

# Annual Forest Health Report 2014

Wednesday 9<sup>th</sup> September 2015

Oregon Board of Forestry  
Salem, Oregon

## ODF's Forest Health Team



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## Aerial Survey of Insect and Disease Damage

- ODF Forest Health and USFS conduct annual aerial surveys to track the major damaging agents affecting OR forests.
- Ground surveys and trapping for a variety of native and invasive species occur each year including:
  - Douglas-fir tussock moth,
  - Emerald ash borer,
  - Gypsy moth,
  - Sudden oak death,
  - Root diseases, and
  - Other special projects

## Special Aerial Surveys

- Bear damage: NW Oregon with special products produced
- Invasive weeds: Gorse presence along the S. Oregon coast
- Timely surveys:
  - Oak looper
  - Maple project
  - Ice storm damage



## Products:

- Forest health highlights and fact sheets
- Online products (data, maps, issue papers)
- Aerial survey reports and paper maps
- Data is utilized by land owners, researchers and managers (including fire managers in other states)
- Survey data goes into a national database and several products are created on a continual basis

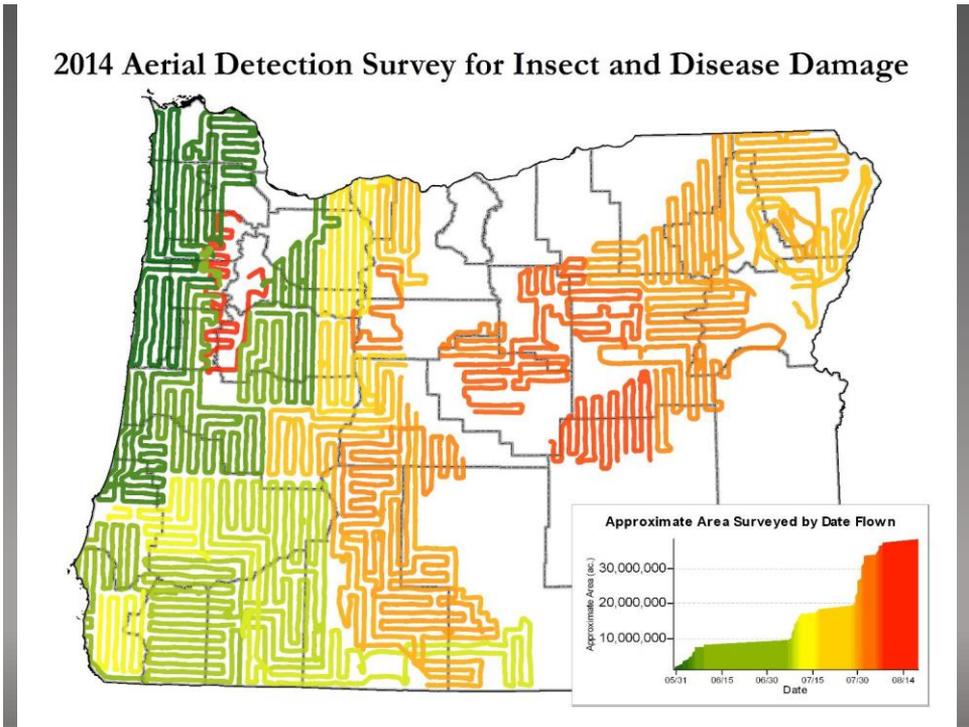
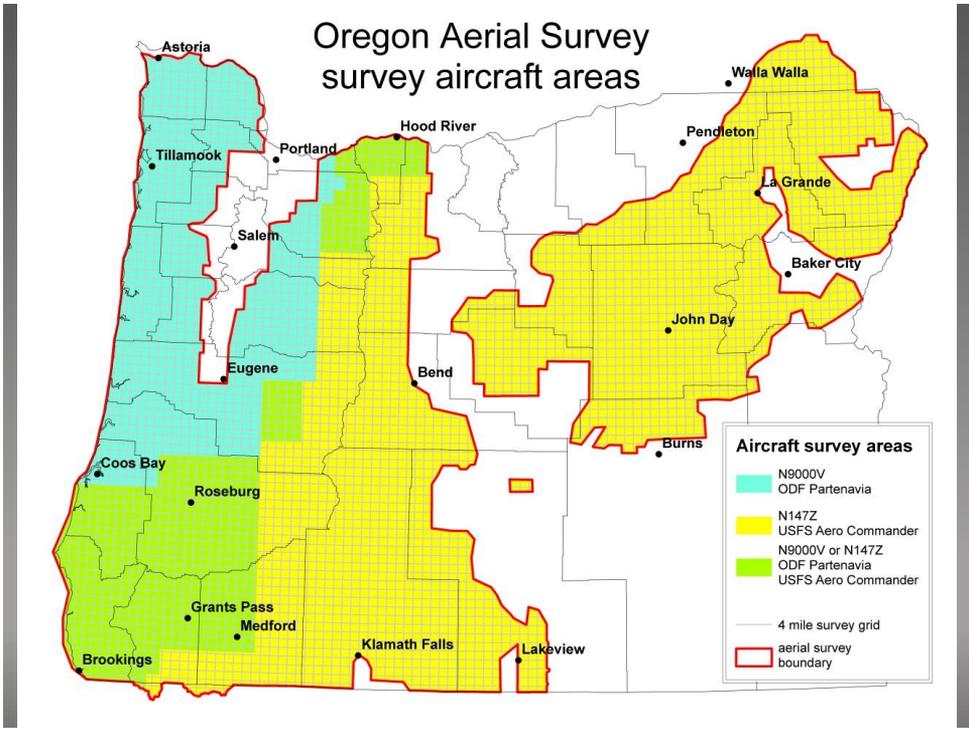


