



## CALIFORNIA OAK MORTALITY TASK FORCE REPORT SEPTEMBER 2008

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### NURSERIES

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**A British Columbia (BC) production nursery was found to have *P. ramorum*-positive plants, including *Viburnum bodnantense*, *V. burkwoodii*, *V. carlesii*, and *Cornus kousa*.** This nursery is undergoing eradication per the Canadian Food Inspection Agency (CFIA) nursery eradication protocol. Seven nurseries in the state of Washington received shipments from this nursery. Four of the seven sites have been inspected to date. At those four sites, no symptoms were observed.

[Kousa dogwood \(\*Cornus kousa\*\)](#) was also found *P. ramorum* positive at the BC nursery, approximately 50 – 100 meters from the *Viburnum* plants. Symptoms included defoliation and leaf spots. Symptomatic leaves displayed brown tips and edges surrounded by a diffused black margin. Many of the leaves also displayed curling. This is the first time this species has been found infected; however, *Cornus kousa* x *Cornus capitata* was found infected with *P. ramorum* in the United Kingdom in 2006. The USDA Animal and Plant Health Inspection Service (APHIS) is currently reviewing the Canadian Food Inspection Agency (CFIA) findings, and anticipates adding this species to the federal list of hosts regulated for *P. ramorum* in September.

**In mid-June 2008, a retail nursery in the greater-Charlotte area of North Carolina** was found to have *P. ramorum* on two species of container-grown plants. Subsequently, a small retail nursery in the Greenville area of South Carolina was identified as a recipient of potentially infected plants as part of the trace-forward effort to locate plants that left the NC nursery. The SC nursery was surveyed in late June by staff from the SC Department of Plant Industry. *P. ramorum* was detected by PCR in DNA samples from one *Rhododendron* sp. and one *Kalmia* sp. All isolations from these and other plant samples were negative for *P. ramorum* although other species of *Phytophthora* were recovered from some samples.

In mid-July 2008, a delimitation survey was conducted at the SC nursery by federal, state, and university personnel in a collaborative effort to determine the extent of infection and infestation by *P. ramorum*. Samples were collected from all host and associated plants, container mix from the pots in which these plants were growing, field soil from around the containers of host and associated plants, and water in and around the nursery. To date, *P. ramorum* was recovered only from plant samples and not from container mix, soil, and water samples. *P. ramorum* was isolated on selective medium from composite samples collected from cold hardy Azalea plants (*Rhododendron* hybrid cvs. Olga Mezitt and Aglow) and Pieris plants (*Pieris japonica* cv. Mountain Fire). It also was detected by PCR in a DNA sample extracted from *Kalmia latifolia*. Host and associated plants around *P. ramorum*-positive plants have been destroyed following APHIS protocols and follow-up surveys will be conducted.

***P. ramorum* has been detected at five Oregon nurseries and one landscape site in 2008.** The most recent detection was made in early August at a retail nursery in Marion



County, where the pathogen was detected by PCR infecting a *Rhododendron* and a *Corylopsis spicata*. No cultures were recovered from the plants; however, because two PCR-positive plants were found, the USDA Confirmed Nursery Protocol (CNP) was enacted at the nursery. During delimitation, additional PCR positives were found on another *Rhododendron* and a *Rhododendron* 'Cunningham's White'. Soil samples are still being processed. The USDA CNP has been completed at one nursery and the USDA Residential and landscape protocol has been completed at the landscape site.

**Twenty nurseries have volunteered to participate in Oregon's Grower Assisted Inspection Program.** Participation in the program requires nurseries to develop mitigation manuals that describe the best cultural practices and standard operating procedures they will use to mitigate the risk of introducing *Phytophthora* into their production systems. Several nurseries have already submitted drafts of their manuals for review. The deadline for submission of the draft manuals is September 19, 2008.

#### **REGULATIONS**

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**China's General Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ)** plans to implement ["Phytosanitary Requirements for the Import of Host Plants of \*Phytophthora ramorum\* from Regulated Areas"](#) on October 15, 2008. Countries impacted by the new requirements would include Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Slovenia, Spain, Sweden, Switzerland, United Kingdom, and the United States.

