CALIFORNIA OAK MORTALITY TASK FORCE REPORT
OCTOBER 2012

MONITORING

Southeast England Japanese larch (*Larix kaempferi*) trees have been found infected with *Phytophthora ramorum* for the first time. The Forestry Commission first suspected West Sussex and Surrey woodlands of having larch infection in June during a helicopter survey of the region. Confirmation came in September after follow-up ground-check surveys recovered the pathogen. As a result, the Forestry Commission has issued statutory "plant health notices" to the affected owners, requiring them to fell the infected larch trees and others nearby.

Since 2009, more than 3 million larch trees in the UK have been prematurely felled as a result of *P. ramorum*. Most cases have occurred in the wetter, western parts of Great Britain as well as Northern Ireland, the Republic of Ireland and the Isle of Man. This is the first time it has been recorded so far east in larch, although the outbreaks are close to areas where rhododendron have been found infected. There are approximately 1,600 acres of larch woodland in Surrey; 1,900 acres in West Sussex; and 13,250 acres collectively in southeast England (about 2.3 percent of the region's total woodland area).

RESEARCH

The 6th IUFRO Meeting Working Party 7-02-09 in Córdoba-Spain, "*Phytophthora* in Forests and Natural Ecosystems Meeting," included the following *P. ramorum* presentations. To access a list of presentations, see the Book of Abstracts at http://iufrophytophthora2012.org/downloads/IUFRO2012_BookofAbstracts.pdf.

Jung, T; et al. Ubiquitous *Phytophthora* infestations of forest, horticultural, and ornamental nurseries and plantings demonstrate major failure of plant biosecurity in Europe. Presentation. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

Large-scale *Phytophthora* surveys in (1) forest nurseries, advanced tree nurseries, horticultural nurseries and ornamental nurseries and (2) forest, riparian, amenity, landscape and ornamental plantings and horticultural plantations were conducted by 32 research groups in 21 European countries between 1977 and 2012 with most surveys dating from after 2000. Over all countries and nursery types, 1283 out of 1620 nursery fields and container stands (79.2%) in 563 out of 601 nurseries (93.7%) were found infested by a total of 40 different species and designated taxa of *Phytophthora*. In most nurseries highly deleterious host-*Phytophthora* combinations were found, eg. *Alnus* spp. and *P. alni*; *Quercus* spp. and *P. cambivora, P. cinnamomi, P. quercina* and/or *P. plurivora*; *Castanea sativa* and *P. cambivora* and/or *P. cinnamomi*; *Fagus sylvatica* and *P. cactorum, P. cambivora* and/or *P. plurivora*; *Citrus* spp. and *P. citrophthora* and/or *P. nicotianae*; *Rhododendron* and *P. cinnamomi, P. plurivora* and/or *P. ramorum*. In contrast to many southern European nurseries where wilting and dieback symptoms were quite common, most of the infested plants in intensely managed nurseries in Central and

Western Europe with regular applications of several fungicides and fungistatic chemicals appeared visually healthy underpinning the uselessness of international plant health protocols that are primarily based on visual inspections.

In the planting surveys a total of 48 *Phytophthora* taxa were recovered from 1498 of the 2353 tested plantings (63.6%). As with the nursery fields, plants were often infected by the most aggressive pathogens towards the respective host species. Infected plants often showed symptoms such as thinning, chlorosis and dieback of the crown, extensive fine root losses and collar rot. The average numbers of *Phytophthora* species/taxa per infested nursery and planting were 1.8 and 1.4, respectively. Thirty-two of the *Phytophthora* species/taxa detected are considered exotic invasive species. Amongst them *P. cactorum*, *P. cambivora*, *P. cinnamomi*, *P. cryptogea*, *P. plurivora* and *P. quercina* are widespread in Europe and must be considered as well established in both nurseries/plantations and mature stands. Several *Phytophthora* species/taxa have been found for the first time in Europe, ie. *P. austrocedri*, *P. humicola*, *P. quercetorum*, *P. rosacearum*, *P.* taxon citricola-like V and VI, and *P.* taxon gregata-like; while others have never or only rarely or regionally been recorded from mature stands, ie. *P. kernoviae*, *P. lateralis*, *P. multivora*, *P. pini* and *P. ramorum*. These apparently recent introductions demonstrate that alongside the exponentially increasing volume of imports of living plants from overseas to Europe the unintended introductions of *Phytophthora* species are also increasing dramatically.

