STATUS OF SUDDEN OAK DEATH IN OREGON FORESTS

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Background

Sudden Oak Death was first discovered in Oregon forests in July 2001 near the coastal city of Brookings, 5 miles north of the California border. Archival aerial photographs revealed tanoak mortality was present in at least one of the infested sites, suggesting that the disease has probably been in Brookings since 1998 or 1999. At the time of discovery in Oregon, there were five infested sites encompassing a total of 36 acres distributed over 2.5 miles (north-south) by 1.2 miles (east-west).

Because of the apparently small number of infestations and the unknown potential for damage, an aggressive program of early detection and eradication was implemented, with cutting and burning of all infected and symptomatic host plants in the infested sites. The Oregon Department of Agriculture (ODA) also established a 9 mi^2 emergency quarantine area from which movement of all host material was prohibited.

Early Detection

Early detection surveys have been conducted throughout each year in Curry County and consist of fixed-wing aircraft and helicopter surveys, aerial imaging, stream baiting, and ground-based surveys.

Eradication Treatments

Mandatory eradication began in the autumn of 2001 under the statutory authority of ODA. Funding initially was provided by the USDA Forest Service (USFS), and in subsequent years by the Oregon Department of Forestry (ODF), USDI Bureau of Land Management (BLM), and USDA Animal and Plant Health Inspection Service (APHIS). Although there was no direct cost to landowners, no compensation was made for loss of timber or other values. All eradication activities on federal lands managed by the BLM or USFS have been funded by the respective agency.

After initial detection of *P. ramorum*, each infested site was surveyed for symptomatic plants and a treatment area delimited. In 2001 and 2002, the treatment area boundary was 50 to 100 feet from infected or symptomatic plants. In subsequent years it was increased to 300 feet or more, reflecting monitoring data showing that smaller treatment areas often were not large enough to capture the extent of the infestation.

Eradication treatments consisted of felling and burning all host plants within the treatment area as soon as possible after detection. Cutting, piling, and burning were done by hand crews, heavy and light equipment, broadcast burning, and any combination thereof. In some cases, host plants were cut, piled, partially covered with plastic, allowed

to cure, and burned 6 to 14 months later. On most sites trees were injected with herbicide prior to cutting to prevent sprouting from stumps.

To date, eradication treatments have been completed on approximately 4,500 acres and host removal on approximately 1,450 acres. Treatments effectively eliminated disease on more than 50 percent of sites, but the disease continues to slowly spread.

Disease Spread, July 2001 to December 2013

The number of new infested sites found each year increased slowly between 2001 and 2009 and appeared to stabilize at approximately 60 per year. At this level of disease and funding, the eradication program was marginally sustainable. In 2010, disease levels began exceeding the capacity to apply eradication treatments to all infested sites. Since then, sites on private land nearest the quarantine boundary have been assigned the highest priority for treatment while sites near the center of the quarantine area have been left untreated. All sites on federal land continue to be treated, regardless of location.

In 2011 and 2012, disease continued to intensify and spread primarily near the center of the quarantine area and close to the coastline. A few new infestations were found outside of existing quarantine area as well, triggering an expansion of the quarantine to 202 mi^2 in March 2012, and then to 264 mi^2 in March 2013 (current quarantine area). This latest revision of the quarantine established a Generally Infested Area (GIA) within the quarantine boundary where *P. ramorum* has persisted or intensified and eradication is no longer required by the state.

In 2013, no new infested sites were found outside of the quarantine area. Several new infested sites were found outside of the GIA and those are being treated regardless of ownership. The BLM continues to treat all infested sites on their land, inside or outside of the GIA.

Because disease has become widespread within the GIA, surveying and tracking new infestations (other than BLM land) is no longer occurring. Current detection surveys focus on new outlying infestations and establishing the leading edge of the main infestation.

Outlook

The initial goal of complete eradication of *P. ramorum* in Curry County forests is unachievable. The current program goal is to slow disease spread using early detection and eradication, while also relying on quarantine regulations and landowner education to help prevent human spread.

Dead trees are accumulating inside the GIA and pose a hazard for falling on dwellings, people, and roadways and will increase the risk of wildfire if not removed. There currently is no program to provide assistance to landowners for removing dead trees in the GIA.

