

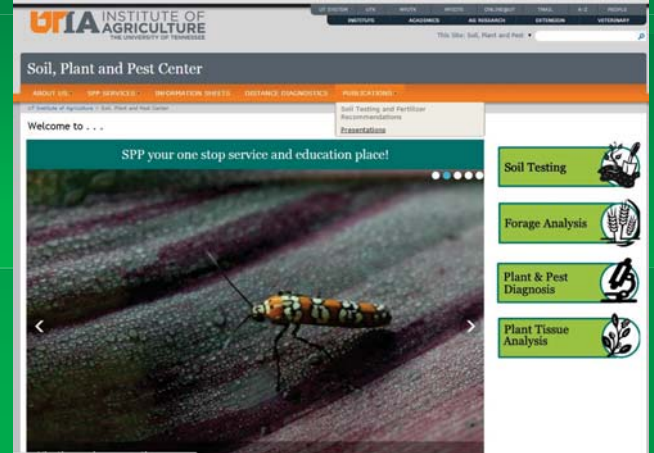
Invasive Insect Threats to Trees



Frank A. Hale, Ph.D.
Professor
Entomology and Plant Pathology



Find PDFs of presentations and links to new publications at the Soil Plant and Pest Center web site under publications and presentations



Crape Myrtle Bark Scale *Eriococcus lagerstroemia*



Images courtesy of M. Merchant, Texas A&M AgriLife Extension



Crape Myrtle Bark Scale

New fact sheets at: http://www.uaex.edu/Other_Areas/publications/pdf/fsa-7086.pdf
And <http://www.agrilifebookstore.org/product-p/eht-049.htm>



Image courtesy of M. Merchant, Texas A&M AgriLife Extension

Crape Myrtle Bark Scale

Peeled back to show eggs



Overwintering nymphs

2-18-16



Nymph or young adult exuding wax filaments

2-18-16



Adult Female Ventral Lateral View

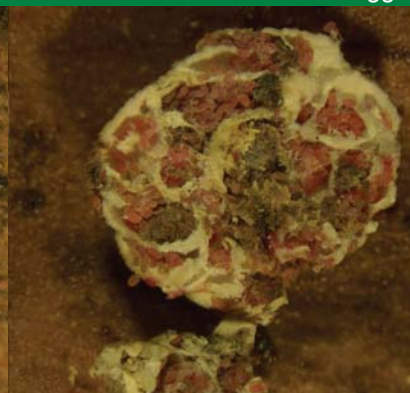
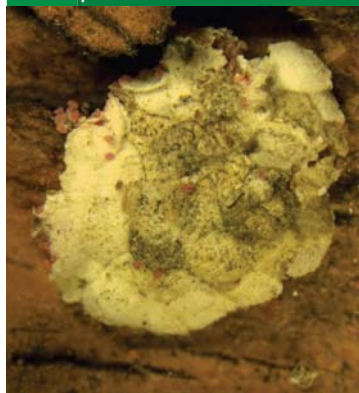
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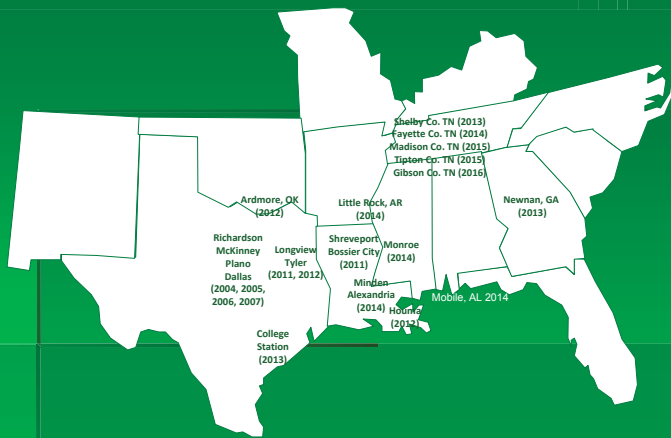
Crape Myrtle Bark Scale (July 30, 2014, Germantown, TN)

Top or dorsal view

Underside or ventral view with eggs



Crape Myrtle Bark Scale Populations - USA



In 2014, CMBS was also detected in Bernalillo County, New Mexico. In March 2015, CMBS was found in south Mississippi.



