



---

## Invasive Species Control Account

### Request for Funding and Associated Response Plan

**Project title:**

Emergency treatment of the “European lineage 1” of the invasive forest pathogen, *Phytophthora ramorum*, in Curry County, Oregon

**Petition date:** March 13, 2017

**Oregon Department of Forestry Lead Contacts:**

Project Manager:

Sarah Navarro, Forest Pathologist  
ODF Private Forests, Salem  
503-945-7394  
[Sarah.Navarro@oregon.gov](mailto:Sarah.Navarro@oregon.gov)

Wyatt Williams, Invasive Species Specialist  
ODF Private Forests, Salem  
503-945-7472  
[Wyatt.Williams@oregon.gov](mailto:Wyatt.Williams@oregon.gov)

Kyle Abraham, Deputy Chief  
ODF Private Forests, Salem  
503-945-7473  
[Kyle.Abraham@oregon.gov](mailto:Kyle.Abraham@oregon.gov)

**Introduction:**

Sudden oak death (SOD), caused by a non-native pathogen *Phytophthora ramorum*, has killed hundreds of thousands of tanoak trees in Curry County Oregon since it was first detected by Oregon Department of Forestry (ODF) in 2001. Between 2001-2010, ODF and its partners, including the U.S. Forest Service (USFS), Bureau of Land Management (BLM), USDA-Animal and Plant Health Inspection Service (APHIS), and private landowners, attempted eradication of the disease. In 2010, ODF switched from an eradication strategy to “Slow the Spread” strategy by concentrating limited funding on outlying infection centers. Both control programs for sudden oak death have been successful in eradicating *P. ramorum* from some sites, slowing the rate of disease progression on the leading front, and keeping the state quarantine at the sub-county level during the span of the program (Figure 1).

Staff from ODF conduct systematic ground and aerial surveys both inside and adjacent to the quarantine. Population genetics studies indicate that until 2014, all SOD occurrences in Oregon were caused by a single genetic lineage of the *P. ramorum*, North American 1 (NA1). In early 2015, the European lineage 1 (EU1) of *P. ramorum* was detected on a single tanoak tree near the Pistol River. The EU1 lineage is responsible for killing mature conifers in plantations in the United Kingdom. This is the first report of the EU1 lineage in U.S. forests. Genetic analysis suggests a nearby private nursery (now closed) as the probable source. The EU1 infection center was cut and burned (13 acres) and has not been detected in post-treatment vegetation sampling and ground surveys in the vicinity.

In 2016, the EU1 *P. ramorum* lineage was detected for a second time in a larger infection center comprising of 20 infected tanoaks. ODF requested federal funds from the BLM and the USFS for controlling both the EU1 site as well as priority NA1 sites on the leading edge of the outbreak. However, the delivery of federal funds has been delayed for various reasons, leaving approximately 26 of 53 acres of the EU1 site untreated and at risk (Figure 2).

**ODF is requesting \$81,000 from the state's Invasive Species Control Account (OAN 609-010-0120; ORS 570.800) to complete control of the EU1 site on 26 acres of private forestland.**

#### **Risk assessment:**

The EU1 *P. ramorum* lineage is on the Oregon Invasive Species Council's list of the Top 100 Most Dangerous Invasive Species. In Europe, the EU1 lineage kills or damages several conifer tree species, including Japanese larch (*Larix kaempferi*) and Douglas-fir (*Pseudotsuga menziesii*). The EU1 lineage is considered more aggressive than the North American lineage (NA1). Establishment of the EU1 lineage would create the potential for sexual reproduction and increased variability in the current *P. ramorum* population.

*P. ramorum* causes disease in over 120 species of wildland and landscape plants. In Oregon, the disease epidemic is driven by high infection rate, sporulation and subsequent mortality of tanoaks (*Notholithocarpus densiflorus*). *P. ramorum* kills tanoaks and occasionally damages new shoots and twigs of conifer species in areas with high spore loads. *P. ramorum* spreads naturally when clouds and rain move spores within forest canopies and up to 4 miles. Human-assisted spread occurs when people transport infected plants or plant parts or infested soil, which accounts for the three introductions of sudden oak death in southwest Oregon.

