

# *Phytophthora ramorum* Regulations, Survey and Response

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Animal and Plant Health Inspection Service  
Plant Protection and Quarantine

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# Overview

- Regulation of *P. ramorum*
  - *Federal domestic*
  - *Federal Import*
  - *US Exports*
- Surveys – Detecting *P. ramorum* in
  - Nurseries and residences
  - Woodlands
- Response protocols – Actions taken when found in
  - Nurseries
  - Residences
  - Woodlands



# Federal *P. ramorum* quarantine program goals

- Prevent the artificial spread of *P. ramorum*
- Take the least restrictive action necessary
- Determine the nationwide status of disease
- Keep the regulations current with the science and risk
- Identify where infected items have come from and went to
  - Clean up any detected infested nursery growers and dealers



## ***P. ramorum* Program Timeline**

- 1993/95 – First observations in California & Europe
- 2000 – PPQ first involved
- 2001 – 1<sup>st</sup> Oregon find, State and Foreign quarantines imposed
- 2002 – PPQ quarantines 10 California counties and part of Curry County, Oregon
- 2003 – Numerous finds in EU, EU regulated by PPQ; Nursery finds in CA, OR, WA and BC, Canada
- 2004 – US nursery “outbreak”, 176 nurseries with *P. ramorum*; Federal Order issued on three states
- 2005 - 99 nursery finds in 2005
- 2006 - Finds in CA, OR, WA & FL



Map from [www.suddenoakdeath.org](http://www.suddenoakdeath.org)  
Kelly, UC-Berkeley

## *P. ramorum* quarantined and regulated (nurseries only) areas





## APHIS Federal Order

### *Phytophthora ramorum* regulations on nurseries in California, Oregon and Washington

Signed 21 December 2004 – Effective 10 January 2005

**Rationale:** During 2004 production nurseries on the West Coast outside the quarantine area were found infested with *P. ramorum*.

**Regulates:** Movement of nursery stock from nurseries in all of California, Oregon, and Washington to mitigate the potential of *P. ramorum* infected stock being shipped.

**Nurseries with hosts and associated plants:** Must be inspected, sampled, tested and found free of *P. ramorum* as a condition to ship interstate.

**Nurseries with “non-hosts”:** Must be visually inspected for *P. ramorum* as a condition to ship interstate. Allowances are made for dormant stock.

**Duration:** The requirements for certified movement of hosts and associated plants and the annual inspections are to continue for three years, subject to review and revision.