Japanese Maple Scale

- Very small, white body
- Generalist – attacks numerous species!
 - cherry, dogwood, *Euonymus*, holly, hornbeam, *Itea*, lilac, linden, magnolia, maple, pyracantha, privet, *Prunus*, redbud, serviceberry, *Stewartia*, *Styrax*, yellowwood, & *Zelkova*



Image courtesy of A. Fulcher, UT

Japanese Maple Scale:

An Important New Insect Pest in the Nursery and Landscape

Amy Fulcher, Assistant Professor, Plant Sciences
Frank Hale, Professor, Entomology and Plant Pathology
and Mark Halcomb, Area Specialist, UT Extension

Introductory Information

A relatively new pest has been identified in Tennessee and several other states that is proving to be a difficult pest to control. The insect is Japanese maple scale (*Lepidoleucaspis japonica* Cockerell), and, unfortunately, it infests many more plant species than just Japanese maple. The insect's

Appearance

Japanese maple scale (JMS) is a small, oyster-shaped, armored scale (Figure 1). The waxy coating over the body is white, but the female, eggs and crawlers (the immature stage) are lavender (Figures 2 and 3). Scales are most commonly found on bark but can be found on leaves, in particular, leaves of

- Two generations per year in KY, TN and MD
- East coast, south of us, and spreading
- While this pest has been in many states for years it has recently become an emerging nursery pest (KY in 2006, TN in 2010)
- New on-line fact sheet at:
<https://utextension.tennessee.edu/publications/Documents/W277.pdf>

Adult Female (Dorsal)



Granulate Ambrosia Beetle (GAB)



Attacks trees in late winter to early spring



Decision Guide for Applying Spray Treatments Against Ambrosia Beetles

- Ethyl alcohol baited traps are used to detect the late winter or early spring flight
- The need to use an insecticide spray is greater if the beetles have been caught in the traps and the trees have not broken dormancy



A New On-Line Pest Fact Sheet



SP 742

UT Extension

Camphor Shot Borer: A New Nursery and Landscape Pest in Tennessee

<https://utextension.tennessee.edu/publications/Documents/SP742.pdf>

Camphor Shot Borer, *Cnestus mutilatus* (Blandford)

- First detected in the U.S. in Okibbeha County, Mississippi in 1999
- This Asian beetle has also been detected in Alabama, Florida, Georgia, Louisiana, North Carolina, Ohio, Tennessee, Texas, West Virginia and possibly other states
- Adult beetles are attracted to alcohol baited traps



Camphor Shot Borer An Ambrosia Beetle

- Has become problematic in a few nurseries
- The beetles prefer to attack smaller branches (0.8 inches or less)



Makes a relatively large 2 mm shot hole in bark (a 5/64 inch drill bit fits into hole)

Camphor Shot Borer

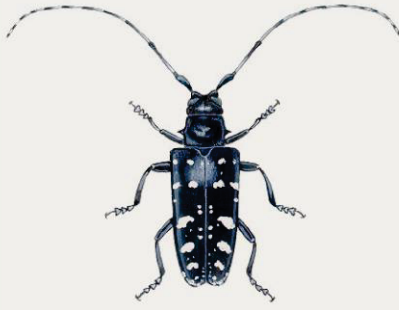


Makes a relatively large 2 mm shot hole in bark (a 5/64 inch drill bit fits into hole)



WHERE IS IT? SPOT IT REPORT IT LEARN MORE GET INVOLVED

SPOT IT



The adult ALB (Asian Longhorned Beetle) is a distinctive-looking insect with the following unique characteristics:

- 1 inch to 1 ½ inches in length
- Long antennae banded with black and white (longer than the insect's body)
- Shiny, jet black body with distinctive white spots
- Six legs
- May have blue feet

While the ALB may appear threatening, it is harmless to humans and pets.

