

First Report of the NA2 Lineage of *Phytophthora ramorum* from an Ornamental Rhododendron in the Interior of California

M. Garbelotto and D. Barbosa, Department of ESPM, 37 Mulford Hall, University of California, Berkeley, CA 94720; and H. Mehl and D. M. Rizzo, Department of Plant Pathology, One Shields Ave., University of California, Davis, CA, 95616

In July 2012, we collected a rhododendron var. *Trilby* with twig dieback symptoms in the lower canopy, consistent with the disease “ramorum blight” caused by *Phytophthora ramorum*. The symptomatic plant had been planted a year earlier to replace a dead rhododendron in a landscape setting in Placer County, California (Lat: 39.036216°; Long: -120.999274°), Sierra Nevada foothills at ~600 m elevation. Isolations yielded a culture with a fast growth rate and overall morphology resembling the *P. ramorum* NA2 lineage described by Ivors et al. (4). DNA was extracted from the culture as described previously (4) and six SSR loci: MS18, MS39, MS43, MS45, MS64, MS145, were amplified (2,4). Allelic patterns were compared with those of three testers from each of the three lineages NA1, NA2, and EU1 known to be present in ornamental plants in North America, and they unambiguously confirmed the isolate belongs to the NA2 lineage of the pathogen. Although the symptomatic plant was confined to a landscape setting, it had been planted in that location for a year, providing a possible source of inoculum for the surrounding area. This is the first report of *P. ramorum* from the Sierra Nevada eco-region in the interior of California. It is also the first report of a NA2 isolate from a plant outside of commercial nurseries in California. The mating type of the isolate was not determined, but NA2 isolates are normally A2, the same mating type of NA1 isolates. The only other report of a NA2 isolate found outside of a nursery is from Washington State (1). Although there is no evidence the pathogen may have infected other plants, the infected rhododendron was found at a location situated over 100 km east of the closest known infestation (www.sodmap.org). Additionally, this is the first report of the pathogen outside the coast mountain range of California. Because the three lineages are genetically and phenotypically distinct (3), the escape of NA2 or EU1 isolates, both still absent from plants in natural settings, could have significant implications for California ecosystems. This finding highlights that introductions of *P. ramorum* via ornamental plants are still possible, in spite of current regulations.

References: (1) G. Chastagner et al. *Phytopathology* 101:S32, 2011. (2) P. P. Croucher et al. *Biol. Invasions* 15:2281, 2013. (3) N. J. Grünwald et al. *Trends Microbiol.* 20:131, 2012. (4) K. Ivors et al. *Mol. Ecol.* 15:1493, 2006.