



CALIFORNIA OAK MORTALITY TASK FORCE REPORT SEPTEMBER 2012

MONITORING

In May and June 2012, California's stream monitoring efforts recovered

Phytophthora ramorum for the first time this season from the Mattole River at Whitehorn, and in the east and west forks of Mattole Canyon Creek, Grindstone Creek, and an upper tributary of Grizzly Creek (Humboldt County). The Mattole River at Whitehorn and the main stem of Mattole Canyon Creek were both found to be *P. ramorum* positive for the first time in 2011. This year's results indicate that both the east and west forks of Mattole Canyon Creek are also infested. Grindstone Creek was also found positive for the first time in April of this year. The site is located approximately 3 km downstream from the Mattole Canyon Creek site.

The main stem of Grizzly Creek was first found *P. ramorum* positive in 2011. To identify the source of the Grizzly Creek infestation, four additional sites within the watershed were sampled in 2012. Of these sites, only an upper tributary feeding into Grizzly Creek was found positive this year. This site is located partially on Humboldt Redwood Company (HRC) land and partially on private land. To date, follow-up surveys to locate terrestrial *P. ramorum* infestations have been conducted on the HRC portion of the drainage, but no infected vegetation has yet been found. For more information, contact Dave Rizzo at dmrizzo@ucdavis.edu.

The USDA Forest Service has completed its 2012 California annual aerial detection survey for areas associated with Sudden Oak Death (SOD). This year, the aerial survey program mapped 376,000 dead oak and tanoak over 54,000 acres in areas impacted by SOD in California. In comparison, 38,000 trees across 8,000 acres were mapped in the same area last year. At the end of August, remaining areas of Humboldt and Mendocino Counties were flown. Redwood Creek in northern Humboldt County was flown specifically to map tanoak mortality for targeted ground check surveys of the infested area treated in 2011. Approximately 50 dead tanoaks were mapped. The northeast extent of the SOD infestation in southern Humboldt was also surveyed. A 20-acre area of tanoak mortality in the Van Duzen River watershed was observed near Grizzly Creek, a watershed that has tested positive for *P. ramorum*. No tanoak mortality was seen in the Grizzly Creek watershed itself. Tanoak stands in the Sierra Range (Nevada, Placer, Eldorado, Yuba Counties) were also flown, with no tanoak mortality mapped. For more information, contact Zachary Heath at zheath@fs.fed.us.

NURSERIES

A residential site in Placer County, California (regulated county) was found to have a *P. ramorum*-positive *Rhododendron* sp. plant on August 28th. The symptomatic plant was discovered by the homeowner's daughter who works in plant pathology at a lab conducting *P. ramorum* research. The positive plant is planted in the middle of a lawn. No other host material is growing adjacent to the positive rhododendron. The Residential



and Landscaped Commercial Settings Protocol is being implemented. The positive plant was traced back to a retail nursery in Auburn (Placer County), which was confirmed *P. ramorum* positive in 2006 and 2009. The nursery is primarily a retail facility. All host material is purchased from other sources. The nursery does ship non-host material to Nevada.

To date in 2012, the US has had 32 *P. ramorum*-positive nurseries in seven states (CA-6; OR-11; WA-10; NC-1; ME-1; NY-2; PA-1) as well as 4 positive residential/landscape detections (CA, OR, WA, ME). Positive plants included: *Rhododendron* (51%); *Camellia* (13%); *Viburnum* (11%); *Pieris* (7%); *Kalmia* (3%); *Gaultheria* (4%); *Loropetalum* (3%); *Magnolia* (3%); *Hamamelis* (2%); *Cornus* (1%); *Prunus* (1%); and *Trachelospermum* (1%). Seventeen of the positive nurseries are interstate shippers (CA-2; OR-7; WA-7; NY-1) and 15 are retail facilities (CA-4; OR-4; WA-3; NC-1; ME-1; NY-1; PA-1). Collection ponds were positive at 2 retail nurseries (WA, NY) and 3 that ship interstate (2-WA, 1-NY). Soil was positive at 1 retail nursery (CA), 2 interstate shipping nurseries (CA, OR), and 1 landscape site (WA). Ten interstate trace-forward investigations were conducted this year: three with potentially infected plants shipped to 24-30 states and seven with potentially infected plants shipped to 1 to 3 states. As a result, *P. ramorum* was detected at retail nurseries in ME and PA that were shipped from OR, and from three residential/landscape sites in OR, WA, and ME that originated in WA. Confirmed Nursery and/or Residential Protocols are being implemented at all locations.