<http://asianlonghornedbeetle.com/spot-it/>

Asian Longhorned Beetle

- Larvae chew into the tree doing extensive tunneling damage while adults exit the tree leaving it riddled with round holes and oozing sap
- While tree removal is used extensively for infested trees, imidacloprid soil or trunk injection is used on an area-wide basis to lower the populations of foraging adult beetles



WHAT ARE THE SIGNS?

Dime-sized exit holes

Shallow scars in bark

Sawdust-like material around tree

Dead branches

The beetle



http://beetlebusters.info/wp-content/uploads/2013/03/about_alb_infographic.pdf

KNOW THE SIGNS



In the summer, the adult beetles chew their way out, leaving dime-sized, 1/4 inch or greater, perfectly round exit holes.

<http://asianlonghornedbeetle.com/spot-it/>

Asian Longhorned Beetle Larva



Image courtesy of Thomas B. Denton, New Jersey Department of Agriculture, Bugwood.org

Asian Longhorned Beetle Host Trees

More than 80,000 trees lost so far

- Ash
- Birch
- Golden rain tree
- Hackberry
- Poplar
- Willow
- Horse chestnut
- Maple
- Mountain ash
- Elm
- Katsura
- London plane tree

http://beetlebusters.info/wp-content/uploads/2013/03/about_alb_infographic.pdf

Spotted Lanternfly Found in Pennsylvania



Image courtesy of L. Barringer, Penn. Dept. of Agri.

Spotted Lanternfly

Has potential to greatly impact grape, fruit tree (apples, peaches), plant nursery, and timber industries



Courtesy of H. Raguza, Pennsylvania Dept. of Agri.

Spotted Lanternfly Nymphs

This planthopper, native to China, India and Viet Nam, has been introduced to Japan and South Korea

It has been documented on over 70 species, 25 of which also occur in Pennsylvania



Images courtesy of Park et al. 2009

Spotted Lanternfly Egg Masses: Tree of Heaven is a Preferred host for adults

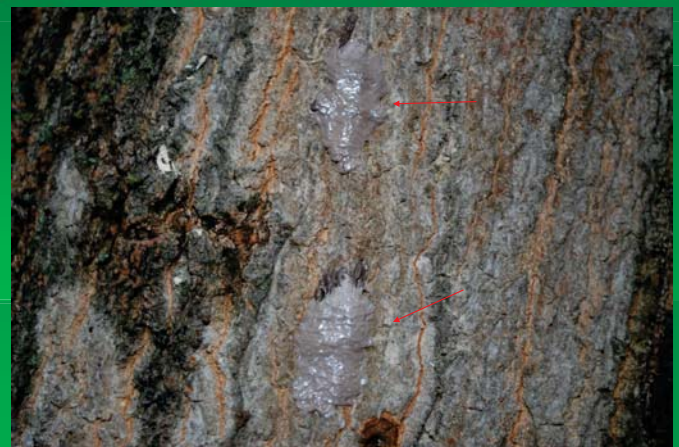


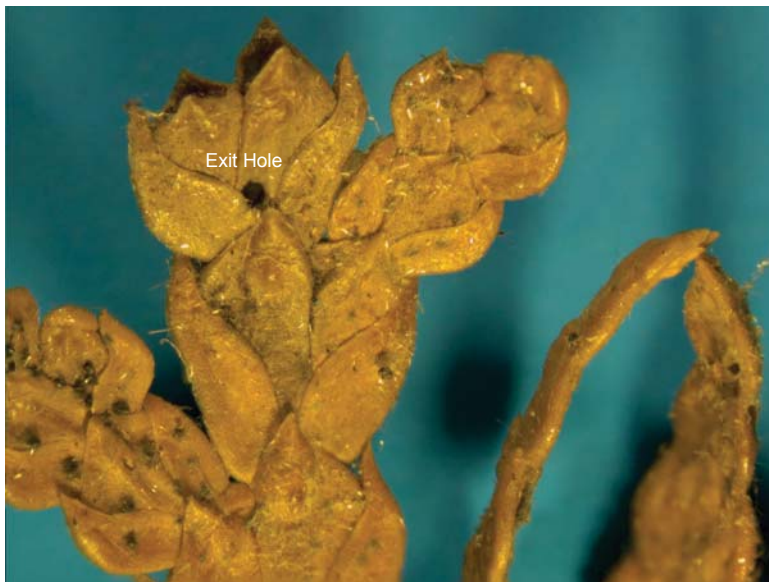
Image courtesy of H. Raguza, Pennsylvania Dept. of Agri.