According to a conservative calculation, 770,000 infested forest plantings with a total area of 5.4 milllion hectares have been established in Europe between 1990 and 2010. Millions of infested landscape plantings and ornamental plantings in the urban-forest interface and tens of thousands of kilometers of roadside and riparian plantings of infested advanced trees and shrubs are completing the dense network of *Phytophthora* infestations across Europe. The findings of this and previous studies demonstrate major failure of plant biosecurity in Europe which will be discussed.

Aram, K.; Moral, J.; and Rizzo, D.M. *Quercus chrysolepis* foliage supports sporulation of *Phytophthora ramorum*. Poster. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

Foliar infections are often considered the primary source of *Phytophthora ram*orum inoculum in California forests. Tanoak (*Notholithocarpus densiflorus*) is susceptible to fatal trunk infections, but is capable of supporting sporulation on its foliage and twigs. However, infection and sporulation on foliage of California oaks (e.g., coast live oak, *Quercus agrifolia*) appears to be negligible; trunk infections on these oaks depend on proximity to other hosts supporting pathogen sporulation. In contrast to other California oaks, canyon live oak (*Quercus chrysolepis*) has been found to suffer from both trunk cankers [1] and leaf and twig blight [2]. To determine the sporulation potential of *Q. chrysolepis* foliage and twigs, we immersed leaves, twigs, and petiols on detached branches in a zoospore suspension and incubated them in moist chambers for 14 days.

For comparison, *N. densiflorus* and *Q. agrifolia* were also included. Most inoculated plants developed blight symptoms. Symptomatic foliage was sampled by removing 5 mm dia. discs from the tissue. Stems were sampled by excising 3 cm from infected areas. Samples were placed in 1.5 ml of water in micro-centrifuge tubes and vortexed for 30 s to dislodge sporangia. The plant tissue was removed, and the suspension stained with 5% cotton blue in lactophenol. Sporangia in the suspensions were counted at 50 X magnification. Sporangia production predominated along leaf veins. *Q. chrysolepis* leaves supported sporangia production, with numbers lower and significantly different than *N. densiflorus*; both species produced significantly higher numbers of sporangia than *Q. agrifolia*. Sporulation from stems had a similar pattern but there were no statistically difference between species.

[1] Aram, K.; Swiecki, T.; Bernhardt, E.; and Rizzo, D.M. Canyon live oak (*Quercus chrysolepis*) is susceptible to bole infection by *Phytophthora ramorum*. Phytopathology, 101:S8.

[2] Murphy, S.K. and Rizzo D.M. 2003. First report of *Phytophthora ramorum* on canyon live oak in California. Plant Disease, 87: 315.

Harris, A.R.; Sancisi-Frey, S.; and Webber, J. Persistence of *Phytophthora ramorum* on infested larch sites. Poster 26. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

Phytophthora ramorum emerged in the 1990s almost simultaneously in both Europe and North America. It was first reported in the UK in 2002, but tree infections were comparatively rare until 2009. Then, a completely unanticipated change occurred with *P. ramorum* transferring to commercially grown larch causing a landscape-scale epidemic. Larch is both a foliar host and a canker host to *P. ramorum*. A single infected needle can generate hundreds, even thousands of sporangia, and chlamydospores are also produced. As the needles fall, the litter layer under infected trees becomes a reservoir of *P. ramorum* inoculum available to infect new plantings.

This study analyzed the persistence of *P. ramorum* on a site in southwest England, where stands of Japanese larch (*Larix kaempferi*) and European larch (*L. decidua*) showed disease symptoms. All the trees were felled, then each stand was surveyed systematically and both needle-litter and soil samples removed and baited. A total of 180 samples were taken from the Japanese larch stand and 132 from the European larch stand. One year later, the survey was repeated on the cleared Japanese larch stand. Two clear results emerged: (1) Much higher levels of *P. ramorum* were detected under the felled Japanese larch compared with the European larch (67% and 2% respectively); (2) A year after felling, levels of *P. ramorum* had reduced moderately in the felled Japanese larch stand. The findings support field observations that disease development on European larch is less than on Japanese. Also needles of Japanese larch usually support the highest levels of sporulation, consistent with the finding that *P. ramorum* was much more prevalent in fallen needles under this host species.

