

Baystate Roads Program

Local Technical Assistance Program (LTAP)

Tech Notes



Tech Note #51

ASIAN LONGHORNED BEETLE

Q. What is an Asian longhorned beetle?

A. The Asian longhorned beetle (ALB) is a large, bullet-shaped beetle about 1 to 1.5 inches long. Shiny and black with white spots, it has exceptionally long antennae that are banded with black and white. The elongated feet are black with a whitish-blue upper surface. Although its size and large mandibles cause it to appear threatening, the beetle is harmless to humans and pets. In the larval stage, the white, worm-like beetles bore into live trees causing sap to flow from wounds and frass (sawdust and other insect waste) to accumulate at tree bases. Left undetected, the ALB will girdle the vascular system of trees eventually causing the tree to wither and die.

Q. Why should the United States be concerned?

A. The ALB is a serious threat to U.S. trees. ALB larvae bore deep into deciduous hardwood trees such as maple, birch, horse chestnut, poplar, willow, elm, and ash, eventually killing them. Damage from infestations in Massachusetts, New York, Illinois and New Jersey has resulted in the removal of thousands of trees and costs to State and Federal governments in excess of \$168 million since the discovery of the infestations in 1996. It has the potential to wreak havoc nationwide, affecting such industries as lumber, maple syrup, nursery, and tourism and accumulating more than \$41 billion in losses.

Q. How did the beetle get here?

A. ALB, which is primarily found in China and areas of Korea and Japan, probably hitchhiked here in

Asian Longhorned Beetle WHAT TO LOOK FOR:



solid wood packing material (SWPM), such as crates and pallets, from China.

U.S. trade with China has increased exponentially over the past decade. In 2000, imported commodities from China to the United States exceeded \$100 billion. As a result, the risk of this plant pest as well as the potential of other invasive insects, plant diseases, and weeds being introduced into the United States has increased as well.

Q. Can the United States stop importing goods from China to avoid these pests?

A. No. Instead, the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) works with the Chinese authorities to take steps to prevent future infestations of ALB and similar pests, including restrictions on SWPM from China and imposition of treatment requirements for these materials before they arrive in the United States.

Q. What is being done to prevent further infestations from occurring?

A. In 1998, APHIS published an interim rule immediately requiring that all SWPM from China be completely free of bark and live plant pests and treated with either preservatives, heat, or fumigation prior to arrival in the United States. Effective September 16, 2005, all wooden packaging materials (e.g., pallets, crates, box-

es, and dunnage) imported into the United States must be heat treated or fumigated with methyl bromide and marked with the International Plant Protection Convention (IPPC) logo and appropriate country code designating the location of treatment.

APHIS analyzes threats to U.S. agriculture and develops rules for importing commodities based on the risks they present. On a national scale, APHIS provides the U.S. Department of Homeland Security inspectors at U.S. ports of entry with pest alerts, outreach material targeting importers, and the necessary training to increase overall vigilance during import inspections.

These inspectors form the first line of defense against exotic plant and animal pests and diseases. All international passenger baggage, cargo, packages, mail, and conveyances are subject to inspection upon entry into the United States. APHIS has worked with industry, cooperators, and the public to heighten awareness of the ALB to help increase detection. APHIS is also conducting thorough surveys in high-risk areas where potentially infested cargo has been imported.

The tremendous volume of imported cargo makes it impossible to visually inspect every item for evidence of an infestation; however, more than 98 percent of imported SWPM is in compliance with current regulations. Noncompliant material is immediately quarantined and promptly shipped back to the exporting country until compliance has been met. In many cases, the infested packing material must be separated from the imported products and destroyed.

When an ALB is found in cargo at a port of entry, APHIS identifies the cargo shipment's intended destination, and officials inspect the storage facility and previous shipments that may have been imported from the same area. Surveys are conducted in the vicinity around warehouses with infested cargo to determine if beetles have escaped into the environment.

More on Federal regulation and related SWPM compliance can be reviewed by visiting www.aphis.usda.gov and clicking on Wood Packing Materials under "Hot Issues."

Q. In addition to portions of the Greater Chicago area, New York City/Long Island areas and Jersey City, NJ, where else has ALB been found?

