# Sudden Oak Death

## Slowing Disease Spread under Tight Budget Constraints


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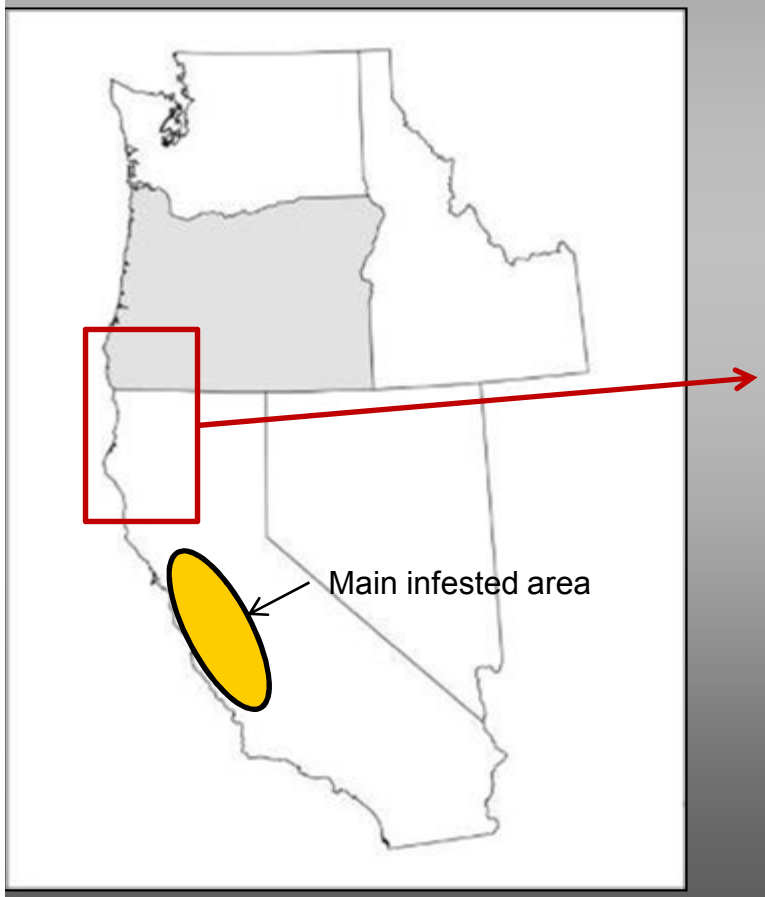
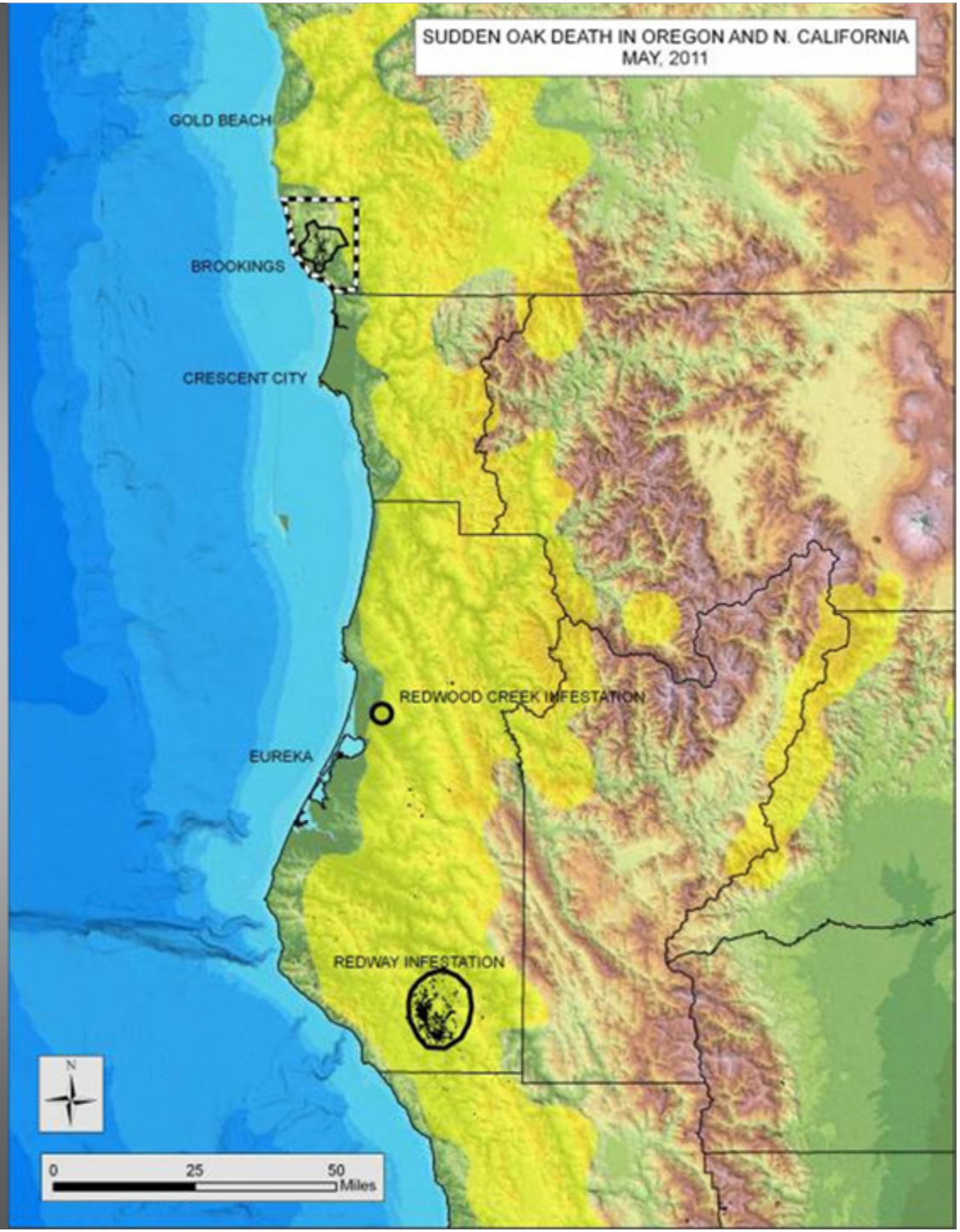
# Wild-land Distribution of *P. ramorum*

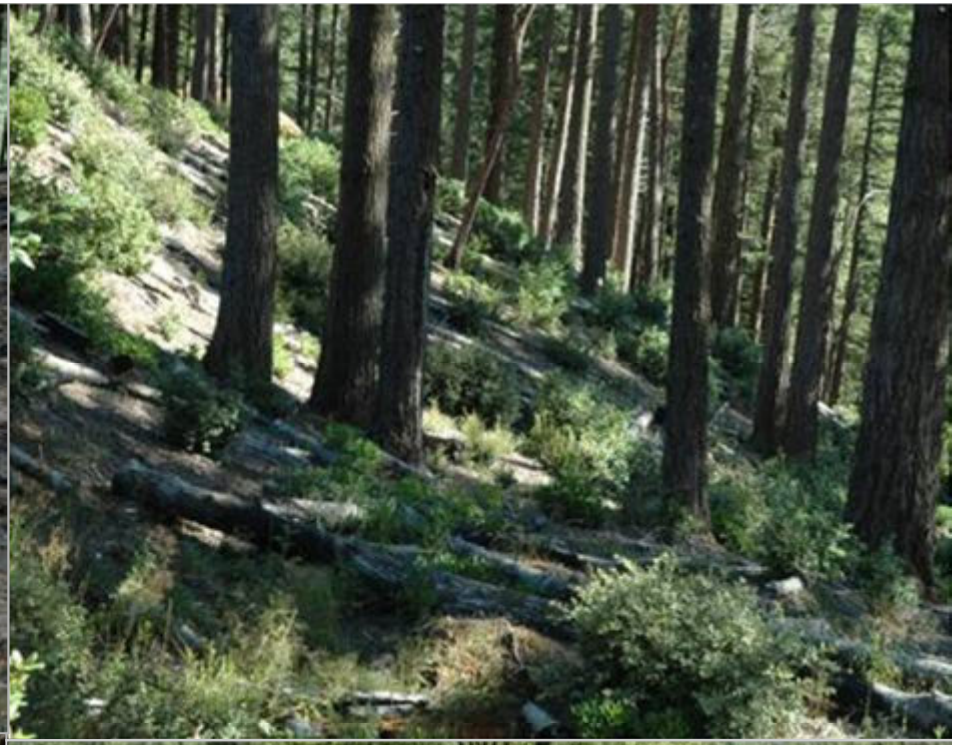
*Oregon: discovered 2001, present since 1998*

