



CALIFORNIA OAK MORTALITY TASK FORCE REPORT OCTOBER 2005

MONITORING

The California Department of Food and Agriculture (CDFA) has confirmed the detection of *P. ramorum* on *Abies concolor* (white fir) at a Christmas tree farm in the quarantined county of Santa Clara. This is the first report of the pathogen on this species of *Abies*. Additional sampling of the tree farm is underway. Koch's Postulates have not been completed. The USDA Animal and Plant Health Inspection Service (APHIS) has reviewed the CDFA data and expects to add *A. concolor* to the official list of associated host plants soon. APHIS anticipates requiring all *A. concolor* grown in California, Oregon, and Washington intended for planting to be inspected as nursery stock.

The California Sudden Oak Death/*Phytophthora ramorum* National Wildland Survey is complete. *P. ramorum* was not detected. Detection surveys in eastern Butte and Yuba Counties, including a road survey combined with vegetation transects to record hosts of *P. ramorum* and sample symptomatic host tissue, and a stream survey that utilized rhododendron leaves as bait for *Phytophthora* spp. in stream water were conducted. Thirty-five vegetation transects and eleven streams were surveyed in all. Additionally, approximately 170 miles of roadside vegetation was scanned while driving through areas identified as moderate to high-risk for *P. ramorum*. Eight samples were collected for lab diagnosis. The only *Phytophthora* infection found was *P. pseudosyringae*, collected from symptomatic CA bay laurel leaves near Pulga, Butte County. To access the final "California 2005 National *Phytophthora ramorum* Wildland Survey" report, go to the California Oak Mortality Task Force website at: [http://nature.berkeley.edu/comtf/pdf/2005 CA Wildland survey Report.pdf](http://nature.berkeley.edu/comtf/pdf/2005%20CA%20Wildland%20survey%20Report.pdf). For more information on the survey, contact Don Owen at: Don.Owen@fire.ca.gov.

NURSERIES

The *P. ramorum*-positive *Camellia japonica* confirmed at a wholesale nursery/broker in South Carolina in August was traced back to a Florida supplier. Samples taken at the Florida nursery following the trace-back identification were all found to be negative for the pathogen.

As a result of a trace-forward investigation from a *P. ramorum*-positive California nursery, a *Camellia japonica* planted in a residential landscape has been found to be *P. ramorum*-positive in El Dorado County. Consequently, the local landscape will be surveyed and the soil sampled, along with any nearby water. Additionally, the plant will be properly disposed of and the area will be delimited and monitored for 90 days. For more information on the confirmed residential protocol, go to the USDA APHIS website at: http://www.aphis.usda.gov/ppq/ispm/pramorom/pdf_files/crdprotocol.pdf.

***P. ramorum* has been confirmed at three additional Washington nurseries on several rhododendrons and a kalmia plant sampled by the Washington State Department of Agriculture.** The detections, made as part of the National *P. ramorum* Nursery Survey, were found in King County (2 nurseries) and Pacific County (1 nursery).

***P. ramorum* federal order compliance agreements, trace-forward/-back investigations, the USDA APHIS National Nursery Survey, and other investigations are ongoing.** To date, 95 sites in seven states have had *P. ramorum* detections. Positive findings by state are: CA(55), GA(4), LA(2), OR(20), TN(1), SC(1), and WA(13).

MANAGEMENT

Riverside County agricultural officials are going to broaden the county's Sudden Oak Death prevention program following a vote by the County Board of Supervisors in support of the expansion. Since March of 2003, the county has had four inspectors



examining and sampling shipments of commercially grown trees and shrubs shipped into and out of the county. While officials there realize Riverside is not a likely environment for pathogen establishment, they are concerned for the health of the dense groves of coast live oak trees in the Cleveland National Forest and the Santa Rosa Plateau. Local officials are also hoping to keep the pathogen out of the nursery industry, which is the county's leading agricultural commodity, valued at \$211.3 million in 2004. To handle the demands of the new program, the county is going to hire a Sudden Oak Death Lead Inspector sometime this fall. The director will lead the county's prevention campaign and direct the four existing inspectors, as well as have other responsibilities. For more information on Riverside County's Sudden Oak Death prevention program, contact Angela Godwin, program director, at: agodwin@co.riverside.ca.us.