Harris, A. and Webber, J. Comparative sporulation of *Phytophthora ramorum* on larch, rhododendron, and bay laurel. Poster 27. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

In Britain, *Phytophthora ramorum* has been recorded infecting plants since 2003, but tree infections were comparatively rare until 2009 when the pathogen was found killing commercially grown Japanese larch (*Larix kaempferi*) and causing a landscape-scale epidemic in southwest England. This larch species is both a foliar host and a canker host to *P. ramorum* and initial studies showed that a single infected needle of Japanese larch could generate hundreds, even thousands of sporangia, suggesting this species has considerable potential to drive epidemics. However, the sporulation capability of other larch species grown in Britain, such as European (*L. decidua*) and hybdrid larch (*L. x eurolepis*), is unknown. To evaluate the spore producing potential of foliage of the three species of British-grown larch and compare with other known sporulating hosts (eg *Umbellularia califonica* and *Rhododendron ponticum*), laboratory tests were carried out using shoots of Japanese larch, hybrid larch, and European larch challenged with zoospores suspensions of *P. ramorum* (EU1 lineage). These tests were carried out at different times of year and have shown that sporulation potential varies with larch species, pathogen genotype, and also with the age of the foliage. Japanese larch generally supported the highest levels of sporulation, even exceeding that on *U. californica*. Sporulation on larch needles can also occur in the absence of any symptoms particularly early in the season and in the field; symptoms on infected needles only become visible towards the end of the season just before they are shed.

Kalantarzadeh, M.; Mulholland, D.; Langat, M.; Hutchings, T.; de Leij, F.; and Webber, J. Heat-treated Japanese larch (*Larix keampferi*) wood chips can counter persistence of *Phytophthora ramorum*. Poster 30. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

Phytophthora ramorum is the causal agent of ‘sudden oak death’ in North America. In the British Isles it infects primarily rhododendron but since 2009 has spread to Japanese larch infecting and killing thousands of trees [1]. Novel methods are being sought to combat the disease including the potential of wood chip mulches to reduce the survival and spread of the pathogen. Previous studies have shown that heating wood shavings obtained from a variety of tree species causes the shavings to become highly anti-microbial, with activity against both bacteria and fungi [2].The aim of this study was to investigate the antimicrobial activity of heat treated wood materials against *P. ramorum* focussing on the most frequently infected hosts, rhododendron and larch.

Samples of Japanese larch and rhododendron wood were chipped and heat-treated at 140 °C for three days. GC-MS analysis of methanol crude extract of pre- and post-heated chips identified anti-microbial chemicals, particularly in the larch, that could have activity against *P. ramorum*. To test this, colonized leaf disks of rhododendron were

treated with the methanol crude extract derived from the heated woodchips and it prevented any growth of *P. ramorum*, including chlamydospore germination. Subsequently, treated and untreated wood chips were tested in a micro-cosm system, by challenging with zoospores of *P. ramorum*. It was found that the effectiveness of the anti-microbial action of the wood chips altered with wood type and pathogen genotype. However, the approach shows promise for reducing spread/persistence of *P. ramorum* on affected sites with the treated chips used as a pathogen suppressive mulch in gardens and areas with limited infection.

[1] Webber, J.F.; Mullett, M.; and Brasier, C.M. 2010. Dieback and mortality of plantation Japanese larch (*Larixkaempferi*) associated with infection by *Phytophthora ramorum.* New Disease Reports, 22: 19. http://dx.doi.org/10.5197/j.2044-0588.2010.022.019.

[2] De Leij, F. and Kalantarzadeh, Mina. 2009. ”Antimicrobial material.” US patent 0034289 A1.

Goheen, E.M.; Reeser, P.; and Sutton, W. Reducing the spread of *Phytophthora ramorum* on the Redwood Nature Trail, Curry County Oregon: A case study. Poster 22. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

In August 2009, a tanoak adjacent to a popular hiking trail was confirmed infected by *Phytophthora ramorum*. The trail was immediately closed to the public. An eradication treatment consisting of injected herbicide and cutting, piling, and burning tanoaks and other selected hosts in a 100 m radius around the infected tanoak was completed by December 2009.