The total current annual program cost (all fund sources) is approximately $1 million. Detection surveys are the highest priority, followed by eradication treatments. If available funds are not sufficient to treat all high-priority infested sites, the GIA will be expanded.

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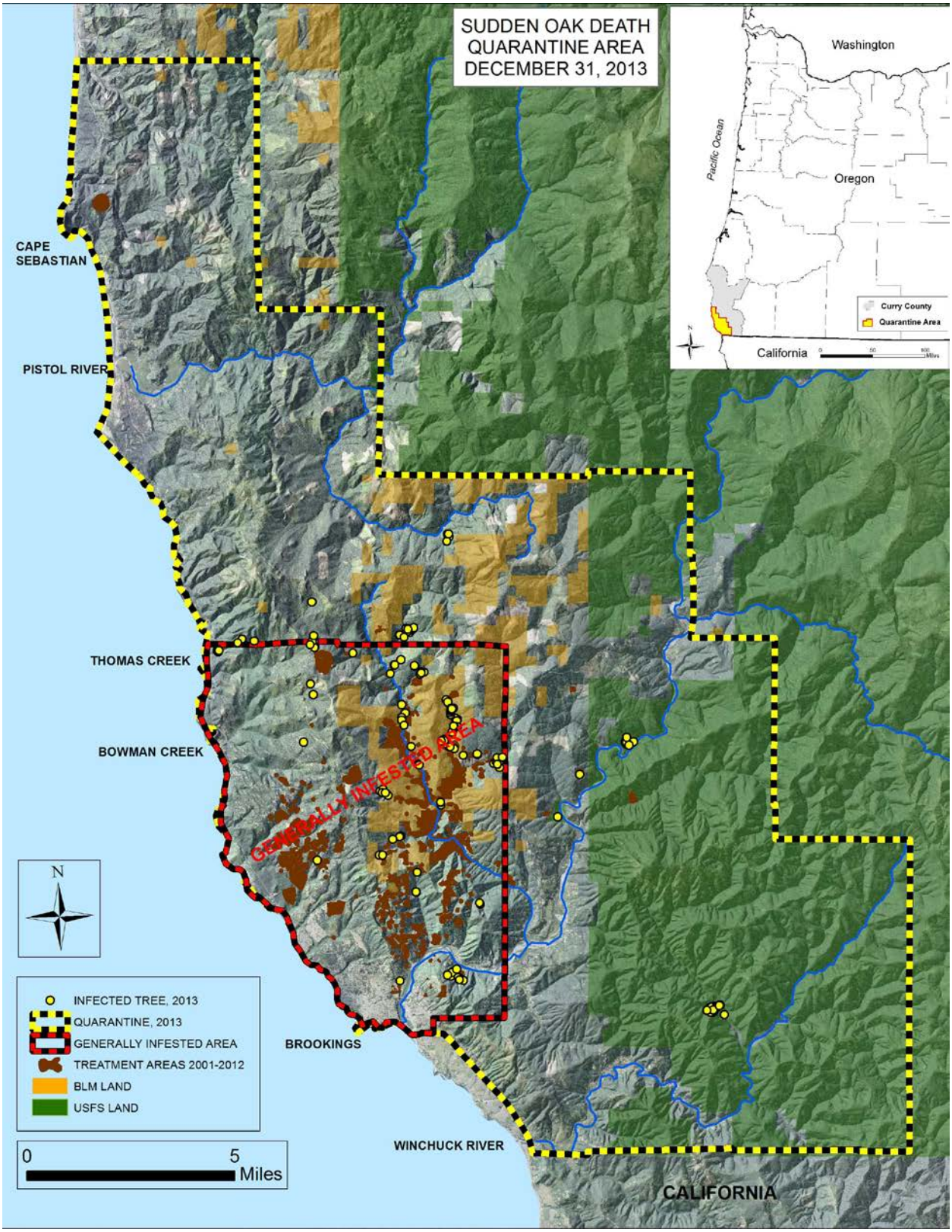

Figure 1. Location of sites infested with *Phytophthora ramorum* in southwest Oregon that were discovered in 2013. Brown blotches indicate past eradication areas. Sites are enlarged for visibility.