

Campus scientists find new form of sudden oak death pathogen

Amelia Pinto | Staff
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Blackened tips on leaves are indicative of the pathogen *Phytophthora ramorum*, which causes the disease sudden oak death.

Matteo Garbelotto | Courtesy



Across the Bay Area, a citizen science project has found four instances of a more aggressive and heat-resilient form of a pathogen killing California oak trees.

The project was started by Matteo Garbelotto, a campus environmental science, policy and management professor, to research sudden oak death, or SOD. The program, named SOD Blitz, is now in its 16th year and goes further than observational citizen science such as iNaturalist, Garbelotto said.

SOD Blitz participants follow protocol for collecting diseased leaves, storing them and then sending them to be analyzed by Garbelotto's lab, the UC Berkeley Forest Pathology and Mycology Lab.

"They look for foliage, for leaves that have these ... blackened tips, and that's where the pathogen produces the infectious force that then will be airborne," Garbelotto said.

The black tips on leaves can be found on many different species of trees — not just oaks — but they transmit the pathogen that is currently affecting Bay Area oak trees. These black leaves are indicative of the pathogen *Phytophthora ramorum*, which has two lineages — the newly discovered lineage being Na2.

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The citizen science approach involves communities from across California to identify diseased leaves in their neighborhoods and send them back to UC Berkeley for testing. Garbelotto said the program tries to make the citizen science approach accessible to a diverse population — some of the participating groups are Indigenous tribes, Latine communities, high school students and older age groups.

“Statistically, volunteers were as good or better than professionals ... because they’re very invested in what they’re doing and also because they know their neighborhood very well so they can be more productive,” Garbelotto said.

The inclusion of community participants strengthened the program with a high return rate of volunteers. If a participant visits one of the sites three or more times, they are considered as proficient as professionals, according to Garbelotto.

However, Garbelotto said the Na2 pathogen has not spread very far in the East Bay and can be easily controlled by removing some trees.

“That’s kind of the positive spin on the story is ... not to pretend that nothing is happening, but that it is happening, and technology is key for us to at least have a shot of it,” said Garbelotto. “So that is the important message here to deliver — that this is useful. It’s not just talking about it. It’s actually providing data that can be used for active management.”

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