Close to 490 m of trail lies within or on the boundary of the treatment area while approximately 60 m of trail passes through the infested zone. To limit the number of *P. ramorum* spores in soil and the potential for spore splash dispersal, a 4-inch thick layer of *Thuja plicata* heartwood chips was placed on the trail in July 2010. The trail was then reopened to public use.

Soil samples were collected at 11 locations on the trail four times prior to chip treatment and three times after chip treatment. *Phytophthora ramorum* was recovered from at least one of the 11 samples on all sampling occasions except in July 2010 and June 2011. The number of *P. ramorum*-positive soil samples was 2/11, 5/11, and 6/11 before-chip treatment and 1/11 and 1/11 samples after-chip treatment. All *P. ramorum*-positive samples were found within approximately 8 m of the infected tree. *P. ramorum*’s presence in trail soil appears to have been reduced in the year after chip treatment. Recently, additional *P. ramorum* infections have been detected near the trail and due to use, chip depth has also been greatly reduced. Additional treatments will be done and monitoring will continue.

REGULATIONS

***Phytophthora ramorum* (*Pr)* Nursery Regulators Safeguarding Meeting - The** National Plant Board (NPB) and USDA, Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) sponsored a *Phytophthora ramorum* Regulators meeting in Salem, OR during the week of September 24, 2012. The meeting was hosted by the Oregon Department of Agriculture. There were approximately 23 attendees, including NPB President Mike Cooper, 13 other NPB representatives, and PPQ *P. ramorum* program managers in charge of Policy, Operations, and Science and Technology.

The three-day event consisted of meetings with industry stakeholders and researchers, visits to nurseries, and a day for discussion among regulators. The Oregon Association of Nurseries (OAN), Washington State Nursery and Landscape Association (WSNLA), and the California Association of Nurseries and Garden Centers (CANGC) were represented. Industry discussion focused on industry perspectives regarding the Advance Notification Federal Order, Best Management Practices in nurseries, and ways to provide economic incentives for regulated nurseries to voluntarily adopt cost-effective BMPs in their production practices. Research updates from Oregon State University, USDA Agricultural Research Service (Corvallis, OR, and Ft. Detrick, MD), USDA Forest Service, Washington State University, and the National Ornamental Research Site at Dominican University of California (NORS-DUC) provided regulators with the latest information on *P. ramorum* research, including pathogen spread, epidemiology, critical control points (CCPs) for applying BMPs in positive nurseries, and preliminary novel mitigation measures. Also discussed was how to incorporate research findings, mitigation measures, and BMPs/CCPs into the *P. ramorum* regulatory program. The final day entailed discussions on common issues facing both regulated and non-regulated states as well as the current and future direction of the *P. ramorum* regulatory framework as discussed in the August 2011, concept paper. Feedback was provided to PPQ on improvements to the Confirmed Nursery Protocol.

RELATED RESEARCH

Hansen, E.M.; Reeser, P.W.; and Sutton, W. 2012. *Phytophthora borealis* and *Phytophthora riparia*, new species in *Phytophthora* ITS Clade 6. Mycologia, 104(5): 1133–1142. DOI: 10.3852/11-349.

Hong, C.; Richardson, P.A.; Hao, W.; Ghimire, S.R.; Kong, P.; Moorman; G.W.; Lea-Cox, J.D.; and Ross, D.S. 2012. *Phytophthora aquimorbida* sp. nov. and *Phytophthora* taxon 'aquatilis' recovered from irrigation reservoirs and a stream in Virginia, USA. Mycologia, 104(5): 1097–1108. DOI: 10.3852/11-055.

At the 6th IUFRO Meeting Working Party 7-02-09 in Córdoba-Spain, "*Phytophthora* in Forest and Natural Ecosystems Meeting," a new *Phytophthora* species, *Phytophthora bilorbang*, was presented by Sonia Aghighi and colleagues at Murdoch University, Perth, Australia. The *Phytophthora* was isolated from diseased blackberry (*Rubus anglocandicans*) in western Australia. Of note is that the same organism has been

commonly isolated from water and riparian alder stands in western Oregon (presented by Laura Sims and Everett Hansen), where it had been provisionally named *Phytophthora* taxon oaksoil. The abstracts addressing the situation can be found below as well as in the Book of Abstracts at http://iufrophytophthora2012.org/downloads/IUFRO2012_BookofAbstracts.pdf.

