CALIFORNIA OAK MORTALITY TASK FORCE REPORT
MARCH 2018

MONITORING

Two Washington waterways were found positive during the 2017 National *Phytophthora ramorum* Early Detection Survey of Forests. The pathogen was detected for the first time in Issaquah Creek (King County) at a site downstream from a now-closed previously positive nursery. The pathogen has not been recovered from terrestrial surveys of the woodlands bordering the waterway. *P. ramorum* was also detected at the Sammamish Slough (King County), where it has been recovered since 2007. Seven Washington counties participated in the survey, including Clark, Cowlitz, King, Kitsap, Lewis, Mason, and Thurston. Ten Washington streams are currently being monitored as part of the 2018 National *P. ramorum* Early Detection Survey of Forests.

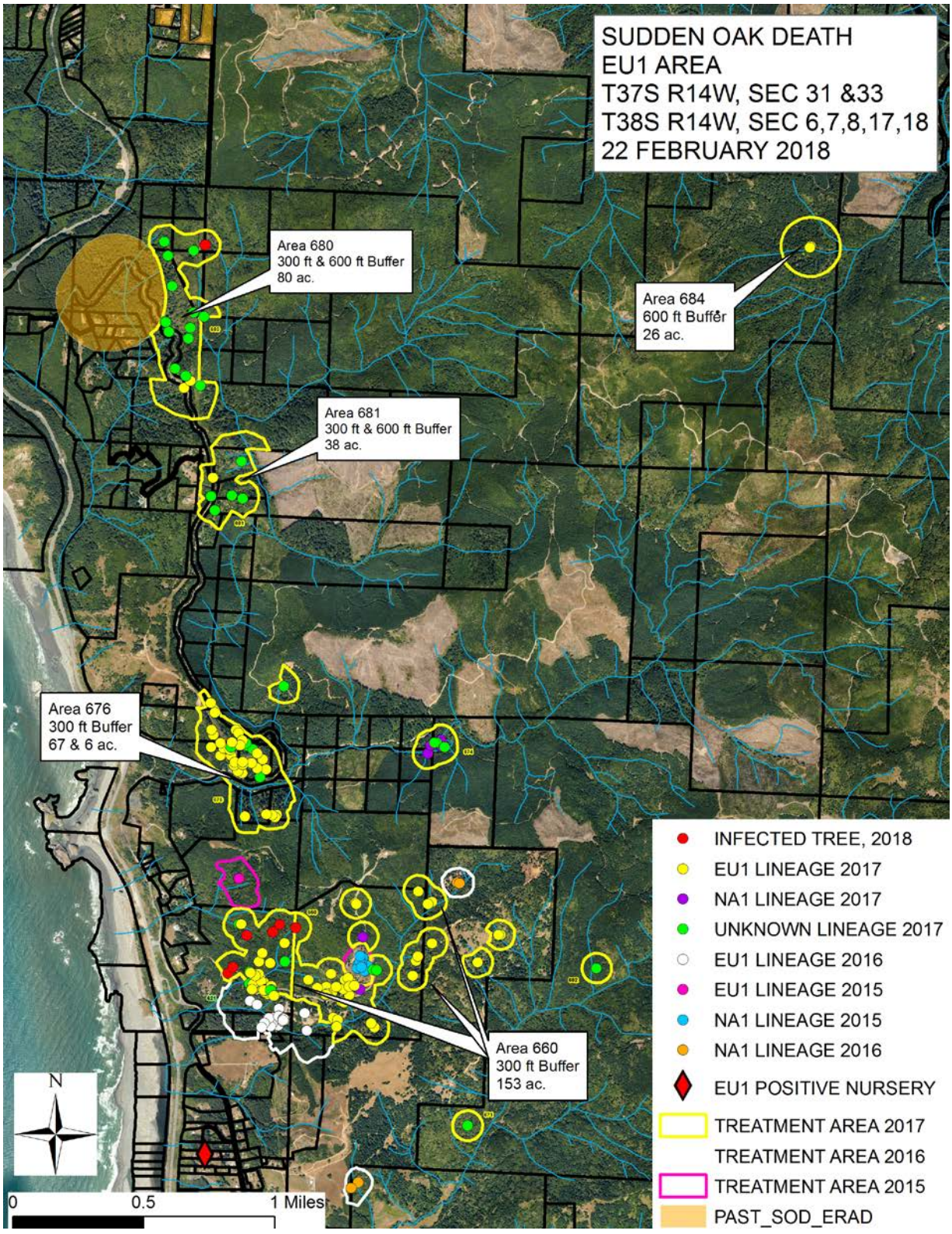
Update on Oregon's *P. ramorum* Program - Additional detections from Oregon's 2017 *P. ramorum* survey have been confirmed since early January 2018 (the previous COMTF report). Stream baiting identified a total of 10 positive waterways in 2017, of which six were the EU1 lineage. Additionally, 39 new infestations were ultimately detected at or beyond the generally infested area (GIA); all were well within the quarantine boundary. Using a 300 ft treatment buffer, 2017 treatment areas totaled approximately 172 NA1 acres of private property, 124 NA1 acres of US Forest Service property, 25 NA1 acres of Bureau of Land Management property, and 371 EU1 lineage acres (up from "over 330 acres" reported in January) of private and state-owned properties.

