CALIFORNIA OAK MORTALITY TASK FORCE REPORT
AUGUST 2011

MANAGEMENT

A Gig Harbor, Pierce County, WA site that was previously a *P. ramorum*-positive retail nursery with positive salal outside of the nursery perimeter, was sold to the Peninsula Metropolitan Park District (PenMet Parks) in April. The nursery closed in September 2010 (reported in Dec. COMTF Newsletter), leaving the 10.5 acre site for sale. Discussions are underway about how PenMet Parks will develop the site, with options ranging from a dog park to a farmers market or a community garden. In June, propane torches were used to burn and blacken all the vegetation in the county roadside ditches adjacent to the former nursery site (where the infested salal had previously been identified) in an effort to prevent pathogen spread by eliminate any remaining nearby *P. ramorum* host plants. The park district is planning a follow-up burn in the next month.

The Midpeninsula Regional Open Space District, in cooperation with the California Conservation Corps, removed approximately 250 California bay laurel trees in July in an effort to protect 49 large, healthy oak trees from Sudden Oak Death. Funded by Proposition 84, all bays growing within 15 feet of the protected oaks in Los Trancos, Long Ridge, Saratoga Gap, Skyline Ridge, and Monte Bello Open Space Preserves were removed. During the removals, sanitation protocols were implemented in all areas associated with Sudden Oak Death. The goal of the project is to help prevent the buildup of dead trees and protect the scenic and recreational benefits of public open space lands. For more information on the project, contact Cindy Roessler at croessler@openspace.org.

MONITORING

Great Britain had three new *P. ramorum*-infested Japanese larch tree outbreaks confirmed in July: a cluster of four sites in Lancashire County, one site in Cumbria County, and one on Mull Island (western Scotland). Lancashire and Cumbria are in England's far northwest, and the outbreaks there are the second and third confirmed findings on larch in England outside of the southwest region. Although all three outbreaks are remote from the nearest confirmed larch outbreaks, in each case there have been findings or suspected findings on other plants (i.e., rhododendron) nearby. Investigations are continuing into other suspected sites in northwest England, and the Forestry Commission believes there is a high probability that more outbreaks will be confirmed in the region. The Mull outbreak is only the second confirmed larch site in Scotland, following a small outbreak in an Argyll woodland on the Craignish Peninsula in 2010. Suspected host plants near the Mull outbreak, such as rhododendron, are being investigated. All three cases were first identified during aerial surveys, which are continuing over parts of Britain identified by Cambridge University modelers as being at higher risk. Follow-up ground-check surveys are being conducted at suspect sites and other larch woodlands in surrounding areas. Local woodland owners are being informed and given information about the disease and the measures for containing it.

To date, more than 2 million larch trees in the UK (primarily in southwest England, south Wales and Northern Ireland) have been felled since the disease was first discovered in Japanese larch trees in southwest England in 2009. For more information on *P. ramorum* in the UK, including a map of known outbreaks, visit the Forestry Commission's website.

NURSERIES

To date this year, *P. ramorum* has been confirmed in 21 US nursery (plant and/or soil) locations: CA (11), OR (6); WA (3), and SC (1) as well as one residential location in CT identified during a trace-forward investigation from an online supplier in OR. Of the 21 positive nurseries, 12 are certified interstate shippers and nine are retailers. The detections have been on *Camellia* (32 %), *Rhododendron* (32%), *Pieris* (5%), *Viburnum* (5%), *Magnolia* (5%), and eight other species (21%).

A Sacramento County, CA production nursery was confirmed to have *P. ramorum*-positive *Cinnamomum camphora* on July 7th during a compliance agreement inspection. The nursery was previously positive in 2005, 2006, and 2007, and does ship interstate. The Confirmed Nursery Protocol has been implemented. Trace-forward information has been provided to the USDA Animal and Plant Health Inspection Service.

The Oregon Department of Agriculture's survey of commercial Christmas tree plantations for *P. ramorum* is nearly complete. Christmas tree plantations in Benton, Clackamas, Curry, Deschutes, Douglas, Lane, Linn, Marion, Polk, Washington, and Yamhill Counties have been surveyed. To date, testing has been completed on 5,510 samples from 139 fields, with no detection of *P. ramorum*. Eighty samples from two fields are all that remain pending.

RESEARCH

In 2008, the San Francisco Public Utilities Commission (SFPUC) and US Forest Service Pacific Southwest Research Station partnered to implement a *P. ramorum* research and management partnership. The goal of this ongoing program is to better understand and predict oak mortality as well as test management strategies for effectiveness in minimizing ecological impacts of the pathogen.