Aghighi, S.; Hardy, G.; Scott, J.K.; and Burgess, T. *Phytophthora bilorbang* prov. nom., a new species associated with declining *Rubus anglocandicans* (blackberry) in Western Australia. Presentation and Poster. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.

Rubus anglocandicans is the most widespread and invasive species in the *Rubus fruticosus* aggregate (European blackberry) found in Australia [1]. Blackberry has been targeted by biological control since the 1980s and most of this effort has focused on introducing exotic strains of the host-specific leaf rust, *Phragmidium violaceum*. During surveys established to assess the releases of the rust fungus in 2005, dead and diseased blackberry plants were found at two locations along the Warren and Donnelly Rivers in the Manjimup region of Western Australia (P. Yeoh and L. Fontanini personal communication). The disease symptoms could not be attributed to the rust fungus and the phenomenon has been referred to as 'blackberry decline.' The disease appears to be due to root pathogen(s) and during initial sampling several *Phytophthora* species were isolated. In order to investigate the cause(s) of disease and the potential role of *Phytophthora* species in the decline, field surveys were carried out over 2010 and 2011 in the decline and non-decline sites along the Warren and Donnelly Rivers. During these surveys, *P. taxon* oaksoil was recovered from decline sites. Several isolates of this taxon have been isolated from Europe [2], and given a provisional name (oaksoil) until formal description. This taxon is described here as *Phytophthora bilorbang* prov. nom.; a new taxon within the ITS Clade 6, sub-clade II of *Phytophthora*. This is the first report of this new *Phytophthora* species in association with declining *R. anglocandicans*.

[1] Evans, K.J. and Weber, H.E. 2003. *Rubus anglocandicans* (Rosaceae) is the most widespread taxon of European blackberry in Australia. Aust. Syst. Bot., 16**:** 527–537.

[2] Brasier, C.M.; Cooke, D.E.L.; Duncan, J.M.; and Hansen, E.M. 2003. Multiple phenotypic taxa from trees and riparian ecosystems in *Phytophthora gonapodyides–P. megasperma* ITS Clade 6, which tend to be high-temperature tolerant and either inbreeding or sterile. Mycological Research, 107: 277–290.

Sims, L. and Hansen, E. An ecological role for *Phytophthora* taxon oaksoil in western Oregon riparian ecosystems. Poster 67. 6th IUFRO Meeting Working Party 7-02-09, *Phytophthora* in Forests and Natural Ecosystems Meeting. September 9 – 14, 2012. Córdoba-Spain.
Phytophthora taxon oaksoil, an ITS clade 6 *Phytophthora*, was collected from 58 of 88 transects in western Oregon USA riparian alder ecosystems. From water and rhizosphere

sampling between the months of June-October 2010, more than 500 isolates were collected. Continued sampling in 2011-12 revealed consistent high levels of this organism in water. Water samples containing *P.* taxon oaksoil were collected year round with more isolates collected per liter during the summer and fall while leaves were falling and accumulating in waterways. It was found that *P.* taxon oaksoil can sporulate and grow on dried and fresh green alder leaves and petioles floated in water under laboratory conditions. *P.* taxon oaksoil was also easily, repeatedly, and frequently isolated from fallen alder leaves but only rarely from necrotic fine roots and never from attached leaves above the waterline. The combined evidence suggests *P.* taxon oaksoil is growing and sporulating from alder leaf debris in riparian ecosystems in western Oregon driving up the number of propagules found in water. Little is known about the roles of *Phytophthora* species in ecosystems beyond the aggressive pathogens, but it is likely that *P.* taxon oaksoil can use plant debris such as leaves as a carbon source and as a substrate for asexual reproduction.

MANAGEMENT

"Case study - tackling *P. ramorum* in private-sector forests," is the story of Robert White, a woodland owner in Devon, England, impacted by *P. ramorum*-infected larch on his property. A forester by trade, Robert purchased his 346 acres of commercial woodland in 1999. Eleven years later, he was faced with the first signs of infected larch on his land. This article chronicles his story from a private landowner's perspective, and is a companion case study to the "Standing Firm - Tackling ramorum disease in public forests" article reported in the September 2012 COMTF newsletter.

