CALIFORNIA OAK MORTALITY TASK FORCE REPORT

MARCH 2004

MANAGEMENT

In an effort to slow the spread of *Phytophthora ramorum*, the Humboldt County Department of Agriculture, the California Department of Forestry and Fire Protection (CDF), and the University of California Cooperative Extension removed and disposed of 77 California bay laurel trees infected with *Phytophthora ramorum* in Humboldt County (see Slow the Spread photos). The project took place February 19-20, 2004 in the County's only known area of infection on 6 different properties. Following the treatment, soil, water, and plants in the area will be monitored to determine if this procedure was effective in limiting pathogen spread in Humboldt County and if further treatments are warranted. All involved are very grateful for the landowners' cooperation in this project.

P. ramorum was discovered on California bay laurel in a forested rural residential area of Redway in Southern Humboldt County on several homeowners' properties in 2002. Surveys in Humboldt County and the North Coast have found no further areas of infection. Since the pathogen did not spread as fast as anticipated, a slow-the-spread project was deemed worthwhile.

Three landowners did not participate in the project, leaving several infected California bay laurel trees and a 2-inch redwood sapling yet to be removed. Forestry and agriculture officials will continue to seek permission to remove the trees.

The *P. ramorum* infections in Redway are approximately 110 miles from the four confirmations in Mendocino County and about 128 miles from the *P. ramorum* infestation under eradication in Brookings, Oregon. The geographic isolation of the Redway site makes re-infection of Humboldt County via windblown rain from the other known infestations unlikely.

To further reduce potential reintroductions, Humboldt County will appeal to USDA Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) to reduce the portion of Humboldt County within the *P. ramorum* regulated area. Due to changes in CDFA's *P. ramorum* regulation, host plant material may move freely within the entire 12 county regulated area. By shrinking the size of the regulated area in Humboldt County, the portion outside the quarantine area will have additional protections provided by pre-shipment inspections and other restrictions. The appeal is based on the regulatory treatment of Curry County, Oregon, where eradication and careful monitoring require only 11 square miles of Curry County to be inside the regulated area.

In 2004, survey plans for Humboldt and Del Norte Counties include an intensive ground-based survey radiating out from the Redway area, river baiting in the Eel and other rivers,

a survey by UC Cooperative Extension in recreation areas, and other aerial and ground surveys. For additional information, contact Chris Lee, Sudden Oak Death Project Coordinator, University of California Cooperative Extension, Eureka, via email at cale@ucdavis.edu or by phone at (707) 445-7351.

***P. ramorum* was detected in three nurseries within the regulated area.** In San Mateo County**,** on February 17, 2004, *Phytophthora ramorum* was detected on five, 5-gallon containerized *Camellia japonica* "Shiro Chan" plants at a wholesale nursery. On February 23, 2004, *Phytophthora ramorum* was detected on several varieties of *Camellia japonica* and *Kalmia latifolia* plants at a nursery in Sonoma County. At both nurseries, the infected plants were detected as part of routine quarantine inspections required for all nurseries that move *P. ramorum* host plants out of the regulated area. The movement of all *P. ramorum* host and associated host plants from the nurseries to areas outside of the regulated area has been suspended. Trace-out information regarding shipments of host and associated host plants over the previous year is being collected and affected regulatory officials will be notified.

In January 2004, *P. ramorum* was detected on *Camellia sasanqua* and *Camellia japonica* plants at a Marin County nursery. *P. ramorum*-infected plants had also been detected at the same nursery in spring 2003. Shipment of host plants and associated host plants from the nursery is restricted to within the regulated area. For more information, contact Nick Condos, CDFA, at NCondos@cdfa.ca.gov.