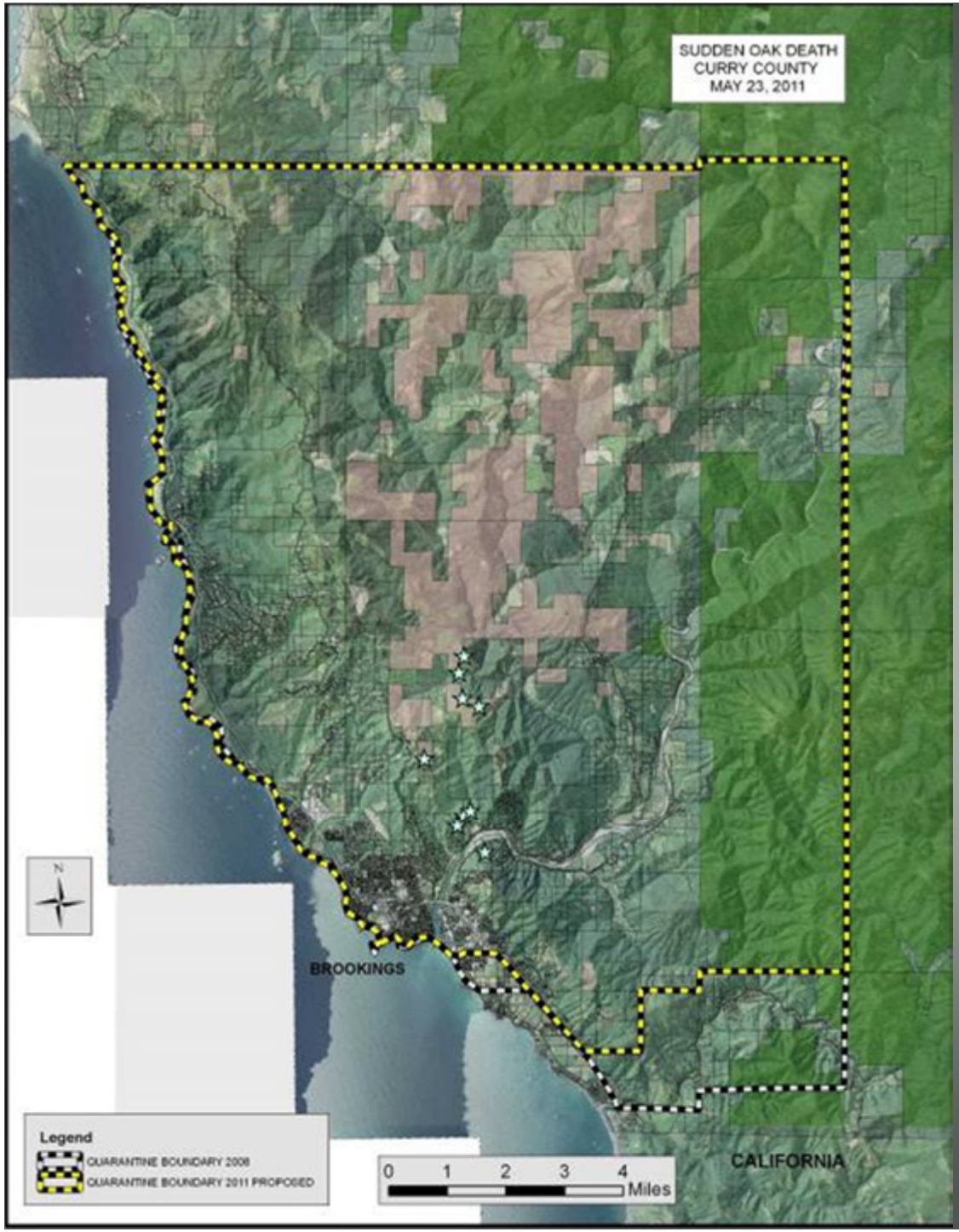


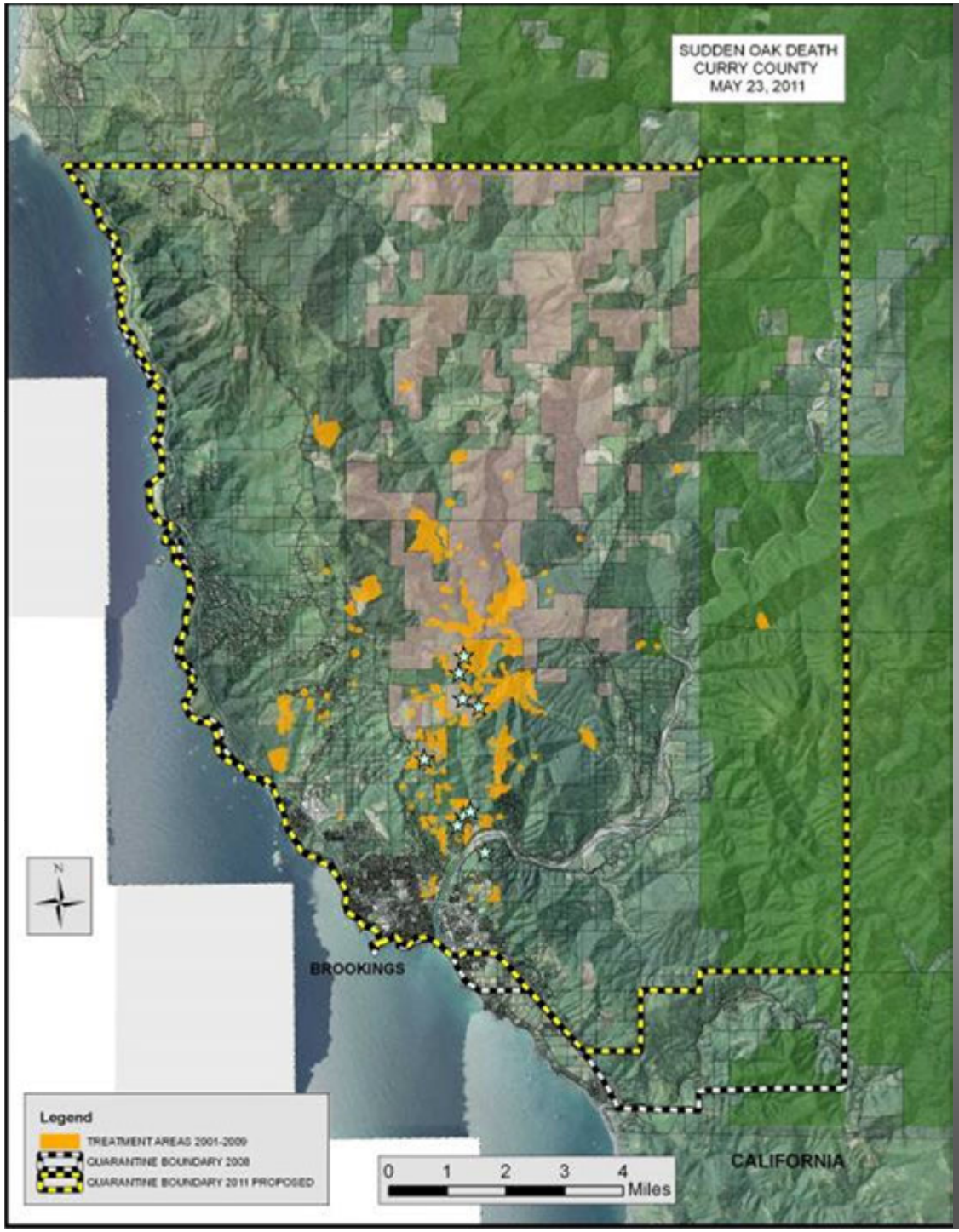
# Treatment

1. Herbicide injection to prevent stump sprouting
2. Cut tanoak, rhododendron, huckleberry, sometimes myrtle.
3. Burn (piles or broadcast)
4. Plant, follow-up treatments
5. No cost to landowners; <u>this will change.</u>
6. No compensation for loss