EDUCATION AND OUTREACH

The UC Berkeley Garbelotto lab is conducting community indoor and outdoor meetings this fall at locations where SOD Blitzes were held last spring. Indoor "Results" meetings will update community members on the 2012 SOD Blitz results, and outdoor "Field" meetings will present SOD management options and demonstrate treatment techniques. It is recommended that participants attend both the Results meeting and Field meeting for their locality. Treatment training sessions that are equivalent to Field meetings are also being offered this fall on the UC Berkeley campus. For more information, go to the 'Calendar of Events' below or www.matteolab.org.

OTHER INVASIVE ISSUES

A shipment of 75 walnut logs being delivered to Orange County, CA from Yankton, South Dakota for wood crafting was stopped at California's Yermo Border Protection Station when pest samples collected from the logs revealed the presence of the Cerambycidae (longhorn beetles). The California Department of Food and Agriculture has listed Cerambycidae as a Q-rated pest (suspected to be of economic or environmental detriment, but status is uncertain because of incomplete identification or inadequate information pest). Upon pest identification, the driver elected to return out of state. The CA State Exterior Quarantine for nut tree pests (CCR 3260) prohibits the entry into California of walnut tree stock and all parts capable of propagation; however, uninfested logs and firewood are allowed.

PERSONNEL

Karen Suslow, Nursery Co-Chair of the COMTF, has accepted a job as Program Manager for NORS-DUC. Prior to that, she had recently left Hines Growers after 16 years of employment, most recently as a Production Manager and General Manager for their northern CA facility. Karen will continue to serve as the NORS-DUC Steering Committee Nursery Chair and to participate in the ANLA Systems Approach review team and the *P. ramorum* Best Management Practices Working Group, among other organizations. She is excited to continue to participate, serve, and provide leadership for the nursery and landscape industry, and looks forward to maintaining and developing effective partnerships and dialogue with the research community and regulatory agencies. Karen may be reached at KarenSuslow@gmail.com.

CALENDAR OF EVENTS

10/8 – 10/12 – 60th Annual Western International Forest Disease Work Conference; Tahoe City; For the agenda, more information, or to register, go to http://www.fs.fed.us/foresthealth/technology/wif/index.htm.

10/12 - Sonoma/Marin SOD Blitz 2012 Results Meeting; UCCE Sonoma County; 133 Aviation Blvd.; Santa Rosa; 6 - 8 p.m.; For more information, contact Lisa Bell at lkbell@ucdavis.edu.

10/13 - Sonoma County SOD Field Meeting #1; Sebastopol Veterans' Memorial Hall; 282 High Street; Sebastopol; 10 a.m. – 12 p.m.; For more information, contact Lisa Bell at lkbell@ucdavis.edu.

10/13 - Sonoma County SOD Field Meeting #2; Spring Lake Regional Park; Upper Oak Knolls Picnic Area; 5585 Newanga Avenue; Santa Rosa; 2 - 4 p.m.; For more information, contact Lisa Bell at lkbell@ucdavis.edu.

10/14 - East Bay/Lafayette/Orinda SOD Field Meeting; Community Park Picnic Area; 480 St. Mary's Rd.; Lafayette; 10 a.m. – 12 p.m.; For more information, contact Greg Travers at GTravers@ci.lafayette.ca.us.

10/17 - 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, or for questions, email kpalmieri@berkeley.edu, and provide your name, phone number, affiliation, and license number (if applicable), and the date for which you are registering. For more information, go to http://nature.berkeley.edu/garbelotto/english/sodtreatmenttraining.php.

10/20 - Carmel Valley SOD Blitz 2012 Results and Field Meeting; Garland Ranch Regional Park Museum Ranger Station meeting room; Carmel Valley; 10 a.m. – 12 p.m.; For more information, contact Kerri Frangioso at kfrangioso@ucdavis.edu.

10/26 - Woodside/Portola Valley/Emerald Hills SOD Blitz 2012 Results Meeting; Woodside Town Hall; 2955 Woodside Road; Woodside; 7 – 9 p.m.; For more information, contact Debbie Mendelson at naturemend@sbcglobal.net.

