Slowing Spread of Sudden Oak Death in Oregon Forests, 2001-2015[1]

Alan Kanaskie,[2] Randy Wiese,[2] Danny Norlander,[2] Jon Laine, [2] Sarah Navarro,[2] Ellen Michaels Goheen,[3] Ron Rhatigan,[3] Everett Hansen,[4] Wendy Sutton,[4] Paul Reeser,[4] Nik Grunwald,[4] Zhian Kamvar,[4] and Nancy Osterbauer[5]

Abstract

Sudden oak death, caused by *Phytophthora ramorum,* is lethal to tanoak (*Notholithocarpus densiflorus*) and threatens this species throughout its range in Oregon. The disease was first discovered in coastal southwest Oregon forests in July 2001. An interagency team attempted to eradicate the pathogen through a program of early detection and mandatory destruction of infected and nearby host plants. Eradication treatments eliminated disease from most infested sites, but the disease continued to spread slowly, mostly in a northward direction.

Following a sharp increase in disease in 2010 and 2011, a result of leaving many infestations untreated, the program shifted goals from complete eradication to slowing spread. In 2012 the quarantine regulations were changed by establishing a Generally Infested Area (GIA) in which eradication on was no longer required by law. Since then, eradication treatments (cutting and burning host plants) have been focused on new infestations that occur outside of the GIA. All new infestations outside the GIA are cut and burned, but the size of the treatment area varies with available funds and location of the site.

Since 2001 the area under quarantine has expanded seven times: from 22 km^2 (9 mi^2) in 2001 to 1,333 km^2 (515 mi^2) in 2015, which is approximately 31% of the total area of Curry County. The GIA has expanded four times and currently stands at 151 km^2 (58 mi^2). Within this area, hundreds of thousands of tanoaks have died in the since 2012, creating a high risk for wildfire and damage from falling trees. From the initial infestations of 2001, the disease has been found a maximum distance of 28 km (17.5 mi) to the north, 12 km (7.5 mi) to the northeast along the Chetco River, and 11 km (7 mi) to the southeast along the Winchuck River.

In early 2015 the EU1 genetic lineage of *P. ramorum* was detected on a single tanoak tree located approximately 1 mile north of a small private nursery (now closed) near the Pistol River. Genotype comparison of the tanoak and nursery isolates suggests the nursery as the probable source for the forest infestation. This is the first report of the EU1 lineage in US forests. All host plants within approximately 130 m of the infected tree were cut and burned in 2015. Two post-treatment assays of soil and vegetation on the infested site failed to detect *P. ramorum*.

---

[1] A version of this paper was presented at the Sixth Sudden Oak Death Science Symposium, June 20-23, 2016, San Francisco, California.

[2] Oregon Department of Forestry, Salem, OR 97310.
[3] USDA Forest Service, Pacific Northwest Region FHP, Central Point, OR.
[4] Oregon State University, Corvallis, OR.
[5] Oregon Department of Agriculture, Salem, OR.
Corresponding author: alan.kanaskie@oregon.gov.