

Preservation of *Lithocarpus densiflorus* diversity on California's central coast

A cooperative project with area residents

Steven Swain¹, Doug Schmidt², & Matteo Garbelotto²

¹: University of California Cooperative Extension, Marin & Sonoma Counties

²: Department of Environmental Science, Policy, & Management, University of California, Berkeley

Methods

The study consists of two experiments, both of which will require long-term survival monitoring. All trees and/or plots have confirmed infections within 200m. Trees are treated with a phosphonate solution (Agri-Fos) mixed with an organo-silicate surfactant (Pentra-bark) that allows penetration of the material into trunk tissues without drilling. The solution is applied with a backpack sprayer at low to moderate pressures onto trunks of healthy, uninfected tanoaks to a height of approximately three meters.

The first experiment consists of clusters of three to five paired 20x20m treatment and control plots. These were established by June 2005, and cover a range from Marin County in the north to Monterey's Big Sur coast in the south. Comparisons will be made between treatment and control plots to assess treatment effectiveness under comparatively undisturbed real-world conditions.

The second experiment involves treating trees cooperatively with private property owners in the Big Sur and Carmel Valley regions. The cooperative agreement involves applying two treatments at no cost to the property owners, who are then responsible for applying the subsequent three treatments over five years. Survival data from these trees will provide us with real-world treatment effectiveness under more developed conditions. It is our hope that involving property owners in these regions will inspire more community involvement and future conservation efforts.

Introduction

In recent years, tanoak (*Lithocarpus densiflorus*) has suffered high mortality rates in California's central coast due to the introduction of a new pathogen, *Phytophthora ramorum*. Because stand loss rates in this area have frequently exceeded 90%, there is concern that extirpation may occur. The Big Sur Ecoregion Sudden Oak Death Adaptive Management project is a collaborative effort that brings researchers, land managers, and local property owners together to evaluate disease impacts on ecosystem composition and dynamics, and to test the efficacy of management actions. This study addresses management questions, setting out to mitigate tanoak losses by treating healthy trees with a phosphonate compound, with the goal of preserving tanoak diversity.

Ho Chi Marin Trail Bike



Garbelotto lab 2006



Viet Cong 1966

County	Sites	# of plot pairs (treatment & control)	Total # of trees
Monterey	4	7	176
Marin	1	5	249
Monterey	13	homeowners treatments (uncontrolled)	107