



Sudden Oak Death in Marin

By Jonathan Ham, Science Interchange Reporter

(This article was published in the Marin Scope Community Newspaper of July 2-8, 2002)

Alice Thomas has lost close to 20 oak trees on her property over the past two years to a disease called Sudden Oak Death. "These were trees that I treasured," she said, only to see them cut down and removed from her property.

Sudden Oak Death is destroying many oaks in residential areas and forests in Marin. The disease kills many species of oaks within months and leaves surrounding homeowners—and animals—helpless. The disease has no cure, and it could be years before one is developed.

For many Marin residents, towering oak trees add value to the landscape. A typical oak tree can span over 100 square feet of land and can live for hundreds of years. These two traits appeal to homeowners, and the trees also increase property value by thousands of dollars. But for Thomas, a local high school teacher, it was much more than that. "We built our deck around our largest tree, ... it had a swing that all my children grew up on," Thomas said, describing her favorite oak tree. "When it was destroyed, it felt like a lost part of me."

Sudden Oak Death is caused by a microbe called Phytophthora. The deadly pathogen thrives in cool wet areas such as the coast and spreads by means of spores. The pathogen is able to travel from tree to shrub to plant within months.

The disease it causes has been found to be deadly in huckleberry, rhododendron, Coast live oak, Canyon oak, Tanoak, Shreve oak, and Black oak. The infected rhododendron and huckleberry die quickly and produce spores much faster than oak species. They also make it possible for the pathogen to spread between forests rapidly and to jump gaps where no oak trees are present.

According to the Oak Mortality Task Force, the pathogen can and has been spreading through soil and water. This means that it can be spread easily by hikers, mountain bikers, and off-road vehicle users, who often walk and ride through infected areas and carry away mud and dirt.

The Phytophthora pathogen was first discovered in Marin oak woodlands and soon spread to other areas of California, including Sonoma, Santa Cruz, Monterey, and other Southern California counties. The pathogen has also been spotted in Germany, The Netherlands, and Oregon. Although scientists know that the pathogen originated in Marin, they don't where or how it got there. Most of the samples collected have been taken in condensed areas of Muir Woods and on Mount Tamalpais in Marin Municipal Water District land.

The first signs that an oak tree has been affected by the pathogen are drooping shoots followed by wilting of the foliage. Two to three weeks after the first symptoms, the oak tree's foliage turns brown, signaling that it is almost dead. The appearance of large gashes on the trunk, oozing red sap, is the final sign that the tree is dead. Affected trees may appear healthy during the first

weeks of being infected and may remain green or turn a yellowish-green color early on. Diagnoses are difficult to make and in many cases come late in the progression of the disease.

No current treatment exists for the pathogen, but cures may be in the works in laboratories at the University of California at Davis. Although scientists are hoping to find a cure, said Kim Keirnan[TK], the Sudden Oak Death Regional Coordinator for the Oak Mortality Task Force at the UC Cooperative Extension, there is no feasible solution to saving the potentially thousands of oaks infected because each tree will need to be treated individually.

"I think that we won't be able to cure the trees in the forest, but what we will probably be successful at doing is preventing it from spreading to new places," said Keirnan. "I do think we will find a treatment that helps to both prevent oaks from being infected as well as help to treat oaks once they are infected... that will only be used on individual trees in what we call the landscape or a garden setting."

As for Thomas, she says she only wishes she could get her beloved trees back. "They meant a great deal," she said, "because they were a thing of beauty that fed birds, squirrels, and deer. They were beyond price."

RESOURCES

California Oak Mortality Task Force: www.suddenoakdeath.org

California Oak Foundation: www.californiaoaks.org