A. Most recently this invasive exotic pest has invaded the City of Worcester and parts of Holden, Shrewsbury, Boylston, and West Boylston (see DCR map on page 4). The Massachusetts Department of Conserva-



tion and Recreation (DCR), Department of Agricultural Resources, and City of Worcester are partnering with the U.S. Forest Service and USDA APHIS-PPQ to coordinate a management plan to eradicate this species in the Commonwealth. First steps include a survey of the area to determine the extent of the infestation, and regulatory management to prevent movement of host trees and wood out of these areas. Infested trees will need to be removed and destroyed, and susceptible host trees may need treatment to prevent further infestation.

The ALB was first discovered in August 1996 in Brooklyn, NY and in 1998, in Chicago. In the past decade beetles have been found inside warehouses in California, Florida, Illinois, Indiana, New Jersey, Michigan, New York, North Carolina, South Carolina, Florida, Washington, Wisconsin, Texas, Alabama, Ohio, and Pennsylvania.

Q. How does APHIS survey for these pests?

A. In the absence of a trap, APHIS and cooperating State inspectors must tackle the difficult task of completing a survey of beetle-infested areas by examining individual trees for signs of beetle damage. USDA's Forest Service and Agricultural Marketing Service contribute resources to APHIS' tree-inspection effort. APHIS also contracts with local tree service professionals for inspection services.

Inspectors search for exit holes, egg deposit sites, piles of frass at the base of infested trees and in branch crotches, and sap leaking from wounds in the trees. Unseasonable yellowing or drooping of leaves when the weather has not been especially dry are also signs that the ALB may be present. Leaf symptoms show up when the immature insects, growing inside the tree, have bored through tissues that carry water from tree roots and nutrients from the leafy canopy above.

Once the pest has sufficiently disrupted those pathways, the infested branch or the entire tree will die.

Inspectors use innovative methods to conduct ALB surveys. Trained professionals perform aerial tree inspections using bucket trucks, and Forest Service and State smokejumpers (forest firefighters) climb trees in difficult areas. Many interest groups and organizations participate in ground observations; however, anyone with a keen eye and set of binoculars can contribute to this effort. Town tree wardens in Massachusetts have the authority to destroy trees that have been infected.

Q. Is there an effective treatment to control or destroy these pests?

A. Although treatments exist to control ALB-infested cargo, the ALB is not easily controlled once it is introduced into the environment. Because the majority of the beetle's life is spent deep within the heartwood of host trees, it is difficult to control using contact insecticides. Although costly and undesirable, the only assured method of eliminating the beetle is to cut and chip or burn infested trees and replace them with nonhost species.

The use of the insecticide imidacloprid has shown to decrease beetle populations and help in preventing the spread of ALB and has become an additional effective control tool in the eradication of this pest. Imidacloprid is a systemic insecticide that, when applied directly into the trunk of a tree or the soil near a tree, moves quickly upward into stems, twigs, and foliage where the beetles would be expected to feed and lay eggs.



Research to attain additional survey and control options remains ongoing. Scientists continue to experiment with new chemicals, application methods, bio-control methods, and devices to detect ALB-infested trees.

Q. How should firewood be handled?

A. Moving infested firewood spreads this insect to new locations; it is important to remember that this pest can fly one-quarter mile. On September 8, 2008, the commissioner of DCR in Massachusetts issued an amended order that strictly prohibits the moving, carrying, transporting or shipping of any regulated articles outside the Affected Area until March 30, 2009. Therefore, all wood is quarantined within the Worcester Affected Area of 63 square miles but can still be harvested, cut, moved, carried, burned or transported within its boundaries. Movement of all regulated ALB material outside the quarantined area must be chipped to less than 1/2" in two dimensions. *(See DCR Commissioner Directive under the amended order to suppress and control nuisance conditions and regulated articles.)*

What is being done to replace damaged trees?

A. USDA's Forest Service works with State and local governments to reforest communities where the



beetle has forced authorities to cut down trees. Preferably, for each tree destroyed, a new one is planted, using a species not susceptible to the ALB.