RESEARCH

The Chastagner lab at Washington State University, Puyallup plans to develop a biofiltration testing facility and determine the effectiveness of several techniques for removing *P. ramorum* inoculum from water. Methods similar to those being used for remediating stormwater are being considered for removing pathogen inoculum from nursery runoff and will have the added advantage of removing pollutants. These methods will consist of biofilters using various organic substrates, constructed wetlands or rain gardens, and physical methods such as sand filtration or sedimentation. Pilot biofiltration systems will be installed at selected *P. ramorum*-positive nurseries in Washington and be part of a training program for nursery managers. A Best Management Practices workshop will also be held for nursery managers regarding the installation and maintenance of cost-effective biofiltration systems for removal of *Phytophthora* inoculum in water. Funding for the project has been made possible by the Farm Bill and the Washington State Department of Agriculture Nursery Research Program.

Purse, B.V.; Graeser, P.; Searle, K.; Edwards, C.; and Harris, C. 2012. Challenges in predicting invasive reservoir hosts of emerging pathogens: mapping *Rhododendron ponticum* as a foliar host for *Phytophthora ramorum* and *Phytophthora kernoviae* in the UK. Online First™, Biol Invasions DOI 10.1007/s10530-012-0305-y.

Abstract: Invasive species can increase the susceptibility of ecosystems to disease by acting as reservoir hosts for pathogens. Invasive hosts are often sparsely recorded and not



in equilibrium, so predicting their spatial distributions and overlap with other hosts is problematic. We applied newly developed methods for modelling the distribution of invasive species to the invasive shrub *Rhododendron ponticum*—a foliar reservoir host for the *Phytophthora* oomycete plant pathogens, *P. ramorum* and *P. kernoviae*, that threaten woodland and heathland habitat in Scotland. We compiled eleven datasets of biological records for *R. ponticum* (1,691 points, 8,455 polygons) and developed Maximum Entropy (MaxEnt) models incorporating landscape, soil and climate predictors. Our models produced accurate predictions of current suitable *R. ponticum* habitat (training AUC = 0.838; test AUC = 0.838) that corresponded well with population performance (areal cover). Continuous broad-leaved woodland cover, low elevation (<400 m a.s.l.) and intermediate levels of soil moisture (or Enhanced Vegetation Index) favoured presence of *R. ponticum*. The high coincidence of suitable habitat with both core native woodlands (54 % of woodlands) and plantations of another sporulation host, *Larix kaempferi* (64 % of plantations) suggests a high potential for spread of *Phytophthora* infection to woodland mediated by *R. ponticum*. Incorporating non-equilibrium modelling methods did not improve habitat suitability predictions of this invasive host, possibly because, as a long-standing invader, *R. ponticum* has filled more of its available habitat at this national scale than previously suspected.

FUNDING

The USDA Forest Service, Pacific Southwest Research Station Sudden Oak

Death/*Phytophthora ramorum* fiscal year 2012 funded research projects is now available at <http://www.fs.fed.us/psw/partnerships/sod/funding/>. Five continuing projects were funded, for a total of \$75,836. In addition, \$236,840 from partners supported six projects. To access the updated list of 2002 to 2012 Sudden Oak Death/*Phytophthora ramorum* publications supported by Forest Service Research funding, which includes over 150 journal articles and 51 pages of numerous other publications, go to http://www.fs.fed.us/psw/partnerships/sod/documents/sod_publications.pdf. All projects are cooperative and represent the work and/or matching funds of more than 50 institutions and hundreds of scientists.

