



CALIFORNIA OAK MORTALITY TASK FORCE REPORT FEBRUARY 2006

MANAGEMENT

California's most extensive *P. ramorum* experimental treatment and suppression project to date is under way in Humboldt County. The treatments are taking place on CA State Parks property in the Jay Smith Road area north of Miranda in Southern Humboldt County. The project will include the removal of infected tanoak, CA bay laurel, and madrone trees, as well as the pruning of coast redwood trees in a 50-acre area. Based on permits and crew availability, pile burning and potential under-burning are tentatively planned for fall, 2006. Monitoring of project results will continue for several years. With landowner permission, several other sites in the southern Humboldt region are scheduled for treatment in the coming months. Funding for the project has come from the USDA Forest Service (FS) and the California Department of Forestry and Fire Protection (CDF), with in-kind matches from the University of CA and CA State Parks. Project Collaborators include CA State Parks, University of California Cooperative Extension (UCCE), the University of California, CDF, the Southern Humboldt Fire Safe Council, and the USDA FS. For more information on the project, contact Yana Valachovic, UCCE Humboldt/Del Norte, at: yvala@ucdavis.edu or Chris Lee, UCCE Humboldt/Del Norte, at: cale@ucdavis.edu.

The COMTF is interested in establishing and coordinating a Conservation Committee to address *P. ramorum*-related conservation issues. With the establishment of *P. ramorum* in CA's coastal forests, and the continued expansion of land affected by the pathogen, this group will focus on addressing the issues park and land managers, as well as owners are facing, including such topics as management and suppression, the role of *P. ramorum* in CA's forests, and its ecological impacts. In addition, the group will discuss linkages of Sudden Oak Death to other conservation concerns (fire suppression, invasive species). To find out more about this developing committee, please attend the first organizational meeting at the Carmel Mission Inn on 3/21, during the COMTF March meeting lunch break. Those not attending the meeting, but interested in developing and/or joining the committee should contact Katie Palmieri, COMTF Public Information Officer, at: Palmieri@nature.berkeley.edu.

The Midpeninsula Regional Open Space District, with cooperation from a local Saratoga Boy Scout Troop, has installed bike tire brushes and boot scrapers at the Monte Bello and Saratoga Gap Open Space Preserve trailheads in an effort to slow the spread of *P. ramorum*. Bicyclists and hikers are encouraged to use the cleaning apparatuses on tires and boots upon entering and exiting the infested preserves. District signs explaining how to use the brushes and scrapers have been posted at the sites where the devices have been installed. The Midpeninsula Regional Open Space District board also approved a \$350,000 budget for special SOD projects over the next ten years, including a resistance study, limited application of fungicide on heritage trees, and development of a collaborative research grant. For more information, contact Cindy Roessler, Resource Management Specialist, Midpeninsula Regional Open Space District, at: (650) 691-1200.



REGULATIONS

On January 18, 2006, Canada posted a list of 5 new genera found to be associated with, and regulated for, *P. ramorum*. Found in British Columbia nursery plants, the new genera are: *Ardisia*, *Euonymus*, *Gaultheria*, *Osmanthus*, and *Prunus*. The updated list of Canada's *P. ramorum*-regulated plant genera can be found at: <http://www.inspection.gc.ca/english/plaveg/protect/dir/sodspe.shtml>. APHIS is reviewing Canada's findings and anticipates updating the federal *P. ramorum* host and associated host list following completion of the review.

The nursery industry in Canada has developed and implemented a *P. ramorum* Nursery Certification Program. Key components of the program include annual sampling and testing, training, and independent audits. As the program moves into its 2nd year, new significant scientific information has necessitated even more rigorous Best Management Practices (BMPs) to be implemented by August 2006.

In the province of British Columbia (BC), the program has been piloted to over 250 nurseries. Participants include Christmas tree growers and ornamental nurseries of all sizes.

The Canadian program was developed and implemented in a cooperative partnership with growers, the BC Landscape & Nursery Association, the Canadian Landscape and Nursery Association as well as the Canadian Food Inspection Agency, the provincial BC Ministry of Agriculture & Lands officials, and scientists and researchers.