***P. ramorum* was detected in a third nursery in Washington State.** In January 2004, the Washington State Department of Agriculture (WSDA) detected *P. ramorum* on Rhododendron v. Unique in a Southwestern Washington nursery near Long Beach, Pacific County. The nursery was surveyed as part of a trace-back investigation associated with the fall 2003 detections at Washington's first positive nursery (in King Co.). The infected material in the Pacific County nursery was grown on-site. The nursery has been delimited and eradication is in progress.

Fifteen variety blocks of Camellia have been confirmed infected with *P. ramorum* in a Washington retail nursery in Gig Harbor, Pierce County. The pathogen was first detected at the nursery in December, 2003, as part of the *P. ramorum* National Nursery Survey funded by USDA Animal and Plant Health Inspection Service (APHIS). Two of the recently identified infected variety blocks were received in October and November, 2003, from California nurseries outside of the *P. ramorum* quarantine area. These new finds were not detected until early 2004 and were not located near the other infected blocks. Perimeter surveys of the nursery did not detect *P. ramorum*.

WSDA's 2004 *P. ramorum* survey is underway. The Agency will inspect 200 nurseries, including 100 production nurseries (approx. 1/3 of WA's nursery industry) and 100 retail/wholesale nurseries. For more information, contact Art Wagner, Washington State Department of Agriculture, at awagner@agr.wa.gov.

FUNDING

The federal government is providing $7.4 million in funding for Sudden Oak Death in 2004. $1.5 million will be allocated to the USDA Agricultural Research Service (ARS) for research on horticultural aspects of *P. ramorum*, including $250,000 for a new genomics research program at the UC Davis ARS laboratory for analysis of resistance to the pathogen. The USDA Animal Plant Health Inspection Service (APHIS) received $2 million for *P. ramorum* quarantine enforcement, inspection, and monitoring. In addition, the USDA Forest Service Research received $2 million for Sudden Oak Death research and $1.7 million was awarded to the USDA Forest Service, State and Private Forestry for Sudden Oak Death management, monitoring, and education.

REGULATIONS

The Oregon Department of Agriculture is proposing changes to Oregon's *Phytophthora ramorum* regulation and will hold public hearings on the matter March 24, 2004 in Brookings and March 26, 2004 in Salem. The amended quarantine for *P. ramorum* would add new host species to the list of regulated commodities. It would also redefine the quarantine area, by adding a 0.5 mile buffer zone, extending the quarantine boundary by two square miles. The new regulation would define the required treatment of infected hosts by property owners and provides property owners with the right to request a hearing regarding such treatments. For more information, contact Nancy Osterbauer, Oregon Department of Agriculture, at nosterba@oda.state.or.us.

PERSONNEL

Chris Lee (see photo) recently began work with Yana Valachovic for UC Cooperative Extension in Humboldt and Del Norte Counties, where he will coordinate both educational and field detection-related activities pertaining to *Phytophthora ramorum*. Raised in Arkansas, Chris earned B.A. degrees in English and philosophy and an M.A. degree in English from the University of Arkansas before his 180-degree turn to the world of forest ecology. For his forestry M.S. thesis at Humboldt State University, he classified the vegetation on the Whiskeytown National Recreation Area near Redding. In recent summers, Chris has worked for the USDA Forest Service, Central Oregon Area Insects and Diseases Service Center in Bend, Oregon. His work included collecting and analyzing a variety of forest-health-related data, especially concerning the interactions between insects, diseases, and wildfires. Chris can be reached at cale@ucdavis.edu or (707) 445-7351.

Katie Palmieri (formerly Katie Facino – see photo) has rejoined the Task Force after a six month break from her duties. In her newly defined role, she will be functioning as the Task Force Public Information Officer, dealing with media-related outreach and public education. She will also be functioning on behalf of Sudden Oak Death Research Committee and assisting the Pacific Southwest Research Station. Katie will be located at UC Berkeley and can be reached at palmieri@nature.berkeley.edu or (916) 747-1924.

