



CALIFORNIA OAK MORTALITY TASK FORCE REPORT NOVEMBER 2025

MANAGEMENT

On October 21, the Tolowa Dee-ni' Nation, California State Parks, and CAL FIRE inaugurated a new phase of integrated traditional forest stewardship at See-tr'ee-ghin-dvm-dvn (formerly called Peacock Bar), a Tolowa Dee-ni' cultural landscape along the main stem Smith River near Crescent City in Del Norte County, California. This area is one of the last remaining stands of legacy Oregon white oaks in the Smith River watershed. Oaks provide *san-chvn* (acorns), a staple in the Tolowa Dee-ni' diet and for many wildlife species. These oaks were stewarded for thousands of years prior to the removal of Tolowa Dee-ni' during the American invasion in the 1850s, and later addition of the area to Jedediah Smith Redwoods State Park. Reintroduction of cultural burning to the landscape is critical to the continued existence of the oak groves and to the health and well-being of the Tolowa Dee-ni'.

Heavy resource extraction in addition to unregulated recreational and other public uses of this landscape, along with the presence of climate and soils favorable to pathogen establishment, have contributed to infestation by at least three non-native, invasive *Phytophthora* species: *P. ramorum*, *P. lateralis* (cause of Port Orford-cedar root disease), and *P. cinnamomi* (cause of dieback and decline of thousands of plant species worldwide). The Tolowa Dee-ni' Nation initiated this new phase of stewardship by conducting a prescribed burn with cultural objectives intended to enhance the health and resiliency of the oak grove, provide pest management for acorn weevil and other species, encourage proliferation of native grasses and desirable shrubs, and decrease the catastrophic wildfire potential of the greater area by hardening fuel breaks, increasing powerline protection, and providing public education about the importance of fire in this ecosystem and broader landscape. This historical burn was possible through the cooperation and support of the following: CAL FIRE, California State Parks, Cross Contour Consulting, North Coast Resource Partnership, Cultural Fire Management Council, Bureau of Indian Affairs, US Forest Service- Smith River NRA, Pacific Southwest Research Station, and University of California Cooperative Extension- Humboldt and Del Norte Counties.

At See-tr'ee-ghin-dvm-dvn, *P. cinnamomi* has been detected in and around the historic Oregon white oak trees and is causing visible degradation to hardwoods, conifers, and shrubs, while *P. ramorum* is killing tanoaks (an additional critical source of *san-chvn*) in the redwood forest surrounding the white oak grove. Attempts at reducing *P. ramorum* inoculum on this landscape are necessary because two recently detected strains of the pathogen, EU1 and NA2, are both present (with the more familiar NA1 strain also established in the Mill Creek area of Jedediah Smith Redwoods State Park, a few miles to the south). Along with the Tolowa Dee-ni' Nation, cooperators hope to implement additional stewardship activities in the *P. ramorum*-infested forest stand into the future, as well as continuing to monitor areas managed through regular burning to track any potential reduction in soilborne *Phytophthora* inoculum.



Prescribed burning of Oregon white oak understory at See-tr'ee-ghin-dvm-dvn. Photo courtesy of Tolowa Dee-ni' Nation.

FEATURED RESEARCH

When UC researchers discovered in 2002 that coast redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) were among the plant species that could sustain *P. ramorum* infections (see [General sudden oak death chronology](#)), California land managers, landowners, consulting foresters, and members of the public registered their alarm. Fortunately, subsequent investigations of the disease in these conifer hosts and other California conifers established that it rarely if ever manifests as more than an occasional cause of needle and green shoot dieback. Furthermore, this seems to be limited to years when precipitation conditions and timing fall within very narrow windows.

