



CALIFORNIA OAK MORTALITY TASK FORCE REPORT NOVEMBER 2006

MANAGEMENT

On October 31 and November 1, Task Force members from the University of California Cooperative Extension, California Department of Forestry and Fire Protection, and California State Parks burned 45 acres of public and private land to complete an experimental silvicultural treatment for managing the spread and persistence of *P. ramorum* in southern Humboldt County. The goal of these treatments is to test several options for long-term management. The prescribed fires complemented removal of infected vegetation by hand crews the previous spring and were added to explore all possible options for effective control.

On the first property, a State Parks parcel located along the Avenue of the Giants, the team took advantage of the first possible fall burn day. They burned one management unit from which bay and tanoak had been removed early in the year and also one unit from which bay, tanoak, and small-diameter madrone had been removed. The burn, which was ignited in a prairie upslope from the Avenue of the Giants and backed down the hill through a Douglas-fir/tanoak-madrone forest and then into old-growth redwood, consumed much of the small fuels on site and had no control issues. The team hopes that the fire will have consumed infested litter and infected seedlings and sprouts. Ongoing monitoring will determine pathogen persistence for at least the next two years.

On the second property, a private parcel northwest of the Garberville airport, the team burned three units: one that was infested but untreated, one that matched the bay/tanoak removal unit at the State Parks property, and one treated with a modified fuel hazard reduction prescription. Much of the ground fuels had been removed as part of the bay/tanoak removal and fuel hazard reduction treatments. Additionally, although no significant rain had fallen up to this point in the season, elevated humidity levels on the second day greatly increased fine fuel moisture content. This meant that the fire burned best in the untreated unit; scattered patches of the other two units burned. The team will attempt to burn again at the Garberville site if weather conditions permit during the coming months.

[These prescribed fires](#) will provide valuable experience and knowledge for the ongoing effort to determine the best methods of managing *P. ramorum* persistence on forested north coast properties. “We are looking to find a treatment option that is biologically effective, socially acceptable, and financially affordable, by a wide variety of landowners and managers,” said Yana Valachovic, UC Cooperative Extension Forest Advisor.

NURSERIES

A Santa Cruz County production nursery was identified as *P. ramorum*-positive September 28th. The positive growing media sample was collected from a camellia pot during follow-up Confirmed Nursery Protocol activities. The nursery is not under a compliance agreement and does not ship out of the quarantined counties. This nursery also tested *P. ramorum*-positive in 2003, 2004, and 2005. The potted camellia from



which the sample was taken was located directly under a California bay laurel tree which is rooted in a stream known to be positive for *P. ramorum*. The samples submitted from the bay tree are pending.

The Canadian Food Inspection Agency (CFIA) detected *P. ramorum* at four retail garden centers (two sites have the same owner) in early September and October. The origin of the pathogen at all four locations is unknown. *P. ramorum* was found at the sites in 2004, and all four sites were found free of the pathogen in 2005. All four centers source plants both locally and from the US and were sampled as post eradication sites due to the previous detections. The plants found infected were *Rhododendron* 'Catawbiense Boursault,' 4 *Rhododendron* spp., *Hamamelis* 'Diane,' and *Viburnum bodnantense* 'Dawn.'

At each retail garden center, once infected plants were confirmed, all host plant material was detained for sampling. Infected plant blocks were destroyed and a 90-day quarantine of host plants 10 meters beyond the destruction blocks was instituted. During the quarantine period, plants, soil, and water at each of the centers will continue to be sampled and tested.

To date in 2006, over 173 wholesale and retail nurseries have been surveyed as part of the Canadian National *P. ramorum* survey. While more than 35,000 samples have been collected for testing, the four retail nurseries have been the only positive confirmations as a result of the survey.

Eradication efforts also continue at a wholesale nursery in Pitt Meadows, British Columbia, where *P. ramorum* was detected in late 2005. As a repeat site, stringent controls have been implemented, restricting the movement of all plants (both host and non-host), soil, and water. Currently, arrangements are made at this site to treat soils that have tested positive for *P. ramorum*. For the current year, 8,748 plant samples have been taken at this nursery, along with 99 soil samples and 41 water samples. All testing of plants in the 100 m. perimeter of this site have been negative. Sampling and monitoring of this site will continue until the 90-day quarantine period on the 10 m. of host plants beyond the destruction blocks have taken place and no *P. ramorum* is found. Trace-forwards from this nursery site this year have detected two residential/commercial landscape sites with 11 positive *Gaultheria shallon* plants.

