



CALIFORNIA OAK MORTALITY TASK FORCE REPORT MARCH 2016

MEETINGS

Registration for the “Sixth Sudden Oak Death Science Symposium: Biosecurity, Plant Trade, and Native Habitats” will be available online at the beginning of March. To be held June 20-23, 2016 at Ft Mason in San Francisco, symposium activities will include a field trip to the San Francisco Peninsula on Tuesday, June 21st, followed by two days of indoor presentations on sudden oak death research and management progress as well as other nursery and wildland *Phytophthora* issues. On Monday, a pre-conference *Phytophthora* identification training session will be offered at UC Berkeley. To register, or for more information, go to <http://ucanr.edu/sites/sod6/>.

FUNDING

The 2016 Farm Bill, Plant Pest and Disease Management and Disaster Prevention Program (Section 10007) awarded \$1,284,528 in *Phytophthora ramorum*-related program funding to 17 states with California receiving \$692,308 of the available funds. For more information on the-Fiscal Year 2016 Spending Plan, go to https://www.aphis.usda.gov/plant_health/farmbill-section10007/fy16/Plant-Pest-Disease-FB-Spending-Plan-FY16.pdf.

NURSERIES

The National Ornamentals Research Site at Dominican University of California (NORS-DUC) received \$509,000 from the USDA Farm Bill for FY16-17 to continue work with collaborators in four states on *P. ramorum*-related nursery issues. Funding also supports staff work on validating best management practices for growers to prevent or reduce the risk of *Phytophthora* species introduction into their operations. NORS-DUC and California Department of Food and Agriculture personnel are also working closely with native plant nurseries and tribal nations to understand their unique operations and to educate them on how to best implement improved management practices in their production supply chain.

Systems Approach to Nursery Certification (SANC) initiative representatives from the National Plant Board (NPB), nursery industry, and USDA continue to refine the SANC program in an effort to improve the process for certifying nursery stock and reducing pest risk movement at the interstate shipping level. A pilot project to test the feasibility of the risk-based certification program was implemented 15 months ago at eight nursery and greenhouse facilities, all of which have since completed their risk assessments. Some sites have completed their pest management plans and are working on their SANC facility manuals. One facility has completed their SANC facility manual, and has obtained the approval of their state agriculture department. After further review, the certifying authority (state department of agriculture) will perform an initial audit of the facility to determine its readiness to ship nursery products under SANC certification.



SANC program representatives are considering a Phase 2 Pilot Project which would include a second group of nurseries and greenhouses. If implemented, the program would incorporate evaluation team findings and include a wider range of pilot facility sizes. It would also assess how facilities might interact with other systems approach efforts, such as the US/Canadian Greenhouse Certification Program.

The SANC program has the collaborative support of the nursery industry, states, and USDA. For more information, go to www.sanc.nationalplantboard.org.

MONITORING

The Karuk Tribe is implementing a *P. ramorum* stream monitoring program in 2016. Two tributaries of the Klamath River will be monitored in the downriver portion of traditional tribal territory. The nearest known SOD infestation is in Redwood Valley, approximately 14 miles southwest from one of the planned stream baiting locations. The program is being implemented to facilitate an early detection/rapid response program for Karuk lands.

The UK is investigating recent findings in southwest England which suggest for the first time that European sweet chestnut trees (*Castanea sativa*) are being infected by long-distance spread of *P. ramorum* spores. There is also evidence suggesting that the disease might be ‘cycling’ among sweet chestnut trees. Until 2015, sweet chestnut had only been found infected in close proximity to other infected sporulating hosts, such as larch and rhododendron, putting them under heavy inoculum pressure.

MANAGEMENT

The U.S. Department of the Interior released “[Safeguarding America’s Lands and Waters from Invasive Species: A National Framework for Early Detection and Rapid Response](#)” on February 18th. The report urges the National Invasive Species Council (NISC) to provide leadership in early detection and rapid response for invasive species to help limit their spread as well as economic and environmental impacts. This report is a first step towards building U.S. capacity to forecast which non-native species pose the greatest risk to the country, bolster current monitoring and response actions underway, and position public and private partners to be prepared to take immediate action when the next invasive species arrives.

RESEARCH

Rollins, L.; Coats, K.; Elliott, M.; and Chastagner, G. *In press*. Comparison of Five Detection and Quantification Methods for *Phytophthora ramorum* in Stream and Irrigation Water. Plant Disease. <http://dx.doi.org/10.1094/PDIS-11-15-1380-RE>.

