

Oregon Sudden Oak Death Management Follow-up: Epidemiology¹

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Abstract

Phytophthora ramorum, the oomycete pathogen responsible for Sudden Oak Death (SOD) in California and Oregon forests, requires constant vigilance to detect and manage. Prior to 2011, the focus of Oregon-based management was complete eradication of all disease centers through removal of infected plant material. Despite intense eradication procedures, the disease continued to spread. Current Oregon management focuses on reducing the spread of SOD within Curry County, and preventing spread to neighboring counties (Goheen and others 2017).

Previous research published in 2015 focused exclusively on the NA1 lineage and its population genomics (Kamvar and others 2015, Manter and others 2010). The EU1 lineage was first confirmed in a forested site in 2015, in Curry County, OR (Grünwald and others 2016). Therefore, there's a need to reassess the effectiveness of management techniques with the discovery of this more virulent lineage. Ongoing research looks at the effectiveness of eradication/suppression efforts, including the newly discovered EU1 strain. Additionally, impacts of natural fire on eradication can be studied through the 2017 Chetco Bar Fire, which swept through portions of the Oregon Quarantine Zone and Generally Infested Area.

In addition to assessing management of SOD, a study of the relation between spatial and genetic distance is nearing completion. Using data collected since 2001, both NA1 and EU1 infections were tracked over time and space. A preliminary computational assessment of subsequent new SOD infections relative to previously eradicated infections revealed candidate samples for sequencing. Whole-genome sequencing of spatially related trees and their neighbors will reveal their level of genetic relatedness.

Literature Cited

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¹ A version of the paper was presented at the Seventh Sudden Oak Death Science and Management Symposium, June 25-27, 2019, San Francisco, California.

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