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University of California
Agriculture and Natural Resources
Making a Difference for California

# The Green Scene

UCCE

August 2020

## Greetings

I hope you're doing well amidst whatever level of shutdown and activity you are experiencing. The plants at the office are growing well. The trees are larger. I notice our office courtyard landscape is starting to resemble something around Chernobyl. It's a quasi-abandoned look--no pruning with minimal or no attention to plant expansion.

## Meetings and Announcements

### UCCE Kern County Office Situation--UCCE is still working!

Our office on Mt. Vernon Ave. is currently open to the public. In accordance with the public health emergency declared by the County of Kern, all visitors are required to wear face coverings in all public places until further notice. Many of us advisors will be alternately in the office and working from home, and I have answered many questions via email, and new queries come in regularly from Kern residents as well as from those who live much further away. Email is the best way to reach me, my address is jfkarlik@ucanr.edu.

### Weekly Zoom Presentation: Gardens and Design

Again a reminder that I am making weekly Zoom presentations on gardens and landscape design, augmented with a bit of history. These presentations are Thursdays at 4:30 pm, and are based on photos from our past horticultural tours. The next presentation, August 13, will show and discuss Mediterranean landscapes and gardens of Villefranche and a wonderful Japanese garden in Monaco. Everyone on this mailing list should receive weekly a note with the Zoom meeting number and password.

### Fall Horticulture Classes?

In the fall, I customarily offer one or two horticulture classes. This is a very different year, and I don't know when we will be able to offer classes that meet in-person. It is possible I could offer specific topics or a series of topics via Zoom, perhaps an hour per topic. If you have an idea or would like to offer any feedback, please send me an email, jfkarlik@ucanr.edu. I welcome your input. I don't see classes developing until October or later.

## Borers in Landscape Trees

Borers are most common type of insect problem in woody shrubs and trees in the landscape, and in deciduous trees in home orchards. Sap flow or sawdust-like frass are indications borers may be present. (Termites also produce frass, but do not feed on live wood.) There are a half-dozen common borer species with varying biology, but the predisposing factors for attack are similar. The common denominator for resistance is plant vigor, since borers cannot invade a healthy plant with good sap flow. Injury to plants through drought stress or sunburn may lead to borer attack. Plants that are overmature or declining in vigor may become susceptible, and some plant varieties (e.g. 'Hollywood' juniper) are inherently susceptible despite good management. Insecticide treatments are, in general, distant second or third choices in managing borers, and because of insect biology and chemical characteristics of currently registered materials, insecticides including systemic materials, are not effective in borer management in the landscape. This article attempts to summarize the common borer species and landscape plant hosts in the Kern County area, and does not consider forest pest problems due to bark beetles.

Borers are larvae of either beetles or moths. The adult lays eggs on the bark surface, and is often attracted to roughened bark that may be the result of injury. The eggs hatch and the larvae tunnel into phloem tissue. If wood is healthy, sap flow occurs and larvae are "pitched out," i.e., smothered by sap and expelled from the wood. If not, the larvae feed and go through successive molts, finally forming a pupa inside wood. After a time, the adult emerges from the pupal case and chews its way out of the plant—the holes seen from borers are the exits, not the entrances. Total time for a generation may be measured in weeks, months, or sometimes years, depending on the insect species and weather conditions.

Because borer larvae feed in phloem tissue—that's where the sugars are—and systemic insecticides tend to be xylem-transported, the lack of contact with the insect makes systemics ineffective. Also, sufficient concentrations of insecticide would be needed to reach the feeding larvae, a difficult proposition for systemic materials used safely. In the past, persistent (e.g., chlorinated hydrocarbon) insecticides such as lindane were sometimes applied to bark surfaces to try to interfere with entrance of larvae into wood. However, most borers have long egg-laying periods, so timing of insecticide applications was (and is) problematic. The persistence of the insecticide could sometimes compensate for the timing problem, but persistent insecticides often pose environmental problems and have been removed from the market. Therefore, insecticide treatments do not make sense considering both chemical properties and insect biology.

Borer management focuses on prevention. Careful tree species selection is a key, since some tree genera and species (willow, poplar) are quite susceptible to borer attack despite good management. Sufficient irrigation and protection from sunburn including use of white latex paint are important, especially for fruit trees. Sanitation in the form of removal of dead limbs and badly infested trees will also help. However, borer adults fly, so removal of infested wood in the landscape does not prevent invasion of a susceptible plant. Also, the resistance of a plant is more important than the proximity of a borer source. Borers do not reside in soil, so replanting trees in the same places is not a problem from that standpoint.

And now, a survey:

- Pacific flatheaded borer (*Chrysobothris mali*) is the larva of a buprestid beetle, and hence has a flat head. The adult makes D-shaped exit holes. It is often found in home fruit trees such as cherry, plum, peach, and nectarine that have been damaged from sunburn, drought-stressed, or are overmature. These fruit tree species often develop borer problems if the tree is more than 15 years old. Leaving trees without water, such as occurs if a property goes through foreclosure, often results in ruin of a home orchard. If borer damage is extensive the better course is to remove and replace fruit trees rather than trying to bring them back into vigor. Mimosa trees are susceptible if the wood on top of branches becomes sunburned. Improper pruning can lead to sunburn in these trees.

- Shothole borer (*Scolytus rugulosus*) adults are small buprestid beetles making exit holes the size of shot pellets, small and numerous. The common host range is home deciduous fruit trees, and damage occurs under conditions similar to that for Pacific flatheaded borer.

