

# First known cases of sudden oak death detected in Del Norte County

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Two tanoak trees in Del Norte county tested positive for the pathogen known to cause sudden oak death, reports a team of collaborators from Cal Fire, UC Cooperative Extension and SOD Blitz. Credit: UC Berkeley photo courtesy Matteo Garbelotto

A team of collaborators including the citizen science project SOD Blitz

have detected the first cases of the infectious tree-killing pathogen *Phytophthora ramorum* in California's Del Norte county.

The pathogen, a fungus-like water mold that causes sudden oak death, has ravaged millions of native oaks and tanoaks along California's central and northern coasts since it was first introduced in the United States in the late-1980s.

The discovery in Del Norte marks the first time that sudden oak death has been found in a new county since its emergence in nearby Trinity county in 2014, and brings the total number of affected California counties to 16.

"Now every California coastal county between Oregon's Curry County and the very southern border of Monterey County are infested, although the extent and distribution of infested areas within each county is extremely variable" said Matteo Garbelotto, an adjunct professor of environmental science, policy and management at the University of California, Berkeley, and founder and director of the SOD Blitz program.

"If the infestation in Del Norte were to expand, not only it would affect local resources, but it would also provide a bridge connecting the genetically distinct Oregon and California infestations, possibly further facilitating the adaptation of the pathogen to West Coast coastal forests," said Garbelotto, who also serves as cooperative extension specialist for University of California Agriculture and Natural Resources. "It's a good thing that we detected it, because the sooner we know, the more options are available to minimize the impact of the disease."

Each year, the University of California, Berkeley-led SOD Blitz project has employed volunteers from around the state to scour their local forests for signs of new outbreaks of the pathogen. Del Norte County



has been monitored for these signs since 2004 by collaborators from UC Cooperative Extension, UC Berkeley, UC Davis, and Cal Fire. This year, the SOD Blitz brought additional sampling infrastructure and diagnostic expertise to the effort.

Hundreds of tree samples from uninfested San Luis Obispo county were also tested as part of this year's SOD Blitzes, but no cases were found.

The strain identified in Del Norte is the one called NA1, which is commonly found in California, rather than the emergent and potentially deadlier EU1 strain common in Europe and recently detected in Oregon.

The new finding has been reported to the California Department of Food and Agriculture (CDFA), and has no regulatory implications until the results are officially confirmed by the CDFA.



The two infected trees are located in Jedediah State Park about five miles east of Crescent City. Credit: Yana Valachovic

## **A new threat in Del Norte**

The two infected trees in Del Norte county are located in Jedediah State Park about five miles east of Crescent City, reports Chris Lee, a forest pathologist with Cal Fire who organized this year's SOD Blitzes in Humboldt and Del Norte counties.

"The tanoak trees are located among old-growth redwoods, pretty far from the existing infestations we know of in Oregon and in northern Humboldt County," Lee said. "Fortunately, past experiences indicate that redwoods suffer only minor damage from this pathogen. Little to almost no mortality of other tanoaks can be observed in the immediate surroundings at this site so far."

The researchers also conducted follow-up testing on surrounding trees in the area but no additional cases of the pathogen were found.

"We have been monitoring this county for years and I had been hopeful that it would be spared from the disease," said Yana Valachovic, forest advisor and county director for the UC Cooperative Extension office in Del Norte and Humboldt Counties and co-sponsor of the Humboldt-Del Norte SOD Blitz. "A round of secondary sampling in nearby trees did not yield the pathogen making it difficult to speculate how the disease may have arrived and the extent of the infestation. Over the coming months we will be working with the landowners and managers of the region to help them assess the situation."



## More than a decade of Blitzes

Since Garbelotto launched the SOD Blitzes in 2007, thousands of volunteers have combed through California's [coastal forests](#) in search of signs of *Phytophthora ramorum*, the pathogen, which causes oozing cankers, browning leaves, and eventual death in infected oak and tanoak trees.

"The Blitzes started because we were and still are facing the necessity of precisely defining the extent of the SOD infestation over a gigantic range, and it was basically impossible for us to hire enough people to actually survey they entire coast of California," Garbelotto said.



Two volunteers collect samples during an SOD blitz. Credit: UC Berkeley photo

by Doug Schmidt, Garbelotto Laboratory

For each Blitz, Garbelotto partners with local organizations to recruit and organize volunteers. After a short training session, participants, many of whom are private landowners, survey a designated area for hints of the pathogen, which is often spread through infected bay laurel leaves and tanoak twigs.

Suspicious-looking leaves and twigs, along with details about the location, are sent to Garbelotto's lab at UC Berkeley, where they undergo a rigorous analysis and DNA testing to confirm the presence of the pathogen.

Every fall, their findings are combined with data from researchers as well as state and federal government agencies and made publicly available on the web ([www.SODmap.org](http://www.SODmap.org)).

"Everybody who attends the SOD Blitzes is great, they are really interested and want to protect their trees," said Kim Corella, a forest pest specialist at CalFire who has been organizing the SOD Blitzes in San Luis Obispo county since 2013.

In 2019, there were 22 local SOD Blitzes ranging from San Luis Obispo county in the south to Del Norte in the north. A total of 455 volunteers participated, 16227 trees were surveyed and 9000 leaves from 1732 trees were sampled and tested at UC Berkeley.

Though the SOD Blitzes have identified a number of new outbreaks, this is the first time that the project has uncovered infections in a new county.

"Our citizen science program run by UC Berkeley has been successful thanks to many collaborators, including UC Cooperative Extension, Cal Fire, the California Native Plant Society and the San Francisco Public Utilities Commission, just to name a few," Garbelotto said. "Our project is providing key research findings to protect California Natural resources, highlighting the relevance Citizen Science has in the modern world."

Provided by University of California - Berkeley

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