Yellow are regulated counties  
Only nursery stock is regulated

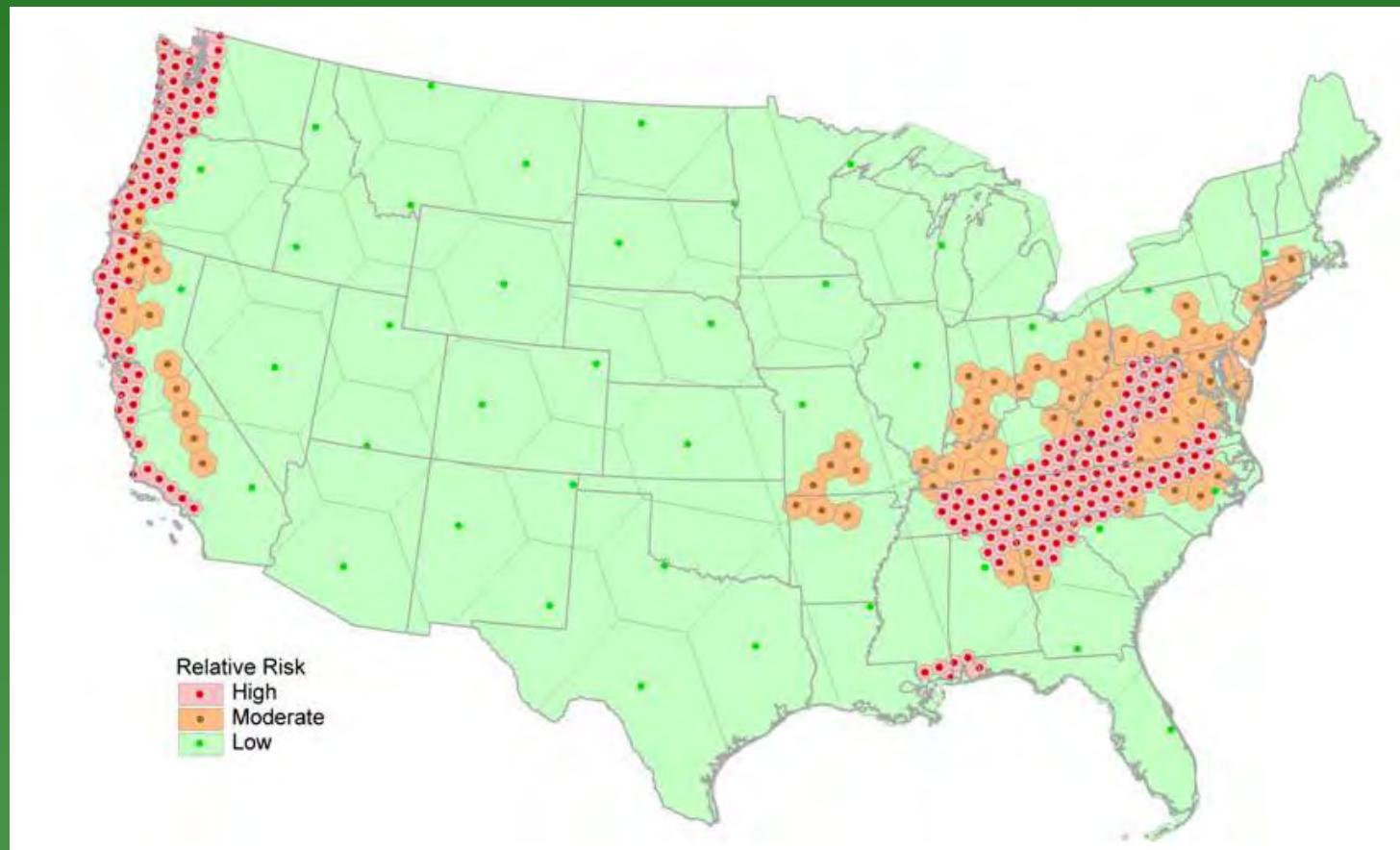
Orange are quarantine (infested) counties  
Nursery stock and articles presenting a risk of spreading *P. ramorum* are regulated