- Western poplar clearwing moth larvae (*Paranthrene robiniae*) are often found as borers in poplar and willow species. Most willow and poplar species are inherently susceptible to this insect despite sufficient irrigation. The larvae cause galls to be formed on small branches and swelling on trunks. Trees may coexist with the insect despite the damage, since both willows and poplars grow rapidly and can replace damaged tissue.

- *Phloeosinus* sp. is a small beetle whose larvae can cause extensive damage to cypress trees. Overmature or under-irrigated trees are susceptible.

- Carpentermoth (*Prionoxystus robiniae*) is often found in overmature 'Modesto' ash trees. The larvae are relatively large, and the exit holes may be ¼ inch in diameter. Dead wood and sawdust-like frass, the exit holes, and branch decline all accompany attack of this insect.

- Juniper twig girdler (*Periploca nigra*) is found in juniper stems that have been sunburned, and in susceptible varieties like *Juniperus torulosa* 'Hollywood.' This variety is now rarely planted, but older 10-20 ft plants may be found throughout Kern County.

- The eucalyptus longhorned borer has arrived in the Bakersfield area. The species responsible for the damage observed is probably *Phoracantha semipunctata* although a second *Phoracantha* species, *P. recurva*, arrived in Southern California in 1995. The adult stage of the insect is a beetle, called a longhorned beetle because the antennae are longer than the body of the insect. The beetle is black with a cream-colored zigzag band across its wing covers. The adult female lays eggs in groups of 3-30 under loose bark of eucalyptus trees where the eggs hatch, and larvae begin to chew their way into the outer phloem tissue, feeding and molting, until they are more than an inch in length. Larvae require about 70 days in trees to

finish feeding, and the entire lifecycle in summer takes about 3-4 months. The oval exit holes are 3/8 – 1/2 inch in diameter (long dimension of the oval). Eucalyptus branches or entire trees may be killed by this borer. Eucalyptus species differ in susceptibility with *Eucalyptus diversicola*, *E. globulus*, *E. nitens*, *E. saligna*, and *E. viminalis* susceptible; while *E. camaldulensis*, *E. cladocalyx*, *E. robusta*, *E.sideroxylon*, and *E. trabutii* are resistant. Signs that a tree is under attack include areas of peeling or missing bark, sawdust-like frass, concave troughs parallel to the limb surface, and exit holes in limbs.

References:

Dreistadt, S.H. 1994. *Pests of Landscape Trees and Shrubs: An Integrated Pest Management Guide*. UC Agriculture and Natural Resources Publication 3359, second edition.

Paine, T.D., Dahlsten, D.L., Millar, J.G., Hoddle, M.S., and L.M. Hanks. UC scientists apply IPM techniques to new eucalyptus pests. California Agriculture 55: 8-13.

## Management of Nutsedge in Turf

Nutsedge is an upright-growing, grass-like plant often found in landscapes and turf. It is not uncommon to see lawn areas, or even entire lawns, composed of nutsedge, since the plant spreads easily and handles mowing well. Control is difficult, and the best management strategy is to avoid introduction!

Although nutsedge is often called nutgrass, it is not a grass but rather is in the sedge family. Its shiny triangular stem is a reliable characteristic for identification. The two principal species, *Cyperus esculentus,* yellow nutsedge, and *C. rotundus,* purple nutsedge, are found in Kern County. Yellow nutsedge is more tolerant of cold conditions than is purple nutsedge, but purple is the more drought tolerant and difficult to control. The nutlets of yellow nutsedge are globe-shaped, smooth, brown, and found at the ends of rhizomes. They are reported to have an almond-like flavor. The leaves at the base of the flowering stem are as long or longer than the stem. Purple nutsedge can be recognized by that color on the inflorescence, and produces nutlets that are oblong, scaly, reddish, and appear as chains. They are reported to have a bitter flavor. The leaves at the base of the flowering stem are shorter than the stem.

In the spring, nutsedge plants sprout from tubers (nutlets, nuts) that overwinter in soil and are very resistant to drying and cold. The growing plant develops roots and underground stems (rhizomes) accompanied by tubers, which are thickened stems that act as food reservoirs. Flower clusters develop during the summer on unmowed plants, but seedlings are rarely observed. Rather, tubers that form at the ends of rhizomes are more important in its spread. One parent plant can give rise to numerous daughter plants by means of this underground spread.

Tubers can be spread during soil cultivation, in fill earth containing them, in topdressing materials, and in organic amendments. One of the frequent events for introduction has been the use of contaminated topdressing materials applied in autumn for overseeded ryegrass, including “weed-free” manure products, a claim California law does not require testing to verify. Many gardeners have switched other organic matter sources not containing soil, e.g. forest humus, or establish overseeded grass without mulch materials.

Why is nutsedge so difficult to control? It reproduces rapidly and is adapted to most soil conditions. Because nutsedge is not a member of the grass family, nor is it a broadleaf, it is not affected by most herbicides that are effective against either of these groups. Also, herbicides do not move into the mature tubers, and if the rhizome is killed the tuber remains to begin a new plant. Glyphosate (Roundup™, many other trade names), for example, does not work very well. In recent years, the herbicide halosulfuron (several trade names) has become available. Anecdotal experience suggests more than one application is necessary.

The best solution is still to prevent introduction of nutsedge.

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