Five EU1 infestations were identified (down from seven reported in January due to some infestations becoming large enough in size to merge) in 2017, with 119 (up from 107) EU1-positive trees confirmed. Lineage testing is still pending for 43 more infected trees. Eradication efforts are underway at four locations and have been completed at the fifth site.

Twenty-seven *P. ramorum* infestations detected from 2014 to 2017 were burned by the 2017 Chetco Bar Fire. Sites burned included 10 that had been treated for the pathogen, four partially treated sites, and 13 untreated sites. The USFS Burned Area Emergency Response Team soil severity map identified six infested sites that were moderately burned (3 treated, 2 partially treated, and 1 untreated); all other sites had low or very low soil burn severity.

To date in 2018, two new infestations (lineage testing is underway) have been detected at or beyond the GIA; both are well within the quarantine boundary. Using 300 ft treatment buffers, 2018 treatment areas to date total approximately 12 acres of private land and 10 USFS acres.

The Oregon Department of Forestry has prioritized all EU1 infestations within the SOD quarantine for treatment this year. NA1 sites from 2017 may not receive eradication treatments in 2018. There is approximately $1,375,000 available for EU1 eradication efforts in FY 2017-18.


SUDDEN OAK DEATH
EU1 AREA
T37S R14W, SEC 31 &33
T38S R14W, SEC 6,7,8,17,18
22 FEBRUARY 2018
Area 680
300 ft & 600 ft Buffer
80 ac.
Area 684
600 ft Buffer
26 ac.
Area 681
300 ft & 600 ft Buffer
38 ac.
Area 676
300 ft Buffer
67 & 6 ac.
Area 660
300 ft Buffer
153 ac.
N
0
0.5
1 Miles
INFECTED TREE, 2018
EU1 LINEAGE 2017
NA1 LINEAGE 2017
UNKNOWN LINEAGE 2017
EU1 LINEAGE 2016
EU1 LINEAGE 2015
NA1 LINEAGE 2015
NA1 LINEAGE 2016
EU1 POSITIVE NURSERY
TREATMENT AREA 2017
TREATMENT AREA 2016
TREATMENT AREA 2015
PAST_SOD_ERAD

***P. ramorum* symptomatic California bay laurel and tanoak samples were collected near the** Stover Ridge area in the Redwood Creek drainage (one of the northernmost known *P. ramorum* infestations in California) in August 2017 to delimit the infestation and to assess the efficacy of *P. ramorum* recovery from both species in late summer. The leaves of seven bays and twigs from seven tanoaks were cultured for the pathogen. The bay leaves were also cultured on a non-*Phytophthora* selective growth medium. *P. ramorum* grew from one bay sample, which also yielded *Diplodia corticola* on the non-selective medium (confirmed through PCR and sequencing by the California Department of Food and Agriculture lab).

Bay leaves found positive for *P. ramorum* and *Diplodia corticola*. Photo by C. Lee, Cal Fire

Symptoms caused by *Diplodia corticola* on tanoak, Humboldt Co. Photo by C. Lee, Cal Fire

D. corticola is a known pathogen of several species of oaks as well as grapevines in California. It has also been isolated by several surveyors from tanoak, on which it can cause symptoms very similar to those caused by *P. ramorum*, including bleeding cankers, branch dieback, and in some cases tree mortality. This is the first time this fungal pathogen has been reported causing symptoms on bay that are indistinguishable in the field from *P. ramorum*. Further sampling and testing are necessary to confirm these results; however, these findings highlight the need for laboratory testing to confirm *P. ramorum* in field samples.