However, after the pathogen was seen to cause sudden larch death in the U.K., several cases of bleeding cankers and top dieback in planted conifers that are native to the western U.S. led to more questions about the pathogen's potential to cause disease in these trees. Additionally, larch's status as host that supports abundant *P. ramorum* sporulation led to renewed questions about whether our California conifers might also play similar roles as spreading hosts, even if they did not sustain extensive damage. On top of all this, the appearance of the EU1 strain of *P. ramorum* on the West Coast caused even more questions, as it is conceivable that its host range and aggressiveness might differ from the NA1 strain that up until then had been the only strain present in American forests.

Now, Webber et al. (2025) have helped answer these questions with a thorough exploration of the potential of five western conifer hosts—Douglas-fir, grand fir, Sitka spruce, coast redwood, and western hemlock—to support *P. ramorum* sporulation, as well as investigating the inoculum load necessary to initiate infection in larch and spruce. The researchers focused on these conifer species because most commercial forestry activities in Britain rely on species that originate from the Pacific Northwest. This paper's findings provide a helpful framework for better understanding the interactions of this pathogen and its coniferous hosts in the western U.S. and hopefully provide some reassurance to landowners and land managers worrying about the



potential for increased landscape effects with the continued spread of the EU1 strain in Oregon and California conifer forests.

Webber, J.F., McDermott, A., Spurrier, B., and Harris, A.R. 2025. What risk does *Phytophthora ramorum* pose to Sitka spruce (*Picea sitchensis*) and other conifers in Britain? Forest Pathology, 55:e70033. <https://doi.org/10.1111/efp.70033>.

ABSTRACT. Larch (*Larix*) and, to a lesser extent, rhododendron (*Rhododendron ponticum*) have emerged as key drivers of the *Phytophthora ramorum* epidemic in Britain because of the copious numbers of sporangia that are released from their foliage following infection; the inoculum then initiates stem and foliar infections on nearby broadleaf and conifer species. This has raised concerns that other conifer species could play a similar role to larch, with most concern centred on Sitka spruce which currently comprises >50% of all commercial conifer plantations in Britain. To address this, we assessed the potential of the EU1 lineage of *P. ramorum* to sporulate on foliage of conifers already known to have some susceptibility (Sitka spruce (*Picea sitchensis*), grand fir (*Abies grandis*), Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophyllum*) and coastal redwood (*Sequoia sempervirens*)). Our findings suggested these conifers are much less effective at sustaining sporulation (means ranging from ~16 to ~49 sporangia per cm² of needle) compared with larch (nearly 600 per cm²). Lesions formed by both EU1 and EU2 lineages of *P. ramorum* in Sitka spruce bark were significantly smaller than those in larch, indicating that spruce is a less susceptible host. However, substantial zoospore concentrations (50,000 to 500,000mL⁻¹) were required to cause infections through intact bark of both larch and spruce. Outcomes of these comparisons are discussed in the context of the frequency with which larch and Sitka spruce were found to be naturally infected during surveys of *P. ramorum* in Britain. Overall, we conclude that in contrast to larch, Sitka spruce and several other conifers grown in Britain do not have potential to sustain an epidemic of *P. ramorum*, although they may possibly act as low-level reservoirs of infection.

NURSERIES AND MANAGED LANDSCAPES

California Department of Agriculture *P. ramorum* Nursery Program Update. California County Agricultural Commissioner's inspectors began their fall biannual enhanced inspections at nine (9) nurseries previously positive for *Phytophthora ramorum* (*P. ramorum*) in October. The nine nurseries undergoing fall inspections are at various stages of the post confirmed nursery protocol requirement for biannual inspections at nurseries that are previously positive. To revert to the normal annual inspections required for nurseries that have not been positive, previously positive nurseries must test negative for *P. ramorum* in six consecutive biannual inspections. Seven of the previously positive nurseries are production nurseries located in the quarantined counties, one nursery is a broker located in a quarantined county, and one production nursery is in a non-quarantined county. No additional plants have been determined positive for *P. ramorum* in California nurseries since the last report. For more information, contact Carolyn Lambert, Carolyn.Lambert@cdfa.ca.gov.