While government has helped fund development of the program, program development and implementation has cost nursery growers thousands of dollars. The costs of annual sampling and testing, training, and the independent audits are all borne by participating growers in the voluntary program.

The new mandatory BMPs include: an integrated pest management program, with scheduled fungicide spraying if required; addressing the issue of water levels and puddling on the soil surface, as well as leaf wetness to minimize sporulation and infection; a defined cleaning and disinfection policy to ensure proper sanitation, minimizing risk of infection from outside sources; and segregation of the three 'high risk' genera – rhododendrons, camellias and viburnum, with additional, rigorous BMPs required to produce these plants.

Workshops and development of individualized Nursery Certification manuals form the backbone of the training requirements. 'Train the trainer' sessions have also been developed to teach nursery owners and managers how to train their employees on-site about *P. ramorum*.

Complete details of the Canadian *P. ramorum* Nursery Certification program are available at: http://64.34.71.228/Page.asp?PageID=122&ContentID=750&SiteNodeID=102&BL_ExpandID. To view the complete BMPs required by August 31, 2006, click on the '*P. ramorum* Canadian Nursery Certification Standard' dated January 5, 2006.



NURSERIES

The first 2006 *P. ramorum*-positive California nursery was identified during a compliance agreement inspection on January 23. The find was made on a *Camellia japonica* in a Los Angeles County production nursery that only sells plants to local landscapers and does not ship plant material. Plant, soil, and perimeter samples have been collected, and results are pending. Because the nursery does not ship to other nurseries, no trace-forward investigations are under way; however, trace-back investigations are being conducted. The confirmed nursery protocol (CNP) is underway at the facility. This nursery was also found *P. ramorum*-positive during last year's compliance agreement inspection, and had completed CNP in May 2005.

MONITORING

The 2005 California Sudden Oak Death/*P. ramorum* aerial and ground-check survey covered 23 counties in the state and mapped approximately 81,000 acres of hardwood mortality. Targeted ground surveys covered seven California counties and identified four new findings in Humboldt County, expanding the known infested area for the county to include two additional watersheds. Flyovers did not detect infection in the currently uninfested bordering counties of Del Norte and San Luis Obispo. Additionally, the flyovers made note that vegetation types containing coast live oak have less mortality and fewer confirmations of *P. ramorum*, while those with a tanoak component appear to be increasing both in terms of mortality area and new confirmations. To view the 2005 survey accomplishment report in its entirety, go to: <http://www.fs.fed.us/r5/spf/fhp/fhm/aerial/sod/index.shtml>, and access the first link under "Publications."

RESEARCH

A New Report of *Phytophthora ramorum* on *Rhamnus purshiana* in Northern California. A.M. Vettraino, Department of ESPM-ES, 137 Mulford Hall, University of California, Berkeley 94720 and Department of Plant Pathology, University of Tuscia, Viterbo, Italy; and D. Hüberli, S. Swain, A. Smith, and M. Garbelotto, Department of ESPM-ES, 137 Mulford Hall, University of California, Berkeley 94720. Plant Dis. 90:246, 2006; published on-line as DOI: 10.1094/PD-90-0246C. Accepted for publication 28 November 2005.

Published Papers on other *Phytophthoras*:

Hardham, Adrienne, R. 2005. Pathogen profile *Phytophthora cinnamomi*. Molecular Plant Pathology. 6(6), 589-604. DOI: 10.1111/J.1364-3703.2005.00308.X.

Rodríguez-Molina, M. C., Blanco-Santos, A., Palo-Núñez, E. J., Torres-Vila, L. M., Torres-Álvarez, E., and Suárez-de-la-Cámara, M. A. 2005. Seasonal and spatial mortality patterns of holm oak seedlings in a reforested soil infected with *Phytophthora cinnamomi*. Forest Pathology. 35, 411-422.