For more information, contact Ken Wong, CFIA Network Specialist, at: wongkw@inspection.gc.ca.

RESEARCH

Bulluck, R.; Shiel, P.; Berger, P.; Kaplan, D.; Parra, G.; Li, W.; Levy, L.; Keller, J.; Reddy, M.; Sharma, N.; Dennis, M.; Stack, J.; Pierzynski, J.; O'Mara, J.; Webb, C.; Finley, L.; Lamour, K.; McKemy, J.; and Palm, M. 2006. A comparative analysis of detection techniques used in US regulatory programs to determine presence of *Phytophthora ramorum* in *Camellia japonica* 'Nucio's Gem' in an infested nursery in



Southern California. Plant Health Progress doi:10.1094/PHP-2006-1016-01-RS. Online at: <http://www.plantmanagementnetwork.org/php/default.asp>.

Abstract: *Phytophthora ramorum* (Pram) is a pathogen of regulatory concern in the USA, and accurate diagnostics is a key component in the response to potential pathogen outbreaks. Although the molecular diagnostic protocols used in regulatory programs have been evaluated using regulatory samples, to date, no direct comparison of these methods has been analyzed within a nursery setting. A block of 300 camellia plants within a California nursery known to be infested with *Pram* was simultaneously assayed for visual symptoms, growth medium pH, and moss presence as well as culture isolation and molecular analysis prior to plant destruction. Disease symptoms such as foliar lesions and leaf drop were recorded for each plant prior to foliar and growth medium sampling. All diagnostic assays were highly correlated with one another and disease symptoms, with nested PCR having the best correlation with symptoms, followed by Real-Time PCR then culture. No correlation with disease or diagnostic assays was observed with moss presence or medium pH. Analysis of results allowed diagnostic sensitivity and specificity of the assays to be determined and the performance of each method for diagnosis of *Phytophthora* spp. or *Pram* in camellia tissues and associated potting medium could be compared.

Hüberli, D.; Wilkinson, C.; Smith, M.A.; Meshriy, M.; Harnik, T.Y.; and Garbelotto, M. 2006. *Pittosporum undulatum* is a potential Australian host of *Phytophthora ramorum*. Australasian Plant Disease Notes 1, 19–21. Published online at: <http://www.publish.csiro.au/?nid=208&issue=4018>.

Abstract: *Pittosporum undulatum* is a potential Australian host of *Phytophthora ramorum*, the causal agent of sudden oak death in California. It was susceptible and supported sporulation in zoospore inoculations of detached leaves. Susceptibility and sporulation potential were low when compared to *Umbellularia californica*. Two independent positives were obtained from symptomatic trees in a PCR-based assay using species-specific primers. Foliar symptoms observed on the trees were replicated in the detached leaf inoculations.

Donahoo, Ryan; Blomquist, Cheryl L.; Thomas, Samantha L.; Moulton, John K.; Cooke, David E.L.; and Lamour, Kurt Haas. 2006. *Phytophthora foliorum* sp. nov., a new species causing leaf blight of azalea. Mycological Research. In Press.

Abstract: A previously unknown *Phytophthora* was recovered more than 60 times from evergreen hybrid azalea leaves collected during surveys for the sudden oak death pathogen *Phytophthora ramorum* in California and Tennessee. The novel *Phytophthora* was discovered when genomic DNA from this species cross-reacted with the ITS-based diagnostic PCR primers used to screen plants for the presence of *P. ramorum*. This species had caducous, semi-papillate sporangia, was homothallic with both paragynous and amphigynous antheridia, and was pathogenic on both wounded and intact azalea leaves. Nuclear and mitochondrial sequence data indicate that this species is related to,



but distinct from, *P. ramorum*. AFLP analysis indicates that the isolates of this species have limited genotypic diversity and share no markers with *P. ramorum*. This paper presents the formal description of *P. foliorum* as a new species and underscores the need for caution when relying solely on DNA-based diagnostic tools.