Oregon Department of Agriculture *P. ramorum* Nursery Program Update. Currently, there are eleven nurseries participating in the *Phytophthora ramorum* Nursery Program. Seven



nurseries [in Washington (3), Clackamas (1), Lane (1), and Marion (2) counties] are interstate shippers under federal compliance agreements, while four nurseries [in Clackamas (2), Curry (1), and Lane (1) County] are intrastate shippers operating under state compliance agreements. So far, six of the fall surveys have been conducted with one nursery successfully exiting the program. Of the remaining nurseries, five will be conducted by the end of November and one nursery (in Lane County) has sold their property and plants and cannot be contacted. So far, one fall-surveyed nursery (in Lane County) has found *P. ramorum* onsite and the first delimitation will occur in early November. There have been no additional tracebacks or new nurseries since the summer. To be released from the program, nurseries must achieve six consecutive negative results from compliance inspections over three years. One nursery was released from the program after the Fall survey. Two nurseries are eligible to be released after the Spring survey if results are negative. For more information, please contact Kevin Bailey (kevin.f.bailey@oda.oregon.gov) or Kara Mills (kara.mills@oda.oregon.gov).

Washington State Department of Agriculture (WSDA) *P. ramorum* Program Update.

WSDA moved two retail nurseries through the Positive Nursery Protocols, after positives were found during trace forward investigations. One nursery voluntarily destroyed all plants in the quarantine zone and is no longer under an EAN. The other held on to non-host plants from the quarantine zone and is currently undergoing 90 surveillance protocols with the WSDA. For more information contact Haley Palec, hpalec@agr.wa.gov.

RESEARCH

MacLaren, A., Frederickson-Matika, D., Cock, P. J. A., Crisp, D., Dun, H., Pérez-Sierra, A., & Green, S. (2025). Enhanced Detection of *Phytophthora* Species at *P. pluvialis* Outbreak Sites in Commercial Forests Across Britain. *Forests*, 16(9), 1419.

<https://doi.org/10.3390/f16091419>

Abstract: Invasive *Phytophthora* species are increasingly impacting UK landscapes. Most recently, cryptic outbreaks of *P. pluvialis* Reeser, Sutton & E. Hansen have occurred on western hemlock and Douglas fir at several forest sites across Britain. To better understand the ubiquity and life cycle of this pathogen in British forests and the assemblages of co-inhabiting *Phytophthora* species, metabarcoding and baiting methodologies were applied to soil, stream water, and rainwater samples collected over a full calendar year from seventeen sites across Britain. Thirty-five *Phytophthora* species were detected across all sites, substrates, and detection methods, with most detections occurring in stream water by metabarcoding. The three most frequently detected species were (1) *P. pluvialis*, (2) *P. gonapodyides* H.E. Petersen & Buisman and (3) *P. ramorum* Werres, De Cock & Man in 't veld. Other species detected included the regulated pathogens *P. austrocedri* Greslen & Hansen, *P. kernoviae* Brasier, Beales & S.A. Kirk and *P. lateralis* Tucker & Milbraith, as well as *P. ornamentata* Scanu, Linald & T. Jung, a new species record for the UK. *Phytophthora pluvialis* was most frequently detected in March, with rainfall trap metabarcoding data suggesting that aerial dissemination occurs predominantly in late winter/early spring. Consistent detections of *P. pluvialis* in soil by metabarcoding indicate the potential for soilborne transfer of this pathogen by animal or human vectors, including equipment or machinery in forest operations. The study's findings are



discussed in relation to understanding how *P. pluvialis* spreads and the approaches needed to address key knowledge gaps in relation to inoculum sources. The results provide a baseline for *Phytophthora* diversity in British commercial forests, facilitating a greater understanding of typical and unusual trends in species assemblages. This study also consolidates the value of metabarcoding as an effective surveillance tool for *Phytophthora* in commercial forests.