D'Souza, N. K., Colquhoun, I. J., Shearer, B. L., and St J. Hardy, G. E. 2005. Assessing the potential for biological control of *Phytophthora cinnamomi* by fifteen native Western Australian jarrah-forest legume species. Australasian Plant Pathology. 34, 533-540. www.publish.csiro.au/journals/app.



Daniel, R., Wilson, B. A., and Cahill, D. M. 2005. Potassium phosphonate alters the defence response of *Xanthorrhoea australis* following infection by *Phytophthora cinnamomi*. Australasian Plant Pathology. 34, 541-548.
www.publish.csiro.au/journals/app.

OTHER ISSUES OF INTEREST

The North American Plant Protection Organization (NAPPO) has issued a Phytosanitary Pest Alert for *Phytophthora hedraiaandra* in response to the identification of this pathogen in Minnesota nurseries. This is the first time *P. hedraiaandra* has been found in the US and North America. The detections were made as the result of samples taken from *Rhododendron* during the US *P. ramorum* National Nursery Survey in 2005. Koch's postulates were successfully completed with *P. hedraiaandra* isolates and the *Rhododendron* cultivar 'Mikkeli'.

First identified in the Netherlands from a *Viburnum* spp. sample in 2001, this pathogen has since been found in Spain and Italy on *Viburnum tinus*. Currently, the only known hosts for this pathogen are certain *Rhododendron* and *Viburnum* species. Symptoms on known hosts include branch dieback, basal stem cankers, root rot, and leaf spots. With an unknown host range and distribution, as well as symptoms closely resembling other *Phytophthoras*, diagnosis is difficult. Additionally, it is not known if symptoms vary between hosts, as is often the case with *Phytophthoras*. It is likely that this pathogen moves much like other known *Phytophthoras*, through infected host plants, infested soil, rain splash, and possibly infested irrigation water. For more information, go to the NAPPO Phytosanitary Alert at: <http://www.pestalert.org/viewNewsAlert.cfm?naid=4>.

***Phytophthora*-related stem bleeding on horse chestnut has been reported since the 1970s in the UK and since the 1930s in the US.** Until recently, these bleeding cankers were considered to be uncommon; however, over the past several years, such symptoms have greatly increased in the UK, and have also been found in the Netherlands, France, and Germany. Visible symptoms on affected trees include bleeding on stems, and sometimes scaffold branches. With the surge of infection, closer investigations suggest that bacteria could be responsible for the increased numbers of horse chestnut trees displaying these symptoms.

Both young and mature trees are at risk of succumbing to the unknown disease, with young trees dying in as little as a few years and mature trees becoming disfigured, and ultimately dying if infection is severe enough. Although an extensive survey has not been conducted in the UK, Forestry Commission Research scientists estimate that 35,000 – 50,000 trees are currently affected, and likely a few thousand have died. Affected trees have been found in parks, public gardens, lining streets, and in historically significant areas. Trees in towns and rural areas are found to be infected at a higher rate than those found in woodlands, with *Aesculus. x carnea* found infected more often than *A. hippocastanum*. *A. + dallimorei*, a rare hybrid chestnut, is also susceptible to the infection causing the bleeding canker.

Culturing from the margins of the infected tissue in England has revealed the presence of several potential pathogens, yet a species of gram-negative fluorescent bacterium is consistently present in cultures. Therefore, it is suspected that the bacterium may be the cause of the cankers. Experiments to confirm suspicions are being conducted by scientists.



Surveys in the Netherlands have found that 1/3 of all horse chestnut trees are now affected by this infection, with researchers there also working on identifying the cause. So far, their findings indicate a species of bacterium in the *Pseudomonas syringae* complex is causing the outbreak.