## Statewide Survey

- Began in 1947
- Conducted over 28 million acres



- All agent survey
- Only map current year fading trees



## Ice damage in Coast Range – November 2014



>90% damage in some stands

Loss of present and future merchantability

Decay and deformation

Risk of DF beetle in larger stands

West Oregon District



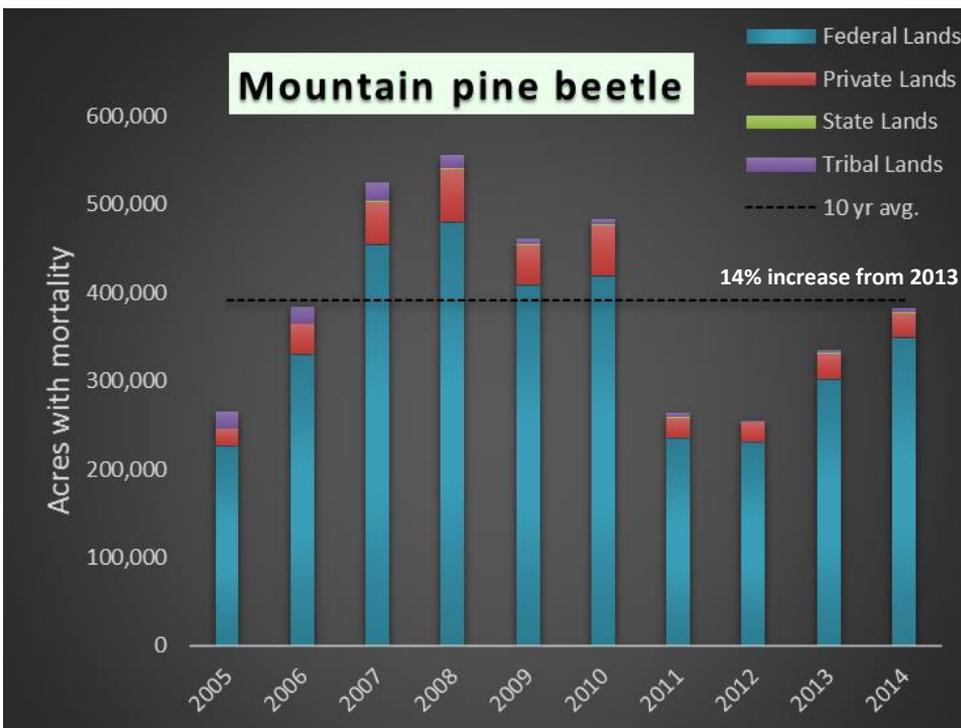
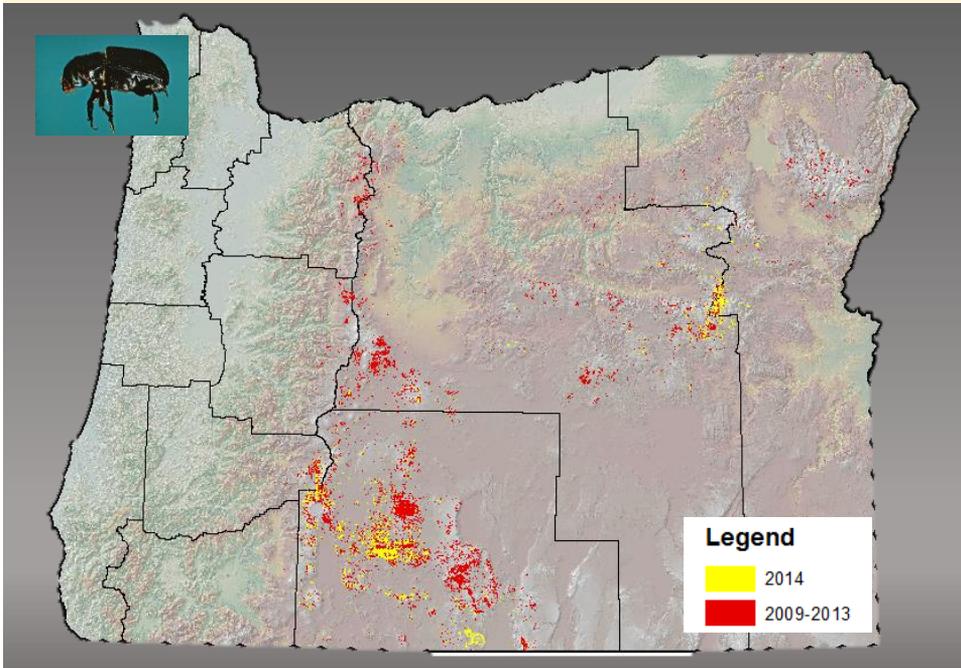
Defect

# Forest Insect Conditions

Christine Buhl, PhD



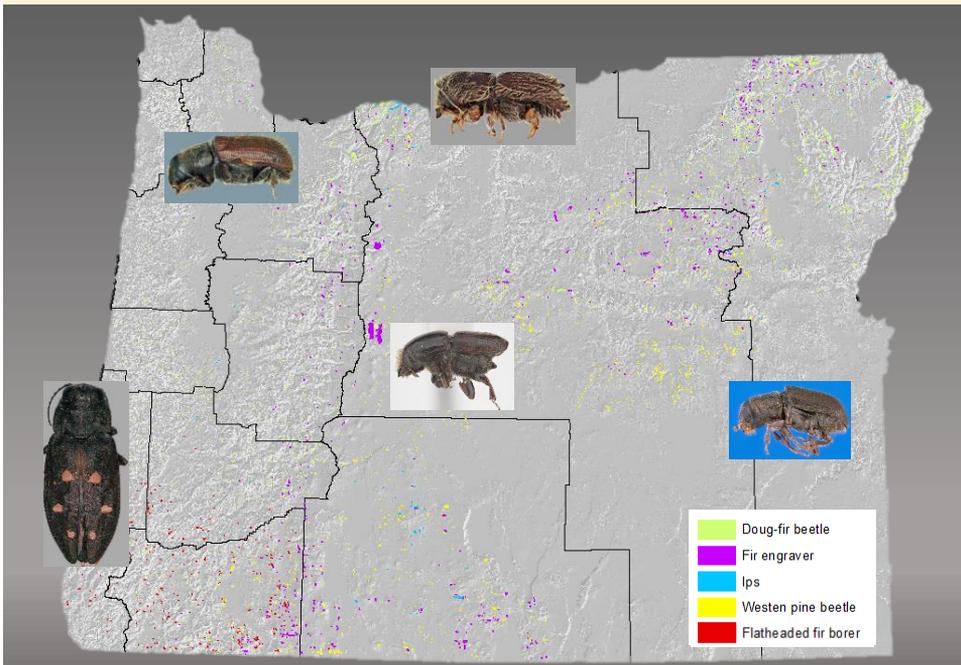
## Areas affected by mountain pine beetle 2009-2014