PUBLICATIONS

The new UK publication *Phytophthora ramorum a threat to our trees, woodland and heathland* has been posted on the Department for Environment Food and Rural Affairs (DEFRA) website, at http://www.defra.gov.uk/planth/pestnote/newram.pdf. The pest note provides basic information on *P. ramorum* in the UK. The UK Forestry Commission also posted *P. ramorum* frequently asked questions to their site at: http://www.forestry.gov.uk/forestry/INFD-5UBESN, and symptoms on several hosts are displayed in Path News (Issue 6, Dec 2003) from Forestry Research http://www.forestry.gov.uk/pdf/pathnews06.pdf/$FILE/pathnews06.pdf.

CALENDAR OF EVENTS

2/29 to 3/14 - The Art of Saving Oaks. University of California, Santa Cruz Arboretum, Horticulture II Building. For details call (831) 427-2998. Speakers: Keyt Fisher, conservation ecologist. Wildlife Conservation Society, Sunday, February 29, 1:30 pm; Glen Keator, botanist and author of The Life of an Oak, Sunday, March 7, 1:30 pm.

3/9 to 3/10 – California Oak Mortality Task Force (COMTF) Spring Meeting and Field Trip, Sonoma State University (SSU). Tuesday, March 9 – Field Trip to Fairfield Osborn Preserve (2.5 miles from SSU). Wednesday, March 10 – COMTF Spring Meeting – Research Update; Sonoma State University, Rohnert Park, CA. Register at www.suddenoakdeath.org or contact Lucia Briggs, Task Force Coordinator, by phone at (510) 642-5938 or via email at lbriggs@nature.berkeley.edu.

3/24 - The Oregon Department of Agriculture is holding a public hearing in Brookings on proposing changes to Oregon's *Phytophthora ramorum* regulation. For more information, contact Nancy Osterbauer, Oregon Department of Agriculture, at nosterba@oda.state.or.us.

3/24 - Sudden Oak Death Workshop: Current research and treatment strategies - TCI (Tree Care Industry Association) Expo Spring 2004. 9:00 am to 3:30 pm. The Expo runs through Friday, March 26 at the Sacramento Convention Center, Sacramento, CA. For more information contact Carol Crossland, crossland@treecareindustry.org or see http://www.treecareindustry.org/.

3/26/04 - The Oregon Department of Agriculture is holding a public hearing in Salem on proposing changes to Oregon's *Phytophthora ramorum* regulation. For more information, contact Nancy Osterbauer, Oregon Department of Agriculture, at nosterba@oda.state.or.us.

4/22 - Training session for *Phytophthora ramorum* *recognition, quarantine compliance, and treatment.* Southern region: Santa Cruz County, exact location pending. Details will be provided in future newsletters or contact Lucia Briggs, at lbriggs@nature.berkeley.edu.

5/19 – Training session for *Phytophthora ramorum* recognition, quarantine compliance, and treatment. Northern region: Sonoma County, exact location pending. Details will be provided in future newsletters or contact Lucia Briggs, at lbriggs@nature.berkeley.edu.

HOSTS OF THE MONTH

As reported in the January and February 2004 COMTF monthly reports, *Phytophthora ramorum* has been found infecting wildland European beech (*Fagus sylvatica*), Holm oak (*Quercus ilex*), and European Turkey oak (*Quercus cerris*) in the United Kingdom. Information on host range, biology and lore of these *P. ramorum* hosts are presented below.

European beech (*Fagus sylvatica*) - European beech's natural range extends across southern Scandinavia down to central Spain, Corsica, Sicily, and Greece, as well as eastward to western Russia and Crimea. European beech is common and prized in the UK. Roughly one third of the UK's forestland is hardwood, comprised of beech oak, birch, and ash. The total area of forest and woodland in Britain is more than two million hectares, approximately 10% of the UK's total land area.