Under the proposed regulation, regulatory agencies for the exporting countries will have to provide AQSIQ with a list of approved registered nurseries. The new requirements include assuring all *P. ramorum* host plants are from nurseries free of the pathogen, and also call for laboratory testing by regulatory agencies prior to host exportation to ensure absence of the pathogen. The host plant growing media will also be subject to disinfection treatment measures such as heat treatment prior to exportation to China.

#### **RESEARCH**

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**The 3rd International *Phytophthora* and *Pythium* Workshop, "Integration of Traditional and Modern Approaches for Investigating the Taxonomy and Evolution of *Phytophthora*, *Pythium* and Related Genera"** was held in Turin, Italy August 23-24, 2008. Presentation and poster topics at the workshop included systematics and phylogenetics; evolution and population genetics; nomenclature of present taxa and putative new species; morphological and molecular taxonomic methods; ecology, biogeography, and epidemiology; advances in systems for identification and diagnostics; and integrating morphological and molecular tools for a unified phylogeny and classification. To access the agenda in its entirety as well as the list of presented posters, go to the workshop website at: [http://www.icpp2008.org/pdf/3rd\\_Int\\_Phytophthora\\_and\\_Pythium\\_Workshop\\_%20draft%20Programme\\_7.29.08.pdf](http://www.icpp2008.org/pdf/3rd_Int_Phytophthora_and_Pythium_Workshop_%20draft%20Programme_7.29.08.pdf). The workshop was held in conjunction with the 9<sup>th</sup> International Congress of Plant Pathology <http://www.icpp2008.org/>.



**Garbelotto, M.; Harnik, T.Y.; and Schmidt, D.J. 2008. Efficacy of phosphonic acid, metalaxyl-M and copper hydroxide against *Phytophthora ramorum* *in vitro* and *in planta*. *Plant Pathology*. DOI: 10.1111/j.1365-3059.2008.01894.x.**

Abstract: The ability of metalaxyl-M, phosphonic acid in the form of phosphonate, and copper hydroxide to inhibit different stages in the life cycle of *Phytophthora ramorum*, the causal agent of sudden oak death (SOD), was tested *in vitro* using 12 isolates from the North American forest lineage. In addition, experiments were conducted *in planta* to study the ability of phosphonic acid injections and metalaxyl-M drenches to control pathogen growth on saplings of California coast live oak (*Quercus agrifolia*), and of copper hydroxide foliar sprays to control infection of California bay laurel (*Umbellularia californica*) leaves. *Phytophthora ramorum* was only moderately sensitive to phosphonic acid *in vitro*, but was highly sensitive to copper hydroxide. *In planta* experiments indicated the broad efficacy of phosphonic acid injections and of copper hydroxide sprays in preventing growth of *P. ramorum* in oaks and bay laurels, respectively. Finally, although metalaxyl-M was effective *in vitro*, drenches of potted oak trees using this active ingredient were largely ineffective in reducing the growth rate of the pathogen *in planta*.

**Grünwald, N.J.; Goss, E.M.; and Press, C.M. 2008. Pathogen profile: *Phytophthora ramorum*: a pathogen with a remarkably wide host range causing sudden oak death on oaks and ramorum blight on woody ornamentals. *Molecular Plant Pathology* 9(5), 000–000. DOI: 10.1111/J.1364-3703.2008.00500.X.**

**Inghelbrecht, S.; Heungens, K.; De Wael, L.; and Maes, M. 2008. Results and experiences from the first EU proficiency test for the detection of *Phytophthora ramorum*. *OEPP/EPPO Bulletin* 38, 187–191.**

Abstract: The Crop Protection unit of the Institute for Agricultural and Fisheries Research offers plant disease diagnostic services through its ‘Diagnostic Centre for Plants’ (ILVO-DCP). ILVO-DCP has requested accreditation (ISO 17025) for a number of diagnostic detection methods in bacteriology, mycology, entomology and nematology. Accreditation forms an essential part of quality control programs such as ISO17025, which can in part be realized by proving the laboratory’s competence in inter-laboratory proficiency or ring tests. In 2006, ILVO-DCP organized such a proficiency test for the detection of *Phytophthora ramorum*. The protocol was developed using the standard ILAC-G13:2000, and defined rules for participation, sample preparation and transport, communication, fraud prevention and reporting. Eight European diagnostic centers participated in the proficiency test including ILVO-DCP. Each participant received one set of 10 coded samples, each sample consisting of either leaves or stems that were artificially inoculated with either the target or an alternative organism. Participants could use one or more methods listed in the EPPO diagnostic protocol PM 7/66. They had to report within a specific timeframe and received a detailed report of their performance. The success rate of the proficiency test was 100%. This paper lists some of the experiences gained from organizing this type of proficiency test.