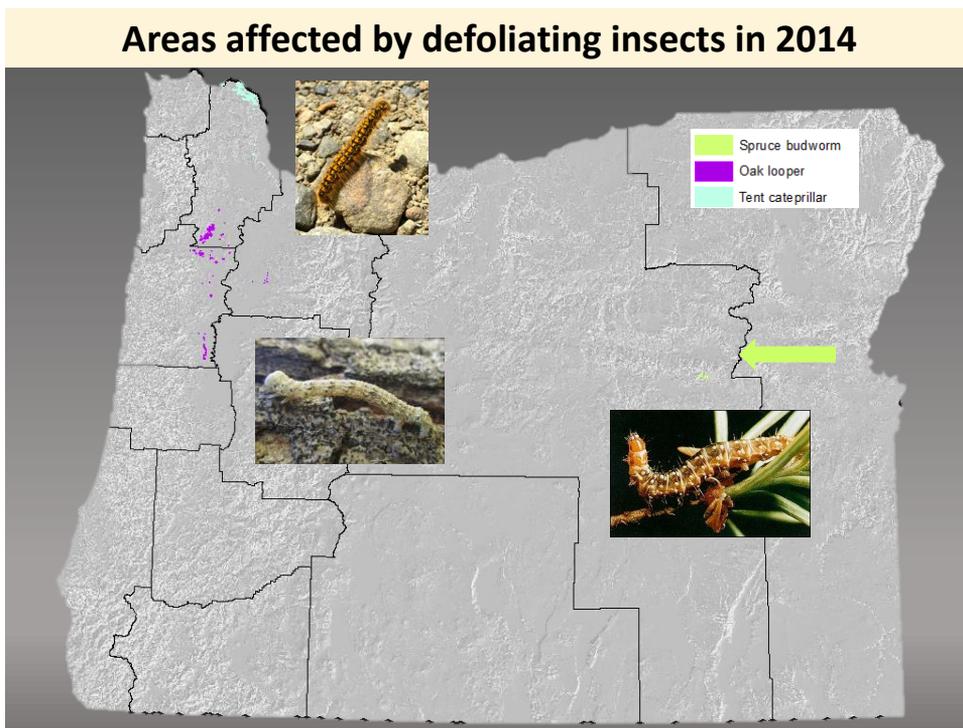
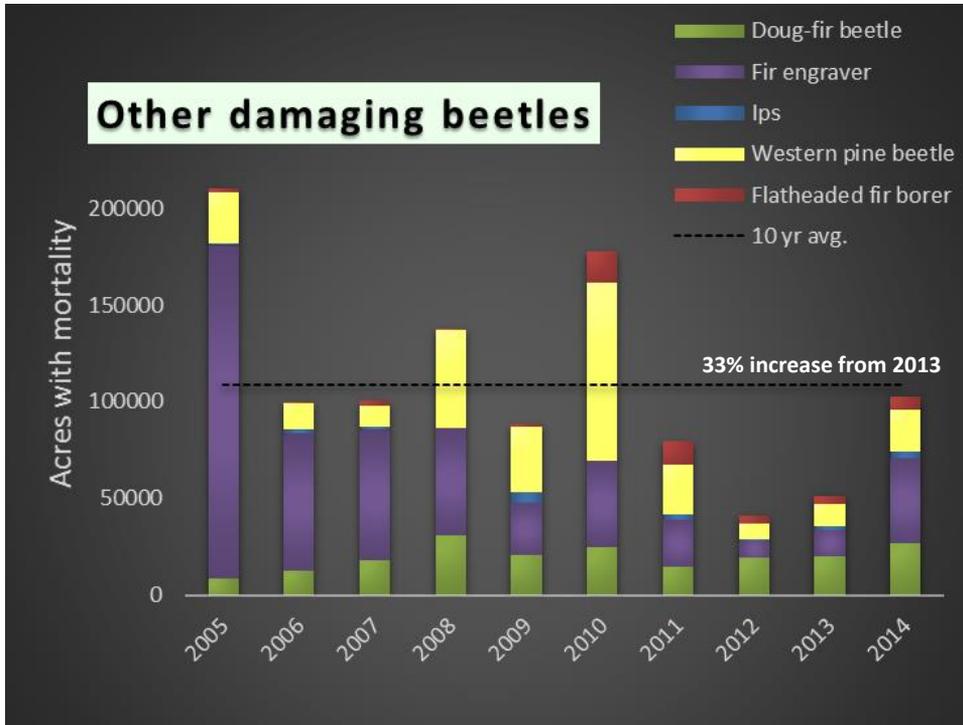


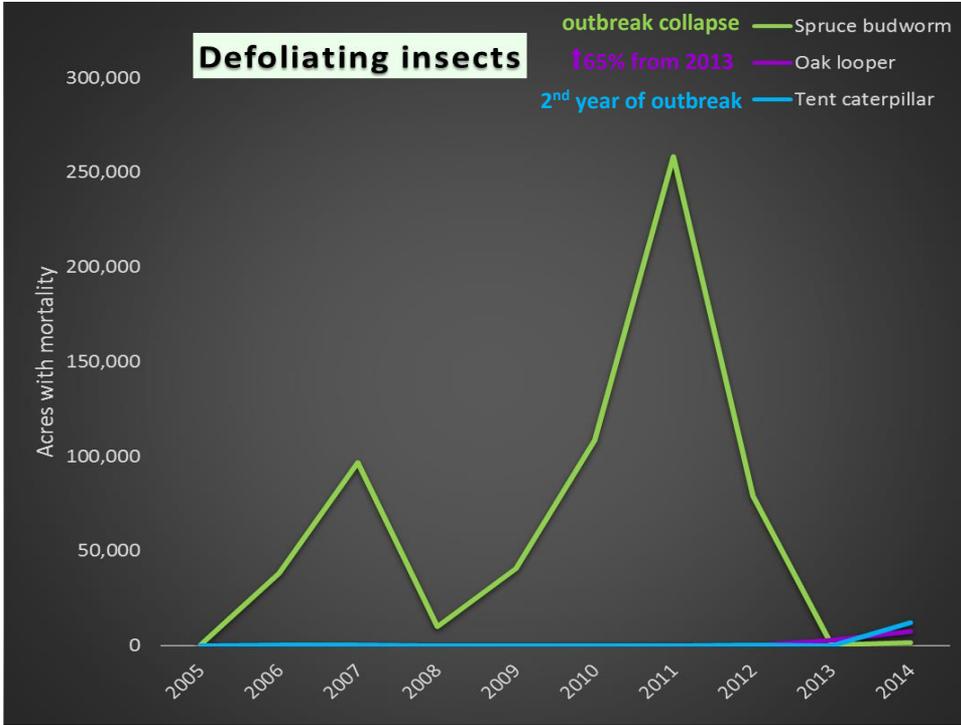
## Concentrated lodgepole and ponderosa pine mortality from mountain pine beetle south of Unity



## Areas affected by other damaging beetles in 2014







### Western tent caterpillar outbreak in Tillamook



# Oregon Invasive Species Council



**Mission:**

*To coordinate efforts to keep invasive species out of Oregon and to mitigate the impacts of invasive species already established in our state.*