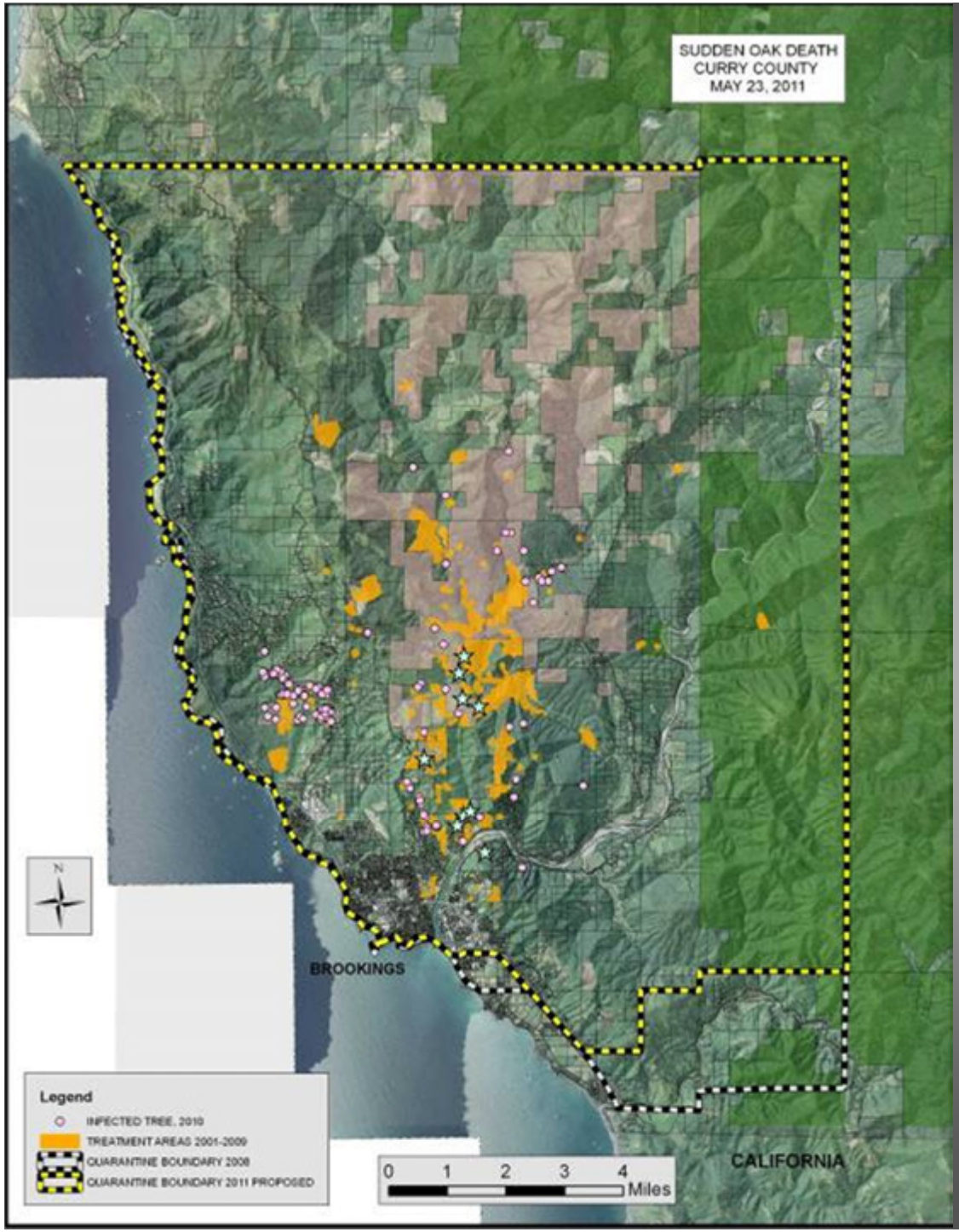

# Sudden Oak Death
# 2001




# Sudden Oak Death

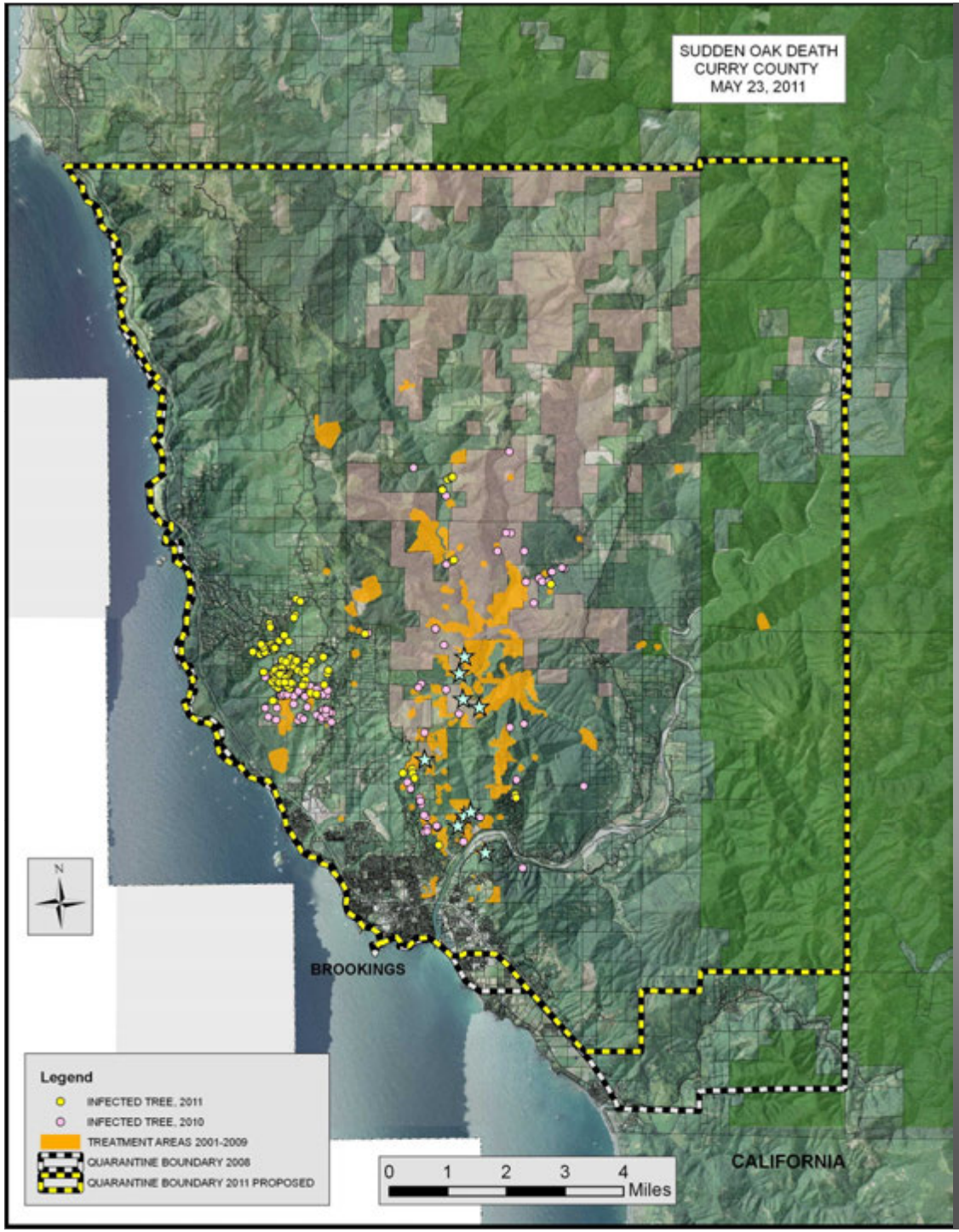
## Areas treated from 2001-2009

Numerous delays in completing treatments

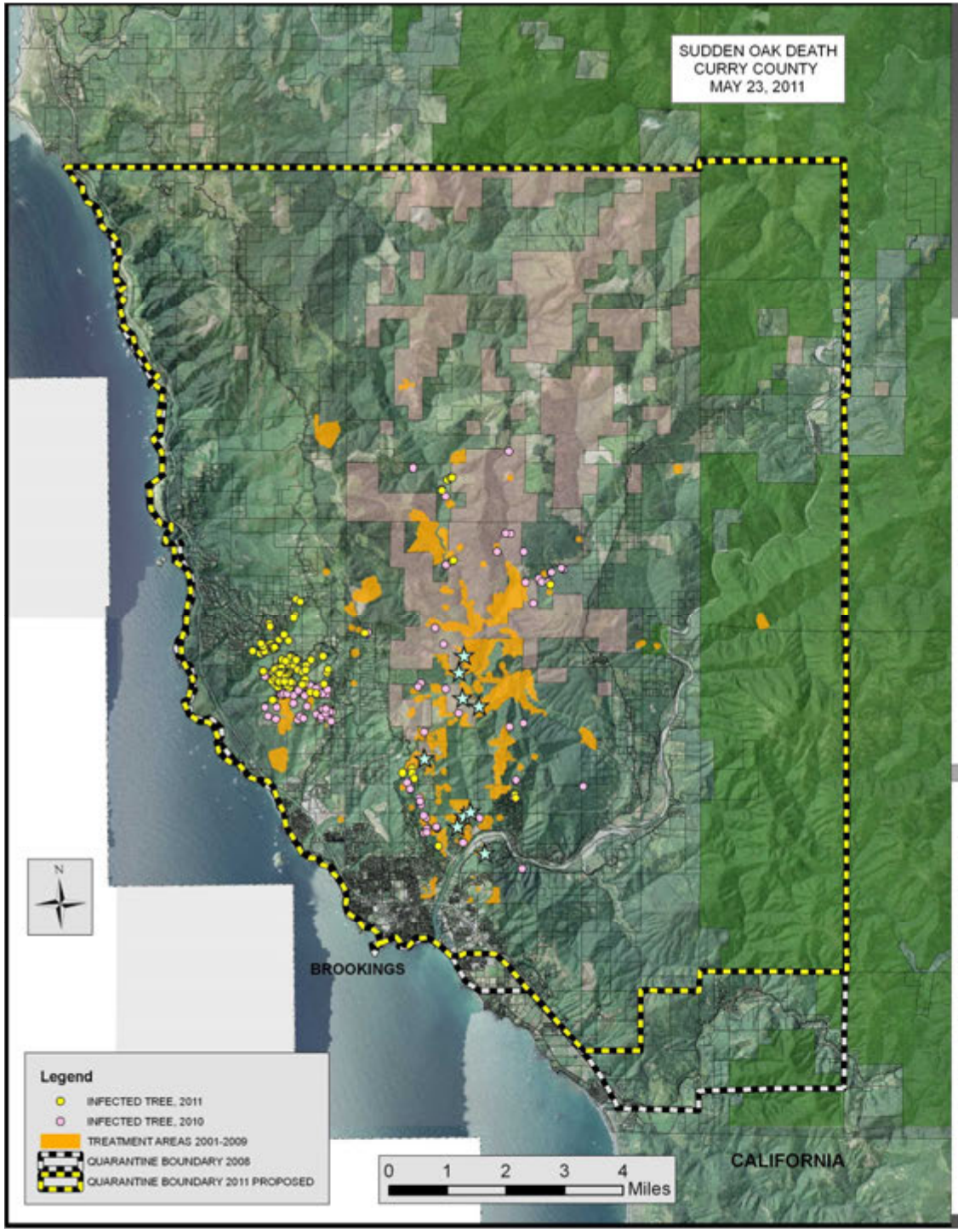



# Sudden Oak Death

New infected trees, 2010