Two long-term projects are currently underway. One study with the UC Berkeley Garbelotto lab includes a large-scale analysis of 16 plots in vulnerable forest habitats. On these plots, water, soil, California bay-laurel, coast live oak, and tanoak are being tested regularly. Data is being used to infer phylogeography of *P. ramorum*, seasonal timing of pathogen activity, and other epidemiological characteristics. To date, plot data estimates have found that *P. ramorum* killed 1.7% of SFPUC's coast live oaks in 2009 and 3.4% in 2010. The second research project with Phytosphere Research and Midpeninsula Regional Open Space District focuses on the efficacy of management activities. On SFPUC land, five acres of coast live oak forest are receiving bay removal treatments and three acres of a tanoak/redwood forest are being treated with Agri-Fos®.

During the course of program activities, other *Phytophthora* species, including *P. cinnamomi* and *P. cambivora*, were also found on SFPUC lands. These findings are in patches of vegetative mortality that appear to be expanding (based on time sequenced aerial photographs). There is an ongoing effort to characterize and map these infected areas.

A $4.6 billion SFPUC infrastructure upgrade is currently underway. Committed to minimizing the spread of *Phytophthora* spp. during construction, the SFPUC is using compressed air cleaning stations to remove soil and plant material from trucks and equipment during the dry season. If soil disturbing activities continue into the rainy season, other methods will be implemented, such as stationary wash stations using pressure washers where water will be collected for offsite disposal. Ecological impacts associated with the upgrade will be mitigated through restoration projects. Protocols to minimize the introduction and spread of pathogens during restoration will include requiring contracted nurseries to use sanitized containers and pasteurized soil, keeping potted plants on benches, using treated water for irrigation, inspecting plants prior to planting, and not allowing the use of fungicides to reduce the risk of masking infections. For more information, contact Ellen Natesan at (415) 554-1556 or enatesan@sfwater.org.

Bowcutt, F. 2011. Tanoak target: the rise and fall of herbicide use on a common native tree. Environmental History 16(2): 197-225. DOI: 10.1093/envhis/emr032.

Abstract: Despite over a century of conservation efforts and scientific forest management, a keystone nut tree common to California and southwestern Oregon is threatened by the 1995 introduction of an exotic disease. This is after decades of overharvesting of bark for industrial tanning beginning with American settlement, then of a full-scale tanoak eradication campaign by the mid-1900s. In addition to herbicide use, twentieth-century fire suppression favored conifers over tanoak. This article explores the limits and failures of governmental regulation to reverse devastating assaults on tanoak by examining the interplay of economic, ecological, and cultural factors that informed use and abuse.

Hulbert, J. and Navarro, S. June/July/August 2011. Effective Collaboration Slows the Spread of Sudden Oak Death in Oregon. PNW SAF Western Forester 56(3)12 – 13. To access the article, go to: http://www.forestry.org/media/docs/westernforester/2011/june11.pdf.

Kovacs, K.; Holmes, T.P.; Englin, J.E.; and Alexander, J. 2011. The Dynamic response of housing values to a forest invasive disease: Evidence from a Sudden Oak Death Infestation. Environmental and Resource Economics 49(3): 445-471. DOI: 10.1007/s10640-010-9441-y.

Abstract: Sudden Oak Death (*Phytophthora ramorum*) is a non-indigenous forest pathogen which causes substantial mortality of coast live oak (*Quercus agrifolia*) and several other oak tree species on the Pacific Coast of the United States. We estimated the

time path of residential property values subject to oak mortality using a dataset that spans more than two decades—including a decade of transactions before-and-after the invasion. The findings suggest moderate, persistent property value discounts (3–6%) for homes located near infested oak woodlands subject to continuous post-invasion declines in forest health. The most severe discounts (8–15%) occurred where dying oaks were distributed both within residential neighborhoods and in nearby woodlands. Various hedonic modeling specifications were tested and compared to assess their ability to control for bias associated with unobserved spatial effects.

RELATED RESEARCH

Döring, T.F.; Pautasso, M.; Finckh, M. R.; and Wolfe, M.S. 2011. Concepts of plant health – reviewing and challenging the foundations of plant protection. Plant Pathology. DOI: 10.1111/j.1365-3059.2011.02501.x.

Juzwik, J.; Appel, D.N.; DacDonald, W.L.; and Burks, S. 2011. Challenges and Successes in Managing Oak Wilt in the United States. Plant Disease 95(8): 888-900. DOI: 10.1094/PDIS-12-10-0944.