NURSERIES

A Sacramento County nursery undergoing the Confirmed Nursery Protocol (since May 10, 2017) had 5 samples test *P. ramorum* positive during their 90-day quarantine release inspection in early February. As a result, the nursery will start a new 90-day quarantine period. Delimitation surveys are underway at the facility to destroy positive plants found infested since the February confirmation. Since May 2017 there have been 159 positive plants in 8 locations at the nursery. All positive plants are Camellias.

RESEARCH

Aram, K. and Rizzo, D.M. *In Press*. Distinct Trophic Specializations Affect How *Phytophthora ramorum* and Clade 6 *Phytophthora* spp. Colonize and Persist on *Umbellularia Californica* Leaves in Streams. Phytopathology. https://doi.org/10.1094/PHYTO-06-17-0196-R.

Phytophthora spp. are regularly recovered from streams but their ecology in aquatic environments is not well understood. *Phytophthora ramorum*, invasive in California forests, persists in streams at times when sporulation in the canopy is absent, suggesting that it reproduces in the water. Streams are also inhabited by resident, clade 6 *Phytophthora* spp., believed to be primarily saprotrophic. We conducted experiments to determine if differences of trophic specialization exist between these two taxa, and investigated how this may affect their survival and competition on stream leaf litter. *Phytophthora ramorum* effectively colonized fresh

(live) rhododendron leaves but not those killed by freezing or drying, while clade 6 species colonized all leaf types. However, both taxa were recovered from naturally occurring California bay leaf litter in streams. In stream experiments, *P. ramorum* colonized bay leaves rapidly at the onset; however colonization was quickly succeeded by clade 6 species. Nevertheless, both taxa persisted in leaves over 16 weeks. Our results confirm that clade 6 *Phytophthora* spp. are competent saprotrophs, and though *P. ramorum* could not colonize dead tissue, early colonization of suitable litter allowed it to survive at a low level in decomposing leaves.

Conrad, A.O.; McPherson, B.A.; Wood, D.L.; Madden, L.V.; and Bonello, P. 2017. Constitutive Phenolic Biomarkers Identify Naïve *Quercus agrifolia* Resistant to *Phytophthora ramorum*, the Causal Agent of Sudden Oak Death. Tree Physiology. 37: 1686–1696. DOI: 10.1093/treephys/tpx116.

Sudden oak death, caused by the invasive pathogen *Phytophthora ramorum* Werres, de Cock & Man in't Veld, can be deadly for *Quercus agrifolia* Neé (coast live oak, CLO). However, resistant trees have been observed in natural populations. The objective of this study was to examine if pre-attack (constitutive) levels of phenolic compounds can be used as biomarkers to identify trees likely to be resistant. Naïve trees were selected from a natural population and phloem was sampled for analysis of constitutive phenolics. Following *P. ramorum* inoculation, trees were phenotyped to determine disease susceptibility and constitutive phenolic biomarkers of resistance were identified. Seasonal variation in phloem phenolics was also assessed in a subset of non-inoculated trees. Four biomarkers, including myricitrin and three incompletely characterized flavonoids, together correctly classified 80% of trees. Biomarker levels were then used to predict survival of inoculated CLO and the proportion of resistant trees within a subset of non-inoculated trees from the same population. Levels of five phenolics were significantly affected by season, but with no pronounced variation in average levels among seasons. These results suggest that pre-infection levels of specific phenolic compounds (i.e., biomarkers) can identify trees naturally resistant to this invasive forest pathogen. Knowledge of resistant trees within natural populations may be useful for conserving and breeding resistant trees and for disease management.

Funahashi, F. and Parke, J. *In Press*. Thermal Inactivation of Inoculum of Two *Phytophthora* Species by Intermittent vs. Constant Heat. Phytopathology. https://doi.org/10.1094/PHYTO-06-17-0205-R.