# Sudden Oak Death
# New infected trees
# 2010 & 2011




# Sudden Oak Death New infected trees 2010 & 2011

Figure 1. Number of new infested sites

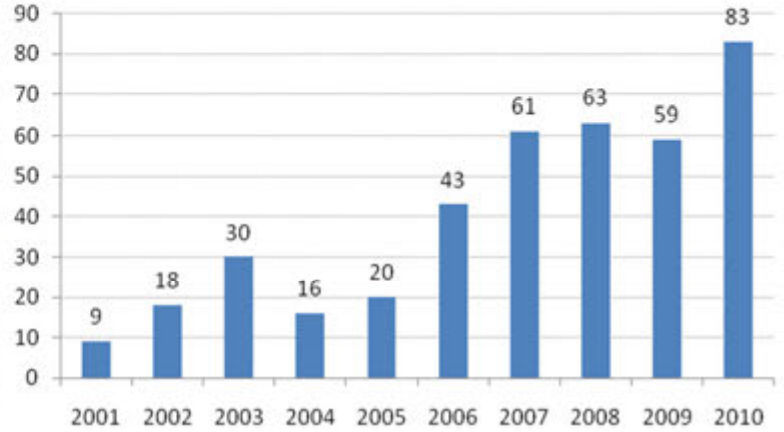
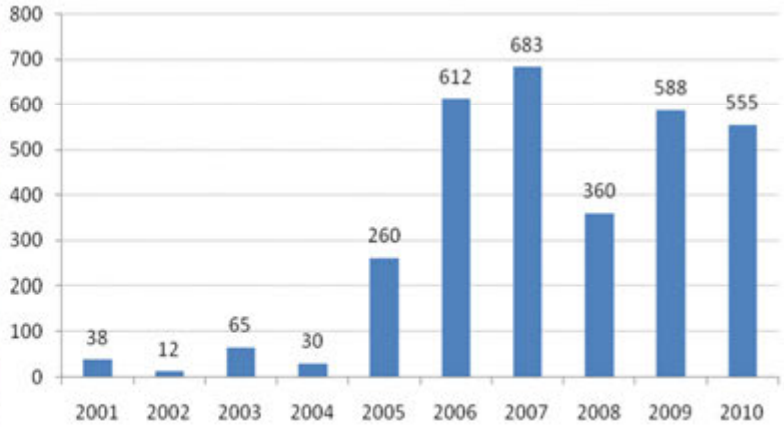
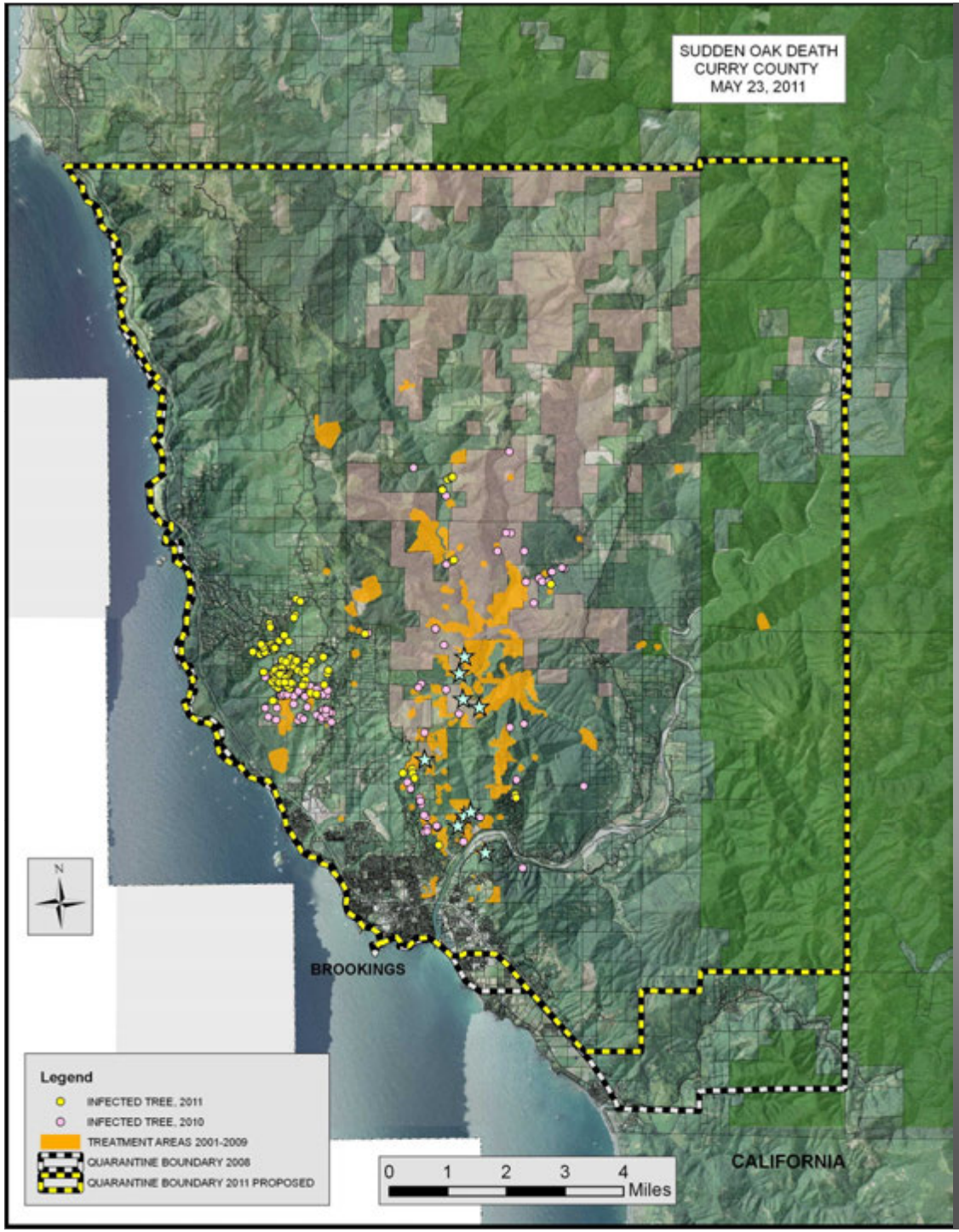
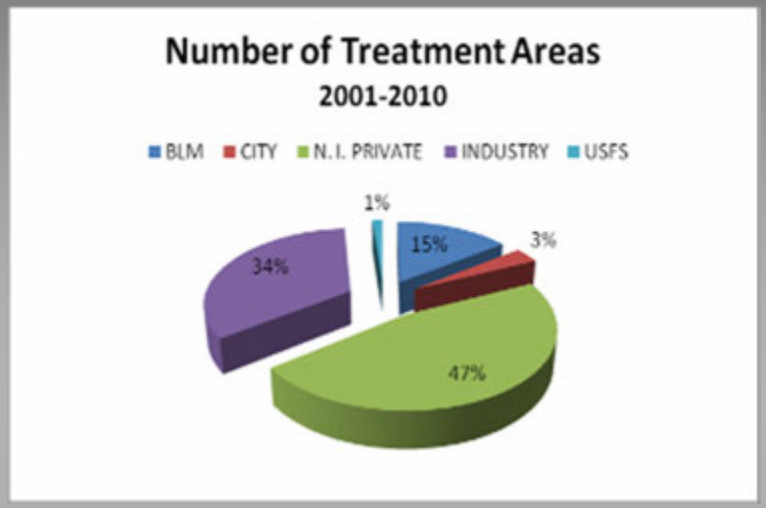



