



## CALIFORNIA OAK MORTALITY TASK FORCE REPORT DECEMBER 2013

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**Note: The COMTF report is produced 11 times a year. There will NOT be a report in January 2014. The next report will be issued in February 2014.**

### MONITORING

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**In 2013, 136 California waterway sites distributed throughout Del Norte, Humboldt, Mendocino, Sonoma, Monterey, San Luis Obispo, and San Benito Cos. were monitored for *Phytophthora ramorum*.** Stream monitoring is led by Heather Mehl, UC Davis, Rizzo laboratory and conducted with assistance from over 10 cooperators.

In Humboldt Co., *P. ramorum* was detected for the first time in Roaring Gulch, an upper tributary of Redwood Creek located in Redwood Valley. With the exception of a site on Redwood Creek, all watersheds monitored in Redwood National Park remained negative. All watersheds monitored on Hoopa Valley and Yurok Tribal lands also continued to be *P. ramorum* negative. In the McKinleyville area, a new site on Widow White Creek (located upstream from all but two residences on the creek) tested positive for *P. ramorum*, and in southern Humboldt Co., a new site along the southwestern border of the Six Rivers National Forest, North Dobbyn Creek was consistently *P. ramorum* positive.

In Mendocino Co., a new site on a tributary of the South Fork of the Eel River, Hollow Tree Creek, tested *P. ramorum* positive once in March. The South Fork of the Noyo River (SFNR) watershed in the Jackson Demonstration State Forest was intensively sampled this year to pinpoint the source of inoculum detected in the watershed in 2012. *Phytophthora ramorum* was recovered from the North Fork of the SFNR and from a small tributary of the South Fork of the SFNR, Peterson Gulch. The Little North Fork of the Big River (LNFB), sampled in Mendocino Woodlands State Park, tested *P. ramorum* positive for the first time in May and June. The LNFB watershed spans both Mendocino Woodlands State Park and Jackson State Demonstration Forest lands. Several ground surveys have been conducted in response to this find, but terrestrial infections in this watershed have not yet been identified.

In Sonoma Co., multiple watersheds in the Kruse Rhododendron State Natural Reserve and Salt Point State Park were sampled in response to a terrestrial *P. ramorum* detection in this area in 2012. *P. ramorum* was recovered from all sampled watersheds, indicating extensive pathogen spread along this portion of the Sonoma coast.

There were no new positive watersheds in Monterey Co., and all watersheds monitored in San Luis Obispo Co. were *P. ramorum* negative this year. In 2012, *P. ramorum* was detected through PCR-based diagnostics in San Carpoforo Creek, a watershed spanning both Monterey and San Luis Obispo Cos.; however, no samples from this watershed were positive in 2013.



**The Washington Department of Natural Resources conducted *P. ramorum* stream baiting** along several waterways in western Washington in 2013. The Dungeness River (near Sequim on the Olympic Peninsula, Clallam Co.) and Woodard Creek (Thurston Co.) were found *P. ramorum* positive. The Woodard Creek find is downstream from a previously positive nursery; however, the inoculum source for Dungeness River is currently unknown.

#### **FUNDING**

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**The USDA Forest Service, Pacific Southwest Region, State and Private Forestry,** Forest Health Protection program has issued its 2014 *P. ramorum* Request for Pre-Proposals (RFP). Approximately \$350,000 in grants is expected to be available in 2014. Proposals should focus on management activities that could help limit the impact of Sudden Oak Death in California and/or southwest Oregon, improve understanding of pathogen spread, and promote the exchange of relevant information. Tribal groups are especially encouraged to apply. In general, proposals should be for grants of between \$10,000 and \$90,000 per year. Collaborative projects are encouraged. The submission deadline is 4:00 pm on Jan. 21, 2014. For a copy of the announcement, go to <http://www.suddenoakdeath.org/wp-content/uploads/2010/07/SOD-RFP-2014.pdf>. For questions, contact Phil Cannon at: [pcannon@fs.fed.us](mailto:pcannon@fs.fed.us) or 707-562-8913.

#### **NURSERIES**

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**Washington identified six *P. ramorum*-positive nurseries in 2013. Of the 22** previously positive nurseries surveyed, four were found positive again for the pathogen. A retail garden center in Kitsap County with positive plants was also found to have infested runoff water and soil. This facility has been positive in previous years. Additionally, a King County re-wholesaler (buys finished stock from other nurseries and resells it to landscapers or nurseries) was found to have positive soil as well as infected plants. Only one positive WA nursery shipped out of state (to Canada); no trace forwards were identified.

#### **REGULATIONS**

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**USDA Animal and Plant Health Inspection Service (APHIS) and State Plant** Regulatory Agencies representatives are meeting December 4<sup>th</sup> and 5<sup>th</sup> in Aurora, CO to discuss how survey, inspection, sampling, testing, response, mitigation, and compliance protocols for *P. ramorum*-positive nurseries can be achieved under proposed changes to the federal *P. ramorum* regulatory framework. APHIS has requested the participation of National Plant Board subject matter experts who manage the compliance programs/inspections to discuss, help formulate, and guide APHIS in discussing the new protocols.

Highlights of the regulatory concepts proposed by APHIS include regulating nurseries shipping host plants interstate for the presence of *P. ramorum* on diseased plants as well as in soil/media, water, and associated articles, such as pots, etc. Nurseries located in the 14 quarantine California counties, as well as Curry County, Oregon, that ship host and non-host plants interstate will continue to be regulated, even if they are negative for the



pathogen. *Phytophthora ramorum*-positive interstate shipping nurseries, irrespective of where they are located, will have to address critical control points via best management practices and/or mitigations if they want to resume shipping.

