



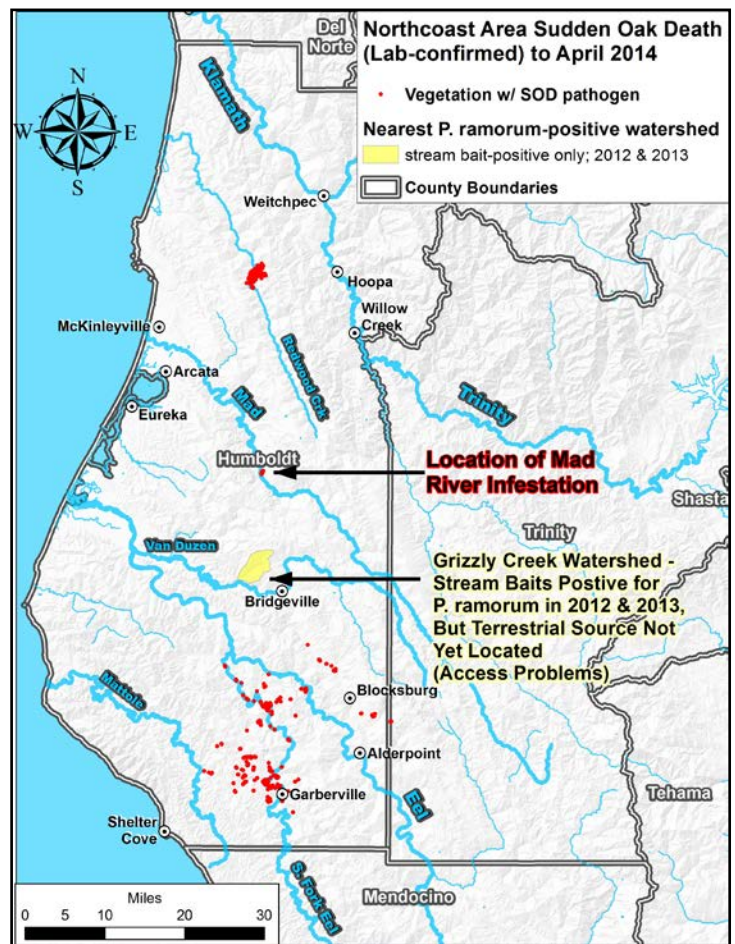
## CALIFORNIA OAK MORTALITY TASK FORCE REPORT APRIL 2014

### MONITORING

*Phytophthora ramorum* has been detected in the Mad River watershed (Humboldt County) about 5.5 miles southeast of the Maple Creek community on tanoak and California bay laurel. Fifty dead tanoak trees over approximately 10 acres were first identified by the USDA Forest Service Aerial Survey in late summer, 2013. A follow-up ground survey by UC Cooperative Extension Humboldt personnel in December, 2013, found standing dead tanoak trees exhibiting numerous bole cankers consistent with *P. ramorum*. The pathogen was isolated via culture from several of the cankers, symptomatic tree basal sprouts, and several other tanoak and bay in the vicinity.

Additional surveys conducted from December to March confirmed that the pathogen is also infecting tanoak and bay in patches up to a 1/4 mile north of where the tanoak mortality was seen during the aerial survey. Ownerships in the region are comprised of parcels that are 40 acres or larger and include areas of actively managed timberland. The infested area is situated within a continuously forested area that has not had recent management activity. The closest known infestation to this location is near Bridgeville (Humboldt County), about 14 miles south (see map).

Landowners in the Mad River infestation zone are actively participating in the UCCE Humboldt and UC Davis Rizzo lab monitoring activities, including ground surveys, stream monitoring, and updating other community members on the situation. Efforts to identify the inoculum source and delimit the extent of the infestation are still underway. Once determined, management options will be explored.





**The 2014 National *P. ramorum* Early Detection Survey of Forests is underway with** an estimated 73 streams to be assayed in 12 states nationwide, similar to 2013 levels. The survey focuses on high-risk waterways near infested forests in CA and OR and previously positive waterways in AL, FL, GA, MS, NC, TX, and WA as well as waterways outside nurseries that may have received infected ornamental plants in these states, plus NY and PA.

Steve Oak, the National *P. ramorum* Early Detection Survey of Forests, retired in January. Due to uncertainties in budget and current vacancies in leadership positions, a new national coordinator has not been determined. However, at the National Forest Health Monitoring Meeting held in March 2014, there was strong support from state, federal, and university representatives to continue the SOD surveys and for Forest Health Protection leadership to consider options for identifying a survey program leader.