Figure 4. Area (acres) identified for eradication treatment



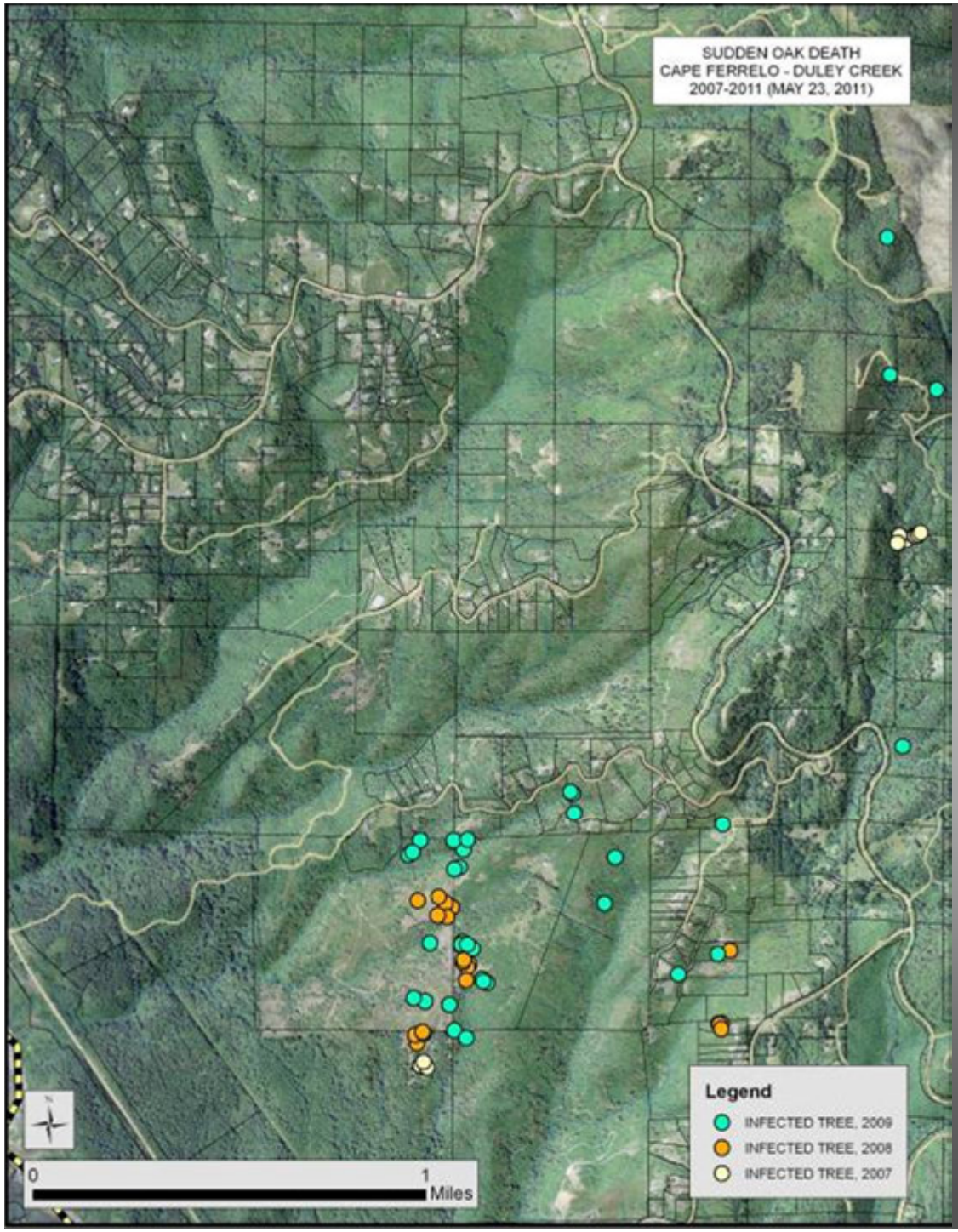
# Sudden Oak Death Land Ownership



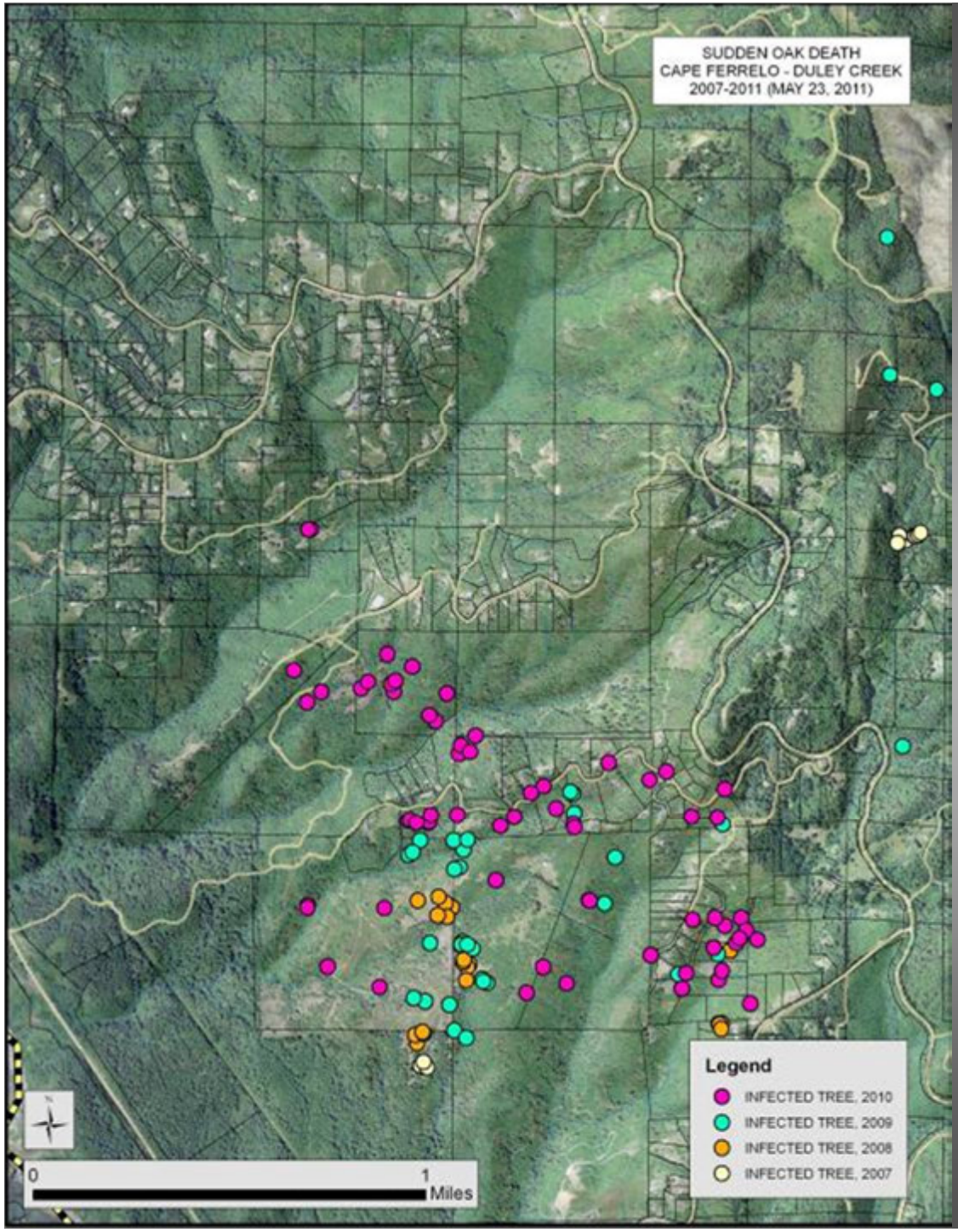




# Sudden Oak Death
# Duley, Taylor, Lone Ranch Creeks
# 2007

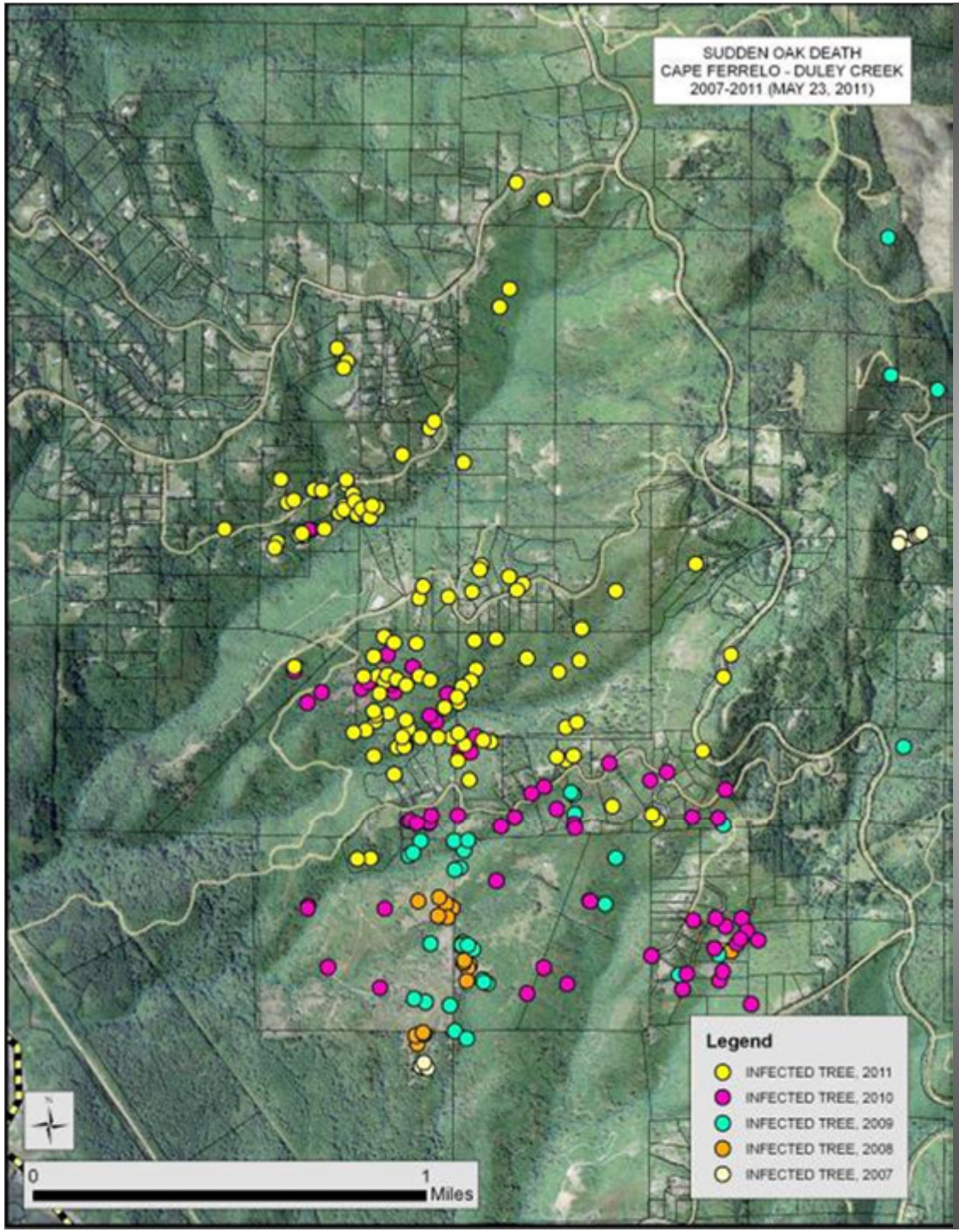

# Sudden Oak Death
# Duley, Taylor, Lone Ranch Creeks
# 2008




# Sudden Oak Death