The disease and associated domestic and international regulations threaten timber production and trade, the floral and green industry, Christmas tree production, and plant nurseries throughout Oregon. It has the potential to increase wildfire fuel loads, affect slope stability, affect native plant populations, and alter forage and structural components of wildlife habitat. It threatens resources valuable to local Native American people.

#### **Previous and ongoing efforts to control:**

Oregon Department of Forestry, Oregon Department of Agriculture, Oregon State University, USDA Forest Service, and USDI Bureau of Land Management have been working together with private landowners since 2001 to eradicate populations of *P. ramorum* and slow the spread of sudden oak

death. Approximately 31% of Curry County is under state quarantine. Federal and international quarantine restrictions are also in place. The current slow-the-spread program uses early detection, monitoring and eradication treatments to reduce the rate of disease spread and slow disease intensification.

Aerial surveys, both fixed winged and helicopter, are conducted four times per year; the main surveys occur in July and October when current-year mortality is most visible. Aerial surveys cover a cumulative area of at least 700,000 acres of forest. Ground survey crews then locate symptomatic trees and tissue samples are collected and analyzed by Oregon State University. The disease is also monitored with baits placed in several watersheds and by rain buckets, both of which capture spores of *P. ramorum*.

When new infection centers are found, they are treated by cutting and burning infected trees and other host plants on site, plus those within an adjacent buffer of 50 to 600 feet, depending on location of the site and available funds. Since 2001, approximately 6,200 acres of forest land have been treated. The majority of treated acres occur on private industrial or non-industrial forest land. Treatments have been shown to be effective when completed soon after diseased trees are detected and with the largest treatment buffer possible. Treatment costs generally range from \$3,500-\$5,000 per acre and come from multiple sources, primarily the USFS, BLM, ODF and other federal dollars.

#### **Proposed methodology:**

Funding from OISC will ensure the continued rapid response to reduce the risk of spread from the EU1 infested zone, totally 53 acres. All known infected plants and a 300- to 600-ft buffer of healthy appearing host plants shall be cut and piled. The piles will be burned as soon as the risk of wildfire is low enough to permit a safe operation.

#### **Budget: ODF is requesting \$81,000 to complete eradication treatments using contract crews.**

ODF uses two contract crews based on eradication treatment activities to perform, host tree density, and treatment area site characteristics. Professional Reforestation of Oregon Inc. uses manual crews to perform eradication treatment activities. Western Pacific Tree Service Inc. uses manual and machine crews to perform eradication treatment activities.

#### **Timeline of activities:**

To date, ODF contract crews have completed treatment on approximately 27 of the 53 acres of the EU1 infection center. Eighty percent of the infected trees (24 of 30) have been cut and piled. Once funding is obtained, ODF would resume treatment activities at the EU1 infested site in order to treat the remaining 26 acres. ODF anticipates the remaining treatment activities on the EU1 infested site to take contract crews 5 weeks to complete this spring.

