# Sudden Oak Death moves into urban locales in East Bay and on Peninsula



Survey reveals a tripling in rate of deadly tree infection

INVERNESS, Calif.,– Brown leaves of an oak tree show it is suffering from sudden oak death (Photo by Robert Durell)

By **LISA M. KRIEGER** | lkrieger@bayareanewsgroup.com | Bay Area News Group
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BERKELEY — A highly contagious disease that has already killed millions of rural California trees is spreading into urban areas in the East Bay and on the Peninsula, according to a major new University of California survey.

The “Sudden Oak Death” pathogen, which emerged in 1995, was found in 13 percent of all samples in central coastal California, up from only 3.7 percent two years ago. That’s more than a three-fold jump — and the highest rate ever recorded.

But in the low-lying and urban eastern Peninsula, infection rates jumped far higher, reaching 36 percent in 2017, up from 2.5 percent in 2015. At some East Bay sites, about 15 percent of samples were infected, up from 1.5 percent in 2015.

Several popular public destinations also have been found to have substantial infestations, including the UC Santa Cruz Arboretum, the UC Berkeley campus and Botanical Gardens, the Presidio and Point Reyes National Park Visitor Center near Point Reyes Station.

At the UCSC Arboretum, seven manzanita species, all rare and endangered, were severely affected by the disease and had extensive dieback.

The trend is worrisome, forcing once-untouched areas “to face disease impacts and management decisions,” said forest pathologist Matteo Garbelotto, who heads the Forest Pathology and Mycology Laboratory at UC Berkeley. While it does not mean that all oaks in those areas will die, it indicates that they are at elevated risk.

Prevention is the best strategy. Regulatory measures such as strict quarantines on nursery plants from infected counties seem to be helping, but more needs to be done, he said.

“Novel strategies and a strong educational effort need to be deployed if we are to successfully address the ever-increasing intertwining of people and this pathogen,” Garbelotto said.

Dead trees become tinderboxes of highly combustible wood, warned Garbelotto, who led the survey by 300 volunteers, called a “SOD Blitz.” They surveyed 15,000 trees in 17 counties and submitted leaf samples for lab testing from about 2,000 sick trees.

The spread of the pathogen, a fungus-like foreign invader that came to California from Asia called *Phytophthora ramorum*, is linked to moisture, according to previous test results.

Last winter’s exceptionally wet conditions boosted the number of contagious spores, he said. The pathogen spreads naturally through water, such as rain splashes and contaminated creeks, usually within a three-mile range.

There is a second reason for its surge: Because so many areas of California are now infected, the pathogen has a secure foothold in the state and proliferates more readily.

The high rate of infections puts these Peninsula communities at risk for the first time: Palomar Park and Emerald Hills in San Mateo County, and Los Altos Hills and Saratoga in Santa Clara County. Other Peninsula communities that were already at high risk — Burlingame Hills, Hillsborough, Woodside and Portola Valley — remain at high risk.

In the East Bay, infections were found in Pacheco, Martinez, Richmond, El Cerrito, Berkeley, Oakland, Orinda and Moraga.

Infection rates were lower in 2014 during the drought, his survey found.

Meanwhile, the drought was deadly for different forests. The expanses of pine in the Sierra Nevada, stressed by lack of water, have been attacked by bark beetle populations.

An estimated 66 million trees have died in the Sierra Nevada since 2010, according to David Rizzo, chairman of plant pathology at the UC Davis. Five million to 10 million trees in coastal central California have died because of Sudden Oak Death.

There are more than 60 different species of versatile Phytophthora, whose name means “plant devourer.” They attack everything from potatoes to soybeans to strawberries. One species caused the Irish potato famine in the 19th century.

The species that is sweeping Bay Area forests is believed to have been introduced in two sites: a rhododendron nursery on Bean Creek Road in Scotts Valley and another spot on Mount Tamalpais in Marin County, where there are several large homes with extensive landscaping.

In a genetic analysis, scientists have found that pathogens at both locations — separated by 62 miles — share identical DNA footprints, indicating that they are related, probably through the nursery trade.

Bay laurel trees are hosts of the infection, and can spread it, yet don’t sicken. Camellias and rhododendrons also spread the disease; it weakens but does not kill them.

But the microbe can be fatal to coast live oak, black oak and tanbark oak trees. Like humans, plants show wide variability in their vulnerability to disease.

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## Diagnosing Sudden Oak Death

Accurate disease diagnosis can be difficult because the symptoms are very similar to those caused by other fungi, insects or adverse environments.

The most obvious and useful symptom to look for on oaks is a canker on the trunk. Cankers have red-brown to black discoloration. They usually develop three to six feet off the ground, although they can also be at soil level, or as high as 4 meters or greater. They do not extend below the soil line.

The cankers seep dark black, red or amber sap. This bleeding sap initially appears on intact bark, absent any obvious holes or wounds. In later stages of the disease, the bark may split.

The only way to confirm an infection is to take a sample and analyze the affected plant tissue in a laboratory.

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Lisa Krieger, science and research reporter, San Jose Mercury News, for her Wordpress profile. (Michael Malone/Bay


**Lisa M. Krieger** Lisa M. Krieger is a science writer at The Mercury News, covering research, scientific policy and environmental news from Stanford University, the University of California, NASA-Ames, U.S. Geological Survey and other Bay Area-based research facilities. Lisa also contributes to the Videography team. She graduated from Duke University with a degree in biology. Outside of work, she enjoys photography, backpacking, swimming and bird-watching.

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