MANAGEMENT

“Standing Firm - Tackling ramorum disease in public forests” by Lee Dawson, a forester with the Forestry Commission Wales, is a case study of the South Wales Japanese larch outbreak on public forest land managed by the Commission. The study discusses six elements of response work, including biosecurity, disease identification, felling plans, end use, communications, and lessons learned. To access the report, go to <http://www.forestry.gov.uk/forestry/INFD-8XLBYM>.

The UK Forestry Commission has published generic “Biosecurity Guidance” measures that are now required of Forestry Commission representatives and contractors carrying out official Commission business, and is recommended for use by those in the forestry and arboricultural industries. The generic guidance recommends measures that will help protect tree and woodland health, and is intended to be used in conjunction with specific recommendations for individual circumstances. To access the guidelines, go to



[http://www.forestry.gov.uk/pdf/FC_Biosecurity_Guidance.pdf/\\$file/FC_Biosecurity_Guidance.pdf](http://www.forestry.gov.uk/pdf/FC_Biosecurity_Guidance.pdf/$file/FC_Biosecurity_Guidance.pdf).

RELATED RESEARCH

Reviews in Nature and Science report that damage from fungal pathogens, and closely related oomycetes, are on the rise. This phenomenon is attributed to ever-increasing global trade and travel, in addition to the ability of fungi to persist in unfavorable conditions on many hosts. The articles are:

- **Fisher, M.C.; Henk, D.A.; Briggs, C.J.; Brownstein, J.S.; Madoff, L.C.; McCraw, S.L.; and Gurr, S.J.** 2012. Emerging fungal threats to animal, plant and ecosystem health. *Nature* 484: 186-194. DOI:10.1038/nature10947.
- **Kupferschmidt, K.** 2012. Attack of the Clones. *Science*. 337: 636-638.

Garibaldi, A.; Bertetti, D.; Poli, A.; Bizioli, L.; and Gullino, M.L. 2012. First Report of Root Rot Caused by *Phytophthora cinnamomi* on Mountain Laurel (*Kalmia latifolia*) in Italy. *Plant Disease* 96(9): 1381-1381.

Parke, J.L. and Grünwald, N.J. 2012. A Systems Approach for Management of Pests and Pathogens of Nursery Crops. *Plant Disease* 96(9): 1236-1244.

MEETINGS

Submissions for the Proceedings of the Fifth Sudden Oak Death Science Symposium are past due. If you have not yet submitted your paper, extended abstract, or abstract for inclusion, please contact Katie Palmieri at kpalmieri@berkeley.edu as soon as possible to see if alternate arrangements can be made.

EDUCATION AND OUTREACH

This fall, the UC Berkeley Garbelotto lab will be conducting community indoor and outdoor meetings at locations where SOD Blitzez occurred last spring. Indoor “Results” meetings are intended to update community members on the 2012 SOD Blitz results. Outdoor “Field” meetings will be an opportunity to discuss SOD management options and demonstrate treatment techniques. It is recommended that community members attend the Results meeting in their area prior to attending the Field meetings. Treatment training sessions that are equivalent to Field meetings are also offered this fall on the UC Berkeley campus. For more information, go to www.matteolab.org.

JOB OPENING

The Oregon Department of Forestry SOD Management Program in Brookings, OR is seeking a limited duration, full-time Natural Resource Specialist 2 (Forest Health-SOD) in Brookings, OR. The monthly salary range is \$3,284- \$4,787. Interested parties can call Stacy Savona at (541) 469-5040 with questions. For more information, or to apply by the September 18th deadline, go to http://agency.governmentjobs.com/oregon/default.cfm?action=viewJob&jobID=517795&hit_count=yes&headerFooter=1&promo=0&transfer=0&WDDXJobSearchParams=%3CwddxPacket%20version%3D%271.0%27%3E%3Cheader%2F%3E%3Cdata%3E%3C