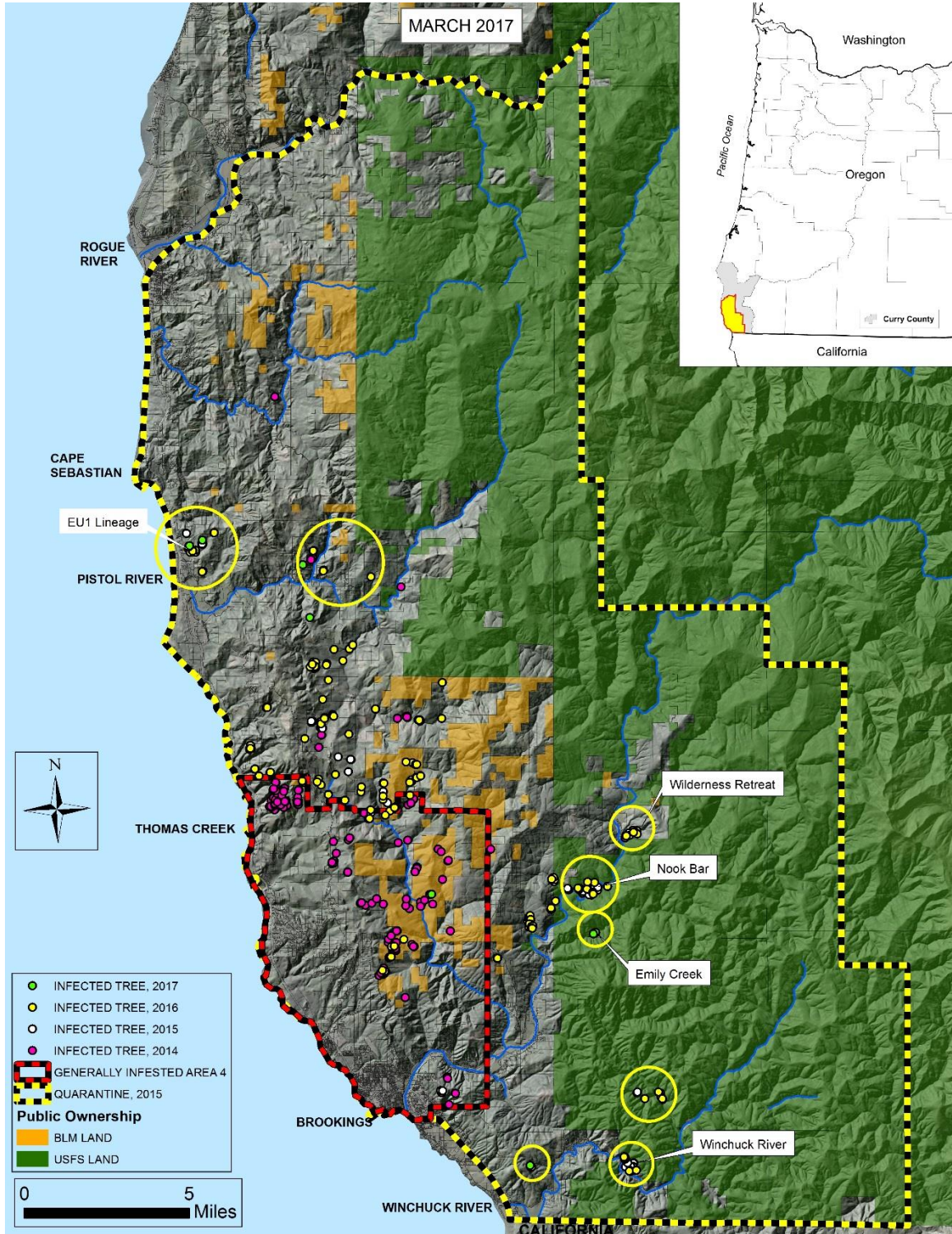
**Methods to evaluate success:** ODF will create anticipated buffer zones around the EU1 infection (cutting, piling, and burning of infected and buffer trees and host plants). ODF will monitor the site at

least twice within 90-days of completion of mitigation activities; samples will be collected from soil, water (if present), and plants within and adjacent to the treatment area to ensure mitigation was completed successfully. The site will be monitored annually for the next 3-years to ensure the EU1 lineage has been eradicated.

**Conclusion:**

The EU1 lineage of *P. ramorum* that was detected by ODF in private forests of Curry County is considered a forest health emergency by the Oregon Department of Forestry. Because funding from the state has been exhausted and federal funds obligated to control EU1 and NA1 infection centers has been delayed, an alternative source of emergency funding is sought. The ODF Forest Health Unit is a leader in sudden oak death detection and treatment. Having timely access to emergency funds for the current EU1 infection center will allow ODF and its contractors an opportunity to control and eradicate this genetic lineage from Oregon's forests before it has a chance to establish and spread into forests across southwestern Oregon.

**Figure 1.** Current distribution map and quarantine area in southwest Oregon for *Phytophthora ramorum*, the causal agent of sudden oak death. Yellow circles represent high-priority disease centers targeted for treatments in 2017.



**Figure 2.** The 52-acre EU1 treatment site. As of March 9, 2017, half of the area (26 acres) was left untreated due to lack of funding.