10/27 - San Mateo County, Portola Valley Ranch SOD Field Meeting: Portola Valley Ranch House; 1 Indian Crossing; Portola Valley; 1:30 - 3:30 p.m.; For more information, contact Debbie Mendelson at naturemend@sbcglobal.net.

10/28 - San Mateo County, South Skyline SOD Blitz 2012 Results Meeting; Skyline Ridge Open Space Field Office and Ranger Station; 10 a.m. – 12 p.m.; For more information, contact Jane Manning at skyline_sod@yahoo.com.

10/31 - SOD Treatment Training Workshop; UC Berkeley Campus; Meet at oak outside of Tolman Hall; 1 – 3 p.m.; Pre-registration is required. For more information, see the 10/17 listing above.

11/2 - Atherton/Los Altos Hills SOD Blitz 2012 Results Meeting; Los Altos Hills Town Hall; 26379 Fremont Rd.; Los Altos Hills; 6 – 8 p.m.; For more information, contact Sue Welch at sodblitz09@earthlink.net.

11/3 - Los Altos Hills SOD Field Meeting; Foothills Park, Oak Grove Picnic Area; 3300 Page Mill Rd.; Los Altos Hills; 10 a.m. – 12 p.m.; For more information, contact Sue Welch at sodblitz09@earthlink.net.

11/4 - Burlingame Hills SOD Field Meeting; 120 Tiptoe Lane (off Canyon Rd.); Burlingame; 1:30 – 3:30 p.m.; For more information, contact Steve Epstein at steve@burlingamehills.org.

11/7- 8 - Annual Meeting of the California Forest Pest Council, Wildland Fire Training and Conference Center; 3237 Peacekeeper Way; McClellan; For more information, go to http://caforestpestcouncil.org/ or contact Katie Palmieri at kpalmieri@berkeley.edu.

11/9 - Napa SOD Blitz 2012 Results Meeting; UCCE Office; 1710 Soscol Avenue; Napa; 6 – 8 p.m.; For more information, contact Bill Pramuk at info@billpramuk.com.

11/10 - Santa Cruz SOD Blitz 2012 Results Meeting; Cal-Fire Training Room on Gushee Street (behind the forestry office at 6059 Highway 9); Felton; 10 a.m. – 12 p.m.; For more information, contact Nadia Hamey at nadiah@big-creek.com.

11/13 - The Eighth Meeting of the Continental Dialogue on Non-Native Forest Insects and Diseases; Sacramento Convention Center; Sacramento; 8:00 a.m. – 4:30 p.m.; For more information about the meeting agenda, contact Debbie Lee (dlee@resolv.org; 202-965-6381) or Beth Weaver (bweaver@resolv.org; 202-965-6211). For information regarding registration, go to www.arborday.org/pcf. For registration questions, contact Jen Svendsen (jsvendsen@arborday.org; 888-448-7337 Ext. 297).

11/14 - SOD Treatment Training Workshop; UC Berkeley Campus; Meet at oak outside of Tolman Hall; 1 – 3 p.m.; Pre-registration is required. For more information, see the 10/17 listing above.

11/15 - San Francisco SOD Blitz 2012 Results Meeting; Golden Gate Park Presidio and Golden Gate Park; Recreation Room, SF County Fair Building; Golden Gate Park near 9th Ave. and Lincoln Way; San Francisco; 10 a.m. – 12 p.m.; For more information, contact Christa Conforti at CConforti@presidiotrust.gov.

11/16 - Marin County SOD Blitz 2012 Results Meeting; Dominican University; Joseph R. Fink Science Center, Room 103; San Rafael; 6 – 8 p.m., For more information, contact Sibdas Ghosh at sibdas.ghosh@dominican.edu.

11/17 - West Marin SOD Field Meeting; Marin French Cheese Company; 7500 Red Hill Rd; Petaluma; 10 a.m. – 12 p.m.; For more information, contact Janice Alexander at JAlexander@marincounty.org.

11/17 - Marin/Mt. Tamalpais SOD Field Meeting; Sky Oaks Ranger Station; 49 Sky Oaks Rd.; Fairfax; 2 - 4 p.m.; For more information, contact Andrea Williams at awilliams@marinwater.org.