Arborvitae Leafminer Top Side Damage



Underside of Foliage with Exit Holes





Arborvitae Leafminer

- Tiny caterpillars (1/8 inch long) found infesting arborvitae in Sullivan County in 2015 and Davidson County in January 2016
- One generation per year with larvae inside the mines most of the year
- Moth (3/8 inch wingspan) emergence unknown for Tennessee (possibly in mid-to late May)

Arborvitae Leafminer moths



Emerald Ash Borer

- First U.S. find in Detroit, Michigan in 2002
- Thought to have been there 6 to 10 years before being discovered
- Subsequently, eradication was attempted but failed

<http://arnprior.ca/live/emerald-ash-borer/>



Monitoring for Emerald Ash Borer Adults Using Purple Sticky Traps



Emerald ash borer adult image courtesy of The Ohio State University

Infestation expanding from East Tennessee into Middle Tennessee

Ash Trees Killed by EAB

First found in Michigan in 2002
(Image taken 9-11-2003)



Southwest Ohio
2013



Knox County TN
2010



Emerald Ash Borer Larvae



D-Shaped Exit Holes



Blonding by Woodpeckers



Thousand Cankers Disease of Walnut, *Geosmithia morbida*



Images courtesy of Alan Windham, UT Extension

Geosmithia morbida growing in gallery

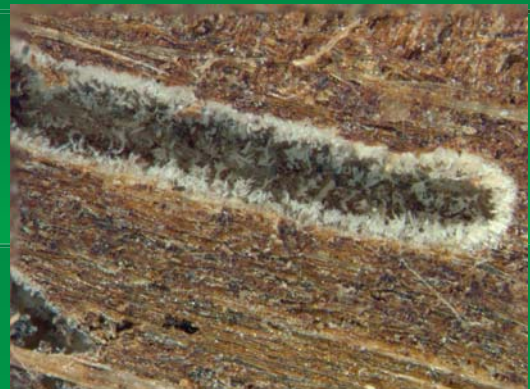


Image courtesy of K. Nix, UT

Walnut twig beetle, *Pityophthorus juglandis*, is the vector of thousand cankers disease of walnut



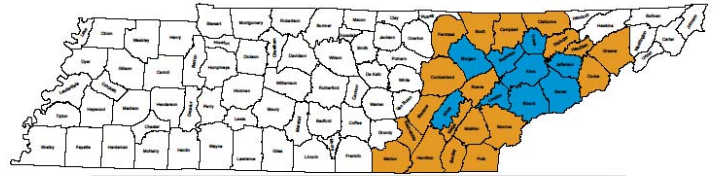
Larva



Adult

Larval image courtesy of K. Nix, UT

Tennessee Thousand Cankers Disease Quarantine and Buffer Regulated Areas



Thousand Cankers Disease Quarantined Areas

Anderson, Blount, Jefferson, Knox, Loudon, Morgan, Rhea, Sevier and Union counties.

Citizens in these counties cannot move walnut tree products and hardwood firewood outside the quarantined counties.

Thousand Cankers Disease Buffer Regulated Areas

Bledsoe, Bradley, Campbell, Claiborne, Cocke, Cumberland, Fentress, Grainger, Greene, Hamblen, Hamilton, Marion, McMinn, Meigs, Monroe, Polk, Roane, Scott and Sequatchie counties.

Citizens in buffer counties/areas can move walnut tree products and hardwood firewood within buffer counties, but not outside. Product can also be moved into a quarantine county, but not taken back out.



November 21, 2014

<http://tn.gov/agriculture/regulatory/tcd.html>

Questions?



<https://extension.tennessee.edu/publications/Documents/PB1595.pdf>

<https://extension.tennessee.edu/publications/Documents/PB1594.pdf>

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