**Effective November 27, 2013, USDA APHIS added *Gaultheria procumbens* to the list of host plants regulated for *P. ramorum*.** Nurseries previously not under a *P. ramorum* compliance agreement that ship *Gaultheria procumbens* interstate are now required to obtain a compliance agreement if they are to continue shipments.

**The Republic of Korea issued a Notification of Emergency Measures Addendum to their *P. ramorum* Phytosanitary measures, adding *Gaultheria procumbens* to their list of regulated associated host plants.** As of November 22, 2013, all imported *Gaultheria procumbens* from prohibited and regulated areas must have a phytosanitary certificate verifying the shipment was inspected and found free of *P. ramorum*.

#### RESEARCH

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**Boyd, I.L.; Freer-Smith, P.H.; Gilligan, C.A.; Godfray, H.C.J. 2013. The Consequence of Tree Pests and Diseases for Ecosystem Services. *Science* 342(6160). DOI: 10.1126/science.1235773.**

Abstract: Trees and forests provide a wide variety of ecosystem services in addition to timber, food, and other provisioning services. New approaches to pest and disease management are needed that take into account these multiple services and the different stakeholders they benefit, as well as the likelihood of greater threats in the future resulting from globalization and climate change. These considerations will affect priorities for both basic and applied research and how trade and phytosanitary regulations are formulated.

Note: Sudden oak death in California is presented to illustrate predicted heterogeneous spread within different regions that reflect interactions of environmental conditions.

**Schwenkbier, L.; König, S.; Wagner, S.; Pollok, S.; Weber, J.; Hentschel, M.; Popp, J.; Werres, S.; and Weber, K. 2013. On-Site Detection of *Phytophthora* spp.—Single-Stranded Target DNA as the Limiting Factor to Improve On-Chip Hybridization. *Microchimica Acta*. DOI: 10.1007/s00604-013-1107-3. Available online at <http://link.springer.com/article/10.1007%2Fs00604-013-1107-3#>.**

Abstract: We report on a lab-on-a-chip approach for on-site detection of *Phytophthora* species that allows visual signal readout. The results demonstrate the significance of single-stranded DNA (ssDNA) generation in terms of improving the intensity of the hybridization signal and to improve the reliability of the method. Conventional PCR with subsequent heat denaturation, sodium hydroxide-based denaturation, lambda exonuclease digestion and two asymmetric PCR methods were investigated for the species *P. fragariae*, *P. kernoviae*, and *P. ramorum*. The positioning of the capture probe within the amplified yeast GTP-binding protein (YPT1) target DNA was also of interest because it



significantly influences the intensity of the signal. Statistical tests were used to validate the impact of the ssDNA generation methods and the capture-target probe position. The single-stranded target DNA generated by Linear-After-The-Exponential PCR (LATE-PCR) was found to produce signal intensities comparable to post-PCR exonuclease treatment. The LATE-PCR is the best method for the on-site detection of *Phytophthora* because the enzymatic digestion after PCR is more laborious and time-consuming.

#### RELATED RESEARCH

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**Nelson, E.V.; Fairweather, M.L.; Ashiglar, S.M.; Hanna, J.W.; and Klopfenstein, N.B.** 2013. First Report of the Armillaria Root Disease Pathogen, *Armillaria gallica*, on Douglas-fir (*Pseudotsuga menziesii*) in Arizona. *Plant Disease*. 97(12): 1658-1658.

#### MEETINGS

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**“Visualizing Sudden Oak Death,” an e-conference February 10 – 21, 2014, will** provide updates on research and management while also illustrating disease impacts and ecology. A SOD status webinar (February 11), Google Hangout with SOD experts (February 13), videos, and photo essays of sudden oak death infection development through time will be featured. The e-conference will be hosted at the [COMTF website](http://www.comtf.org) and is being co-organized by the California Oak Mortality Task Force and the USDA Forest Service, Pacific Southwest Research Station. SOD art and the fourth “Art of Saving Oaks” online gallery will display how artists have interpreted SOD and the beauty of California coastal forests. More details will be available in January 2014. Please check the COMTF website for updates ([www.suddenoakdeath.org](http://www.suddenoakdeath.org)) or contact Katie Palmieri at [kpalmieri@berkeley.edu](mailto:kpalmieri@berkeley.edu).

#### CALENDAR OF EVENTS

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- 2/10 – 2/21/14 - Visualizing Sudden Oak Death e-conference.** For more information, see “Meetings” above. Additional details will be forthcoming in January on the COMTF website at [www.suddenoakdeath.org](http://www.suddenoakdeath.org). For questions, contact Katie Palmieri at [kpalmieri@berkeley.edu](mailto:kpalmieri@berkeley.edu).
- 2/11/14 – “Phytophthora ramorum vs. Homo Sapiens, Where do we stand in our battle against the Sudden Oak Death pathogen?”** webinar; 9:00 – 10:00 a.m. PST; part of the “Visualizing Sudden Oak Death” e-conference; For additional information, see 2/10 – 2/21/14 above.
- 2/13/14 - Google Hangout with SOD experts; Part of the “Visualizing Sudden Oak Death” e-conference;** For additional information, see 2/10 – 2/21/14 above.
- 3/11 – 3/13/14 - 60th Annual Conference on Soilborne Plant Pathogens, Dominican University of California, San Rafael;** For more information, or to register, go to <http://soilfungus.ars.usda.gov/index.htm>. The field trip on 3/11 will feature sudden oak death at Mt. Tamalpais and Muir Woods.
- 11/10 – 11/14/14 - Seventh meeting of the IUFRO Working Party 7.02.09 “Phytophthora in Forests and Natural Ecosystems;”** Esquel, Argentina. For more information, registration, or abstract submission details, go to <http://www.iufrophytophthora2012.org/>.