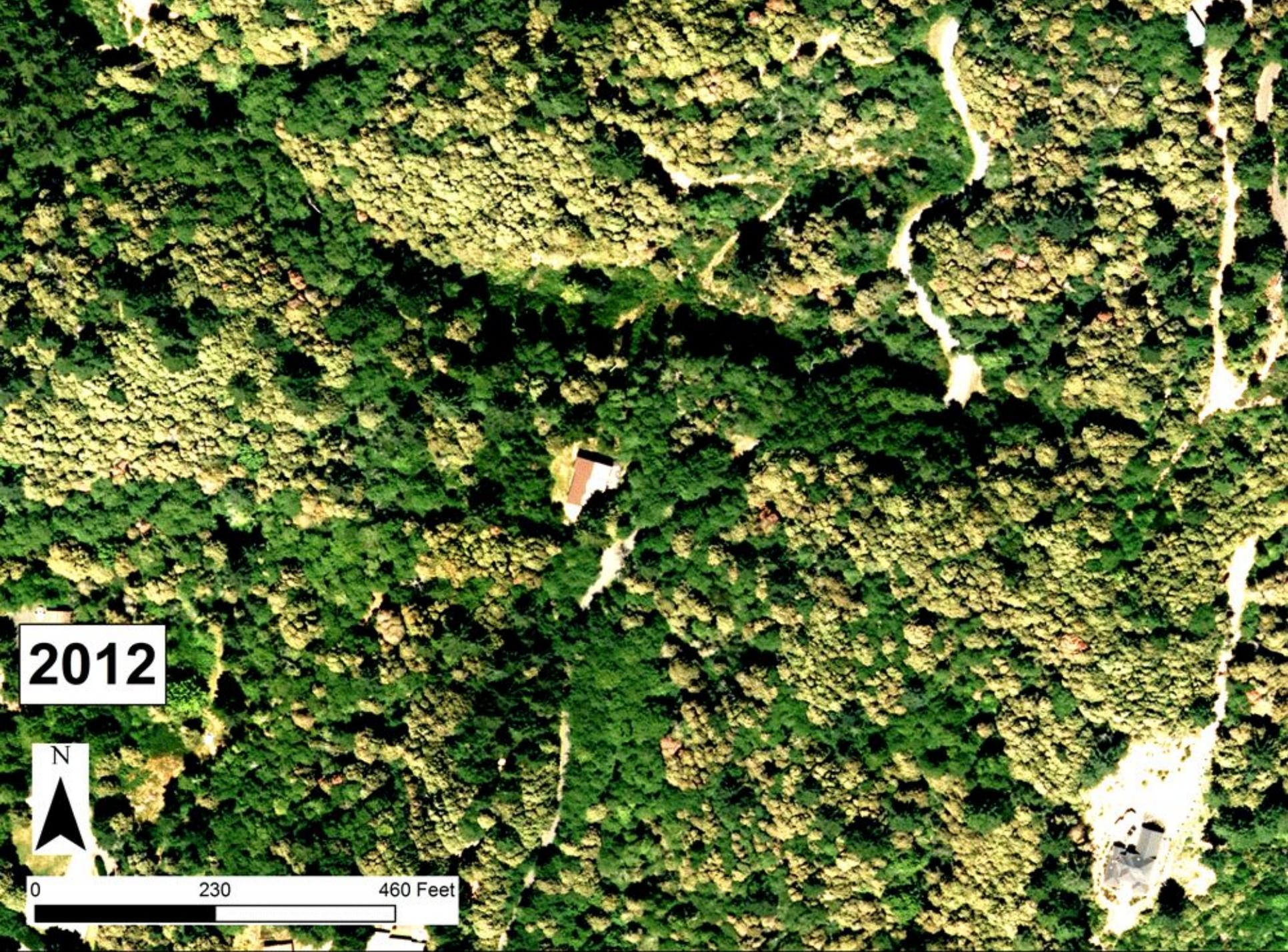
ODF has prioritized all EU1 infestations within the SOD quarantine for treatment this year. All NA1 sites from 2017 may not receive any eradication treatment this year.

Treatment funds total approx. \$1,375,000 for eradication of EU1

# Slow the Spread of SOD

- Protect tanoak and other systems across the U.S.
- Delay or prevent costs to forest and nursery industries:
  - Regulatory costs
  - Market loss (quarantines)





2012



0 230 460 Feet