RELATED RESEARCH

Carluccio, G., Benigno, A., Panzavolta, T., Vergine, M., De Bellis, L., Luvisi, A., and Moricca, S. 2025. Understanding Oak Decline in Europe: Ecological Factors, Symptoms, Causative Agents, and Management Strategies. *Plant Disease* 109:9, 1805-1823.
<https://doi.org/10.1094/PDIS-11-24-2401-FE>

Abstract: The genus *Quercus*, which includes approximately 30 species, plays a vital role in European forest, urban, and suburban ecosystems. European oak stands have experienced episodic decline and death since the nineteenth century, with an increasing and consistent occurrence starting in the early decades of the twentieth century. Oak decline is a syndrome involving a variety of symptoms including canopy thinning, leaf chlorosis, microphyllia, dead branches, bark cracks, bleeding of dark exudates through the stem, inner tissue necrosis, and mortality. Abiotic and biotic stress factors, varying from site to site in exposure time and intensity, have triggered decline events in many regions of Europe. The most common nonliving factors that may be involved in oak decline are weather anomalies and extreme events (e.g., flooding, frost, hail, windstorms, heat waves, water shortage, and drought), as well as chemical air pollutants. Biotic factors include *Phytophthora* species, sap-sucking and defoliating insects (i.e., *Tortrix viridana* and *Lymantria dispar*), and secondary agents like bark- and wood-boring insects and latent pathogens. Among the latter, some Botryosphaeriaceae species, the xylariaceous charcoal canker pathogen *Biscogniauxia mediterranea*, and the oak anthracnose fungus *Apiognomonia quercina* have a prominent role. Other biotic stressors, occurring more sporadically with limited effects, are powdery mildews of the genus *Erysiphe*, wood decay fungi like *Armillaria* spp. and other wood-rotting basidiomycetes, and bacteria. Identifying the causal factors at specific sites faces the challenge of assessing the interplay of predisposing, inciting, and contributing factors. To mitigate oak decline, it may be necessary to create more resilient forests better adapted to global environmental changes and current disturbance regimes through integrated management incorporating proactive silviculture, innovative control methods of diseases and pests, and ecological restoration actions.

Charron, G., M.-K. Gauthier, V. Aucoin, and P. Tanguay. 2025. Outbreak of *Phytophthora abietivora* in a Québec Forest Nursery: Emergence of a New *Phytophthora* Tree Pathogen?. *Forest Pathology* 55, no. 5: e70041. <https://doi.org/10.1111/efp.70041>.

Abstract: Tree nurseries play a key role in the Canadian economy and reforestation efforts, producing over 600 million seedlings annually. Despite rigorous management practices, nurseries are not exempt from pathogen outbreaks, which can be devastating on many levels. In October 2022, the public forest nursery of St-Modeste (Canada) noted an unusually high mortality rate among their 2-year-old balsam fir (*Abies balsamea*) seedlings. *Phytophthora abietivora*, recently identified as responsible for the *Phytophthora* root rot (PRR) in Christmas tree plantations, was suspected to be the causative agent of the outbreak. The objectives of this



study were to identify the pathogen(s) responsible for the outbreak in the nursery and determine its pathogenicity and transmissibility to other seedlings. After the isolation of the pathogen and molecular detection, it was confirmed that the epidemic was caused by *P. abietivora*. The pathogen was not only found on healthy-looking balsam seedlings, but also on many other tree species grown in the nursery showing no above-ground PRR symptoms, such as spruce seedlings. The strain isolated in the nursery proved to be highly infectious to Fraser fir seedlings, and results were exacerbated by artificial flooding of seedlings. More worryingly, the disease could be transmitted to susceptible recipient seedlings from asymptomatic donor seedlings. The pathogen could be detected in soil and roots from both donor and recipient seedlings. Together, these findings indicate the first report of an outbreak of *P. abietivora* on balsam fir seedlings under nursery conditions. Efforts must be increased to minimise economic losses and to manage future outbreaks better in order to protect Christmas trees and forests.