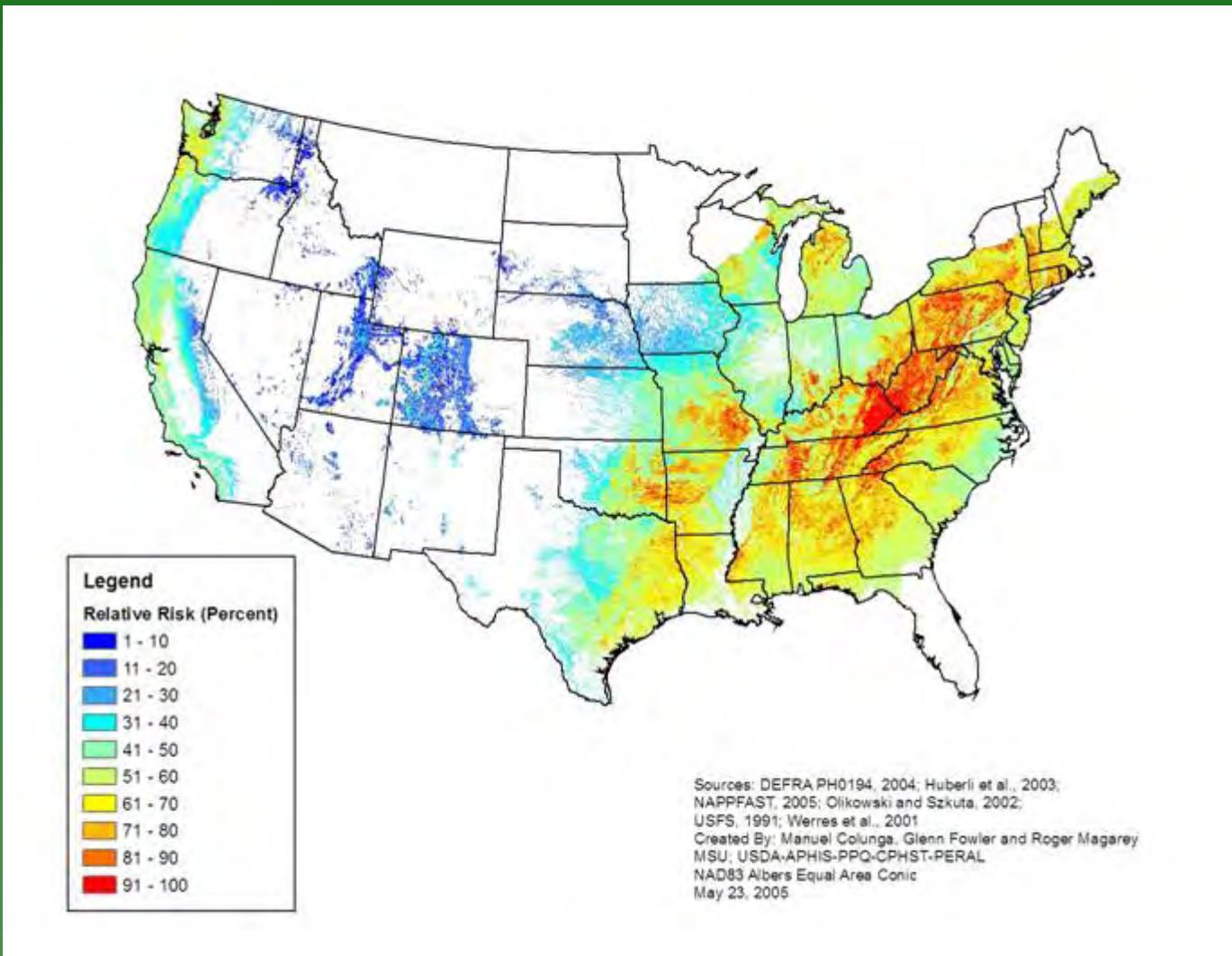


Article	Action	Criteria
Areas of CA, OR, WA not infested	Regulated	Certain nurseries inspected and tested
Infested areas	Quarantine	14 CA and 1 OR (partial) counties
Nursery Stock	Regulated	Annual inspection & test; Shipment inspection (subject to testing)
Wood	Regulated	Must be bark free
Forest stock & Bark	Prohibited	
Soil	Prohibited	NS must be free of duff, Contaminated soil must be treated
Redwood & Doug fir	Prohibited	Only sprouts, twigs, needles
Wreaths & greenery	Regulated	Hot water dip or heat treat bay lvs



## Survey – What areas are at risk?







## Survey – Nurseries

- Have had surveys – national in scope – starting 2002
- Target nurseries with hosts; recipients from risk areas
- Surveyed perimeters 2002-2005
- Survey at best time to find - in the spring
- Sampling and testing by protocol
- Cooperative effort with States
- “Results” in late 2003, 2004, 2005 and 2006



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Photo: Jonathan Jones, APHIS, PPQ



# Response in a nursery

When confirmed positive find, the Confirmed Nursery Protocol invoked; calls for:

- Holds
- Delimiting of entire nursery w/ inspection of all blocks; testing of soil and water
- Destruction of infested block
- Monitoring
- Release with follow up surveys



# *P. ramorum* CSREES PRED\* Program

- Early in 2004 CSREES worked with APHIS, Forest Service, States and COMTF to develop outreach program with training
- Embraced as resource effective manner to deal with public and yard plantings
- Training presented in October of 2004
- Ongoing in many states with active outreach activities
- Good web presence with a number of resources
- **<http://www.ncpmc.org/sod/>**

\*PRED = *P. ramorum* Educate to Detect program



## Response at a residence

When confirmed positive find, the Residential Protocol invoked; calls for:

- Limiting use of immediate area
- Delimiting of area and testing of soil and any water downslope
- Destruction
- Release with follow up surveys



Photo: University of Delaware



# Survey – Woodlands



- Have had risk-based surveys outside California starting 2001
- Target woodlands with hosts with supportive climate
- Surveyed woodlands of nursery perimeters since 2002
- Surveys timed in the spring, south to north
- Sampling and testing by FS protocol on web
- Results in 2004 with detection in San Francisco wooded area – resulting in new county under quarantine
- Cooperative effort with State Foresters
- Piloting stream baiting 2006 – more sensitive and cost effective?