- 10 appointed members w/ 2-year terms
- 7 state agencies on Council (permanent seats):
  - USDA - APHIS
  - USDA - USFS
  - DEQ
  - ODFW
  - OR Marine Board
  - Oregon Sea Grant (OSU)
  - PSU



Weyerhaeuser



[www.oregoninvasivespeciescouncil.org](http://www.oregoninvasivespeciescouncil.org)  
 OISC meets quarterly. Next meeting: Oct 14, PSU

## Western Competitive Grant: Forest Pest Detector Project

**Goal:** Train tree care professionals to recognize and report exotic wood borers

**50 trained so far, 200+ expected over next 3 years**

**Components:**

- Training modules
- Reporting infrastructure
- Develop 'Invasive Tree Pest Preparedness Plan'



Asian longhorned beetle

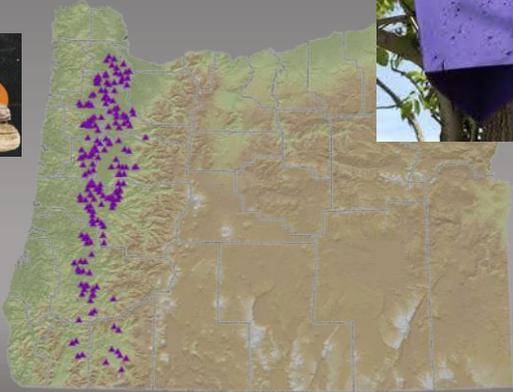
Emerald ash borer





## Invasives: Emerald ash borer

- 2013: detected in Colorado
- 2014: still not found in Oregon
- 250+ traps (ODF, APHIS)

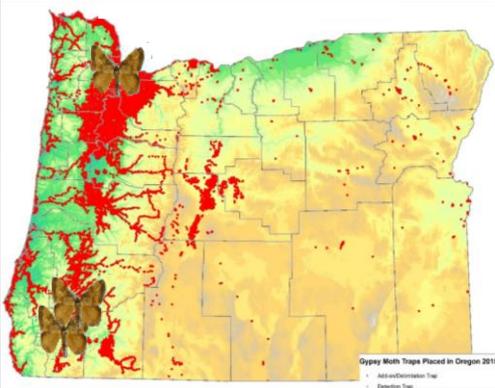





## Invasives: Gypsy moth

- 2013: (2) Josephine Co.
- 2014: (4) in Josephine Co.
- \*In progress 2015: (7) in Josephine Co. + (7) in Multnomah Co.

- 12,200+ traps (ODA, ODF, USFS, APHIS)

Gypsy Moth Traps Placed in Oregon 2015  
 - Adult/Estimation Trap  
 - Baited Trap

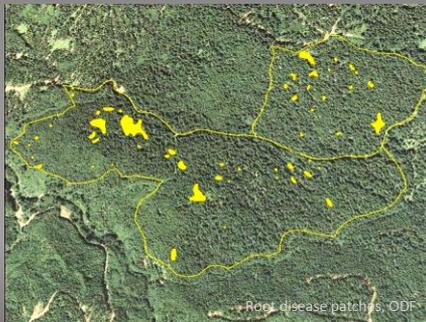
# Forest Disease Conditions

Alan Kanaskie



## Root Diseases

- Not reliably detected or tracked with aerial surveys
- Most important group of native diseases
- State Forest surveys since 1988
- Laminated root rot is most abundant
- Black stain root disease may be increasing, especially in young intensively managed plantations
- Management activities can affect disease intensification



### Madrone Leaf Blight

- Native pathogen(s)
- Outbreak 2010-2014
- Throughout range of madrone
- Little or no mortality
- Improvement at some locations in 2014-2015





Only foliage is affected



New leaves in spring

### Thousand Canker Disease (TCD) of Walnut

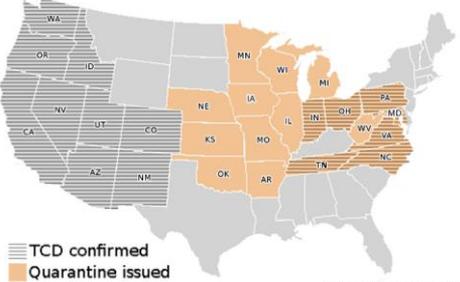
- Range expansion of insect vector from southwestern US (with human assistance)
- Widespread in Oregon
- Susceptibility varies among walnut species
- Few control options



State Hospital, Salem



**Distribution of Thousand Cankers Disease as of April 20, 2015**



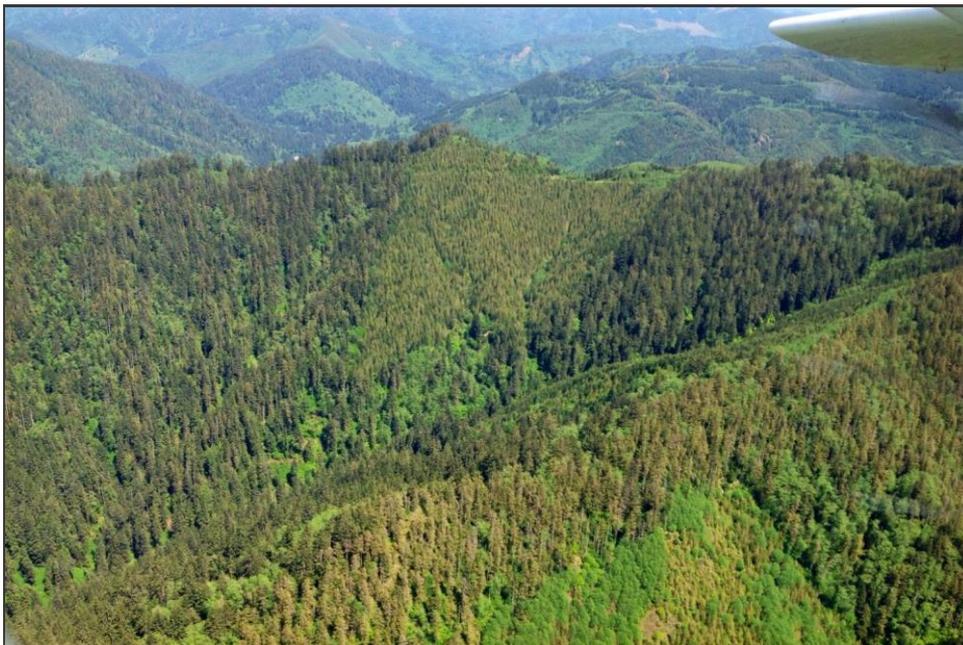
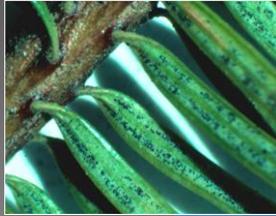
TCD confirmed  
 Quarantine issued