**Ioos, R. and Iancu, G. 2008. European collaborative studies for the validation of PCR-based detection tests targeting regulated fungi and oomycetes.** OEPP/EPPO Bulletin 38, 198–204.

Abstract: In 2007, the mycology unit of the French plant protection laboratory (LNPV-UMAF) organized and launched four collaborative studies for the validation of detection protocols targeting the regulated oomycetes *Phytophthora ramorum*, *P. fragariae*/*P. rubi*, *Plasmopara halstedii*, and the fungus *Monilia fructicola*. The participants were recruited through the European Mycological Network (EMN). All four protocols were based on species-specific PCR tests already published in the scientific literature and, except for *Pl. halstedii*, combined a detection test and a confirmation of detection test. For each target organism, we evaluated the performance of protocols, i.e. accuracy, qualitative repeatability and qualitative reproducibility, by a statistical analysis of the results obtained by the 16 participant laboratories with a series of 10 blinded samples. As demonstrated by the collaborative trials results, all four detection protocols were shown to be fit for the purpose of regulatory compliance. The collaborative trial appears a powerful tool to evaluate the performance of a detection method, and is of special interest to laboratories employing a quality assurance system.

**Moralejo, E.; Pérez-Sierra, A.M.; Álvarez, L.A.; Belbahri, L.; Lefort, F.; and Descals, E. 2008. Multiple alien *Phytophthora* taxa discovered on diseased ornamental plants in Spain.** Plant Pathology. DOI: 10.1111/j.1365-3059.2008.01930.x.

Abstract: The plant trade is unwittingly accelerating the worldwide spread of well-known and new or undescribed *Phytophthora* species and creating novel niches for emerging pathogens. The results of a survey carried out from 2001 to 2006 in garden centres and nurseries of the Balearic Islands and eastern Spain combined with the analysis of samples received from ornamental nurseries from northern Spain reflected the extent of this global issue at the local scale. A total of 125 *Phytophthora* isolates were obtained from 37 different host species and 17 putative species identified on morphological features and direct sequencing of the internal transcribed spacer and four mitochondrial and nuclear genes. Five species, *P. ramorum*, *P. hedraiaandra*, *P. 'niederhauserii'*, *P. 'kelmania'*, and *P. 'taxon Pgchlamydo'* were formally unknown to science prior to 2001. In addition, 37 new host/pathogen combinations were first records for Spain, highlighting the risk of non-coevolved organisms from different biogeographic origins coming into contact under managed environments. The problem generated by new or rare taxa of *Phytophthora* found in nurseries for which no prior information on natural habitat and ecology is available for pest risk analysis is discussed.

#### **MEETINGS AND TRAINING SESSIONS**

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**Preventative treatment training sessions will be offered to all interested parties once a month this fall from September to December at the Berkeley campus.** Each two-hour session will cover basic Sudden Oak Death (SOD) information, integrated pest management approaches to managing SOD, how to select candidate trees for treatment,



and proper preventative treatment application. Pre-registration is required for these free sessions as space is limited to 40 people. CEU credits will be offered for DPR, ISA, SAF, and California Urban Forestry Council. For more information, see the “Calendar of Events” below.

**The CA Oak Mortality Task Force (COMTF) will be holding several community meetings this fall to provide interested parties with information on SOD, preventative treatment options, and information on how to remove and dispose of infested material properly. Time will also be allotted for open panel discussions, during which community members can ask questions, express their concerns, and brainstorm options for proactive community activities and management strategies. Tentative locations for the meetings include Humboldt, Sonoma, Santa Cruz, and Monterey Counties. Additional details will be posted to the Task Force website as soon as they are available. For more information, contact Janice Alexander at (415) 499-3041 or [JAlexander@ucdavis.edu](mailto:JAlexander@ucdavis.edu) or Katie Palmieri at (510) 847-5482 or [palmieri@nature.berkeley.edu](mailto:palmieri@nature.berkeley.edu).**