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CALENDAR OF EVENTS

- 9/9 – 9/14 – Sixth Meeting of the International Union of Forest Research Organizations IUFRO Working Party 7-02-09 “Phytophthora in Forests and Natural Ecosystems;”** Colegio Mayor Universitario Nuestra Señora de la Asunción, Avd. Menéndez Pidal s/n, 14004 Córdoba, Spain; For more information, contact M^a Pérez Sierra at aperesi@eaf.upv.es or see <http://iufrophytophthora2012.org/>.
- 10/4 - East Bay SOD Blitz 2012 Results Meeting (Berkeley/Oakland/Orinda); UC Berkeley;** 159 Mulford Hall; Berkeley; 6 – 8 p.m.; For more information, contact Shelagh Brodersen at garberparkstewards@gmail.com.
- 10/5 - Garber Park SOD Field Meeting; Garber Park; 144 Evergreen Ln.;** Berkeley; 10 a.m. – 12 p.m.; For more information, contact Shelagh Brodersen at garberparkstewards@gmail.com.
- 10/6 - Tilden Park SOD Field Meeting; 10 a.m. – 12 p.m.; Tilden Regional Park;** Spillway Picnic Area, near the Lake Anza parking lot; Berkeley; For more information, contact Shelagh Brodersen at garberparkstewards@gmail.com.
- 10/6 - Knowland Park SOD Field Meeting; Lochard Street Entrance to Knowland Park;** Oakland; 2 - 4 p.m.; For more information, contact Laura Baker at lbake66@aol.com.
- 10/8 – 10/12 – 60th Annual Western International Forest Disease Work Conference;** Tahoe City; For the agenda, more information, or to register, go to <http://www.fs.fed.us/foresthealth/technology/wif/index.htm>.
- 10/12 - Sonoma/Marin SOD Blitz 2012 Results Meeting; UCCE Sonoma County;** 133 Aviation Blvd.; Santa Rosa; 6 - 8 p.m.; For more information, contact Lisa Bell at lkbell@ucdavis.edu.
- 10/13 - Sonoma County SOD Field Meeting #1; Sebastopol Veterans' Memorial Hall;** 282 High Street; Sebastopol; 10 a.m. – 12 p.m.; For more information, contact Lisa Bell at lkbell@ucdavis.edu.
- 10/13 - Sonoma County SOD Field Meeting #2; Spring Lake Regional Park; Upper Oak Knolls Picnic Area;** 5585 Newanga Avenue; Santa Rosa; 2 - 4 p.m.; For more information, contact Lisa Bell at lkbell@ucdavis.edu.
- 10/14 - East Bay/Lafayette/Orinda SOD Field Meeting; Community Park Picnic Area;** 480 St. Mary's Rd.; Lafayette; 10 a.m. – 12 p.m.; For more information, contact Greg Travers at GTravers@ci.lafayette.ca.us.
- 10/17 - SOD Treatment Workshop; meet at oak outside of Tolman Hall, UC Berkeley Campus;** 1 – 3 p.m.; Pre-registration is required. This class is free and will be held rain or shine. To register, or for questions, email kpalmieri@berkeley.edu, and provide your name, phone number, affiliation, and