Research on solarization efficacy has examined the critical temperature and minimum exposure time to inactivate soilborne pathogens. Most mathematical models focus on survival of inoculum subjected to a constant heat regime rather than an intermittent heat regime that better simulates field conditions. To develop a more accurate predictive model, we conducted controlled lab experiments with rhododendron leaf disks infested with *Phytophthora ramorum* and *P. pini*. Focused in vitro experiments with *P. ramorum* showed significantly longer survival of inoculum exposed to intermittent vs. constant heat, indicating that intermittent heat is less damaging. A similar trend was observed in soil. Damage was evaluated by comparing the reduction in subsequent survival time of inoculum subjected to different intensities of sub-lethal heat treatments. Inoculum exposure to continuous heat reflected an increasing rate of damage accumulation. Multiple sub-lethal heat events resulted in a constant rate of damage accumulation

which allowed us to calculate total damage as the sum of damage from each heat event. A model including a correction for an intermittent heat regime significantly improved the prediction of thermal inactivation under a temperature regime that simulated field conditions.

LeBoldus, J.M.; Sondreli, K.L.; Sutton, W.; Reeser, P.; Navarro, S.; Kanaskie, A.; and Grünwald, N.J. 2018. First Report of *Phytophthora ramorum* Lineage EU1 Infecting Douglas-Fir and Grand Fir in Oregon. Plant Disease. 102(2): 455.

Sudden oak death (SOD) is caused by the introduced oomycete pathogen *Phytophthora ramorum* S. Werres, A. W. A. M. de Cock & W. A. Man in't Veld. This fungus-like organism has four clonal lineages: NA1, NA2, EU1, and EU2 (Grünwald et al. 2016; Prospero et al. 2007). Until recently, the NA1 lineage was the only clonal lineage of *P. ramorum* reported in wildland forests in the western United States. In contrast, EU1, NA1, and NA2 have all been found in U.S. nurseries (Grünwald et al. 2012). In the winter of 2015, a symptomatic *Notholithocarpus densiflorus* Manos, Cannon & S.H.Oh (tanoak) was identified during a SOD helicopter survey in Curry County, OR. *P. ramorum* was isolated from symptomatic bark tissue. Subsequently, the isolate was determined to be of the EU1 lineage based on 14 microsatellite loci (Grünwald et al. 2016). Continued monitoring of the area in 2016 and 2017 has identified symptomatic *Abies grandis* (Douglas ex D. Don) Lindl. (grand fir; $n = 3$) and *Pseudotsuga menziesii* (Mirb.) Franco (Douglas fir; $n = 2$) saplings growing near infected tanoak trees in the mixed conifer forest of Curry County, OR. Symptoms with shoot blight for these species were similar to those described in the literature, including wilting and dieback of new shoots, brown discoloration of needles, and needle loss on young shoots. Isolations were made by plating surface-sterilized tip dieback tissue from *A. grandis* and *P. menziesii* on a Phytophthora-selective medium. Based on the presence of chlamydospores, characteristic hyphae, and sporangial morphology, the isolates were identified as *P. ramorum*. DNA was extracted from hyphae, and a portion of the *cellulose binding elicitor lectin (CBEL)* gene was amplified and sequenced using the CBEL5U and CBEL6L primers (Gagnon et al. 2014). The sequences of the unknown lineage were aligned to sequences of *CBEL* for NA1, NA2, EU1, and EU2 using the Staden package in GAP version 4.11.2. The lineage of the isolates from *A. grandis* and *P. menziesii* (GenBank accession nos. MF918374 and MF918375, respectively) had 100% identity to the EU1 reference sequences (GenBank nos. EU688952 and EF117945). To satisfy Koch's postulates, three branches of *A. grandis* and *P. menziesii* were inoculated with the original EU1 isolates of *P. ramorum* from those hosts. Ten days after inoculation, the same pathogen was re-isolated from symptomatic stem tissue of both tree species. The EU1 lineage is considered more aggressive than the NA1 lineage and is of opposite mating type to NA1, thus potentially resulting in establishment of sexual populations.

Walsh, R.; Cameron, A.; and McG. Wilson, S. 2017. The Potential of Alternative Conifers to Replace Larch Species in Ireland, in Response to the Threat of *Phytophthora ramorum*. Irish Forestry. Vol. 74. Nos 1 & 2.