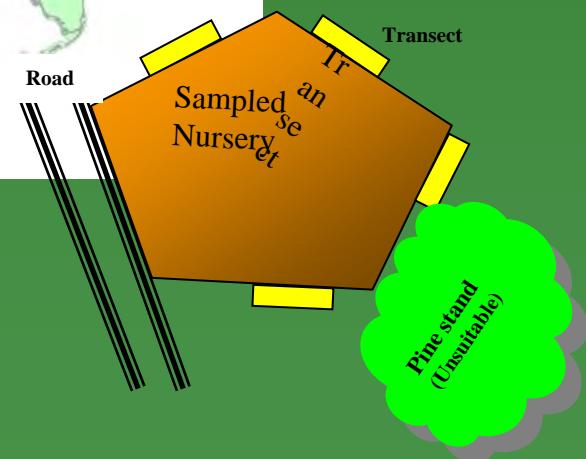
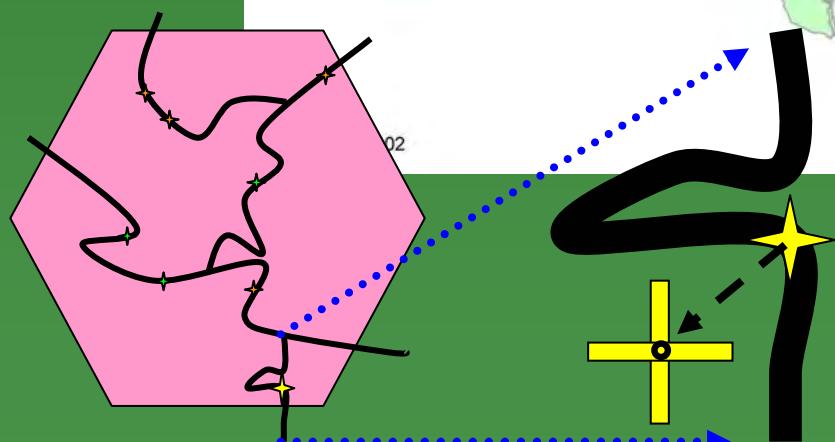
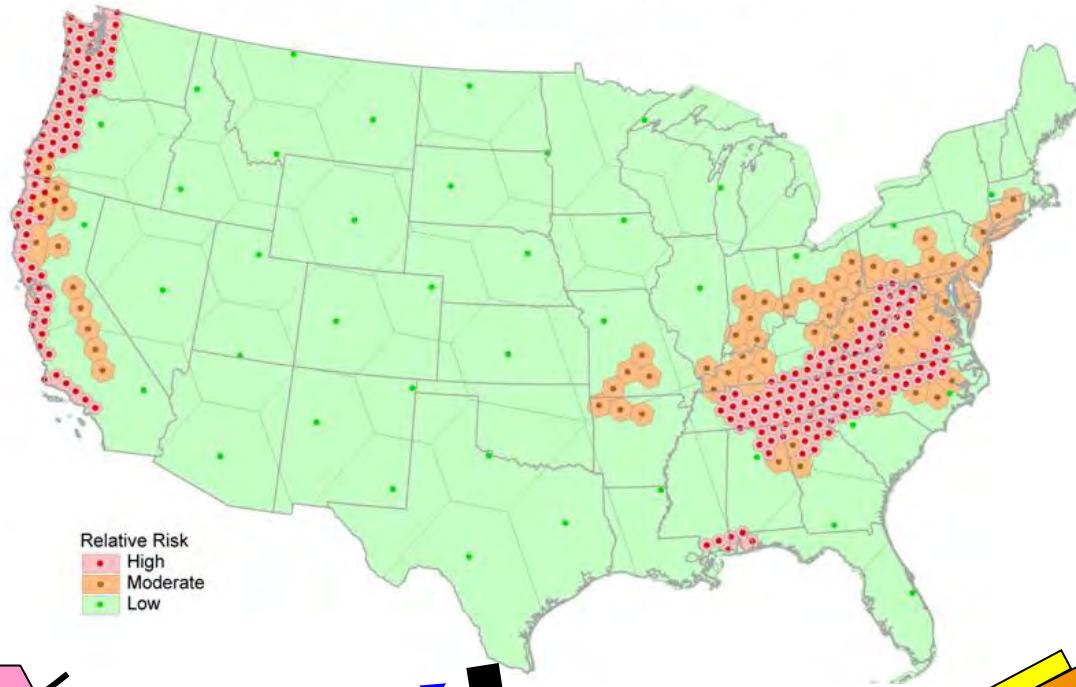


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## Plant Protection and Quarantine



### Preliminary SOD Risk/Hazard Map





## Response in a Woodland

When confirmed positive find, the Forest and Wildlands Protocol invoked; calls for:

- Limiting use of immediate area
- Delimiting of area and testing of soil and water
- Options for the State – Eradication, Containment or Management
- Monitoring
- If and when eradicated, release with follow up surveys



Photo JJones, Marriottsville, MD



Photo: Everett Hansen, Oregon State University



## *P. ramorum* infested and quarantined areas, also showing management and eradication areas

Map from [www.suddenOakDeath.org](http://www.suddenOakDeath.org)  
Kelly, UC-Berkeley



## US IMPORT REGULATIONS:

- APHIS is regulating host and associated plant nursery stock from the EU (Emergency Regulations)
- An Interim Rule is in process
- Reported from: Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Slovenia, Spain, Switzerland, Sweden, & United Kingdom.



# US Export Restrictions

2001 – Canada regulates California, Germany and Netherlands;

South Korea regulates California

2002 – EU restricts host shipments from quarantined area

2003 - Australia, New Zealand and Czech Republic  
(nursery stock & wood)

2005 – Mexico (Xmas trees)

2006 – Taiwan

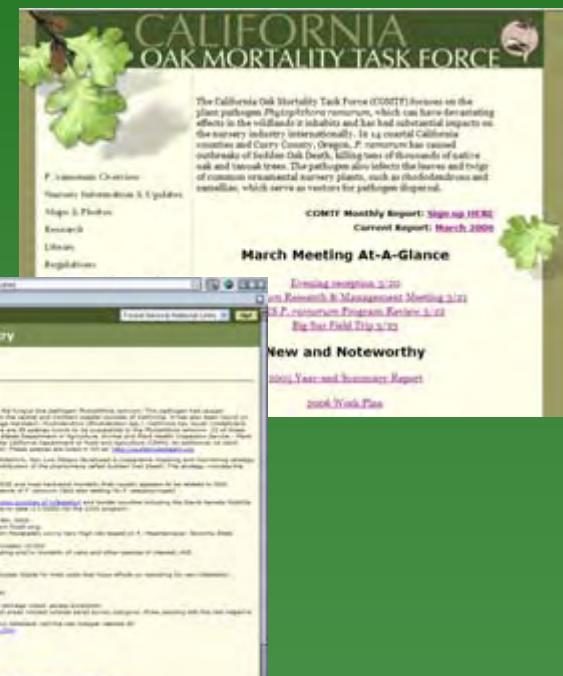
For More Information - APHIS web site:  
<http://www.aphis.usda.gov/ppq/ispm/pramorum/>



The screenshot shows the 'Plant Protection and Quarantine' section of the APHIS website. It features a large image of a tree with green leaves. Below the image, a section titled 'Phytophthora ramorum (PR)' discusses its role in Sudden Oak Death, including leaf blight and stem dieback. It includes a 'Tip Free Information Line' for APHIS and links to various documents and resources.



The screenshot shows the 'National Plant Board' website. It features a green header with the NPB logo and a large image of a leaf. The main content area includes sections for 'Membership', 'Committees', and 'Regional Boards'. A 'Front Page News' box highlights 'Match - Forestus Termites' and 'NFS Guidance of APHIS PMS staff for Sudden Oak Death'. A sidebar on the right provides links to 'Forest Health Overview', 'Research Information & Updates', 'Maps & Photos', 'Research', 'Library', and 'Regulations'.



The screenshot shows the 'CALIFORNIA OAK MORTALITY TASK FORCE' website. It features a large image of an oak leaf. The main content area includes sections for 'Forest Health Overview', 'Research Information & Updates', 'Maps & Photos', 'Research', 'Library', and 'Regulations'. A sidebar on the right provides links to 'COMTF Monthly Report: Sign up HERE', 'Current Report: March 2009', 'March Meeting At-A-Glance', 'Upcoming Events', 'New & Noteworthy', '2009 Year-End Summary Report', and '2009 Work Plan'.

NPB, CSREES, COMTF, and FS web sites:  
[www.nationalplantboard.org](http://www.nationalplantboard.org), [www.ncpmc.org/sod/](http://www.ncpmc.org/sod/)  
[www.sudden oak death.org](http://www.sudden oak death.org), & [www.fs.fed.us/](http://www.fs.fed.us/)



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**Plant Protection and Quarantine**



 **NATIONAL PLANT BOARD**



*National*  
**IPM**  
**Center**



 **NPDN**  
National Plant Diagnostic Network