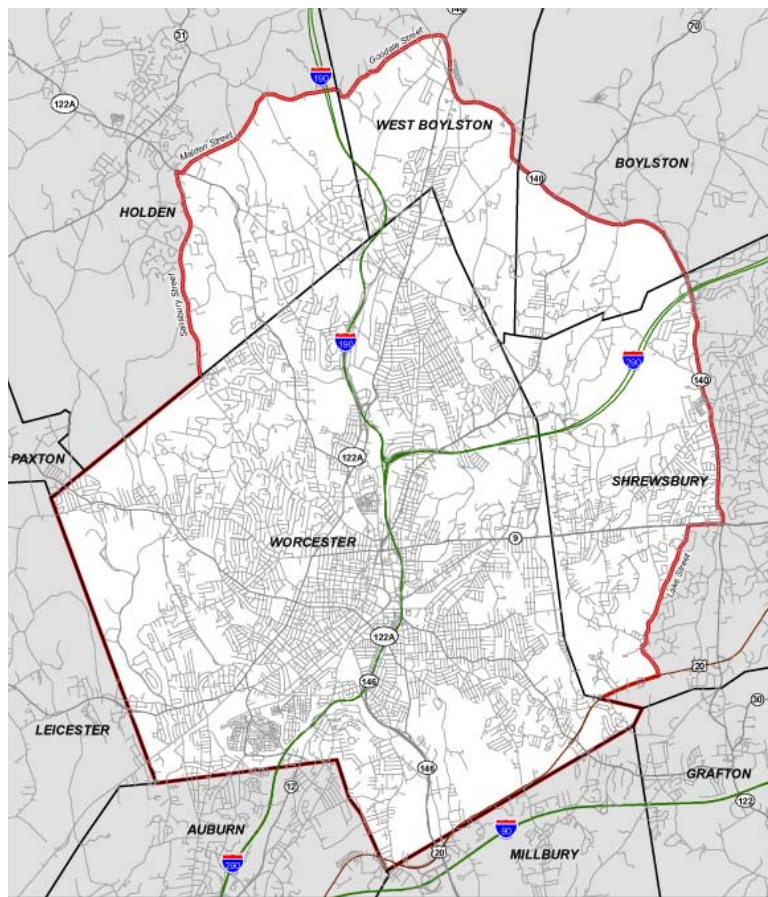
Q. What can homeowners do to prevent ALB from attacking their trees?

A. Homeowners can assist officials in preventing an infestation in several ways. By cooperating with officials, allowing them to survey trees, removing ALB-infested trees along with high-risk exposed trees, and treating non-infested susceptible host trees, homeowners can help prevent further devastation. When planting yard or ornamental trees, homeowners within regulated areas should select varieties that ALB does not prefer. Host trees (species the ALB favors) include maple (Norway, sugar, silver, and red), birch, horse chestnut, poplar, willow, elm, ash, mimosa, hackberry, sycamore, mountain ash and London plane. Homeowners should adhere to current quarantines and regulations in their area concerning the movement of host material, firewood, and other wood products.

Homeowners may also visually inspect tree health by keeping a close watch for signs of distress that may occur as the result of an infestation. Indicators of distress may include dead leaves during normal seasonal conditions, excessive sawdust buildup near tree bases and tree crotches, excessive sap oozing from trees, and random holes in trees measuring approximately three-eighths of an inch or about the diameter of a dime.

If any signs or symptoms of an ALB infestation are observed, immediately contact the State Department of Agriculture, County Extension office, or USDA-APHIS office. Residents can also submit a report with photos through the online link at <http://massnrc.org/pests> or call the **Pest Hotline at 866-702-9938**. Any specimen should be placed in a container and frozen. Do not disturb any infested trees or move any suspicious wood.

The Massachusetts DRC web site provides updated news, contacts, and training session information. The most recent map of infestation is posted along with seminars offered by the Tree Wardens and Foresters Association.



**Regulated Area to Suppress and Control
the Asian Longhorned Beetle**

September 28, 2008

**White area encompasses 63 square miles
City of Worcester and parts of Holden, Shrewsbury,
Boylston and West Boylston**

Resources:

“Asian Longhorned Beetle: Questions and Answers,” APHIS, U.S. Department of Agriculture, Washington, D.C., 2007

<http://massnrc.org/pests>