Forest ecosystems are facing many challenges in the wake of recent pest and disease outbreaks, coupled with uncertain future climate conditions. A particular challenge emerges from the recent outbreak of *Phytophthora ramorum* identified in Japanese larch (*Larix kaempferi*) in 2010. Its subsequent spread has caused widespread damage to Japanese larch stands and has resulted in

the Japanese, European (*Larix decidua*) and hybrid (*Larix* × *eurolepis*) larches are no longer grant-aided in the Irish afforestation programme in Ireland. Over 20% of forest stands contain some quantity of larch; with a total area of 32,057 ha. Japanese larch is the predominant species with 27,859 ha, 86% occurring as mixed stands and 79% in mixture with Sitka spruce (*Picea sitchensis*). The objective of the study was to examine the range of alternative conifer species that may be suitable to replace larch which potentially have similar or increased levels of productivity, acceptable timber properties, while affording reduced levels of from pest/disease outbreak. To assess productivity, yield class of a range of species in mixture with larch across a gradient of soil types was assessed. Analysis of this data indicated that Sitka spruce, western red cedar (*Thuja plicata*), grand fir (*Abies grandis*), western hemlock (*Tsuga heterophylla*), Norway spruce (*Picea abies*), European silver fir (*Abies alba*), noble fir (*Abies procera*) and Douglas-fir (*Pseudotsuga menziesii*) provide suitable alternatives, showing higher levels of productivity across a range of soil types. A strong positive correlation was found between the yield classes of (a) Japanese larch and western hemlock (r = 0.70), (b) hybrid larch and Douglas fir (r = 0.73) and (c) European larch and Sitka spruce (r = 0.61) growing on the same sites. Regression equations were developed between the site yields of Japanese, European and hybrid larches and those of alternative species, as a useful tool to predict growth performance of potential alternative species across a range of soil types where larch is currently growing. The predictive power varied for different species pairings (r2 of 0.24 to 0.87) with the strongest relationships between the yields of Japanese larch and Norway spruce on basin peat (r2 = 0.71) and Japanese larch and Douglas fir on podzol soils (r2 = 0.76; y = 1.2632x + 2.6316). Given the significance of Sitka spruce/Japanese larch mixtures in Irish forestry, future research should focus on the potential for mixtures combining Sitka spruce and alternative Pacific conifers (e.g. Douglas fir, grand fir, western hemlock and western red cedar) that may enhance the resilience of and maintain productivity.

RELATED RESEARCH

Barrett, S. and Rathbone, D. 2018. Long-Term Phosphite Application Maintains Species Assemblages, Richness and Structure of Plant Communities Invaded by *Phytophthora cinnamomi*. Austral Ecology. DOI: 10.1111/aec.12574.

Beal, L.; Waghorn, I.; Scrace, J.; and Henricot, B. 2018. First Report of *Phytophthora tentaculata* Affecting *Santolina* in the UK. New Disease Reports. 37: 8. http://dx.doi.org/10.5197/j.2044-0588.2018.037.008.

Poimala, A.; Werres, S.; Pennanen, T.; and Hantula, J. 2018. First Report of Alder *Phytophthora* Closely Related to *P. uniformis* on *Alnus glutinosa* Seedling in Finland. Plant Disease. 102(2): 454-454.

Young, J.C.; Marzano, M.; Quine, C.P.; and Ambrose-Oji, B. *In Press*. Working with decision-makers for resilient forests: A case study from the UK. Forest Ecology and Management. https://doi.org/10.1016/j.foreco.2017.12.042Get.

EDUCATION AND OUTREACH

Spring 2018 SOD Blitzes will begin in March. Community members living near areas known to be impacted by SOD are encouraged to attend a Blitz and learn how to look for the

disease so that they can monitor for it in their community, facilitating early detection of new outbreaks. As symptomatic California bay laurel leaves and tanoak leaves and twigs generally precede oak infections, and are often the first sign that *P. ramorum* is in a location, participants will be trained to identify and collect symptomatic bay and tanoak samples as well as how to record sample locations. Those who have attended a training before should still attend one this year to receive necessary supplies. Blitz participants are encouraged to bring their iPhones or Android smartphones to the training sessions so they can learn how to use their mobile devices as GPS units to mark sample locations using the free SODMAP app. Samples will be taken to the Garbelotto lab at UC Berkeley to determine the presence or absence of the pathogen. Results will be published in the fall at www.sodblitz.org. For details on Blitz locations and information, see the "Calendar of Events" below.