Abstract: Propagules of *Phytophthora ramorum*, the causal agent of sudden oak death (SOD) and ramorum blight, can be recovered from infested stream and nursery irrigation runoff using baiting and filtration methods. Five detection methods, including pear and rhododendron leaf baits, Bottle O’ Bait (BOB), filtration and qPCR performed on zoospores trapped on a filter were compared simultaneously in laboratory assays using



lab or creek water spiked with known quantities of *P. ramorum* zoospores. The detection threshold for each method was determined and methods that could be used to quantify zoospore inoculum were identified. Filtration and qPCR were the most sensitive at detecting low levels of zoospores followed by wounded rhododendron leaves, rhododendron leaf disks and pear baits. Filtration, qPCR and leaf disks were able to quantify *P. ramorum* zoospores ranging from 2 to 451 direct plate colony-forming units (DP CFU)/liter while wounded leaves and pear baits appeared to be better at detection rather than quantification. The ability to detect and quantify *P. ramorum* inoculum in water will assist scientists, regulatory agencies and nursery personnel in assessing the risk of spreading *P. ramorum* in nurseries and landscape sites where untreated infested water is used for irrigation.

Swiecki, T. J., Bernhardt, E. A., Aram, K., Rizzo, D. M., Kasuga, T., and Bui, M. 2016. *Phytophthora ramorum* causes cryptic bole cankers in canyon live oak. Plant Health Progress. 17:20-26.

Abstract: Mortality of large canyon live oaks suddenly appeared in natural stands in San Mateo, CA, starting in 2007. A survey of affected stands showed that symptomatic trees were spatially associated with California bay, the primary source of *Phytophthora ramorum* spores in California coastal oak forests. Trunk canker symptoms on affected trees were similar to late-stage symptoms caused by *P. ramorum* on other oak hosts, but the pathogen could not be isolated from affected trees. Artificial inoculation of logs, and later, trees, confirmed that *P. ramorum* caused phloem cankers on canyon live oak, but cankers showed either no or minuscule external bleeding. Knowledge of early bark symptom appearance facilitated successful isolations from naturally infected trees. Tree declines associated with similarly cryptic *Phytophthora* cankers could remain undiagnosed or misdiagnosed for many years, thwarting detection and management efforts.

RELATED RESEARCH

Brazee, N.J.; Wick, R.L.; and Hulvey, J.P. 2016. *Phytophthora* species recovered from the Connecticut River Valley in Massachusetts, USA. Mycologia. 108(1): 6-19.

Fuller, L.; Marzano, M.; Peace, A.; Quine, C.P.; and Dandy, N. 2016. Public Acceptance of Tree Health Management: Results of a National Survey in the UK. Environmental Science and Policy. Vol 59. Pages 18–25.
[doi:10.1016/j.envsci.2016.02.007](https://doi.org/10.1016/j.envsci.2016.02.007).

McKeever, K.M. and Chastagner, G. *In press*. A Survey of *Phytophthora* Species Associated with *Abies* in U.S. Christmas Tree Farms. Plant Disease.
<http://dx.doi.org/10.1094/PDIS-08-15-0939-RE>.

Patel, J.S.; Vitoreli, A.; Palmateer, A.J.; El-Sayed, A.; Norman, D.J.; Goss, E.M.; Brennan, M.S.; and Ali, G.S. 2016. Characterization of *Phytophthora* spp. Isolated from Ornamental Plants in Florida. Plant Disease. 100(2):500-509.



Shands, A.C.; Yamagata, J.S.; Wright, A.F.; and Miles, T.D. 2016. First Report of *Phytophthora cinnamomi* Causing Root Rot of Southern Highbush Blueberry in California. Plant Disease. 100(2):537.

RESOURCES

Two new *Phytophthora* species profiles are available on the Forest Phytophthoras of the World website at <http://forestphytophthoras.org/>: *Phytophthora pluvialis* and *Phytophthora tentaculata*. Each species listing includes information about the pathogen, the diseases it causes, educational and management resources, and references.

Parke, J. and Funahashi, F. 2016. Soil Solarization in Container Nurseries and Field Production. Digger Magazine 60:33-36. <http://www.diggermagazine.com/soil-solarization-in-container-nurseries-and-field-production/>.

