



# California Forest Pest Council

Fostering education on the pests of California's forests since 1951

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## Upcoming Events - Save the Date!

**April 23-26** - WCISA's 84th Annual Conference, Old Growth, New Growth, Bridging the Gap. Hyatt Regency Sonoma Wine Country, Santa Rosa, CA. [wcisacconnect.com](http://wcisacconnect.com).

**April 24** - Free Arborist, Tree Care Specialist, & Urban Forester Spring Sudden Oak Death Training Session; UC Berkeley; Morgan Lounge, 114 Morgan Hall; Berkeley. To register, or for more information, email [contact@matteolab.org](mailto:contact@matteolab.org).

**May 1** - Free Arborist, Tree Care Specialist, & Urban Forester Spring Sudden Oak Death Training Session; UC Santa Cruz Arboretum; 1156 High St, Large Conference Room; Santa Cruz. To register, or for more information, contact Brett Hall at [brett@ucsc.edu](mailto:brett@ucsc.edu).

**August 5-10** - The 6th International Conference on the Genetics of Tree-Parasite Interactions: Tree Resistance to Insects and Diseases: Putting Promise into Practice; Mt. Sterling, OH  
November 13-14 - 2018 California Forest Pest Council Annual Meeting; More information will be forthcoming soon..

## ***Tubakia*: A newly recognized foliar pathogen of oak, chinquapin and tanoak in California**

Plant pathologists from the California Department of Agriculture (CDFA) recently identified a new species of fungal pathogen that infects oak, chinquapins, and tanoaks. Until recently, North American diagnosticians called all species of the genus *Tubakia* that infects oaks in North America, *Tubakia dryina*, because they all have very similar morphological features to this European fungus. However, a new study shows that the North American species vary genetically from *Tubakia dryina*. Among these is the newly recognized California species.

*Tubakia* species are common residents of leaves and twigs of many tree species, often causing no visible damage but sometimes causing conspicuous leaf symptoms. The newly delineated California species, which CDFA pathologists Suzanne Rooney-Latham and Cheryl Blomquist named *Tubakia californica*, is known to cause a foliar disease on mature California black oak (*Quercus kelloggii*), interior live oak (*Quercus wislizeni*), coast live oak (*Quercus agrifolia*), chinquapin (*Chrysolepis chrysophylla*), and tan oak (*Notholithocarpus densiflorus*). The most severe symptoms usually occur on California black oak. Infected leaves from the previous season's growth remain attached on the branches in the spring instead of fully defoliating in the fall. In the Groveland area of the Sierra Nevada foothills, the new growth appears healthy until late August when small brown lesions develop on the leaves, predominantly on the underside. Lesions



Lower crown defoliation of tanoak caused by *Tubakia californica*. Photo: Chris Lee, CALFIRE

enlarge over time and by early September, the associated lateral leaf veins become brownish black and vein discoloration extends to the midrib. By October, many of the affected leaves become dry and uniformly brown with black veins. Small black *Tubakia* spore bearing structures develop in late September on leaf veins, leaf blades and petioles. On tanoak, the pathogen causes progressive defoliation from the bottom of the crown upward. Overall, symptoms seem to develop later in the season in the Sierra Nevada foothill locations (Tuolumne and El Dorado Counties) than in the other lower elevation California counties. Symptoms are more likely to be present in low lying areas within a site and in the lower portion of the canopy. In at least some black oak and tanoak cases, the disease has led to mortality, creating a hazardous situation and necessitating tree removal.

Often, when a new fungal plant disease is discovered, it is difficult to know if the fungus that causes the disease is newly introduced or native to a specific plant host and geographical area. As was demonstrated in the recent *Tubakia* paper, characterizing the genetic diversity of a specific group of fungi including their hosts and geographical areas allows mycologists and plant health regulators to determine if a specific fungal species is likely native or a potentially exotic species. To date, *Tubakia californica* has been detected in many parts of California (Del Norte, El Dorado, Humboldt, Mariposa, Marin, Shasta, and San Luis Obispo Counties) and appears to be a native foliar pathogen on members of the Fagaceae.

For more information, see:

Braun, U, Nakashima, C., Crous, P.W., Groenewald, J.Z., Moreno-Rico, O., Rooney-Latham, S., Blomquist, C.L., Haas, J., and Marmolejo, J. 2018. The Phylogeny and Taxonomy of the Genus *Tubakia* s. lat. Fungal Systematics and Evolution 1: 41-99. Available at <http://fuse-journal.org/images/Issues/Vol1Art4.pdf>.

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Newsletter feedback and ideas are welcome. Please submit comments to [caforestpestcouncil@gmail.com](mailto:caforestpestcouncil@gmail.com).

When buying firewood for camping or home heating this fall, remember to buy wood sourced local to where you will be using it, helping to minimize the spread of pests and diseases - **Buy It Where You Burn It**. For a list of local firewood dealers, go to [firewoodscout.org](http://firewoodscout.org).

Sincerely,

The California Forest Pest Council



California Forest Pest Council | [www.caforestpestcouncil.org/](http://www.caforestpestcouncil.org/) | 805-550-8583

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