

University of California
Agriculture and Natural Resources

Asian Citrus Psyllid is Spreading in California

In June 2013, we wrote about the Asian citrus psyllid (ACP) in UC IPM's *Retail Nursery and Garden Center News* (<http://www.ipm.ucdavis.edu/PDF/PUBS/retailipmnews.2013.jun.pdf>). At that time, ACP was mostly found in parts of Southern California. It has since been detected in multiple locations in the Central Valley and has been detected in the San Francisco Bay Area. Thus, the psyllid is established near, or threatening much of, California's commercial, nursery, and residential citrus (Figure 1).

Because ACP can transmit the bacterium causing the most devastating disease of citrus in the world, huanglongbing (HLB) or citrus greening, it is imperative that this insect pest be managed as effectively as possible (Figure 2). To keep the psyllid from spreading further by riding on plants, ACP host plants (citrus and close relatives such as orange jessamine and Indian curry leaf) in affected counties are under quarantine; they cannot be moved out of these quarantine areas. The box on page 2 has links to the quarantine areas.

We cannot stress strongly enough that retail nurseries and garden centers, residents, and maintenance gardeners can all play major roles in minimizing the spread of this pest and HLB. Please read the following guidelines to learn more about



M.E. Rogers, University of Florida

Figure 1. Asian citrus psyllid adult, and white wax tubules from yellowish nymphs.

what you can do in your store and what to tell customers.

Best Management Practices for Nursery and Garden Centers:

- Citrus trees are treated with insecticides when they leave wholesale nurseries. However, these treatments remain effective for only about three months. Ensure fast movement and turnaround of your citrus stock before trees become unprotected.
- Excessive watering can leach out soil-applied insecticides, so only water enough to wet the soil in pots.
- If possible, place trees inside a screened-in structure to protect them against psyllids. If not an option, take advantage of ACP's preference for sunny, warm conditions by keeping citrus and



S. E. Halbert, FDACS/DPI

Figure 2. Asymmetrical yellow mottling of leaves and odd shape and greening of fruit, symptoms of Huanglongbing (citrus greening).

other hosts under shade structures or even inside the store.

- As you are caring for and handling your citrus stock, carefully check the leaves and stems for psyllids. See the online resources in the box on page 2 for more photos and instructions on what to look for. If you see the psyllid, contact your County Agricultural Commissioner as soon as possible.
- Be sure your garden center or nursery sells or buys certified disease-free trees from a reputable source. Uncertified trees may provide the insects with a source of disease they can pass on to other trees.
- Learn more about ACP by taking an online course for nurseries and garden centers: Go to <http://class.ucanr.edu/> and look for "Nursery Courses".

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What to Tell Homeowners and Landscapers:

- Citrus trees sold within an ACP quarantine area will have a **blue or yellow tag** on them indicating they must stay within the quarantine area. Remind customers that they need to comply with quarantines in order to protect uninfested areas.
- Teach clientele to carefully check the leaves and stems for psyllids and disease symptoms whenever they are caring for citrus.
- If they suspect they have seen the pest, advise them to immediately call the CDFA Hotline 1-800-491-1899. CDFA personnel will tell the caller if they will be treating the reported trees or if the homeowner should manage the ACP population.
- Don't try to "prune out" a psyllid infestation on a tree. Citrus responds to pruning by production of new shoots that are highly attractive to the psyllid.

- If clientele are in an ACP-infested area, advise them to **handle green waste carefully**. Double bag pruning material before moving them offsite to prevent transporting ACP to new areas.
- Provide information about insecticides effective against psyllids and tips for application. See the UC IPM *Asian Citrus Psyllid* pest note link in the box at right.
- If clientele think they have seen the disease (see the link to pictures in the box), tell them to immediately call the CDFA hotline. CDFA personnel will take leaf samples to confirm infection of the tree by a biochemical test.
- Encourage customers to learn more by taking the online course about ACP and HLB in residential citrus: Go to <http://class.ucanr.edu/> then click on the "ACP & HLB" link under "Master Gardener Courses."

Be vigilant and help to protect California's citrus trees!

See these websites for more information:

- UC IPM *Asian Citrus Psyllid* pest note: <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74155.html>
- Photos of the psyllid and disease: <http://www.CaliforniaCitrusThreat.org> or <http://www.PeligranCitrusenCalifornia.com>
- See current quarantine maps and learn about quarantine rules at: http://www.cdfa.ca.gov/plant/pe/interiorexclusion/acp_quarantine.html
- ACP distribution map in California: http://ucanr.edu/sites/ACP/Distribution_of_ACP_in_California/
- Online courses: <http://class.ucanr.edu/>

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Don't Grow Crazy — An Update on California's PlantRight Program

Choosing the right plant for the right place is a key element in protecting California's rich natural ecosystems. When used appropriately, plants offer us nourishment, beauty, sanctuary, and habitat; but some plants may have adverse environmental consequences.