## RESEARCH

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**Obwald, W.; Fleischmann, F.; Rigling, D.; Coelho, A.C.; Cravador, A.; Diez, J.; Dalio, R.J.; Horta Jung, M.; Pfanz, H.; Robin, C.; Sipos, G.; Solla, A.; Cech, T.; Chambery, A.; Diamandis, S.; Hansen, E.; Jung, T.; Orlikowski, L.B.; Parke, J.; Prospero, S.; and Werres, S.** 2014. Strategies of Attack and Defence in Woody Plant–*Phytophthora* Interactions. *Forest Pathology*. DOI: 10.1111/efp.12096.

**Summary:** This review comprises both well-known and recently described *Phytophthora* species and concentrates on *Phytophthora*–woody plant interactions. First, comprehensive data on infection strategies are presented which were the basis for three models that explain invasion and spread of *Phytophthora* pathogens in different woody host plants. The first model describes infection of roots, the second concentrates on invasion of the trunk, and the last one summarizes infection and invasion of host plants via leaves. On the basis of morphological, physiological, biochemical and molecular data, scenarios are suggested which explain the sequences of reactions that occur in susceptible and tolerant plants following infections of roots or of stem bark. Particular emphasis is paid to the significance of *Phytophthora* elicitors for such host–pathogen interactions. The overall goal is to shed light on the sequences of pathogenesis to better understand how *Phytophthora* pathogens harm their host plants.

**Schweigkofler, W.; Kosta, K.; Huffman, V.; Sharma, S.; Suslow, K.; and Ghosh, S.** 2014. Steaming Inactivates *Phytophthora ramorum*, Causal Agent of Sudden Oak Death and ramorum Blight, from Infested Nursery Soils in California. *Plant Health Progress*. 15(1): 43 – 47.

**Abstract:** Nursery trade plays a major role in the long-distance spread of *Phytophthora ramorum*, the causal agent of Sudden Oak Death (SOD) and ramorum blight of ornamental plants. Under federal regulations, nurseries found positive for *P. ramorum* must destroy infected plants and treat infested soils. The use of steam is an effective method to thermally inactivate *P. ramorum* from nursery soils as demonstrated at the National Ornamental Research Site at Dominican University (NORS-DUC) and one



commercial nursery in the Central Valley of California. Heating up the top soil layer (0-30 cm) to 50°C for 120 minutes resulted in complete thermal inactivation of *P. ramorum*. Consequently, the commercial nursery was released from federal quarantine. Steaming can be a fast, reliable, and sustainable option for treating nursery soils.

**Shishkoff, N. 2014. Growth-Inhibiting Fungicides Affect Detection of *Phytophthora ramorum* from Infected Foliage and Roots.** Online. Plant Health Progress. 15(1): 36 – 40. Growth-inhibiting fungicides are used routinely to control common and regulated Oomycete pathogens. This study investigated whether such fungicides could affect detection of *Phytophthora ramorum* from plant tissue, both foliage and roots. Whole plants of *Rhododendron* x ‘Cunningham’s White’ were inoculated with *P. ramorum* and treated 3 days later with fosetyl-Al, mefenoxam, or propamocarb. The foliage was sampled over time to see if fungicides prevented successful culturing of the pathogen from infected leaf tissue or interfered with detection using real-time PCR or ELISA. Mefenoxam significantly reduced the ability to culture the pathogen from leaves for the first 6 weeks while recovery from leaves treated with other fungicides did not differ from water-treated controls; detection using PCR or ELISA was not affected by fungicide application. The roots of *Viburnum* cuttings were inoculated with *P. ramorum* and then treated 4 days later with fosetyl-Al, mefenoxam, or propamocarb. The amount of inoculum in flow through water samples taken weekly for 5 weeks was quantified and percent root colonization determined at the end of the experiment. Propamocarb had no effect on inoculum production or root infection, while viable inoculum production was significantly decreased in fosetyl-Al- or mefenoxam-treated plants over 5 weeks, and root colonization was significantly decreased.

#### **RELATED RESEARCH**

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**Loyd, A.; Benson, M.; and Ivors, K. In Press. *Phytophthora* Populations in Nursery Irrigation Water in Relationship to Pathogenicity and Infection of Frequency of *Rhododendron* and *Pieris*.** Plant Disease. Posted online on 21 Mar 2014, First Look.