# Duley, Taylor, Lone Ranch Creeks
# 2009




# Sudden Oak Death
# Duley, Taylor, Lone Ranch Creeks
# 2010

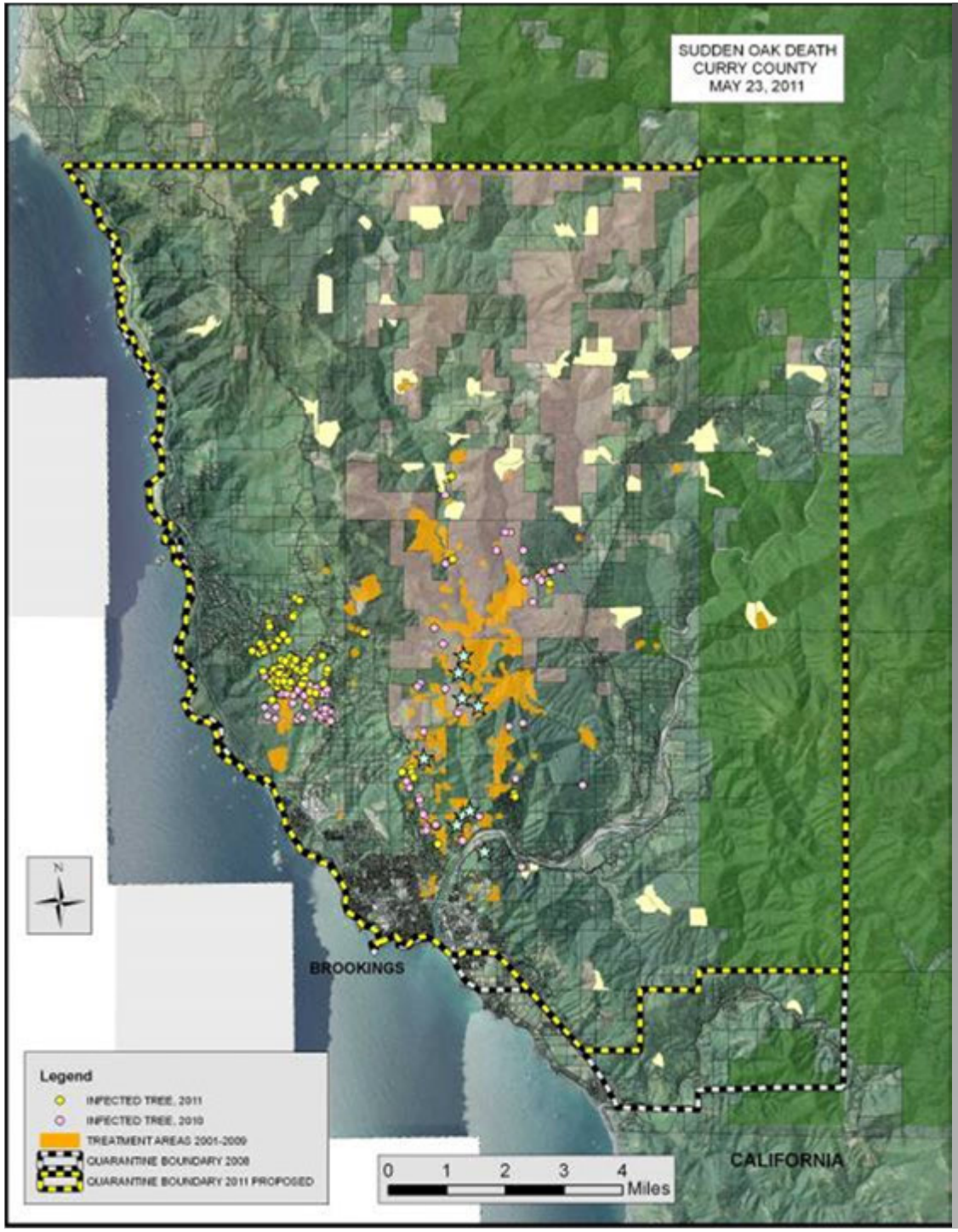



# Sudden Oak Death
# Duley, Taylor, Lone Ranch Creeks
# 2011

# Did the eradication treatments work?

Soil and plant samples from treated sites assayed for ***P. ramorum*** (2 years; USFS PSW Research Station and USFS-FHP R-5 Funding)