For more information, including additional symptoms, photos, and maps of identified infection, go to the UK Forestry Commission, Forest Research website at: www.forestresearch.gov.uk/bleedingcanker

PERSONNEL

Dave Rizzo, Associate Professor of Plant Pathology at UC Davis, has hired Allison Wickland to coordinate the Big Sur Sudden Oak Death Management Project. Allison has worked on *P. ramorum* in the Rizzo lab as a technician and graduate student for nearly 5 years, and examined the ecology of *Phytophthora* species in forests dominated by coast live oak for her MS thesis. In her duties, Allison will be identifying potential locations for ecology plot network sites and pilot project locations for management actions. She will also be conducting public outreach and visiting private properties. Allison currently works out of the Big Sur Land Trust office, and can be reached at awickland@ucdavis.edu.

The USDA FS Forest Health Protection's Sudden Oak Death Monitoring Outreach Coordinator position has been filled by Lisa Bell. Lisa has worked with plant pathologists surveying Sudden Oak Death in CA's coastal forests as well as in the Rizzo lab at UC Davis and has outreach experience conducting conservation education. In her new role, she will coordinate the aerial and ground-based monitoring program outreach efforts, act as liaison between summer field crews and office personnel, coordinate landowner contacts, and provide field crews with information for field surveys. After her start date of February 6, 2006, Lisa can be reached in Sacramento at (916) 640-1279.

WWW.SUDDENOAKDEATH.ORG

The COMTF 2005 Year-End Summary Report has been posted to the Task Force website homepage. A compendium of monthly reports, as well as a significant events page and background information are also included.

The COMTF 2006 Work Plan has been posted to the homepage of the Task Force website. Task Force goals are defined in the document, as well as the work outlined to fulfill addressing those goals.

CALENDAR OF EVENTS

2/8 – First of two Oregon *P. ramorum* public hearings on updates to the state's *P. ramorum* quarantine and nursery certification programs; 10:00 a.m.; Oregon Department of Agriculture Hearings Room; 635 Capitol St. NE; Salem OR.

2/9– Second Oregon *P. ramorum* public hearing on updates to the state's *P. ramorum* quarantine and nursery certification programs; 9:00 am; Best Western Brookings Inn; 1143 Chetco Ave; Brookings, OR.



2/18 – Marin County Open Space Sudden Oak Death Hike; 9:30 a.m. – 11:00 a.m.; Baltimore Canyon Preserve, Larkspur, CA; For more information, go to: <http://nature.berkeley.edu/comtf/pdf/Open%20Space%20Hikes%20Feb.%20Mar.pdf>.

2/24 – Deadline for 2006 USDA Forest Service Research SOD Request for Proposals; For more information, contact Susan Frankel, Sudden Oak Death Research Program Manager, USDA-Forest Service, Pacific Southwest Research Station, at: sfrankel@fs.fed.us.

3/8 – COMTF Training Session; San Luis Obispo; Indoor half-day session only; More information forthcoming; Contact: Janice Alexander, COMTF Educational Outreach Coordinator, at: (415) 499-3041 or via email at: jalexander@ucdavis.edu.

3/20 – COMTF Meet and Greet Wine and Cheese Reception; By Registration Only; 6:30 – 8:00 p.m.; A Taste of Monterey; 700 Cannery Row # Kk, Monterey, CA .

3/21 – “*Phytophthora ramorum*: A Management and Research Update” COMTF-wide Annual Meeting; 8:30 a.m. – 5:00 p.m. Carmel Mission Inn, Carmel, CA; Registration Required; To register, go to: www.suddenoakdeath.org; for questions, contact Katie Palmieri, COMTF Public Information Officer, at (510) 847-5482 or via email at: palmieri@nature.berkeley.edu.

3/22 – APHIS Public Hearing on *P. ramorum* federal program; Carmel Mission Inn, Carmel, CA; Meeting agenda and details forthcoming and posted to the APHIS website soon.

3/23 – Half-day morning field trip to Pfeiffer Big Sur; Carpool from Carmel Mission Inn, Carmel, CA; Additional details will be posted to the COMTF website soon.

4/26 - COMTF Training Session; Ukiah; Indoor half-day session only; More information forthcoming; Contact: Janice Alexander, COMTF Educational Outreach Coordinator, at: (415) 499-3041 or via email at: jalexander@ucdavis.edu.