An informational workshop on "Managing Uncertainty: Sudden Oak Death and Other Pests, Fire, and Drought" is being offered in Eureka, March 22, 2017 for forest and natural resource professionals as well as community members. Topics will include updates on sudden oak death in northern coastal California and southern Oregon; Port-Orford-cedar root disease and the resistance breeding program; using drones to evaluate spatial features of pest incidence; and broader disturbance-induced tree mortality. For more information, see the "Calendar of Events" below.

The Phytophthoras in Native Habitats Work Group and collaborators are hosting a free field trip to view nursery sanitation methods in the Sierra Nevada foothills at the US Forest Service Nursery in Camino and USFS Pacific Southwest Research Station Institute of Forest Genetics in Placerville on Thursday, April 19, 2018. The tour will take place from 8:00 am – 5:00 pm. Transportation is not provided and should be self-organized. For more information, see the "Calendar of Events" below.

NEW COMTF COMMITTEE

The Phytophthoras in Native Habitats Work Group (www.calphyto.org) has joined the California Oak Mortality Task Force as an official committee. This "Other Phytophthoras" committee will focus on addressing threats to CA wildlands from Phytophthoras other than *P. ramorum.* Diana Benner (Watershed Nursery) and Janell Hillman (Santa Clara Valley Water District) will be joining the COMTF Executive Committee as the Other Phytophthoras Committee co-chairs. The Phytophthoras in Native Habitats Work Group formed in 2015 in response to *Phytophthora* detections on native plants in restoration areas.

CALENDAR OF EVENTS

3/22 - Managing Uncertainty: Sudden Oak Death and Other Pests, Fire, and Drought information workshop; UC Cooperative Extension, Humboldt County, Sequoia Conference Center; 901 Myrtle Avenue, Eureka; Registration is $20 and includes lunch. To register, or for more information, go to http://cehumboldt.ucanr.edu/?calitem=402791&g=22904 or contact Dan Stark at (707) 445-7351.

3/30 – Mendocino County SOD Blitz; Location and evening time to be determined. For more information, contact Mario Abreu at abreu@mcn.org.

4/7 - Carmel Valley Village SOD Blitz; Garland Ranch Regional Park Museum Hall; 700 West Carmel Valley Road, Carmel; 10:00 - 11:00 am. For more information, contact Kerri Frangioso at kfrangioso@ucdavis.edu.

4/7 - Santa Lucia Preserve SOD Blitz; Santa Lucia Preserve residents; For more information, contact Christy Wyckoff at cwyckoff@slconservancy.org.

4/14 – South Skyline SOD Blitz; Cal Fire Saratoga Summit Fire Station 21; 12900 Skyline Blvd, Los Gatos; 10:00 - 11:00 am; For more information, contact Jane Manning at skyline_sod@yahoo.com or Coty Sifuentes, Midpeninsula Regional Open Space District, at csifuentes@openspace.org.

4/14 – Saratoga and Midpeninsula Regional Open Space District SOD Blitz; Montalvo Arts Center, The Art Commons; 15400 Montalvo Rd., Saratoga; 1:00 – 2:00 pm; For more information, contact Ann Northrup at annnorthrup@sbcglobal.net or Coty Sifuentes, Midpeninsula Regional Open Space, at csifuentes@openspace.org.

4/17 - Free Arborist, Tree Care Specialist, and Urban Forester Spring Sudden Oak Death Training Session; UC Cooperative Extension, Sonoma County; 133 Aviation Blvd. #109, Santa Rosa; 9:00 am – 1:00 pm; Register at http://ucanr.edu/SonomaSODTraining2018. For more information, contact Kerry Wininger at kwininger@ucanr.edu.

4/18 – Santa Cruz SOD Blitz; UC Santa Cruz Arboretum; UC Santa Cruz Campus, Santa Cruz; 6:00 – 7:00 pm; For more information, contact Tina Popenuck at tinapop@berkeley.edu.

4/19 – Free Phytophthoras in Native Habitats Work Group field trip to tour US Forest Service Nursery (2375 Fruitridge Road, Camino) and USFS Pacific Southwest Research Station Institute of Forest Genetics (2480 Carson Road, Placerville); 8:00 a.m. – 5:00 p.m. For more information on the tour, go to http://www.suddenoakdeath.org/wp-content/uploads/2018/01/April-19-nursery-tour_text-only.pdf. Transportation is not provided and should be self-organized. Registration is required by April 12. To register, go to https://ucanr.edu/survey/survey.cfm?surveynumber=22858. For questions, contact Janice Alexander at jalexander@ucanr.edu.

