INSECTS

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frequently. If the pathogen is found, affected plants and neighboring host plants are destroyed and the loss borne by the grower. Quarantines to prevent human-assisted spread of *P. ramorum* are in place. All fourteen infested counties in California are under quarantine. Depending on species, host plants or regulated plant parts cannot be transported out of these counties at all or may require mitigation such as heat treatment or inspection and disease-free certification before being moved. Oregon's quarantine area, 160 square miles from just north of the Oregon border to the Pistol River area and inland approximately 12 miles from the coast, is subject to the same rules as those in place in California. In addition, Oregon currently requires that treatments to eradicate the pathogen be done on private lands. While not subject to these state regulations, federal land managers in Oregon have cooperated with the state in these efforts and have treated their lands similarly.

In Oregon, aggressive efforts to eradicate the pathogen from infested forests have been underway since 2001. These treatments have evolved over time as new information has become available about the pathogen, its hosts, its survival capability and its spread potential. Treatments currently involve using injected herbicide to prevent growth of highly susceptible tanoak sprouts, and cutting and burning infected and exposed host plants. Private, state, and federal affected lands are treated. Wet springs and/or summers in 2005 and 2006 caused a marked increase in infection in 2006 and 2007 and logistical difficulties in 2008 and 2009 have slowed the efforts. However, the Oregon situation relative to that in California is still hopeful. Only 800 trees have been found infected in Oregon since 2001. With buffer areas included, approximately 2900 acres in total have been treated or are awaiting treatment, compared with approximately 5,000 infested acres mapped from 2001-2008 in Humboldt County, CA alone.

Resources: www.suddenoakdeath.org for overview, useful links, and California information. http://www.oregon.gov/ODA/PLANT/NURSERY/reg_sod.shtml and http://egov.oregon.gov/ODF/privateforests/fhInvasives.shtml for information specific to Oregon.

THE FUTURE

Unfortunately many known invasive insects and pathogens are not currently present in Southwest Oregon but have the potential to be introduced here. *Their existence gives us reasons to be very, very, concerned.* Golden spotted oak borer could arrive quite quickly from southern California via infested oak firewood or more slowly, marching up through the range of California black oak and canyon live oak to kill our own black oaks and canyon live oaks. Asian longhorned beetle, which was introduced from Asia into New York, Illinois, New Jersey, and Massachusetts over the last two decades in solid wood packing material (crates and boxes) has been the cause of the destruction of hundreds of thousands of trees in urban and suburban forests in the effected states. As of 2008, total state and federal costs for the Asian longhorned beetle eradication program, including research and development, was approximately $373 million for the U.S. Asian longhorned beetle has the potential to cause extensive impacts given its ability to infest and eventually kill hardwood trees in more than 15 plant families. In particular, this insect's affinity for maples suggests high risk for our riparian ecosystems where bigleaf maple thrives and for neighborhoods and urban areas with planted maples if the insect were to be introduced.

Likewise, emerald ash borer, another Asian import that arrived via wood packing material and has killed tens of millions of native ash trees in the Midwest and Great Lake states, poses a threat to Oregon ash (an important

Adult asian longhorned beetle photo by - Donald Duerr USDA, Forest Service

tree in our riparian ecosystems) as well as other ash species planted as ornamentals. The spread of emerald ash borer results from beetle flight and human transport of infested ash firewood, logs, lumber and nursery stock. Other Phytophthora species are also waiting in the wings. *Phytophthora kernoviae*, found in the UK as a result of P. ramorum surveys, is an aggressive pathogen that infects and kills a host of tree and woodland shrub species. Laurel wilt, the result of a formerly unknown ambrosia beetle vectoring a newly described fungus, is killing redbay, a common coastal understory shrub, in the southeast. Greenhouse tests have shown that Oregon myrtlewood is highly susceptible to the fungus that causes this disease.

Unfortunately, numerous organisms that we currently know nothing about at all could potentially be our next invasives. Many of the species that have arrived here, both insects and pathogens, were originally of little importance and virtually unknown in their regions of origin.

WHAT'S HAPPENING?

While there are other potential pathways for the introduction of invasive forest insects and pathogens, the past suggests that live plant material or wood in the form of logs, firewood, or solid wood packing materials pose substantial risk. Today, increased global travel, renewed interest in gardening with new and unusual plant specimens, increased trade in general, and a sharp rise in internet trade all combine to increase the opportunities for insects and pathogens to cross geographic boundaries at accelerating rates. Once established in new areas, they are very difficult and usually very expensive to control. Preventing their arrival in the first place is much more desirable and cost-effective. Early detection and rapid response once a potential problem is detected is the best approach. Unfortunately, it is usually quite difficult.

At the international and national level, the USDA has recently adopted international standards that require solid wood packing material used in international trade to be heat-treated and certified as such or it will be turned back at ports of entry. Current regulations associated with the importation of plants for planting are undergoing enhancement. Concerned citizens have been asked to suggest and discuss mitigation measures that could be applied to wood packing material used in domestic (interstate) commerce and to firewood moved across state lines. Some states have already enacted regulations that forbid entry of uncertified firewood. Programs are in place at selected ports for early detection of bark beetles and wood-boring insects.

WHAT YOU CAN DO

While additional regulations are discussed and debated, there are things that you as a concerned private citizen can do to minimize the potential for spreading invasive forest insects and pathogens into and around southwest Oregon. These include:

Know the location of the *Phytophthora ramorum* quarantine area. If you travel, recreate, work or play in the fourteen coastal California Counties or the portion of southern Curry County infested with *Phytophthora ramorum*, wash the dirt and mud from your mountain bike, ATV, car, truck or travel trailer before you leave the area. Remove plant debris from your pockets, cuffs, camping gear and vehicles. Leave plants in the woods. Know the quarantine rules and follow them.

Don't move firewood. Moving firewood can spread insects and pathogens that kill trees. Obtain a local source and burn it locally. Even if you think your wood is pest-free, don't take it with you on your next vacation. Tell your relatives from the East Coast or Midwest, or wherever they live, to leave their wood at home. If you buy packaged firewood at the store, make sure it has been heat-treated to kill resident pests. http://www.dontmovefirewood.org

Buy local nursery stock if you can. Buy from reputable licensed nurseries. Licensed nurseries are inspected for a variety of invasive pests. Ask nursery growers about the source of their stock; clean seeds and tissue culture starts are low risk for moving invasive pathogens.

Stay informed. http://oregon.gov/OISC/index.shtml, www.invasivespecies.org and http://www.gisinetwork.org

Stay alert. Report suspicious sightings to 1-866-Invader. Twenty-five exotic beetles became established in the US between 1985 and 2005. Eight of the 25 were first detected in official surveillance programs. *The rest were brought to the attention of authorities by the public noticing damaged trees or by insect collectors and scientists doing field work.* Take a digital picture of insects or disease symptoms that you think are unusual and show them to an expert. Entomologists and pathologists would much rather examine numerous pictures and specimens of native insects that are sent to them, than to let a single invader go undetected.

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