Source: www.thousandcankers.com

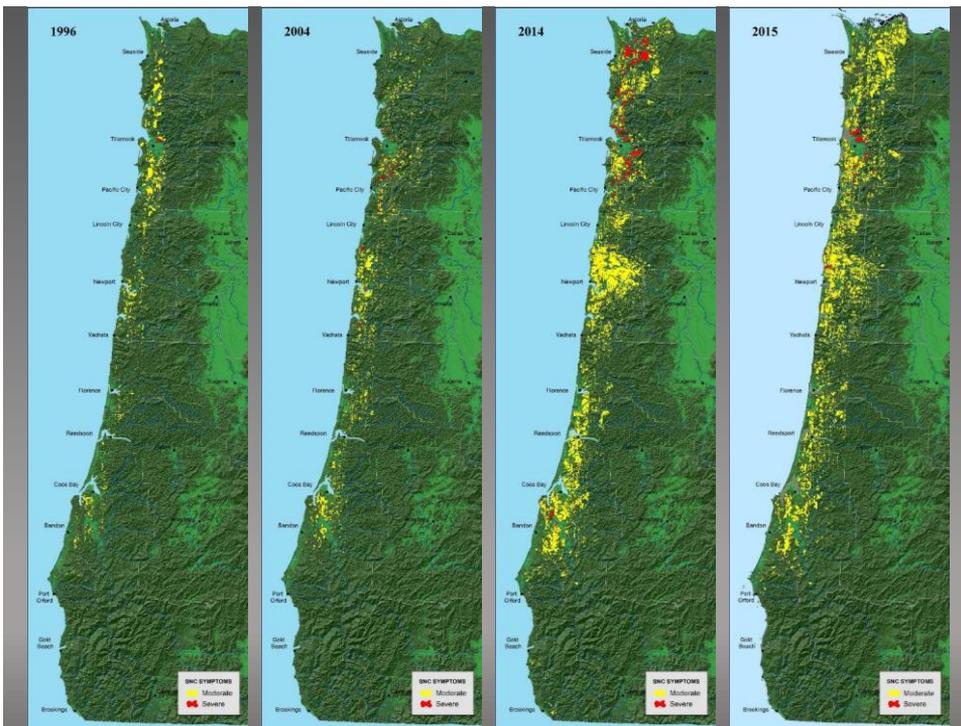
## Swiss Needle Cast (native)

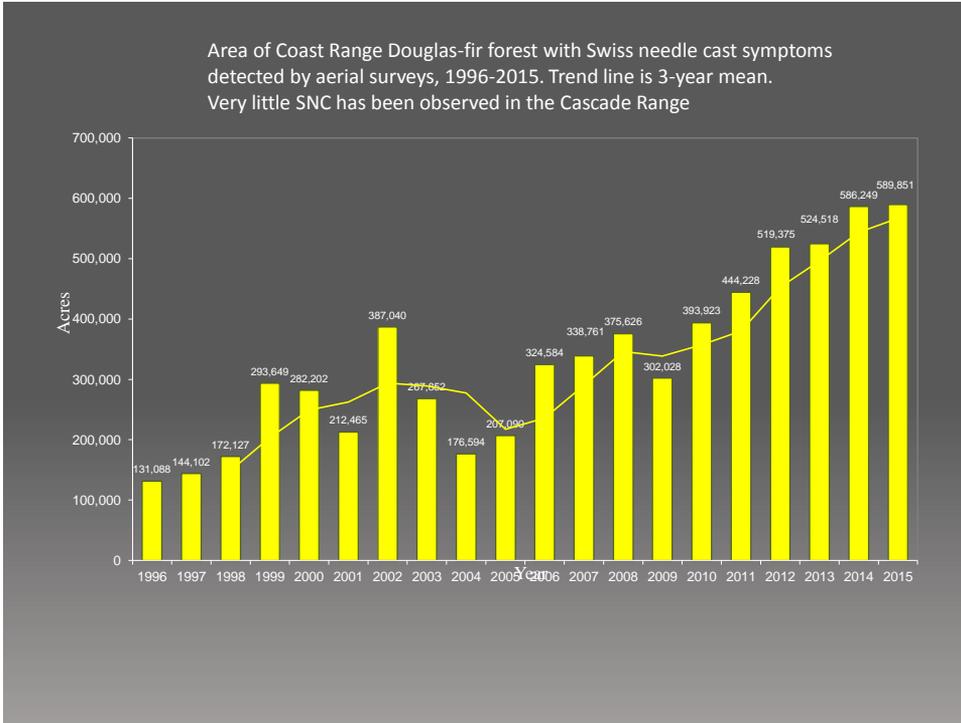
Causes foliage loss and impairs function:

- Reduced volume growth
- Altered wood properties
- Tree death (rare)
- Affects management



SNC discoloration is detected and mapped annually by a cooperative aerial survey; OSU Swiss Needle Cast Cooperative, USDA Forest Service, ODF





### Problems in Douglas-fir

Drought stress



Two "new" foliage diseases





### Drought-related disorders

Site factors important

- Soil characteristics
- Competing vegetation
- Site disturbance
- Seasonal wetness