**McConnell, M.E. and Balci, Y. 2014. *Phytophthora cinnamomi* as a Contributor to White Oak Decline in Mid-Atlantic United States Forests.** Plant Disease. 98: 319-327.

**Ridge, G.A.; Jeffers, S.N.; Bridges, Jr., W.C.; and White, S.A. 2014. In Situ Production of Zoospores by Five Species of *Phytophthora* in Aqueous Environments for Use as Inocula.** Plant Disease. 98(4): 551-558.

**Rooney-Latham, S. and Blomquist, C.L. In press. First Report of Root and Stem Rot Caused by *Phytophthora tentaculata* on *Mimulus aurantiacus* in North America.** Plant Disease. Posted online on 18 Feb 2014, First Look.

**Werres, S.; Elliot, M.; and Greslebin, A. 2014. *Phytophthora austrocedrae* Gresl. & E. M. Hansen.** JKI Data sheets - Plant Diseases and Diagnosis. ISSN 2191-1398 DOI 10.5073/jkidspdd.2014.001.



Yang, X.; Gallegly, M.E.; and Hong, C. 2014. A High-Temperature Tolerant Species in Clade 9 of the Genus *Phytophthora*: *P. hydrogena* sp. nov. *Mycologia*. 106: 57-65.

Zappia, R.E.; Hüberli, D.; St. J. Hardy, G.E.; and Bayliss, K.L. *In press*. Fungi and Oomycetes in Open Irrigation Systems: Knowledge Gaps and Biosecurity Implications. *Plant Pathology*. DOI: 10.1111/ppa.12223.

## RESOURCES

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Peterson, Ebba. March 2014. Contained, but not eradicated. The war against sudden oak death in southwest Oregon forests wages on, but nursery diligence still makes a difference. *Oregon Association of Nurseries Digger Magazine*. Pg. 33 – 37.

## CALENDAR OF EVENTS

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**4/5 – Santa Lucia SOD Blitz Training; Santa Lucia Preserve; 10:00 – 10:45 a.m.;**

For residents only.

**4/11 - Santa Cruz SOD Blitz Training; UCSC Arboretum; 1156 High St, Santa Cruz; [Map Link](#); 7:00 – 7:45 p.m.;** For more information, contact Brett Hall at [brett@ucsc.edu](mailto:brett@ucsc.edu).

**4/12 - South Skyline SOD Blitz Training; Saratoga Summit (Cal Fire) Fire Station; 12900 Skyline Blvd, Los Gatos; 10:00 – 10:45 a.m.;** For more information, contact Jane Manning at [skyline\\_sod@yahoo.com](mailto:skyline_sod@yahoo.com).

**4/18 – Mendocino SOD Blitz Training, CA Department of Fish and Wildlife conference room; 32330 North Harbor Drive, Fort Bragg; 7:00 – 7:45 p.m.;** For more information, contact Lori Hubbard at [lorih@mcn.org](mailto:lorih@mcn.org).

**4/19 – Mendocino SOD Blitz Training; Gualala location to be determined; 10:00 – 10:45 a.m.;** For more information, contact Lori Hubbard at [lorih@mcn.org](mailto:lorih@mcn.org).

**4/19 – Sebastopol SOD Blitz Training; Sebastopol Center for the Arts; 282 South High Street, Sebastopol; 9:00 – 10:00 a.m.;** For more information, contact Lisa Bell at [lkbell@ucanr.edu](mailto:lkbell@ucanr.edu).

**4/19 – Santa Rosa SOD Blitz Training; Spring Lake Park Environmental Discovery Center; 5585 Newanga Ave, Santa Rosa; 9:00 – 10:00 a.m.;** For more information, contact Lisa Bell at [lkbell@ucanr.edu](mailto:lkbell@ucanr.edu).

**4/19 –Cloverdale SOD Blitz Training; Cloverdale Historical Society; 215 N. Cloverdale Blvd, Cloverdale; 11:00 a.m. – 12:00 p.m.;** For more information, contact Lisa Bell at [lkbell@ucanr.edu](mailto:lkbell@ucanr.edu).

**4/19 –Sonoma SOD Blitz Training; Sonoma Community Center; 276 East Napa Street, Sonoma; 9:00 – 10:00 a.m.;** For more information, contact Lisa Bell at [lkbell@ucanr.edu](mailto:lkbell@ucanr.edu).