Webber, J.F.; Vettraino, A.M.; Chang, T.T.; Bellgard, S.; Brasier, C.M.; and Vannini, A. 2011. Isolation of *Phytophthora lateralis* from *Chamaecyparis* foliage in Taiwan. Forest Pathology. DOI: 10.1111/j.1439-0329.2011.00729.x.

RESOURCES

The Nursery section of the COMTF website has been updated and expanded thanks to funding from USDA APHIS. A new element of the Nursery homepage is the featured researcher, which highlights a different individual each month that is working on *P. ramorum*-related nursery research. Thanks to Nik Grünwald for being the first to be profiled.

The Oregon Association of Nurseries has published the "*Safe Procurement and* *Production Manual*," a free 100-page guide to producing healthy nursery stock by using a systems approach. The book is available online as a PDF download. This document includes an overview of major pest and pathogen threats to plant health and nursery profitability, and an exploration of the systems approach as a possible solution to those threats. It also discusses how to adopt voluntary measures and how to make a nursery safer, more efficient, and more profitable, as well as how to pursue systems approach certification by adopting a phytosanitary management system and a pest management plan.

Parke, J. 2011. Managing *Phytophthora*. Oregon Department of Agriculture. 4 pp. This document discusses strategies designed to help prevent disease in a nursery.

Parke, J. 2010. Reducing *Phytophthora*: these top 10 tips will help prevent this group of pathogens from taking hold. Digger 54(9):41-44,46.

Parke, J.L. and Lewis, C. 2011. Protecting container-grown plants. Digger 55:41-45. This five-page article provides practical information to growers interested in reducing pest and pathogen threats by considering the type of containers and growing media used, where they are sourced, how they are handled, and how they are stored.

PERSONNEL

Chris Lee, the Northern Outreach Coordinator for COMTF and a staff research associate for UC Cooperative Extension in Humboldt County, is leaving the world of SOD after seven years of education, monitoring, and management activities in northwestern California. Chris will pursue a PhD in forest health and forest ecology at the University of Missouri and expects to maintain contact with his colleagues and keep current on what's going on with *P. ramorum*. He will continue to work remotely on a few remaining projects and will retain his email address: cale@ucdavis.edu. UCCE Humboldt expects to hire a new staff person to fill the role for both UCCE Humboldt and the COMTF soon. The COMTF would like to thank Chris for all of his work. He will be missed.

CALENDAR OF EVENTS

7/31 – 8/5 – Disease and Insect Resistance in Forest Trees: Fourth International Workshop on the Genetics of Host-Parasite Interactions in Forestry; Valley River Inn; 1000 Valley River Way; Eugene, OR 97401; To register, or for more information, go to http://ucanr.org/sites/tree_resistance_2011conference/. For questions, contact Richard Sniezko at rsniezko@fs.fed.us; Katie Palmieri at (510) 847-5482 or kpalmieri@berkeley.edu; or Janice Alexander at (415) 499-3041 or jalexander@ucdavis.edu.

9/15 – 9/17 - California Urban and Community Forests Conference; Crown Plaza Hotel in Palo Alto; For more information, go to: http://www.caufc.org/Annual%20Conference.

10/5 – 10/6 – The Seventh Meeting of the Continental Dialogue on Non-Native Forest Insects and Diseases; Boulder, Colorado; To register, go to: https://www.energymeetings.com/calendar/register.asp?CalendarID=11333. For more information, contact Debbie Lee at dlee@resolv.org or (202) 965-6381 or Beth Weaver at bweaver@resolv.org or (202) 965-6211. For more information about the Dialogue go to www.continentalforestdialogue.org.

10/10 – 10/14 - The 59th Western International Forest Disease Work Conference; Enzian Hotel, Leavenworth, WA. This meeting is intended for forest pathologists from western North America (and beyond); For more information, go to www.fs.fed.us/foresthealth/technology/wif/index.htm. For questions, contact Greg Filip at gmfilip@fs.fed.us or (503) 808-2997.

11/8 – 11/11 - 2011 IUFRO Forest Protection Joint Meeting, Research Groups 7.02 – 7.03; Colonia del Sacramento, Uruguay; More information will be forthcoming. For questions, contact Alina Greslebin at agreslebin@ciefap.org.ar.

6/18 – 6/22/12 – Sudden Oak Death Fifth Science Symposium; More information will be forthcoming.

9/9 – 9/14/12 – Sixth Meeting of the International Union of Forest Research Organizations IUFRO Working Party 7-02-09 "*Phytophthora* in Forests and Natural Ecosystems;" Colegio Mayor Universitario Nuestra Señora de la Asunción, Avd. Menéndez Pidal s/n, 14004 Córdoba, Spain; For more information, contact Mª Pérez Sierra at aperesi@eaf.upv.es.