Botanists are uncertain whether European beech naturally colonized the UK following the last Ice Age, or if it was introduced by humans, but the tree has an important place in the UK's culture and natural environment. Beech nuts were eaten by prehistoric man and are still consumed today. Beech wood has been used for centuries for both firewood and furniture. Historians claim that the first written European literature was inscribed on beech bark in Sanskrit. The English word 'book" comes from the Anglo-Saxon "boc," a derivative for the Anglo-Saxon "beece" or beech. A wealth of information on European beech and other UK forest species may be found on the Royal Forestry Society website: http://www.rfs.org.uk/

In addition to growing in natural stands in Europe, European beech is widely planted as an ornamental tree in the US. European beech is a stately tree (see photo), and is more tolerant of cultivation and human disturbance than its North American counterpart, *Fagus grandifolia.* A number of European beech cultivars have been developed, including `Asplenifolia' with finely cut foliage; `Atropunicea' with purple foliage; `Fastigiata' with a columnar form; and `Pendula' with weeping branches.

To date, only two beech trees in Cornwall, England have been found with bark cankers and bleeding symptoms similar to those on true oaks and tanoak in California. Inoculation studies indicate European beech is highly susceptible to *P. ramorum* (http://www.defra.gov.uk/planth/pra/sudd.pdf), but European beech's susceptibility in a natural setting is not yet fully understood.

Holm oak (*Quercus ilex*) - Holm oak, also called holly oak or evergreen oak, is a large evergreen oak tree native to the Mediterranean region, where it tends to grow on dry

limestone hillsides. Similar to holly leaves, holm oak leaves are glossy, leathery, variably shaped, and, where lobes are present, the tips contain a single spine.

Holm oak grows in much of maritime northern Europe, but is intolerant of cold continental winters. In the US, it is adaptable to climate zones in the southeast states and the Pacific Coast (see photo).

With a rounded crown and pendulous low-hanging branches, its size and solid evergreen character make it desirable for urban and garden settings (see photo).

P. ramorum affected only the leaves of the four infected holm oaks detected in Cornwall. In California, *P. ramorum* infects oak through the bark, primarily only oaks in the red oak group are susceptible, and the leaves are not infected. Holm oak is a member of the white oak group, which may explain why the leaves are susceptible.

European Turkey oak (*Quercus cerris*) - European Turkey oak is native to Mediterranean Europe and Asia. While not commonly grown in the US, it is climatically suitable in a band from the mid-Atlantic states through the southern plain states and north through the Rocky Mountain states. (There is another shrubby oak native to the US with the common name turkey oak - *Quercus laevis.*).

European Turkey oak, a deciduous oak, is widely planted and naturalized in much of Europe. With a fast growth rate, it may grow to be 130 feet, but is generally 30 - 50 ft tall (see photo), and is used in windbreaks, and as an ornamental (see photo).

P. ramorum caused bleeding cankers on the infected European Turkey oak found near Cornwall. European Turkey oak is in the section Cerris, a division of the genus *Quercus*, that only includes Eurasian species; it is neither a white nor a red oak (see Quercus species list).

References:

Department of Environment, Food and Rural Affairs (DEFRA) website - http://www.defra.gov.uk/planth/pra/sudd.pdf

Havre University Natural Sciences website - http://www.univ-lehavre.fr/cybernat/pages/quercerr.htm

National Arbor Day Foundation website - http://www.arborday.org/treeguide/nitree.cfm?id=132 http://www.arborday.org/treeguide/nItree.cfm?ID=164

Royal Forestry Society website - http://www.rfs.org.uk/

University of Florida Cooperative Extension website-
http://edis.ifas.ufl.edu/BODY_ST544

Urban Forest Ecosystem Institute website -
http://selectree.calpoly.edu/photos.lasso?KeyValue=1242

Wikipedia website - http://www.fact-index.com/h/ho/holm_oak.html,
http://en.wikipedia.org/wiki/List_of_Quercus_species and http://www.fact-index.com/t/tu/turkey_oak.html