

# Comparative Epidemiology of EU1 and NA1 Lineages of *Phytophthora ramorum* in Southwestern Oregon Tanoak Forests<sup>1</sup>

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## Abstract

*Phytophthora ramorum*, cause of Sudden Oak Death (SOD), is an invasive pathogen that infects over 100 species of plants and has been introduced multiple times into the coastal forests of southern Oregon and northern California. In southwestern Oregon forests, tanoak (*Notholithocarpus densiflorus*) is the most susceptible species developing lethal stem cankers and sporulating from infected leaves and branches. The NA1 lineage was first reported in Oregon in the early 2000s and in 2015 the EU1 lineage was discovered infecting tanoak in the South Fork Pistol River drainage in Curry Co., Oregon. Using an approach developed by Garbelotto and others (2017) sporulation of each lineage was compared at six sites (3 NA1; 3 EU1). Sporulation, temperature, and relative humidity were quantified for 5, 2-week intervals in winter 2017/2018 and 2018/2019. In addition, infection frequency of tanoak, Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), western larch (*Larix occidentalis*), and sitka spruce (*Picea sitchensis*) seedlings at the sites was also compared. Preliminary analysis indicates greater sporulation at EU1 sites compared to NA1; however, this did not correspond to increased infection of tanoak seedlings at EU1 versus NA1 sites. In contrast, there were differences in the infection frequency of Douglas-fir (EU1 = 37%; NA1 = 10%), western hemlock (EU1 = 10%; NA1 = 0%); sitka spruce (EU1 = 55%; NA1 = 0%); and larch (EU1 = 90%; NA1 = 13%). Differences in the infection rate of conifer seedlings at EU1 compared to NA1 sites and the implication for the management of SOD will be discussed.

## Literature Cited

Garbelotto, M.; Schmidt, D.; Swain, S.; Hayden, K. and Lione, G. 2017. The ecology of infection between a transmissive and a dead-end host provides clues for the treatment of a plant disease. *Ecosphere*. 8(5): e01815.

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