Citizen-scientists to help map Sudden Oak Death fungus

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An army of citizen-scientists is being enlisted to help map outbreaks of the Sudden Oak Death fungus killing trees on the California coast and to perhaps control it.

The free community outreach campaign kicked off Friday in Santa Cruz. Other sessions will be held in Orinda, Berkeley, San Francisco, Saratoga, Burlingame, Woodside, Atherton and Los Altos Hills.

Volunteers will be trained to identify and collect sickly leaves and record each location. Their samples will be tested in a campus lab, with results posted on a map.

"This outreach is really important because it not only teaches people how to look for the disease, but it also helps them to monitor for it in their community, allowing them to identify new outbreaks quickly," said UC Berkeley researcher Matteo Garbelotto.

The microbe, a foreign, funguslike invader that came to California from overseas, has killed more than a million trees in 14 coastal California counties, from Monterey to Humboldt.

A decade after the first reported cases of Sudden Oak Death, the disease has not significantly expanded its range, as feared. But the number of trees infected with the fungus within these counties is escalating.

The volunteer campaign has helped produce detailed local maps of disease distribution. These maps can identify areas where the infestation is mild enough to justify trying to control it.

Last year, more than 500 citizen-scientists participated in so-called "SOD Blitzes," surveying more than 10,000 trees, Garbelotto said. The blitz is coordinated by the University of California and the California Native Plant Society.

Citizen-science is growing in popularity, as amateurs add invaluable information to research projects.

The longest-running citizen-science project in the world is the 100-year-old Audubon Society Christmas Bird Count, which recruits more than 60,000 volunteers to tally bird species. The idea

has spread to other areas of science. Web-based software called SETILive helps people join the hunt for unusual extraterrestrial signals. The Giant Sunflower Project collects daily bee observations. Another project, Galaxy Zoo, has enabled more than 600,000 amateur astronomers to help classify deep-sky objects.

With the oak disease, citizen-scientists will have a central role in tracking outbreaks over such a vast expanse of land that it is impossible for researchers to precisely track its spread.

Volunteers will focus on the one tree that survives the attack: the California bay laurel. Because it shows infection signs before oak trees, it offers the first clue of the pathogen's presence. So the timely detection of the disease on its leaves can help more vulnerable species nearby.

Some control techniques are available, such as sanitation, chemical preventive treatment, and tree removal, but they are most effective before the trees are infected.

"Learning where the pathogen is in our community at-large will help us sustain the health of our trees," said Brett Hall, director of the UC Santa Cruz arboretum and president of the California Native Plant Society.

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Sudden oak death

Pathogen: the organism Phytophthora ramorum is a relative of the fungus responsible for the potato blight in Ireland in the 1840s. Another relative nearly killed off Scotland's soft-fruit industry in the 1920s.
Introduction: Scientists believe the pathogen was introduced in 1995 from Asian rhododendrons planted in Scotts Valley and Mount Tamalpais in Marin County.
Symptoms: Bleeding cankers on the tree trunk and dying leaves. It kills by girdling the tree. Infected trees can change from green to brown in a matter of weeks.

To see a video about sudden oak death from KQED's science show "QUEST," go to http://science.kqed.org/quest/video/plant-plague-sudden-oak-death .

Workshops

Learn how to identify infection and use the distribution maps: April 27 in Orinda and Berkeley, May 7 in San Francisco, May 18 in Saratoga, May 25 in Burlingame and Woodside, June 1 in Atherton and June 8 in Los Altos Hills. For meeting times, places and to register, go to www.sodblitz.org .
Learn about treatments used to prevent infection: May 1, Sept. 4, Oct. 2, Oct. 23 and Nov. 13 at UC Berkeley.
For more information, go to http://nature.berkeley.edu/garbelotto/english/sodtreatmenttraining.php
To learn about Sudden Oak Death and P. ramorum, go to the California Oak Mortality Task Force website at www.suddenoakdeath.org .