RESOURCES

“A field guide to insects and diseases of California oaks” is now available from the USDA Forest Service, Pacific Southwest Research Station. To request ONE FREE copy, contact Richard Schneider at Rocky Mountain Research Station, Publishing Services via email: rschneider@fs.fed.us (include your full mailing address in block format), fax: (970) 498-1122, or phone: (970) 498-1392. If mailing in your request, send your name and address in block format (as if you are addressing an envelope) to: Publishing Services; Rocky Mountain Research Station; 240 West Prospect Road; Fort Collins, CO 80526-2098 USA.

When ordering, ask for: Swiecki, Tedmund J. and Bernhardt, Elizabeth A. 2006. A field guide to insects and diseases of California oaks. Gen. Tech. Rep. PSW-GTR-197. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. 151 p.

The publication is also available on line at:

http://www.fs.fed.us/psw/publications/documents/psw_gtr197/psw_gtr197.pdf. Funding for this publication was provided by the USDA Forest Service, Pacific Southwest Region, State and Private Forestry, Forest Health Protection.

Sudden Oak Death Guidelines for California Landscapers and Gardeners is now available on the CA Oak Mortality Task Force website at:

http://nature.berkeley.edu/comtf/pdf/Landscaper_Guidelines_10-24-06.pdf. The guidelines include information on pathogen biology, regulations, hosts, symptoms, and diagnosis and treatment, as well as general oak care, plant selection and placement, plant removal, debris disposal, and proper sanitation.

A question and answer session from a United Kingdom *P. ramorum* and *P. kernoviae* stakeholders meeting in September 2006 has been posted to the Department for Environment, Food, and Rural Affairs (DEFRA) website at:

<http://www.defra.gov.uk/plant/phytophthora2006.htm>. Reports on findings and future research, EU and national updates, the Forestry Commission survey, the Cornwall situation, and a summary of the micropropagation project are posted along with the questions and answers that were addressed verbally.

KUDOS

Niklaus J. Grunwald of the Horticultural Crops Research Laboratory in Corvallis received the 2006 Early Career Research Scientist Award for the Pacific West Area of the USDA Agricultural Research Service (ARS). Grunwald is being honored for pioneering the analysis of genetic diversity in populations of microorganisms using traditional and



molecular methods and application of the information in breeding for disease resistance and plant disease management. Grunwald focuses his research primarily on the ecology, epidemiology, population biology, and genetics of *P. ramorum*.

PERSONNEL

Phil Cannon was hired in October as the USDA Forest Service State and Private Forestry (SPF) Forest Health Protection (FHP) Regional Plant Pathologist. Phil worked for a number of years with Boise Cascade Corporation and as a consultant with private companies. He also worked with the United States Agency for International Development (USAID) and Food and Agriculture Organization (FAO). Located at the Regional Office in Vallejo, Phil will be running the SPF FHP Sudden Oak Death program. He can be reached at: (707) 562-8913 or pcannon@fs.fed.us.

The Kashia Band of Pomo Indians is hiring a full-time Water Quality Specialist to develop, plan, coordinate, and monitor Kashia Tribal water programs and activities. This position is responsible for development of grants relating to protection of waters significant to the Kashia Tribal land and people. Duties include preparing and monitoring program activities and program budgets, as well as assisting with and developing tribal youth environmental outreach activities. Additional tasks may include, but are not limited to, work relating to Sudden Oak Death, Wildlife Protection, Native Plants, Natural Resource Management, Environmental Policies, and other programs relating to the continuation of the Kashia Tribe. For more information, contact Bradley Marshall, Stewart's Point Rancheria Environmental Planning Director, at: (707) 591-0580 or Bradley@stewartspointrancheria.com.

CALENDAR OF EVENTS

11/14 – 15 – 2006 Annual Meeting of the CA Forest Pest Council; Heidrick

Agricultural History Center; 1962 Hays Lane; Woodland, CA; An update on SOD and efforts to control *Phytophthora lateralis*, *P. ramorum*, and *P. cinnamomi* on a rare manzanita will be presented; For more information, contact Mike Bohne, USDA-FS, at: mbohne@fs.fed.us.

3/5 -3/9/2007 - Sudden Oak Death Science Symposium III; Hyatt Vineyard Creek

Hotel and Spa; 170 Railroad Street; Santa Rosa, CA 95401; Additional information will be forthcoming. For questions, contact Katie Palmieri, CA Oak Mortality Task Force Public Information Officer, at: palmieri@nature.berkeley.edu or (510) 847-5482.