

Evaluating Threats posed by Exotic *Phytophthora* species to Sensitive Plant Communities in the Santa Clara Natural Community Conservation Plan Area

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Root rots caused by exotic *Phytophthora* species have been associated with dying and declining vegetation in a number of native plant communities in the Bay Area and elsewhere in northern California. This project focused on detecting *Phytophthora* species that are currently affecting or have the potential to seriously affect populations of covered plants in the Santa Clara Natural Community Conservation Plan (NCCP) area. A key component of the NCCP was the creation of a 19,000 ha reserve network within the plan area that was intended to safeguard protected and conserved species and habitats for the length of the plan (50 years). We used a GIS-based analysis to determine where at-risk priority habitat types might be exposed to contamination from potential *Phytophthora* sources within the NCCP reserve system and conducted targeted sampling to detect *Phytophthora* species. High-priority vegetation included rare and threatened species, as well as vegetation complexes that were poorly represented in the plan area. We collected 189 root/soil samples from reserve system areas with high-priority vegetation types; 68 samples were collected from the three existing populations of the endangered Coyote ceanothus (*Ceanothus ferrisiae*). One of these populations is threatened by an extensive but still localized, multispecies *Phytophthora* infestation that was likely initiated by a restoration planting of infected Coyote ceanothus nursery stock.

Phytophthora species were detected in 67% of 21 water samples collected across all sampled locations. These included spring-fed ponds where contamination may have been introduced via grazing livestock. Forty-four root/soil samples were collected from sites that are periodically flooded, and 124 root/soil samples were from uplands or flats and lowlands not subject to inundation. *Phytophthora* species were recovered from 59% of the periodically flooded sites, and 9% of samples of natural vegetation from drier upland and flat/lowland sites. In all, 20 *Phytophthora* taxa were recovered, including several undescribed species.

Our baseline sampling indicated that *Phytophthora* infestations were generally uncommon in and near reserve system lands. Most detected infestations were associated with common *Phytophthora* sources such as plantings of nursery stock, previous agricultural areas, and contaminated watercourses. Spread from sources was associated with roads, trails, development and grading activities, and livestock grazing. Management of the reserve system to minimize threats posed by *Phytophthora* should prioritize preventing introduction of additional *Phytophthora* species into habitat areas and preventing spread from existing infestations into additional areas.