- 230 plots, 110 repeat samples
- *P. ramorum* from soil on 41%  of plots
- *P. ramorum* from plants on 11% of plots
- No *P. ramorum* recovered on 50% of plots
- Eradication worked on many sites



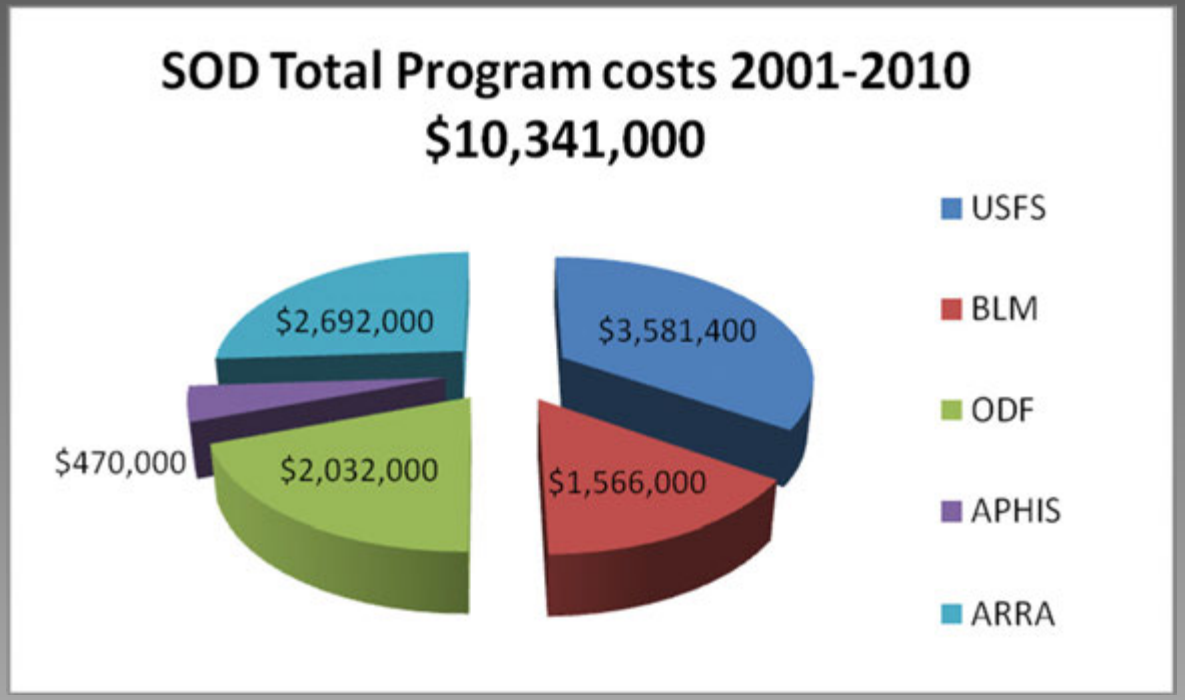

# Did the eradication treatments work?

Disease often occurred near infested sites one or two years following treatment; probably due to latency, treatment delays, spread during treatment, etc.

However, in several cases disease has not shown up near treated sites for 3 or more years following treatment.

# The Oregon SOD Program Must Change

- The disease is intensifying and spreading rapidly in one or more areas
- Funds currently available for treatments will be exhausted by mid-2011 unless we find $500,000 in matching funds.
- Current program costs approx. $1.4 to $2 million / year.
- We do not have funds to match (1:1) available federal funds.




Does not include OSU research or the nursery program

# Options Considered by SOD Team

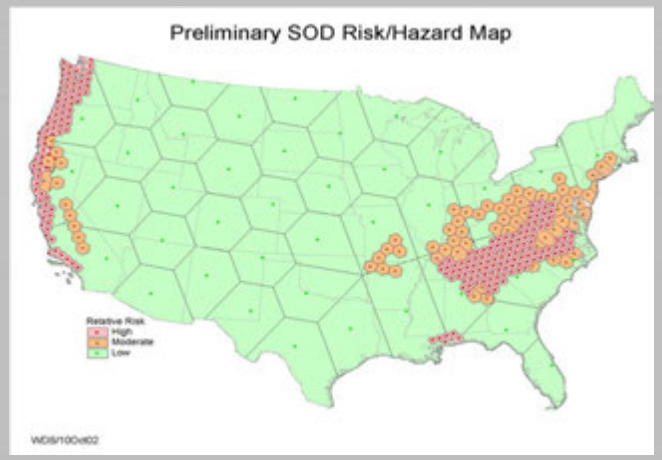
1. Stop treatments altogether on private lands.
2. Business as usual each year, until money runs out.
3. Extensive aerial application of fungicides.
4. Establish host-free zone to the north.
5. Change to strategic and scalable program to stop or slow spread of disease:
    1. Highest priority is to treat sites that are most important for slowing disease spread.
    2. Offer cost share (50-50) for treatment on most other sites
    3. Finish all work underway
    4. Encourage best management practices to reduce inoculum levels.
    5. Change quarantine regulations (in progress)

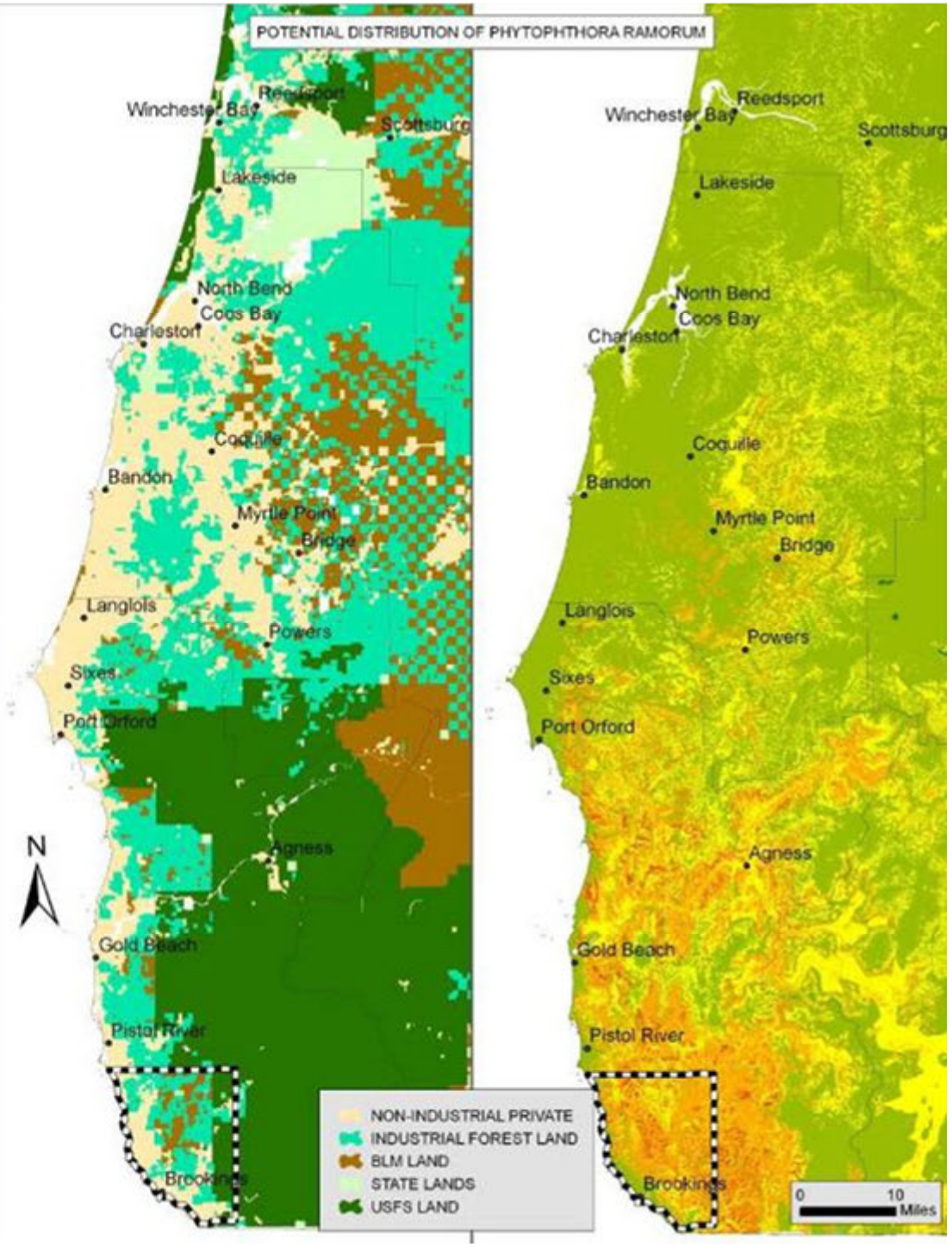
# Some Aspects of the New Program

1. Encourage and incentivize utilization of tanoak in areas where disease spread is likely
2. Adjust quarantine boundary to exclude Easter lily growers and other industries near the southern border.
3. Match available federal funds with landowner in-kind or direct contributions for activities to slow spread of disease (below)