**4/26 - Marin, San Rafael SOD Blitz Training; Dominican University of California; Joseph R Fink Science Center, Rm 102; 10:00 – 10:45 a.m.** For more information, contact Wolfgang Schweigkofler at [wolfgang.schweigkofler@dominican.edu](mailto:wolfgang.schweigkofler@dominican.edu) or Kristin Jacob at [kristinjakob@att.net](mailto:kristinjakob@att.net).

**4/26 - San Mateo, Burlingame Hills SOD Blitz Training; 120 Tiptoe Lane (off Canyon Rd.), Burlingame; 1:00 – 1:45 p.m.;** For more information, contact Steve



Epstein at [steve@burlingamehills.org](mailto:steve@burlingamehills.org).

- 5/3 - Monterey SOD Blitz Training; Garland Ranch Regional Park Museum**  
Visitors Center, Carmel Valley; 10:00 – 10:45 a.m.; For more information, contact Kerri Frangioso at [kfrangioso@ucdavis.edu](mailto:kfrangioso@ucdavis.edu) or Brian LeNeve at [bjleneve@att.net](mailto:bjleneve@att.net).
- 5/10 - Contra Costa SOD Blitz Training; Orinda Public Library; 26 Orinda Way, Orinda; 10:00 – 10:45 a.m.;** For more information, contact William Hudson at [wllhh@gmail.com](mailto:wllhh@gmail.com).
- 5/10 – Alameda SOD Blitz Training; UC Berkeley Campus; 159 Mulford Hall, Berkeley; 1:00 -1:45 p.m.;** For more information, contact Toni Mohr at [toni.mohr@gmail.com](mailto:toni.mohr@gmail.com).
- 5/16 - San Luis Obispo SOD Blitz Training; SLO County Department of Agriculture; 2156 Sierra Way, San Luis Obispo; 7:00 – 7:45 p.m.;** For more information, contact Lauren Brown at [lbrown805@charter.net](mailto:lbrown805@charter.net).
- 5/17 - San Mateo-Santa Clara, Woodside-Portola Valley/Emerald Hills/San Carlos/Atherton SOD Blitz Training; Woodside Town Hall; 2955 Woodside Road, Woodside; 10:00 – 10:45 a.m.;** For more information, contact Debbie Mendelson at [sodblitz@gmail.com](mailto:sodblitz@gmail.com).
- 5/18 - Santa Clara SOD Blitz Training; Montalvo-Saratoga-Los Gatos; Montalvo Arts Center; 15400 Montalvo Road, Saratoga; 10:00 – 10:45 a.m.;** For more information, contact Kelly Sicat at [KSicat@montalvoarts.org](mailto:KSicat@montalvoarts.org) or [president@cnps-scv.org](mailto:president@cnps-scv.org).
- 5/22 - San Francisco SOD Blitz Training; Golden Gate Park Presidio and Golden Gate Park Rec. Room; San Francisco County Fair Building; Golden Gate Park near 9th Ave. & Lincoln Way, San Francisco; 10:00 – 10:45 a.m.;** For more information, contact Eric Anderson at [eric.anderson@sfgov.org](mailto:eric.anderson@sfgov.org).
- 5/24 - Santa Clara, Los Altos Hills SOD Blitz Training; Los Altos Hills Town Hall; 26379 Fremont Road, Los Altos Hills; 10:00 – 10:45 a.m.;** For more information, contact Sue Welch at [sodblitz09@earthlink.net](mailto:sodblitz09@earthlink.net).
- 5/31 – Napa SOD Blitz Training; UCCE Meeting Room; 1710 Soscol Avenue, Napa; 10:00 – 10:45 a.m.;** For more information, contact Bill Pramuk at [info@billpramuk.com](mailto:info@billpramuk.com).
- 11/3 – 11/6 - 7th California Oak Symposium; Visalia Convention Center, Visalia;**  
For more information, go to [http://ucanr.edu/sites/oaksymposium/?utm\\_source=Oak+Symposium+2014+Save+the+Date&utm\\_campaign=oak+symposium&utm\\_medium=email](http://ucanr.edu/sites/oaksymposium/?utm_source=Oak+Symposium+2014+Save+the+Date&utm_campaign=oak+symposium&utm_medium=email).
- 11/10 – 11/14 - 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/>.
- 11/12 – 11/13 - 2014 Annual Meeting of the California Forest Pest Council; USDA Forest Service, Wildland Fire Training & Conference Center; 3237 Peacekeeper Way; McClellan; More information will be forthcoming.** For more information, contact Katie Palmieri at [kpalmieri@berkeley.edu](mailto:kpalmieri@berkeley.edu).