National Pest Alert

Asian Longhorned Beetle

Anoplophora glabripennis

Origin and Distribution

The Asian longhorned beetle (ALB), native to China and Korea, poses a serious threat to U.S. urban and forest trees. ALB was first discovered in the United States in 1996 on Long Island, New York. There have been five infestation of ALB in the U.S. with three infestations still ongoing and two of the infestations successful eradicated (see timeline at right for locations of the infestations). As ALB can be transported in untreated wood products such as wood packing materials or firewood, it is vital that we all be aware of this insect and immediately report anything suspicious to local authorities (land-grant university, department of natural resources, USDA, etc).

Description

The shiny black, bullet-shaped adult is about 1 to 1.5 inches long with irregular sized and shaped white spots. Its black-and-white banded antennae are usually longer than its body. The elongated feet are black with a whitish-blue upper surface. Adults can be seen from late spring through fall depending on climate and geographical location. Although its size and large mandibles may cause it to appear threatening, the beetle is harmless to humans and pets. Adult females use their mandibles to chew a pit and then deposit an egg into it. Each female lives several weeks and will lay up to 90 eggs. The larva tunnels under the bark, eventually tunneling deep into the tree. Larval tunneling produces frass that consists of feces and wood fibers resembling sawdust. The large, light cream-colored larva that lives entirely within the wood of trees is the most damaging stage as they consume living wood disrupting the flow of nutrients within the tree. Typically, the life cycle of the ALB is completed in one year.

Kenneth R. Law, USDA, APHIS, Plant Protection and Quarantine

Asian longhorned beetle pupa.

Damage and Host Range

The Asian longhorned beetle larvae bore deep into healthy deciduous hardwood trees. Trees categorized as preferred hosts for ALB include maple, boxelder, horsechestnut, buckeye, willow and elm. In addition there are a number of occasional or rare hosts such as mimosa, katsura tree, ash, poplar, London plane tree, and European mountain-ash. Large, round exit holes, approximately 3/8 of an inch in diameter, located on trunks and branches of a living and healthy tree is an early sign of an ALB infestation. Although they feed on several tree species, maple are by far the most preferred host. Another early sign of an infestation is oviposition pits. An oviposition pit is a wound in the bark made by a female beetle in which she lays her eggs. These ovipostion pits can weep sap.

An infested tree may have sudden branch breakage as the feeding by the larvae

Joe Boggs, The Ohio State University

Adult Asian longhorned beetle.

YEAR	LOCATION	CURRENT STATUS
1996	Long Island, NY	ongoing
1998	Chicago, IL	eradicated in 2008
2002	Jersey City, NJ	eradicated in 2013
2008	Worcester, MA	ongoing
2011	Tate Township, OH	ongoing

Timeline of ALB infestations and eradications in the U.S.

APHIS

NPDN National Plant Diagnostic Network

Western IPM Center

UC IPM

cdfa California Department of Food & Agriculture

USDA United States Department of Agriculture National Institute of Food and Agriculture

compromises the structure of the tree. Canopy wilting and dieback occurs when the larva damages tissues that transport water and nutrients to the leaves. ALB females often lay eggs on the same tree they emerged from leading to multiple generations damaging the same tree. Trees usually show signs of damage 3–4 years after the initial attack with tree death occurring in 10–15 years.

Economic and Environmental Impacts

Establishment of the Asian longhorned beetle in the United States could cause more damage than Dutch elm disease, chestnut blight, and gypsy moths combined by destroying millions of acres of hardwoods, including forest, park, and backyard trees. According to the United States Department of Agriculture, the beetle is a threat to lumber, nursery, and tourism industries, with the potential economic impact of more than $41 billion in damages. Due to the enormous negative impact ALB would have in the U.S. and the success of eradication projects this insect remains a highly regulated pest by USDA-APHIS. Once a tree is infested it must be removed and to date over 180,000 trees have been removed in infested areas in order to protect the forests and urban landscapes of the rest of the United States.

Photos by Joe Boggs, The Ohio State University.

ALB exit holes are 3/8 inch in diameter (a pencil easily fits inside) and are often near oviposition pits. Oviposition pits are a small hole in the bark the female chews to lay her eggs in (right photo). Left photo shows old and new oviposition pits and adult exit holes.

Kenneth R. Law, USDA APHIS PPQ, Bugwood.org

ALB larvae leave tunnels as they consume the wood, these tunnels can be seen when bark is removed.

Photos by Joe Boggs, The Ohio State University.

In addition to large exit holes early signs of an ALB infestation include sap weeping from oviposition pits and broken limbs caused by larval feeding damage.

Early detection and reporting will help agencies to eradicate the pest and prevent its establishment.

Reporting a Suspected Asian Longhorned Beetle

If you find a beetle that you suspect is an Asian longhorned beetle, you should collect it and immediately report it to appropriate authorities. Place the pest in a glass jar, as the ALB adult is capable of chewing through plastic bags, and put it in the freezer overnight.

It is very important to note where you found the beetle. Record the following information for each sample collected: date; host plant; collector's name; phone number; collection location including state, county, and address or nearest intersection. Global positioning system (GPS) location information is useful, if available.

To report the finding, call your state department of agriculture, USDA APHIS Plant Protection and Quarantine, or National Plant Diagnostic Network (NPDN) Laboratory. Find your nearest NPDN lab at **www.npdn.org**.

For more information on the Asian longhorned beetle, visit the USDA-APHIS website at: **aphis.usda.gov/aphis/resources/pests-diseases/asian-longhorned-beetle**

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