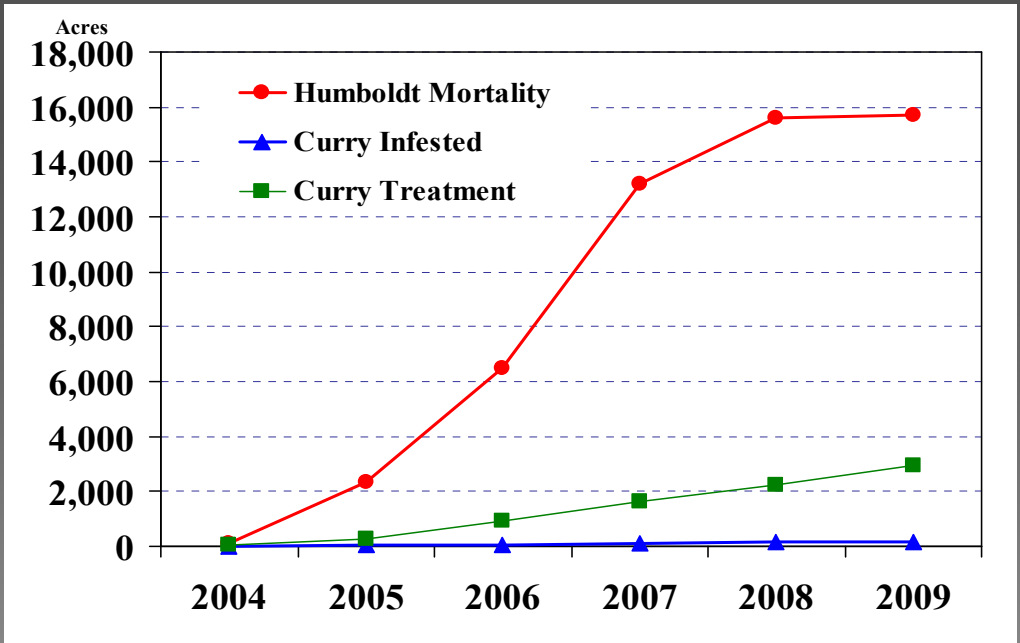
# What is at risk?

- Tanoak & other ecosystems
- Nursery and forest products industries:
  - Increased production costs due to regulations
  - Loss of domestic and international markets
- Benefit-Cost ratio of continuing current program is at least 10:1 (Hall and Albers, 2009).



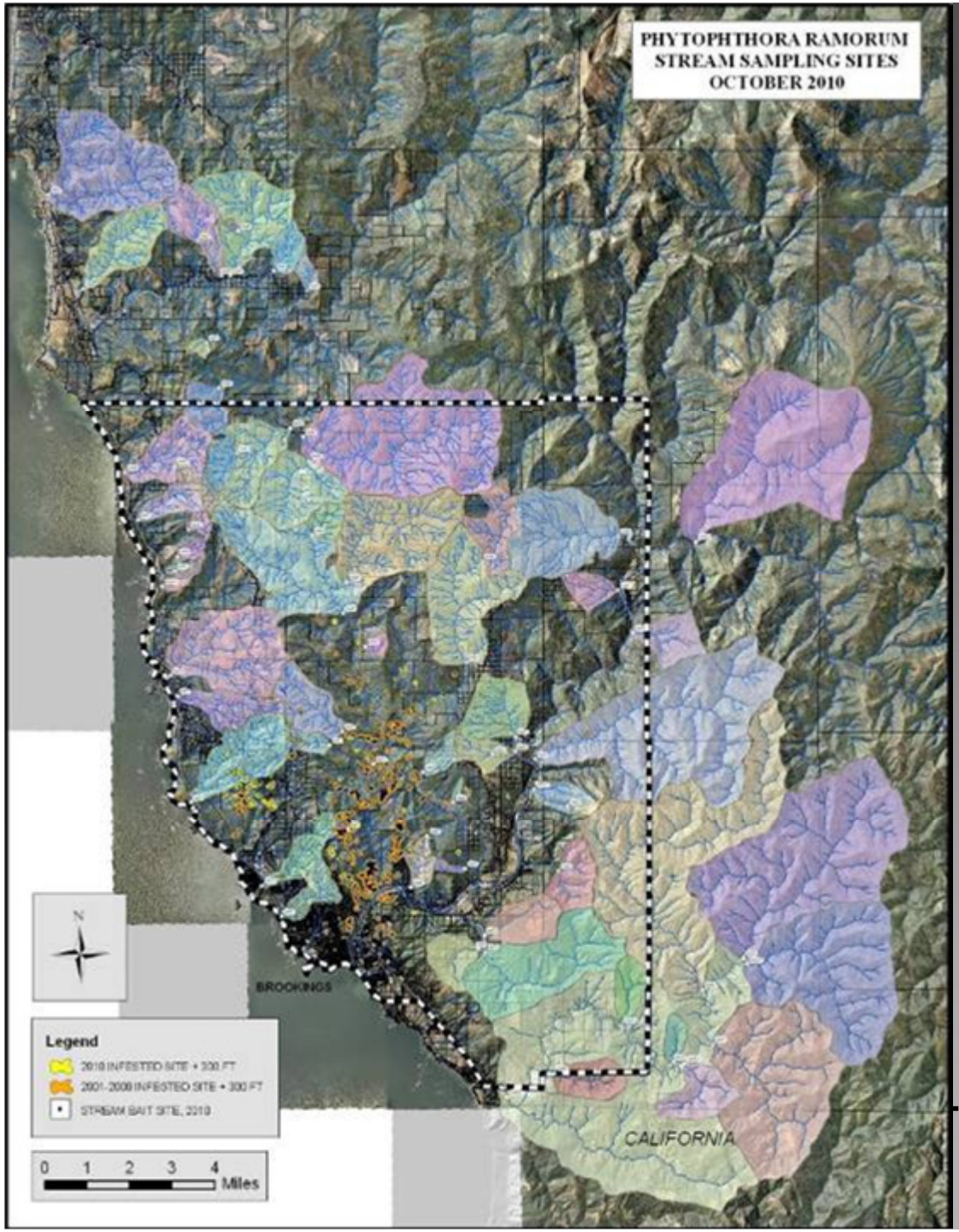
# Comparing Brookings & Redway Infestations 2001-2009




- Brookings infestation started in 2001 or earlier.

  Cumulative area infested = 168 ac
  Cumulative area treated = 3,000 ac
- Redway infestation started in 2003.

  Cumulative mortality = 15,000 ac
- Brookings climate more conducive to disease spread than Humboldt.
- A similar expansion in Oregon would have increased quarantine area
- CA now has new infestation to the north (Redwood creek).




# Early Detection: Stream Baiting

63 active sites

No new culture + in 2010-2011

# Early detection: Aerial Surveys; ground Checks 4 per year

# Sudden Oak Death Program Funding: 2010 – 2011

- ARRA: $1.7 million available for eradication and host removal; all has been spent or obligated.

- USFS R-6 2010 grant; $320,000 available for treatments, $100,000 of this will be turned back unless we provide equivalent non-federal match. This will complete the treatments we have started and are committed to finish.

- USFS R-6 2011 grant; $700,000 (requested); of this, $400,000 would be available for treatments but will be turned back unless we provide equivalent non-federal match. This would complete most of the 2010 treatments. The grant must cover several aspects of the program – detection surveys, administration, and treatments.

- Cost to complete the remaining untreated 2010 sites and expected 2011 sites with the standard treatment: $1.4 to 1.8 million; no funds for this.

- BLM and USFS self-fund their eradication activities;