4/20 – Atascadero SOD Blitz; Atascadero Regional Library, Martin Polin Room; 6555 Capistrano Ave, Atascadero; 6:30 - 7:30 pm; For more information, contact Lauren Brown at lbrown805@charter.net or Kim Corella at Kim.Corella@fire.ca.gov.

4/21 – San Luis Obispo SOD Blitz; San Luis Obispo County Department of Agriculture; 2156 Sierra Way, San Luis Obispo; 12:00 – 1:00 pm; For more information, contact Kim Corella at Kim.Corella@fire.ca.gov or Lauren Brown at lbrown805@charter.net.

4/24 - Free Arborist, Tree Care Specialist, and Urban Forester Spring Sudden Oak Death Training Session; UC Berkeley, Morgan Lounge; 114 Morgan Hall, Berkeley; 9:00 am – 1:00 pm; To register, or for more information, email contact@matteolab.org.

4/28 – East Bay SOD Blitz; UC Berkeley, Morgan Lounge; 114 Morgan Hall, Berkeley; 10:00 -11:00 am; For more information, contact Doug Schmidt at contact@matteolab.org.

4/28 – East Bay SOD Blitz; Orinda Public Library, Garden Room; 26 Orinda Way, Orinda; 1:00 – 2:00 pm; For more information, contact Bill Hudson at wllhh@ymail.com.

5/1 - Free Arborist, Tree Care Specialist, and Urban Forester Spring Sudden Oak Death Training Session; UC Santa Cruz Arboretum; 1156 High St, Large Conference Room, Santa Cruz; 9:00 am – 1:00 pm; To register, or for more information, contact Brett Hall at brett@ucsc.edu.

5/3 or 5/4 – Petaluma SOD Blitz; Evening meeting time and place to be determined; Registration required; For more information, contact Kerry Wininger at kwininger@ucanr.edu.

5/5 – Marin SOD Blitz; Dominican University of California; Joseph R. Fink Science Center, Rm 103; 10:00 - 11:00 am; For more information, contact Wolfgang Schweigkofler at wolfgang.schweigkofler@dominican.edu.

5/5 Sonoma County SOD Blitzes (four events); Registration required; For more information, contact Kerry Wininger at kwininger@ucanr.edu.
- Graton Community Club; 8996 Graton Rd, Graton; 9:00 - 11:00 am
- Spring Lake Park Environmental Discovery Center; 393 Violetti Drive, Santa Rosa. Use park entrance at Violetti Drive, upper parking lot.; 9:00 - 11:00 am
- Galbreath Preserve; meet at Yorkville Post Office (25400 CA-128, Yorkville); 9:00 am - 1:00 pm; Samples will be collected on-site immediately following the training.
- Sonoma Valley Regional Library; 755 W Napa St, Sonoma; 10:30 am – 12:30 pm

5/6 - Fairfield Osborn Preserve SOD Blitz; 10:00 am - 1:00 pm; Registration required; Samples will be collected on-site immediately following the training. For more information, contact Kerry Wininger at kwininger@ucanr.edu.

5/9 – 11 "The Impact of *Phytophthora* on Restoring Native Habitats" is one of the technical session themes at the 25th Annual Conference of the California Society for Ecological Restoration; Marina Village, San Diego; Five or more talks will be presented on *Phytophthora* concerns in restoration, including detections from the Bay Area and Southern California as well as guidance on best management practices to prevent introduction and spread. For more information, go to http://www.sercal.org/call-for-abstracts.

5/12 - Woodside, Portola Valley, Atherton, Redwood City, and Los Altos Hills SOD Blitz; Woodside Town Hall; 2955 Woodside Rd., Woodside; 10:00 - 11:00 am; For more information, contact Debbie Mendelson at naturemend@sbcglobal.net; Sue Welch, Los Altos Hills, at sodblitz09@earthlink.net; or Coty Sifuentes, Midpeninsula Regional Open Space, at csifuentes@openspace.org.

5/19 – Napa County SOD Blitz; Napa County UC Cooperative Extension office; 1710 Soscol Ave, Napa; 10:00 - 11:00 am; For more information, contact Bill Pramuk at info@billpramuk.com.

11/13 – 14 - 2018 California Forest Pest Council Annual Meeting at UC Davis. More information will be forthcoming soon.