Tree species and seed source also important



Secondary insects and pathogens are associated with drought-stressed trees



Douglas-fir twig weevil



Douglas-fir engraver beetle



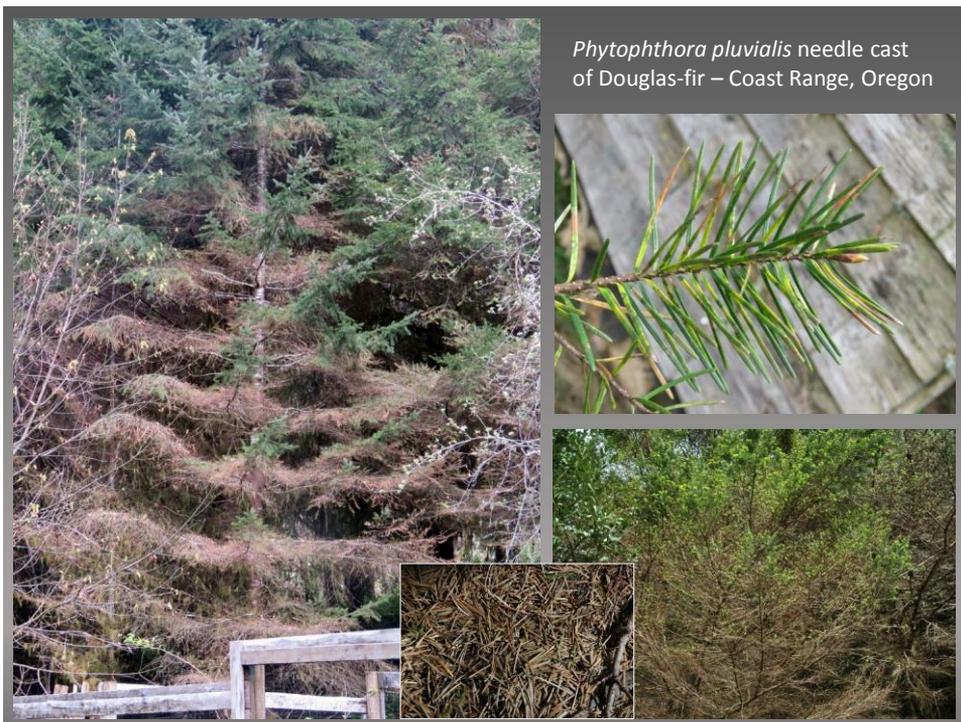
Phomopsis canker

“New” foliage diseases of Douglas-fir (collaboration with OSU)



Web blight (*Rhizoctonia sp.*)  
on Douglas-fir



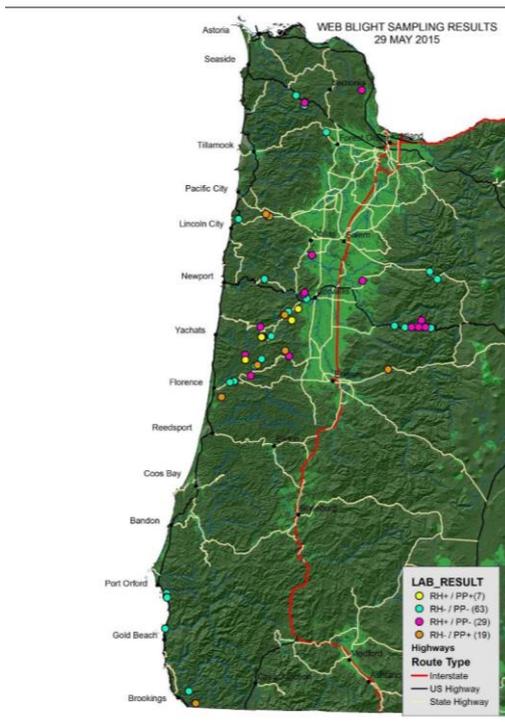


## *Phytophthora pluvialis* in New Zealand

Red needle cast of  
Radiata (Monterey) pine



Douglas-fir  
Introduced from the US?



### “WEB BLIGHT” SURVEY – 2015 (ODF & OSU)

118 samples (108 Doug-fir, 10 hemlock) were collected and tested;

- 53% - Negative for both pathogens
- 25% - Positive for *Rhizoctonia* only
- 16% - Positive for *P. pluvialis* only
- 6% - Positive for *P. pluvialis* & *Rhizoctonia*

Six of the 10 western hemlock samples were positive for *Rhizoctonia*; None yielded *P. pluvialis*.

Both pathogens are widely distributed in Oregon and appear to be native.

Work is ongoing



### Background

- Caused by the water mold *Phytophthora ramorum* (non-native)
- Tanoak is the key host species (highly susceptible and necessary for disease spread)
- Many other hosts infected (and regulated), including Douglas-fir
- Spreads naturally by means of aerially dispersed spores under wet conditions
- Spread by humans in the live-plant trade





### Sudden Oak Death Program in Oregon Forests

1. Survey and detection
2. Delimitation of infested sites
3. Treatment of infested sites
4. Regulation / education
5. Monitoring / research



Stream baiting



Aerial survey

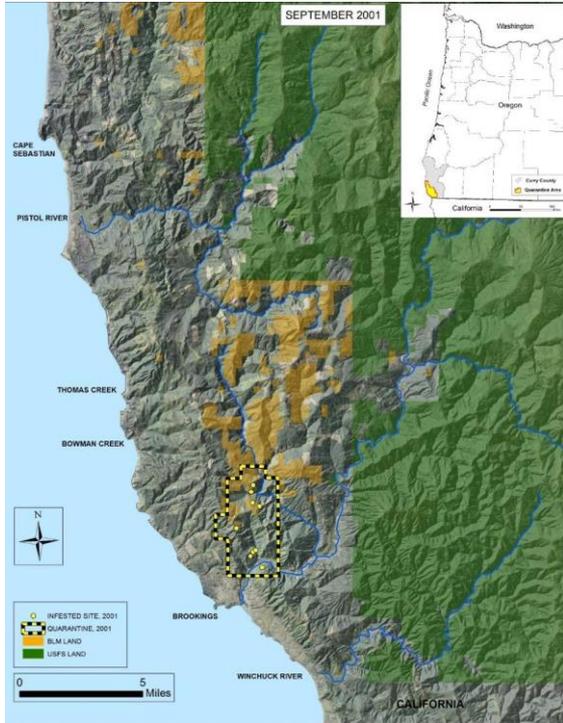


## Delimitation and Treatment

1. Cut and burn tanoak, rhododendron, huckleberry, sometimes myrtle.
2. Larger treatment areas (300 to 600 ft buffer) most effective
3. Costs : \$3,000-\$5,000 / acre
4. No cost to private landowners where treatment is required by quarantine rule, but no compensation for loss.
5. **Infestations detected early and treated with wide buffers can eliminate disease and stop spread**

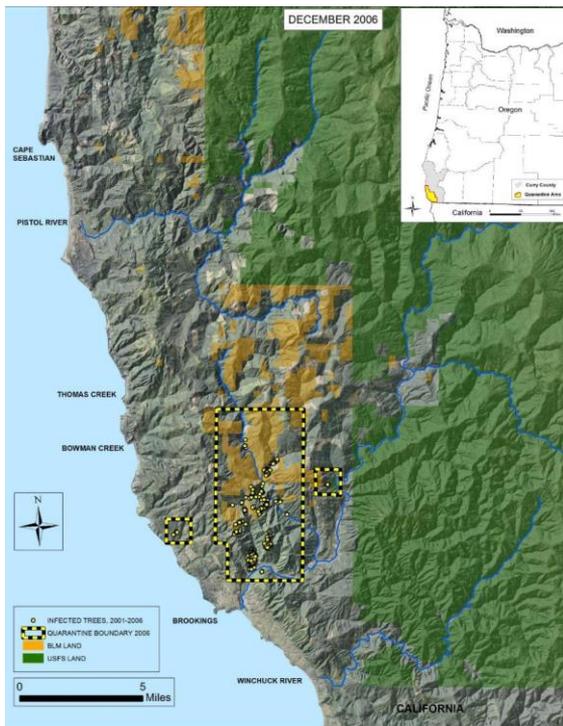


Without treatment disease intensifies and spread increases.  
Curry County, July, 2015



