

# 31 Flavors to 50 Shades of Grey: Battling Phytophthoras in Native Habitats Managed by the Santa Clara Valley Water District<sup>1</sup>

Janet Hillman,<sup>2</sup> Tedmund Swiecki,<sup>3</sup> Elizabeth A. Bernhardt,<sup>3</sup> Heather K. Mehl,<sup>4</sup>  
Tyler B. Bourret,<sup>4</sup> and David Rizzo<sup>4</sup>

## Abstract

The Santa Clara Valley Water District (District) is a wholesale water supplier for 1.8 million people in Santa Clara County, California. Capital, water utility, and stream maintenance projects result in extensive, long-term mitigation requirements in riparian, wetland, and upland habitats throughout the county. In 2014, several restoration sites on the valley floor and in the upper watershed were found to be contaminated by *Phytophthora* spp. Subsequently, an extensive baseline study of restoration sites planted in the last 3 years revealed 31 different species of *Phytophthora* in 16 sites, while a related study revealed at least 17 species at 13 sites, for a total of approximately 39 species across all sampled locations. Detections of *P. tentaculata* and *P. quercina*, which are ranked in the top five high-risk species to the United States by the USDA, are of particular concern. The District's response to this high level of contamination has included development of a comprehensive set of BMPs and contract specifications for work in sensitive and contaminated areas; a short term moratorium on planting nursery container stock; a complete reevaluation of restoration practices from seed collection, growing of stock to planting out; participation in regional working groups on the emerging pathogen threat; education of stakeholders, project planners, regulatory personnel, district staff and contractors; and additional testing and site remediation where feasible. Remediation of infected sites has proved challenging due to cost, site access, and dense urbanization in the lower watershed.

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

<sup>2</sup> Santa Clara Valley Water District, 5750 Almaden Expwy, San Jose, CA 95118.

<sup>3</sup> Phytosphere Research, Vacaville, CA.

<sup>4</sup> Department of Plant Pathology, UC Davis, Davis, CA.

Corresponding author: [jhillman@valleywater.org](mailto:jhillman@valleywater.org).