#### **NEW AND NOTEWORTHY - THOUSAND CANKERS DISEASE**

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**A decline of black walnut (*Juglans nigra*) has been observed in New Mexico, Arizona, and Chihuahua, Mexico, Colorado, Utah, Idaho, Oregon, and several California counties within the past decade. Trees often are killed within three years after initial symptoms, which include a yellowing and thinning of the upper crown that progresses to larger branches. During the final stages of disease progression, foliage may also wilt rapidly. Tree mortality is caused by the walnut twig beetle (*Pityophthorus juglandis*) and subsequent canker development around beetle galleries caused by a fungus (*Geosmithia* sp.) associated with the beetle. A second fungus (*Fusarium solani*) is also associated with canker formation on the trunk and scaffold branches. The proposed common name for this disease complex is “thousand cankers.” For more information on the walnut twig beetle and the thousand cankers disease of walnut, contact Whitney Cranshaw at [whitney.cranshaw@colostate.edu](mailto:whitney.cranshaw@colostate.edu) or Ned Tisserat at [ned.tisserat@colostate.edu](mailto:ned.tisserat@colostate.edu).**

#### **PERSONNEL**

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**Robert Dolezal was hired as the Executive Vice President for the [California Association of Nurseries and Garden Centers \(CANGC\)](http://www.cangc.org) in July. Prior to his position with CANGC, Robert was a publisher of Ortho Books for Chevron Chemical Company. He also served as an emergency response consultant for over 20 years and is the author of over 13 books on gardening, landscaping, and nature. Robert can be reached at [rdolezal@cangc.org](mailto:rdolezal@cangc.org).**

**Marianne Elliott has joined the Sudden Oak Death Research and Extension group at Washington State University’s (WSU) Puyallup Research and Extension Center. She will serve as the Extension Coordinator for WSU’s statewide Sudden Oak Death Education Program and assist in a number of ongoing *P. ramorum* research studies. Prior to WSU, Marianne was a Visiting Fellow at the Canadian Forest Service’s Pacific Forestry Center in Victoria, BC, where she evaluated control agents and determined**



factors affecting the pathogenicity and host range of *P. ramorum*. Marianne can be reached at: [melliott@puy.ad.wsu.edu](mailto:melliott@puy.ad.wsu.edu) or (253) 445-4596.

#### CALENDAR OF EVENTS

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- 9/10 - Sudden Oak Death (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, email [SODtreatment@nature.berkeley.edu](mailto:SODtreatment@nature.berkeley.edu), and provide your name, phone number, affiliation (if applicable), and the date for which you are registering. For more information, go to <http://nature.berkeley.edu/sodtreatment> or contact Katie Palmieri at (510) 847-5482 or [palmieri@nature.berkeley.edu](mailto:palmieri@nature.berkeley.edu).
- 10/1 - SOD Treatment Workshop; oak outside of Tolman Hall, UC Berkeley Campus; 1 – 3 p.m.** Pre-registration is required. For more information, see the 9/10 listing above.
- 10/9 - Informational Meeting: Strategies to Prevent and Treat Sudden Oak Death;** Skypark Recreation Classroom, Scotts Valley, CA; 6:30 – 8:30 p.m. For more information, contact Katie Palmieri at (510) 847-5482.
- 10/23 - Informational Meeting: Strategies to Prevent and Treat Sudden Oak Death;** Pacific Valley School; 69325 Highway One, Big Sur; 6:00 – 8:00 p.m. For more information, contact Katie Palmieri at (510) 847-5482.
- 11/12 - SOD Treatment Workshop; oak outside of Tolman Hall, UC Berkeley Campus; 1 – 3 p.m.** Pre-registration is required. For more information, see the 9/10 listing above.
- 11/13 - Informational Meeting: Strategies to Prevent and Treat Sudden Oak Death;** Hilton Bialek Habitat; 4380 Carmel Valley Rd.; Carmel; 6:00 – 8:00 p.m. For more information, contact Katie Palmieri at (510) 847-5482.
- 12/10 - SOD Treatment Workshop; oak outside of Tolman Hall, UC Berkeley Campus; 1 – 3 p.m.** Pre-registration is required. For more information, see the 9/10 listing above.