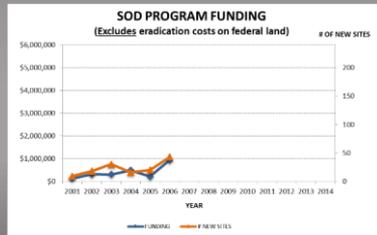
### SUDDEN OAK DEATH September, 2001

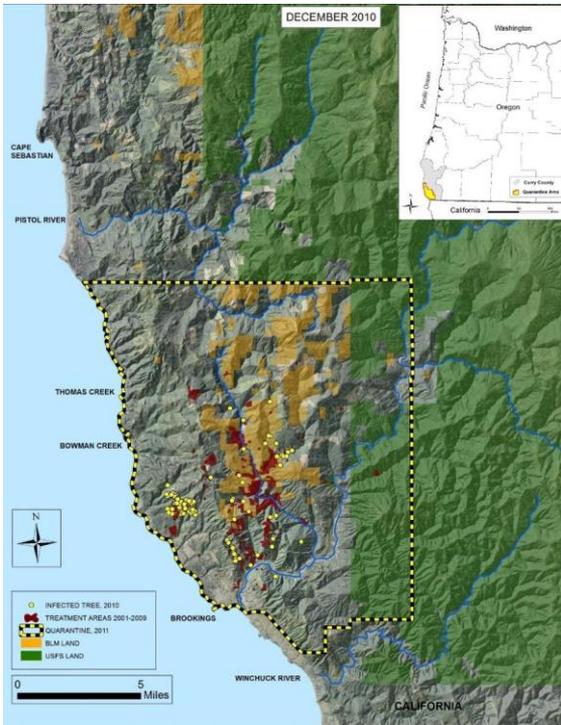
Nine infested sites  
 Quarantine area = 9 square miles.



### SUDDEN OAK DEATH December, 2006

Quarantine area = 25 square miles.  
 Eradication efforts slowed spread but did not stop it.





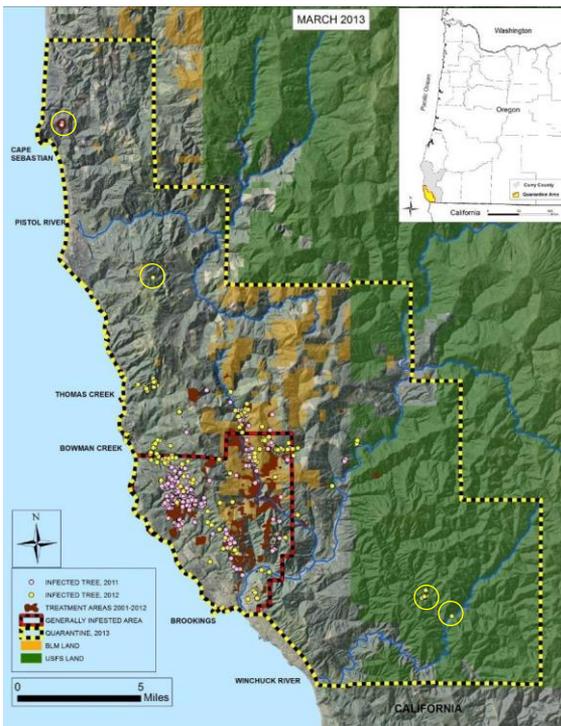
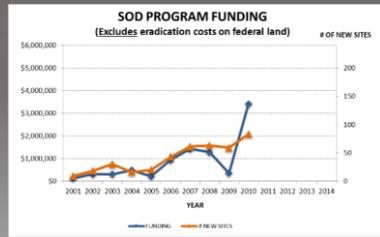
## SUDDEN OAK DEATH December, 2010

Quarantine area –154 square miles

Amount of disease exceeds our capacity to cut and burn all infested sites on non-federal land.

Strategic decision to treat high-priority sites near edge of quarantine area, leave other areas untreated

Program goal transitions to slowing spread rather than complete eradication



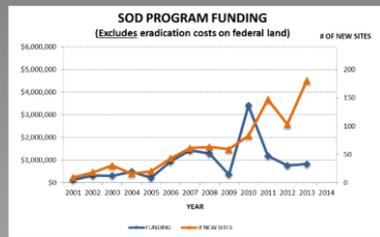
## SUDDEN OAK DEATH March, 2013

Quarantine area expanded to 264 square miles.

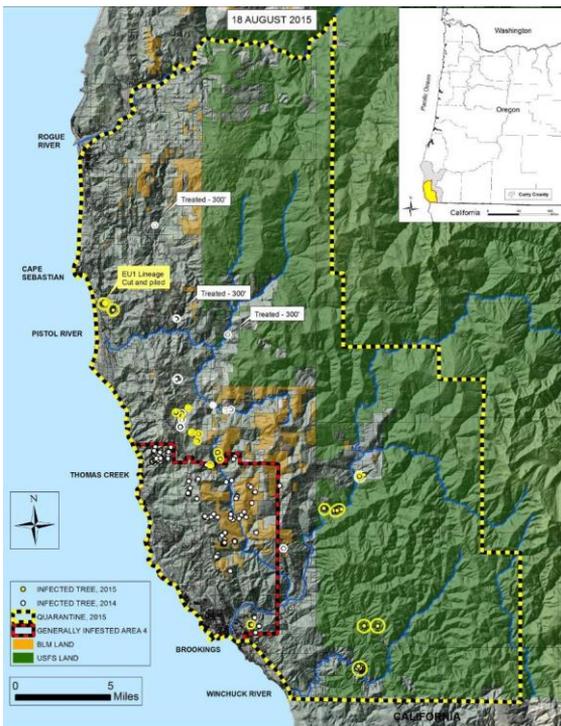
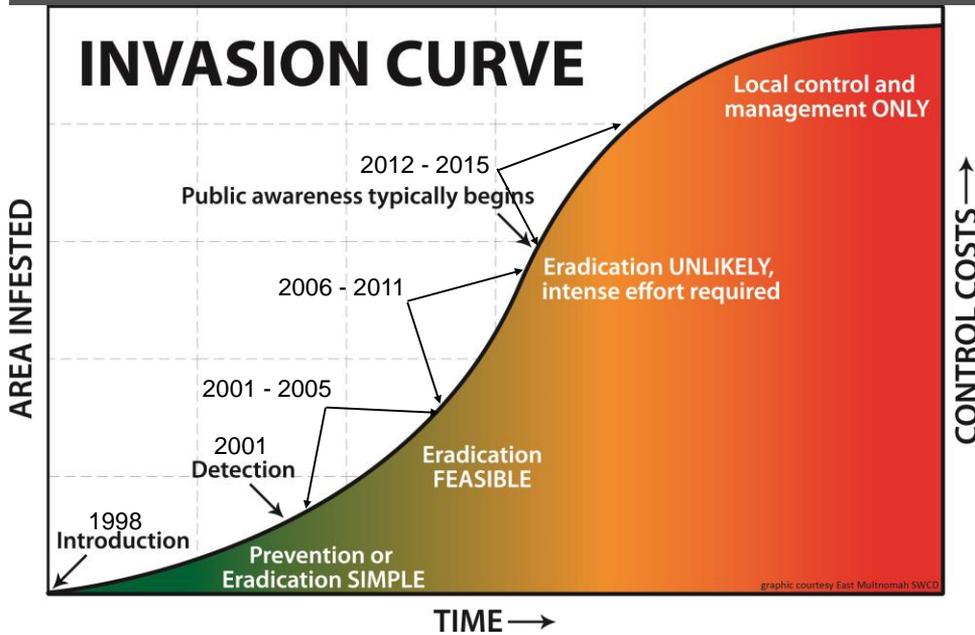
Generally Infested Area (GIA) established. Eradication treatments not required within the GIA; required outside of GIA.