A bilingual (English/Spanish) nursery pest management poster has been produced by Oregon State University for the Oregon Department of Agriculture. The poster is intended for posting at nurseries to help reinforce awareness as to how best to reduce microbial spread in nursery settings. To access or print out copies of the poster, go to <http://www.suddenoakdeath.org/wp-content/uploads/2016/03/Bilingual-Nursery-Pest-Management.pdf>.

CALENDAR

- 4/9 – East Bay (Orinda) SOD Blitz Training; Orinda Public Library Garden Room; 26 Orinda Way, Orinda; 10:00 a.m. – 12:00 noon; For more information, contact Bill Hudson at wllhh@ymail.com.**
- 4/9 – East Bay (Berkeley) SOD Blitz Training; UC Berkeley campus; 159 Mulford Hall, Berkeley; 1:30 – 3:30 p.m.; For more information, contact Doug Schmidt at dschmidt@berkeley.edu.**
- 4/17 – 4/23 - Burlingame Hills SOD Blitz; For more information, contact Steve Epstein at steveepstein0206@gmail.com.**
- 4/23 – Marin County SOD Blitz Training; Dominican University of California; Joseph R. Fink Science Center, Rm 103, San Rafael; 10:00 a.m. – 12:00 noon; For more information, contact Wolfgang Schweigkofler at wolfgang.schweigkofler@dominican.edu.**
- 4/30 – South Skyline SOD Blitz Training; Saratoga Summit Forestry and Fire Protection (Cal Fire) Fire Station; 12900 Skyline Blvd, Los Gatos; 10:00 a.m. – 12:00 noon; For more information, contact Jane Manning at skyline_sod@yahoo.com.**
- 4/30 – Saratoga SOD Blitz Training; Montalvo Arts Center; The Art Commons, 15400 Montalvo Rd., Saratoga; 1:00 p.m. – 3:00 p.m.; For more information, contact Ann Northrup at annnorthrup@sbcglobal.net.**
- 5/7 – Carmel Valley Village SOD Blitz Training; Garland Ranch Regional Park Museum Hall, 700 West Carmel Valley Road, Carmel Valley; 10:00 a.m. – 12:00 noon; For more information, contact Kerri Frangioso at kfrangioso@ucdavis.edu.**



- 5/14 – Sonoma County SOD Blitz Trainings (3 locations: Santa Rosa, Sonoma, Sebastopol);** 9:00 a.m. – 11:00 a.m.; Sites to be determined. For more information, contact Lisa Bell at lkbell@ucanr.edu.
- 5/14 – Portola Valley SOD Blitz Training; Portola Valley Town Center, 765 Portola Rd.,** Portola Valley; 10:00 a.m. – 12:00 noon; For more information, contact Debbie Mendelson at naturemend@sbcglobal.net.
- 5/14 – Los Altos Hills SOD Blitz Training; Los Altos Hills Town Hall, Council Chambers;** 26379 Fremont Rd., Los Altos Hills; 1:00 p.m. – 3:00 p.m.; For more information, contact Sue Welch at sodblitz09@earthlink.net.
- 5/20 – San Luis Obispo SOD Blitz Training; UC Cooperative Extension classroom;** 2156 Sierra Way, San Luis Obispo; 6:00 p.m. – 8:00 p.m.; For more information, contact: Lauren Brown at lbrown805@charter.net.
- 5/21 – Mendocino/Sonoma SOD Blitz Training (3 locations: Bouverie Preserve, Galbreath Preserve, Kashia Pomo Land);** 9:00 a.m. – 11:00 a.m.; Sites to be determined. For more information, contact Lisa Bell at lkbell@ucanr.edu.
- 5/27 – Santa Cruz SOD Blitz Training; UC Santa Cruz Botanic Garden, UC Santa Cruz Campus;** 1156 High St., Santa Cruz; 6:30 p.m. – 8:30 p.m.; For more information, contact Brett Hall at brett@ucsc.edu.
- 6/4 – Napa County SOD Blitz Training; Napa County Resource Conservation District Conference Room;** 1303 Jefferson Street, Suite 500B; 10:00 a.m. – 12:00 noon; For more information, contact Bill Pramuk at info@billpramuk.com.
- 6/20 – 23/16 Sixth Sudden Oak Death Science Symposium: Biosecurity, Plant Trade, and Native Habitats;** Fort Mason, San Francisco; For more information, go to <http://ucanr.edu/sites/sod6/>. For questions, contact Katie Harrell at kpalmieri@berkeley.edu or (510) 847-5482.