- license number (if applicable), and the date for which you are registering. For more information, go to <http://nature.berkeley.edu/garbelotto/english/sodtreatmenttraining.php>.
- 10/20 - Carmel Valley SOD Blitz 2012 Results Meeting; Garland Ranch Regional Park Museum Ranger Station meeting room; Carmel Valley; 10 a.m. – 12 p.m.;** For more information, contact Kerri Frangioso at kfrangioso@ucdavis.edu.
- 10/20 - Carmel Valley SOD Field Meeting; Garland Ranch Regional Park Museum Meeting Room at the Ranger Station; 10 a.m. – 12 p.m.;** For more information, contact Kerri Frangioso at kfrangioso@ucdavis.edu.
- 10/20 - Santa Lucia SOD Field Meeting; Santa Lucia Preserve; 1:30 – 3:30 p.m.;** For more information, contact Chris Hauser at chauser@slconservancy.org.
- 10/26 - Woodside/Portola Valley/Emerald Hills SOD Blitz 2012 Results Meeting;** Woodside Town Hall; 2955 Woodside Road; Woodside; 7 – 9 p.m.;
- For more information, contact Debbie Mendelson at naturemend@sbcglobal.net.
- 10/27 - San Mateo County, Portola Valley Ranch SOD Field Meeting; Portola Valley Ranch House; 1 Indian Crossing; Portola Valley; 1:30 - 3:30 p.m.;** For more information, contact Debbie Mendelson at naturemend@sbcglobal.net.
- 10/28 - San Mateo County, South Skyline SOD Blitz 2012 Results Meeting; Skyline Ridge Open Space Field Office and Ranger Station; 10 a.m. – 12 p.m.;** For more information, contact Jane Manning at skyline_sod@yahoo.com.
- 10/31 - SOD Treatment Training Workshop; UC Berkeley Campus; Meet at oak outside of Tolman Hall; 1 – 3 p.m.;** Pre-registration is required. For more information, see the 10/17 listing above.
- 11/2 - Atherton/Los Altos Hills SOD Blitz 2012 Results Meeting; Los Altos Hills Town Hall; 26379 Fremont Rd.; Los Altos Hills; 6 – 8 p.m.;** For more information, contact Sue Welch at sodblitz09@earthlink.net.
- 11/3 - Los Altos Hills SOD Field Meeting; Foothills Park, Oak Grove Picnic Area; 3300 Page Mill Rd.; Los Altos Hills; 10 a.m. – 12 p.m.;** For more information, contact Sue Welch at sodblitz09@earthlink.net.
- 11/4 - Burlingame Hills SOD Field Meeting; 120 Tiptoe Lane (off Canyon Rd.); Burlingame; 1:30 – 3:30 p.m.;** For more information, contact Steve Epstein at steve@burlingamehills.org.
- 11/7- 8 - Annual Meeting of the California Forest Pest Council, Wildland Fire Training and Conference Center; 3237 Peacekeeper Way; McClellan;** For more information, go to <http://caforestpestcouncil.org/> or contact Katie Palmieri at kpalmieri@berkeley.edu.
- 11/9 - Napa SOD Blitz 2012 Results Meeting; UCCE Office; 1710 Soscol Avenue; Napa; 6 – 8 p.m.;** For more information, contact Bill Pramuk at info@billpramuk.com.
- 11/10 - Santa Cruz SOD Blitz 2012 Results Meeting; Cal-Fire Training Room on Gushee Street (behind the forestry office at 6059 Highway 9); Felton; 10 a.m. – 12 p.m.;** For more information, contact Nadia Hamey at nadiah@big-creek.com.
- 11/13 - The Eighth Meeting of the Continental Dialogue on Non-Native Forest Insects and Diseases; Sacramento Convention Center; Sacramento; 8:00 a.m. – 4:30 p.m.;** For more information about the meeting agenda, contact Debbie Lee



- (dlee@resolv.org; 202-965-6381) or Beth Weaver (bweaver@resolv.org; 202-965-6211). For information regarding registration, go to www.arboday.org/pcf. For registration questions, contact Jen Svendsen (jsvendsen@arboday.org; 888-448-7337 Ext. 297).
- 11/14 - SOD Treatment Training Workshop; UC Berkeley Campus; Meet at oak** outside of Tolman Hall; 1 – 3 p.m.; Pre-registration is required. For more information, see the 10/17 listing above.
- 11/15 - San Francisco SOD Blitz 2012 Results Meeting; Golden Gate Park Presidio** and Golden Gate Park; Recreation Room, SF County Fair Building; Golden Gate Park near 9th Ave. and Lincoln Way; San Francisco; 10 a.m. – 12 p.m.; For more information, contact Christa Conforti at CConforti@presidiotrust.gov.
- 11/16 - Marin County SOD Blitz 2012 Results Meeting; Dominican University;** Joseph R. Fink Science Center, Room 103; San Rafael; 6 – 8 p.m., For more information, contact Sibdas Ghosh at sibdas.ghosh@dominican.edu.
- 11/17 - West Marin SOD Field Meeting; Marin French Cheese Company; 7500 Red** Hill Rd; Petaluma; 10 a.m. – 12 p.m.; For more information, contact Janice Alexander at JAlexander@marincounty.org.
- 11/17 - Marin/Mt. Tamalpais SOD Field Meeting; Sky Oaks Ranger Station; 49 Sky** Oaks Rd.; Fairfax; 2 - 4 p.m.; For more information, contact Andrea Williams at awilliams@marinwater.org.