Treatment priorities based on importance for slowing disease spread and funding.

Intensification of disease in GIA; wildfire and tree-fall risk increasing.



# SOD as an invasive species



## SUDDEN OAK DEATH August, 2015

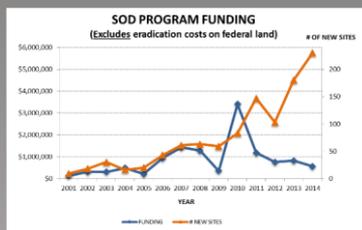
Quarantine area expanded (for 7<sup>th</sup> time) to 519 mi<sup>2</sup>. GIA expanded for 4<sup>th</sup> time.

EU1 Lineage discovered near Pistol River

2014 infestations: 12 outside GIA; 3 sites fully treated, others received only minimum treatment (20-50' buffer).

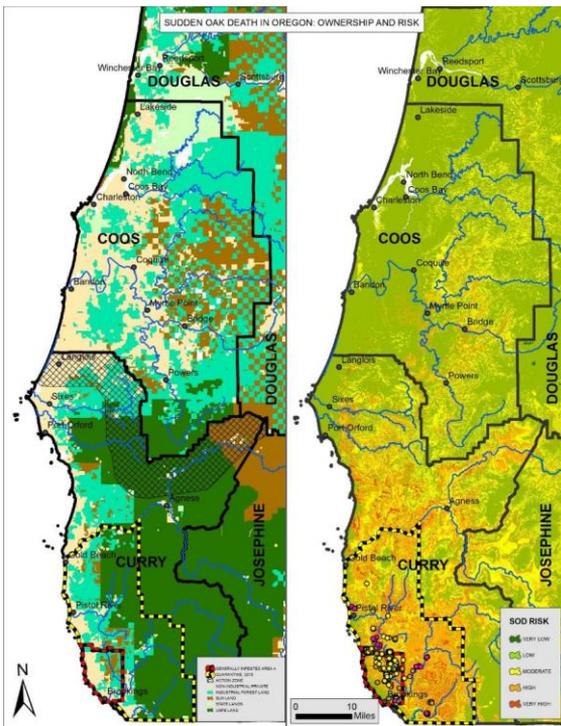
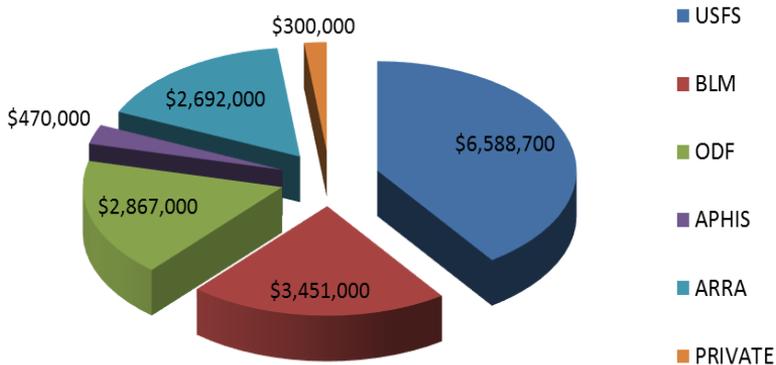
2015 infestations (as of August): 18 sites outside GIA; one large one near CA border. Only one partially treated. Cost to treat all with 300' buffer is at least \$800,000.

2015 treatment budget:  
State: \$75,000  
USFS: Pending Fire transfer



## SOD Program Expenditures 2001-2014

**SOD Program Costs 2001-2014 (Forests)**  
 Detection, monitoring, eradication, administration  
**\$16,368,700**



### SOD Program Alternatives

Alternative 1. Transition to living with the disease: technical assistance, education, best management practices (BMPs).

Alternative 2. Continue current slow-the-spread program as funded today.

Alternative 3. Continue slow-the-spread program with enhanced funding to enable treating all new infestations with 300-foot buffer.

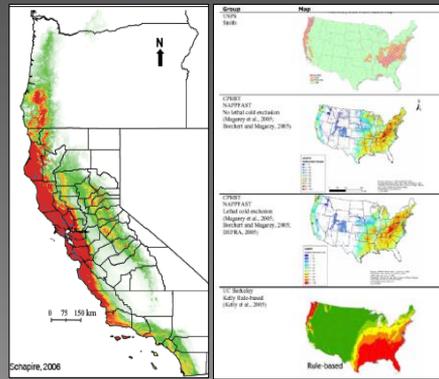
Alternative 4. Contain to Curry County, establish Action Zone, enhance surveys, create contingency fund for rapid response in Action Zone, sites outside of Curry County, or sites with new lineages.

### Why Develop Alternatives?

- Provide basis for policy decisions.
- Protect tanoak and other ecosystems.
- Evaluate costs to nursery and forest products industries:
  - Production costs due to regulations.
  - Loss of domestic and international markets.



Logs for export



courtesy of John Brown  
Weyerhaeuser Company