Since 2005, PlantRight has worked with a diverse alliance of stakeholders to address the problem of horticultural plants that become invasive in California (Figure 1). Run by nonprofit Sustainable Conservation, PlantRight tackles this important issue in a collaborative, voluntary, and science-based fashion, focusing on solutions that make environmental and economic sense.

We first shared information on PlantRight's programs in the June 2012 issue

of UC IPM's *Retail Nursery and Garden Center IPM News*. We are pleased to give you an update on several developments that have happened since then:

Revised Plant List: After a year-long review, PlantRight's plant list of suggested alternatives to known horticultural invasive plants has been updated for the second time. You can find the 2015 version online at www.plantright.org/sites/default/files/pdfs/2015-plantright-statewide-list_v1.pdf.

Retail Nursery Partnership: PlantRight is seeking to partner with retail nurseries across the state to promote environmentally responsible gardening. Stores pledge not to sell any invasive plants from PlantRight's list (10 species) and receive staff training, communications materials, and access to promotional signage and other



O. Perez

Figure 1. Periwinkle (Vinca major) is a fast-growing, competitive plant that forms dense mats of growth.

promotional opportunities, all for free. More information is available online at www.plantright.org/retail-nursery-partnership, including a full list of existing PlantRight partners.

Continuing Education: A free continuing education (www.plantright.org/continuing-education) module about invasive

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Controlling Rats and Mice

Norway and roof rats, as well as house mice, can be commonly found in urban and rural homes. Many rodents, particularly house mice, enter structures during the winter months. Rats (Figure 1) and mice (Figure 2) can cause damage resulting in large economic losses and are also known to pose health risks to people.

With the implementation of recent legislation nationwide restrictions on rodenticide use have become much tighter. In California, pesticides registered for use against rodents fall into three categories:

- first generation anticoagulants (FGAR),
- second generation anticoagulants (SGAR), and
- non-anticoagulants.

Traditionally, both categories of anticoagulants were available for general purchase and use (including do-it-yourself residential use) to control rats and mice in and around homes. However, the new rules ban the sale of SGARs to those without professional licenses. SGARs can now only be sold by licensed dealers and purchased and used by licensed pesticide applicators in and around homes. Although SGARs are considered to be more effective when it comes to controlling rodents since they work with only a single feeding, SGARs persist in target rodents significantly longer than FGARs. Because SGARs can concentrate and persist in the tissues of rodents for a long time, this can negatively affect nontarget animals that may consume the rodents, making SGARs significantly more toxic to nontarget wildlife.

As reported in UC IPM's September 2011 issue of the *Retail News*, although the chemical options for effective and safe rodent control have been reduced, there are still many options for residents to efficiently control rat and mouse outbreaks. It is extremely important to be proactive, rather than reactive, when it comes to rodent control.

Exclusion is the most successful and permanent form of house mouse control and

can also be effective when it comes to controlling rats. Advise customers to rodent proof their homes by eliminating gaps and plugging and/or covering openings both inside and on the exterior of homes.

Habitat modification is another important method for managing rats and mice. Keep all outdoor margins of your property (fence lines, hedges, side of house, etc.) clean. Be sure to eliminate potential sources of food, water, and harborage for rats and mice; this includes removing extra food sources and covering trash cans.

Trapping can be a very effective way of managing rats and mice. Rats tend to keep close to the edges of buildings, whether inside or outside. To maximize trap success, set and place traps in the correct position as shown in Figure 3.

Many rodenticides are still available for general retail purchase for use in and around the home. Products containing FGARs and the non-anticoagulant bromethalin are available for purchase to help manage rats and mice. These products must be sold with a bait station and must be used according to the label. Most labels require that the bait is not applied further than 50 feet from a building.

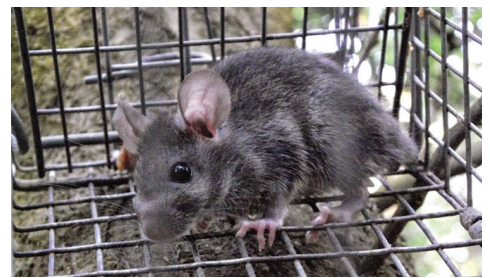
Remember, rats and mice are a health and safety risk. They are vectors of several diseases and host many parasites, so carcasses from traps or those that die from consuming bait should be handled only with latex or nitrile gloves and disposed of by placing them in plastic bags and putting them in the trash.