The Washington Organic Recycling Council's (WORC) "Organic Waste Processing Pathogen Control: Best Management Practices Workshop" was held on 9/23/05. A follow-up training to the Sudden Oak Death workshop held last spring at WA State University Puyallup, the focus was on human and plant pathogen management as they relate to organic waste processing and handling. Concerned with the potential impact of *P. ramorum* on the industry, the WORC presented draft *P. ramorum* best management practices, and a number of companies discussed options for alternative methods of handling plant material if *P. ramorum* were to become established in Washington's natural environment. Additionally, the group hopes to develop contingency plans with APHIS so that transporters and sites can be pre-approved for handling host material if *P. ramorum* is found in Washington's landscape and a quarantine is put in place. For more information on the WORC, go to: <http://www.compostwashington.org/>.

RESOURCES

The USDA has issued a strategic plan for *Phytophthora ramorum*, titled: "Plant Diseases Caused by *Phytophthora ramorum*: A National Strategic Plan for USDA." The report addresses the goals for the *P. ramorum* detection, control, management, research, and restoration programs of the Department, and was developed by APHIS; the Forest Service (FS); Agriculture Research Service (ARS); and Cooperative State Research, Education, and Extension Service (CSREES). The primary objective of the strategy is to prohibit introduction, or significantly reduce the rate of *P. ramorum* introduction, into presently non-infested areas of the country, and to effectively manage infested nurseries, forests, and urban landscapes to minimize and mitigate damage. To access the plan, go to the USDA APHIS website at: http://www.aphis.usda.gov/ppq/ispm/pramorun/pdf_files/usdaprstratplan.pdf.

USDA APHIS has issued an updated State Plant Regulatory Official (SPRO) Letter, adding the eight new associated host plants mentioned in the September COMTF report to the list of plants regulated for *P. ramorum*. The addition of these eight plants brings the list of regulated *P. ramorum* host and associated hosts to 83. To access the SPRO, go to the APHIS website and refer to the 9/14/05 SPRO at: <http://www.aphis.usda.gov/ppq/ispm/pramorun/>. USDA APHIS has updated the list of *P. ramorum* regulated plants. To view the list, go to the APHIS website at: http://www.aphis.usda.gov/ppq/ispm/pramorun/pdf_files/usdaprlist.pdf.

RESEARCH

Davison, E. M. and Tay, F. C. S. 2005. How many soil samples are needed to show that *Phytophthora* is absent from sites in the south-west of Western Australia? Australasian Plant Pathology. 34, 293-297.

Abstract: Systematic surveys were used to determine the isolation frequency of *Phytophthora cinnamomi* and other *Phytophthora* spp. from the center and margin of infested sites (dieback sites) in native vegetation in the south-west of Western Australia. Soil and fine root samples were baited with *Eucalyptus sieberi* cotyledons, dried for 1 week and then rebaited (double baited), in order to maximize recoveries. Any *Phytophthora* spp. isolated were identified. *P. cinnamomi* was recovered from 1.1 and 7.2% of soil samples taken from the center and margin, respectively,



of dieback sites. Double baiting increased the recovery of *Phytophthora* spp. from 1.9 to 2.5% from the center, and *P. cinnamomi* from 6.3 to 7.2% from the margin of dieback sites. The proportion of samples from which *Phytophthora* was not recovered was used to estimate the number of samples needed from a suspected dieback site which, if all were negative, would indicate that *Phytophthora* was not present. For *P. cinnamomi*, with a probability of 0.05, the sample size is 40, taken from within 5 m of a vegetation boundary, whereas the sample size is 271 for samples from the center of a suspected dieback site.

Maloney, P. E., Lynch, S. C., Kane, S. F., Jensen, C. E., and Rizzo, D. M. 2005.

Establishment of an emerging generalist pathogen in redwood forest communities. *Journal of Ecology*. 93, 899-905.

