## Sudden oak death diminishes after dry winter, but infection remains rampant

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A dry winter curtailed the presence of a deadly forest pathogen this year in Sonoma County and 13 other Northern and Central California counties, but experts still expect the oak-killing disease to spread and warned landowners to be vigilant.

Since the mid-1990s, sudden oak death has killed up to 50 million trees from Big Sur to southwest Oregon and is entrenched in the woodlands, spreading rapidly after wet winters and slower during dry years.

"It's constant, it's emerging," said Richard Cobb, an assistant professor of forest health at Cal Poly San Luis Obispo. "It's probably going to get a lot worse."

Cobb said Monday he's about to publish his estimate of tree mortality, 90 percent of which are tanoaks and most of the rest coast live oaks. Another 100 million trees may be infected by the insidious pathogen that typically takes one or two years to produce symptoms in the infected trees, he said.

The pathogen can be spread by human footprints and nursery plants, but in nature it rides on water droplets blown from the leaves of bay laurel trees, a host species that abounds among the oak and tanoak trees susceptible to the disease.

"We know there's a lot of disease out there," said Matteo Garbelotto, director of the forest pathology and mycology laboratory at UC Berkeley, which has organized annual sudden oak death surveys, known as the SOD Blitz, since 2008.

This year's survey found the estimated rate of infection — based on lab analysis of leaves collected from bay laurels and tanoaks — at 3.5 percent throughout the 14-county region, a marked decline from 12.8 percent last year.

Sonoma County, divided into three areas, also showed sharp declines, which Garbelotto said were anticipated because the 2017 survey, conducted in the wake of two straight wet winters, found the highest infection rate ever recorded in 11 years.

But the survey conducted in May found another consequence — the presence of oaks showing symptoms of infection had increased to 12.2 percent throughout the region, up from 9.4 percent last year.

Next year's rate should be higher, Garbelotto said, coming two years after the 2017 rains and matching the time it takes for symptoms, such as bleeding cankers in oak tree bark, to appear.

Notable outbreaks documented this year occurred near Cloverdale, east and west of Healdsburg, west of Windsor, east of Santa Rosa and west of Petaluma.

Few leaf samples were taken in areas burned by the 2017 wildfires due to the risks of walking in those areas, Garbelotto said. Oak death infection typically drops in areas where trees are burned or exposed to smoke, but after two years new infections emerge, he said.

The highest rates of oak tree infection — the only two in double digits — were 19.1 percent on the San Francisco Peninsula and 12.7 percent in the East Bay.

The survey reports statistics for 19 separate areas, but Garbelotto said the regional totals are most reliable because they include the most largest number of samples.

For details on the survey results, including a Google Earth map, go to https://bit.ly/2Ad57q6.

Steven Swain, a UC Cooperative Extension farm advisor, said he surveyed the Sonoma Coast region from Jenner to the Mendocino County line in May and found a significant outbreak in an area where sudden oak death has been present for years.

"There's a lot more of it than there was five or six years ago," he said.

Sudden oak death was first detected in Sonoma County at Fairfield Osborn Preserve on Sonoma Mountain in the early 2000s, said Kerry Wininger, UC Coop Extension staffer in Santa Rosa.

The disease is a "neighborhood issue" in the county, she said.

There's no cure once a tree has been infected, but there are two lines of defense, Garbelotto said. The first step is to consider removal of bay laurels within 30 feet of a susceptible species of oak, followed by chemical treatment of any "high value" oaks, he said, emphasizing that landowners should not do the second step alone.

Coast live oak, California black oak, Shreve's oak and canyon live oak are vulnerable.

Large landowners could consider thinning the bay laurels on their property as an overall protection measure, Wininger said.