As with any pest, correct identification is critical before taking any control measures. Visit the UC IPM website at

<http://www.ipm.ucdavis.edu/PMG/menu.vertebrate.html> to see pictures, illustrations, and concise information on rats and mice. Information on rats and mice is also available in Spanish at <http://www.ipm.ucdavis.edu/QT/qtindexsp.html>.

For more information about rodenticide restrictions, see the EPA's rodenticide website at <http://www2.epa.gov/rodenticides>.

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N. Quinn, UC IPM

Figure 1. Roof rat in live capture trap.



R. E. Marsh, UC

Figure 2. House mouse.

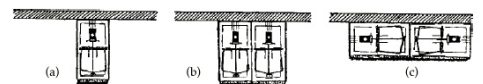


Figure 3. Placement of snap traps: (a) single trap with trigger next to wall; (b) the double set increases your success; (c) double set placed parallel to the wall with triggers to the outside.



This blog provides a one-stop site for UC IPM news related to pests of homes, gardens, landscapes, and structures. We post articles from our newsletters as well as announce new and revised Pest Notes and other new educational materials or activities of interest to urban and residential audiences.

View or subscribe to the blog at: ucanr.edu/blogs/ucipmurbanpests/

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plants and the PlantRight program is now available online for avid gardeners, landscape professionals and those in the nursery trade. The program offers individuals with a range of existing knowledge an opportunity to contribute towards solutions to the problem posed by horticultural invasive plants. For instance, graduates can join PlantRight's new "Ambassador" program and gain access to resources for sharing this information with local nurseries, garden groups, and others. The process takes less than one hour to complete and has been approved for a CCN Pro CEU credit.

Spring Nursery Survey: Thanks to the dedication of more than 120 UC Master Gardener volunteers last spring, PlantRight's 2014 survey was a huge success. Drawing from data collected at 226 stores in 35 counties across the state, PlantRight saw a decline in the availability of invasive plants from its original list, from around

30% between 2011 and 2013 down to 19% of stores surveyed in 2014.

Driving this positive change was a large decrease in the availability of big leaf periwinkle (*Vinca major*), dropping from 17% between 2011 and 2013 to 9% of surveyed stores in 2014. However, the newly listed emerging invasive Mexican feathergrass (*Nassella tenuissima*) (Figure 2) increased in prevalence from 27% in 2013 to 38% in 2014. A comprehensive report and simplified fact sheet detailing the results can be found on PlantRight's survey website (www.plantright.org/sites/default/files/pdfs/plantright_2014surveyfactsheet.pdf).

Please note that PlantRight works in partnership with the nursery industry and only releases aggregated data that protects the identity of, and data from, the stores that are surveyed. These results act as PlantRight's guiding light, shaping

its strategy and helping it move forward collaboratively with the nursery industry.

To learn more about PlantRight's efforts and resources, visit www.plantright.org.

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New Zealand Government

Figure 2. Mexican feathergrass (*Nassella tenuissima*) invading a hillside in New Zealand.

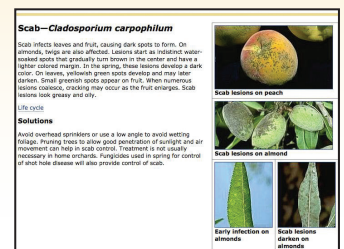
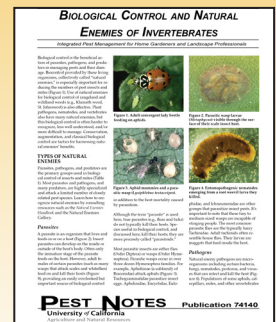
New and Updated Resources

Biological Control Pest Note Updated

Learn more about how natural enemies are an important component of any IPM program and how you can identify, encourage, and protect beneficials in the garden and landscape in the recently revised pest note *Biological Control and Natural Enemies of Invertebrates* at <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74140.html>.

Plant Disease Index

We've made it easier to find solutions to plant diseases in our new Plant Disease Index page. Users can access close to 300 diseases on flowers, fruits, trees and shrubs, lawns, and vegetables. Information can be searched by host, disease common name, scientific name, and disease type. See the index at <http://www.ipm.ucdavis.edu/PMG/menu.disease.html>.



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For more information about managing pests, contact your University of California Cooperative Extension office listed under the county government pages of your phone book, or visit the UC IPM Web site at www.ipm.ucanr.edu.

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