Summary: *Phytophthora ramorum* (causal agent of sudden oak death) is an emerging generalist pathogen in coastal forests of California and Oregon, USA, that causes lethal stem infections on oaks (*Quercus* spp.) and tanoak (*Lithocarpus densiflorus*) as well as non-lethal foliar infections on a broad range of trees and shrubs. We studied *P. ramorum* over its known range in coastal redwood forests to determine forest compositional variables that are important to its epidemiology within the geographical area that it has already invaded. Redwood forests are dominated by coast redwood (*Sequoia sempervirens*), tanoak and California bay laurel (*Umbellularia californica*). A total of 120 permanent plots (500 m² each) were established in redwood forests at 12 sites within the main epidemic area in California. Over 5000 trees were mapped and examined for the presence of *P. ramorum* during spring 2002 and resampled in spring 2003. Mean incidence of *P. ramorum* across all plots was 0.17 ± 0.01 in 2002 and 0.24 ± 0.02 in 2003. The highest infection levels by *P. ramorum* were found on California bay laurel (range 0.42-0.69) and tanoak (0.32-0.45). The highest levels of mortality were associated with tanoak and ranged from 0 to 66%, with 62.5% of that mortality associated with *P. ramorum* infection. Disease incidence above 30% was most often associated with bay laurel importance value. In plots with few bay laurel stems, high disease levels were associated with the presence of understory tanoaks. Bay laurel and small tanoaks are thought to represent the main source of inoculum for further spread of *P. ramorum*. Differential host mortality due to this emerging generalist pathogen will exert considerable influence on redwood forest dynamics, with potentially dramatic shifts in forest composition and structure and subsequent cascading ecological and evolutionary effects.

McCarren, K. L., McComb, J. A., Shearer, B. L., and St J. Hardy, G. E. 2005.

The role of chlamydospores of *Phytophthora cinnamomi* – a review. *Australasian Plant Pathology*. 34, 333-338.

Abstract: This review critically appraises the role of chlamydospores as the main long-term survival propagules for *Phytophthora cinnamomi*. Evidence for the formation of chlamydospores in nature, as well as differentiation between thin- and thick-walled chlamydospores, is examined. Limited evidence was found for the occurrence of thick, as well as thin-walled chlamydospores. Information on the survival properties of the commonly occurring, thin-walled, chlamydospores is presented. Gaps are identified in our understanding of their behavior in the natural environment, the length of time they survive dormant in soil and the factors that stimulate their germination. These are important issues that need to be addressed before we can adequately develop management strategies to control the spread and impact of *P. cinnamomi*.

O’Gara, Emer; Hüberli, Daniel, and Hardy, Giles. March – May 2005.

Phytophthora ramorum: a threat to Australia? *Australasian Plant Conservation*. Vol. 13 No. 4, 22-24.

PERSONNEL

Gary Chastagner, Professor of Plant Pathology at Washington State University’s (WSU) Research and Extension Center, has hired Norm Dart as the new WSU



Sudden Oak Death Education Coordinator. Dart recently received his Masters of Science in Plant Pathology from Washington State University, with his thesis work focusing on the population biology of *Heterobasidion annosum* infecting Pacific Northwest Christmas trees. In his current duties, Norm will spearhead *P. ramorum* outreach efforts, including working with Master Gardeners, creating Washington state-specific *P. ramorum* educational materials, and providing technical assistance in setting up a new molecular lab at WSU Puyallup to assist with research and diagnostics. Dart can be reached at (253) 445-4596 or via email at: dart@puyallup.wsu.edu.

CALENDAR OF EVENTS

10/5 – 7 – European and Mediterranean Plant Protection Organization Conference on *Phytophthora ramorum* and other forest pests in Falmouth, Cornwall, Great Britain. For more information, or to register, go to: http://www.eppo.org/MEETINGS/2005_meetings/conf_phytra.htm.

10/7 – 9 – “Finding Balance Through Traditional Native Knowledge,” California Indian Conference 2005, will be held at Humboldt State University. Themes for this year will be health, education, natural resources, and arts as they relate to traditional knowledge. The registration deadline is 9/9, and fees vary depending on age and student status. For more information, or to register, go to: <http://www.humboldt.edu/~cic/>.

11/14 – “*Phytophthora ramorum*/*Phytophthora kernoviae*: Meeting for Interested Organizations” at the Royal Horticultural Conference Centre, Vincent Square, London. This meeting is sponsored by the Department for Environment, Food, and Rural Affairs and is by invitation only. Sessions will update attendees on the current situation in the UK, Europe, and the USA, and consider future action.