Garbelotto, M., E. Scali, S. Swain, et al. 2025. In California's Changing Climate, Latent Pathogens Drive Novel Woody Plant Diebacks on a Large Geographic Scale. *Plant Pathology* 1–18. <https://doi.org/10.1111/ppa.70041>.

Abstract: The detection of emergent biotic and abiotic threats to plant health is challenging in an interconnected world undergoing climate change. Here, we present data generated by a diagnostic laboratory at the request of landowners, land managers and farm advisors. The laboratory was tasked with identifying the causes of synchronous and previously unreported diebacks of 10 woody plant species in six ecosystems located hundreds of kilometres apart. In all but one plant species, cankers were identified in close association with the diebacks, and mortality was recorded. All fungi associated with cankers were latent pathogens in the orders *Botryosphaerales* and *Diaporthales*, including *Botryosphaeria dothidea* and species in the genera *Cytospora*, *Diaporthe*, *Diplodia*, *Dothiorella* and *Neofusicoccum*. Distribution of latent pathogens was not random: there was a dominance of one or two species per host species, suggesting plants are experiencing fungus-specific infectious outbreaks. Fifteen novel host × pathogen combinations were identified, and pathogenicity tests were conducted on potted plants for 12 combinations. Inoculations were run in well-watered and minimally watered conditions to test the role played by water stress. Pathogenicity was confirmed for nine fungal species, and in five cases, lesion size was larger in plants minimally watered. No primary pathogens were isolated from lesions or baited from the soil; thus, our results show that latent pathogens, likely triggered by climate change, are playing an ever-increasing role in the emergence of novel diseases in woody plants. Ecosystem resilience may be increased through restoration efforts employing plant germplasm adapted to harsher climates.

UPCOMING EVENTS

2025 California Forest Pest Council Annual Business Meeting, November 18, 2025, 8 AM-5 PM, UC Davis Student Community Center, Davis, CA. This year, the CFPC splits its annual meeting into two parts: the regular business meeting with updates on pest status in California, and scientific presentations to be given later as part of the California Forest Science Symposium in February (see below). This first part of the meeting at UC Davis will focus on CFPC business in the morning, while the afternoon will feature pest updates from the USDA Forest Service



Aerial Detection Survey, the California Department of Agriculture, the CFPC's various Task Forces, and others. Registration ends November 14; for more information, see <https://events.humanitix.com/california-forest-pest-council-74th-annual-meeting/tickets> or email Kim Corella, CFPC secretary, at kim.corella@fire.ca.gov.

California Forest Science Symposium, February 18-20, 2026, Doubletree by Hilton, Sacramento, CA. This three-day meeting is cosponsored by the California Society of American Foresters, CFPC, and others and will feature a wide variety of natural resource management and science-related topics, including several dedicated panels on the forest health-related topics traditionally covered at the CFPC annual meeting. For more information, see <https://www.californiasaf.org/california-forest-science-symposium/>.

EMPLOYMENT OPPORTUNITY

The Nursery and Christmas Tree Program at the Oregon Dept. of Agriculture is currently recruiting for a Natural Resource Specialist 3 (***Phytophthora ramorum* Field Coordinator**). This is a full-time permanent position located in/around Salem, Oregon that serves as a lead nursery inspector for Oregon nurseries operating under compliance agreements for *Phytophthora ramorum*. This position works closely with program management, both at ODA and PPQ. Please follow [this link](#) for more information and to apply. This job posting closes on November 16, 2025, at 11:59 PM. For general enquiries about the position, feel free to contact ODA Nursery Program Manager - Kevin Bailey (kevin.bailey@oda.oregon.gov) or ODA Plant Protection Division Director - Chris Benemann (chris.benemann@oda.oregon.gov).