



Forest Health

Notes



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Pest Watch: Asian Longhorned Beetle Found in Neighboring State

The Asian longhorned beetle (*Anoplophora glabripennis*) is currently not known to exist in North Carolina. This non-native invasive pest is native to China and Korea and was first found in the U.S. in Brooklyn, New York in 1996. Since then, it has been detected in other areas of New York, Illinois, Massachusetts, New Jersey, Ohio, and, in June 2020, South Carolina. In the U.S., it is known to attack 29 species of hardwood trees. It prefers maple and boxelder (*Acer*), but other known hosts include birch (*Betula*), willow (*Salix*), elm (*Ulmus*), horsechestnut and buckeye (*Aesculus*), mimosa (*Albizia*), ash (*Fraxinus*), and poplar (*Populus*).

IDENTIFICATION: How will I recognize the Asian longhorned beetle?



Early stage larvae (newly hatched) produce frass (resembles sawdust) and create small tunnels that are only visible when the bark is removed from the tree. **Late stage larvae** tunnel in the sapwood and create an oval entrance hole. They can grow up to 2 ½ inches in length and are a creamy white color. They have a brown “plate” on the first segment of the thorax. (Note: there are many native insects that have similar-looking larvae. Look for other indicators if only a larva is found.) Frass from feeding may extend from cracks in the bark. **Pupae** are present in chambers, which can only be seen when the bark is removed from the tree.



Adults of the Asian longhorned beetle are about ¾ to 1 ½ inches in length (excluding antennae). They are glossy black with irregular white spots on the wing covers. Antennae are as long or longer than the body with segments that alternate between white and black in color. Adults are present from June to October in the Northeast, but its life cycle in the South is unknown.

Images: Joe Boggs, Ohio State University, Bugwood.org



Eggs are milky white, flat, and about the size of a grain of rice. The eggs, along with the oval stains that they create, are only visible when the bark is removed. Eggs are deposited into egg-laying pits in the tree bark called **egg niches**. Females chew the niches, which are up to $\frac{3}{4}$ inch in diameter and typically orange in color. One egg is laid per niche. After a few weeks, the niches darken. Gnawing marks are present around the edges of the pits.

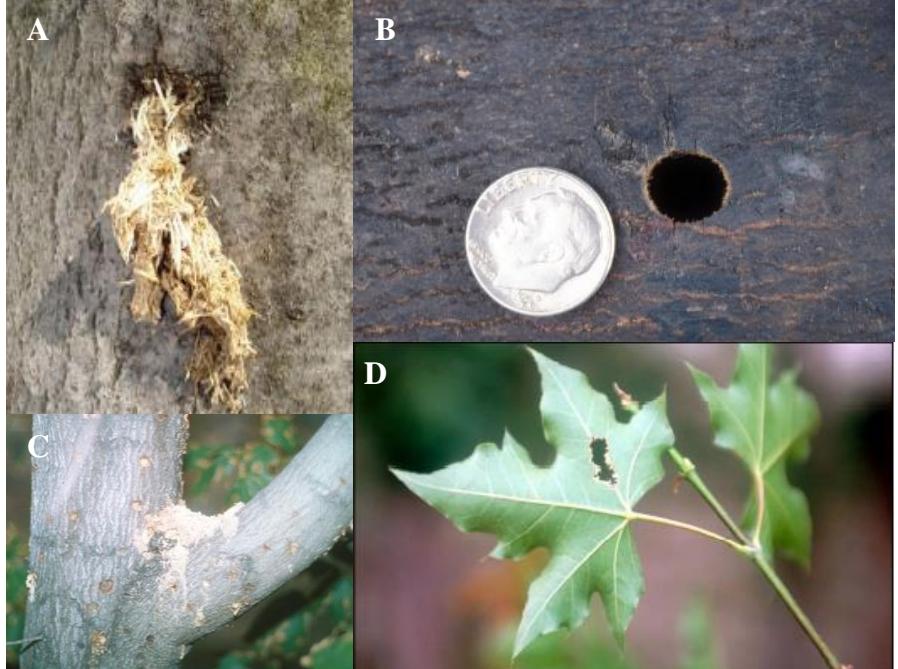
Images: Melody Keena, USDA Forest Service, Bugwood.org (left); Larry R. Barber, USDA Forest Service, Bugwood.org (right).

SIGNS AND SYMPTOMS: What clues does the Asian longhorned beetle leave behind?

When emerging adults tunnel out of the tree, they leave perfectly round exit holes $\frac{3}{8}$ to $\frac{5}{8}$ inch in diameter (B).

Egg niches on the bark of trees and frass from larval feeding can extend from egg sites or cracks in the bark (A). Often, frass will collect in branch crotches or at the base of the tree (C). Foamy sap may also be present around the egg-laying pits, which can attract bees, ants, and wasps.

Adult Asian longhorned beetles feed on leaves and bark of young twigs after emerging from the tree. They create jagged edges along leaf tissue, and they strip away outer tissue from twigs (D).



Other signs and symptoms include early fall coloration or drooping leaves, calluses or areas of missing bark, breakage of limbs or crown, cracks in bark, branch dieback, and exposed feeding galleries.

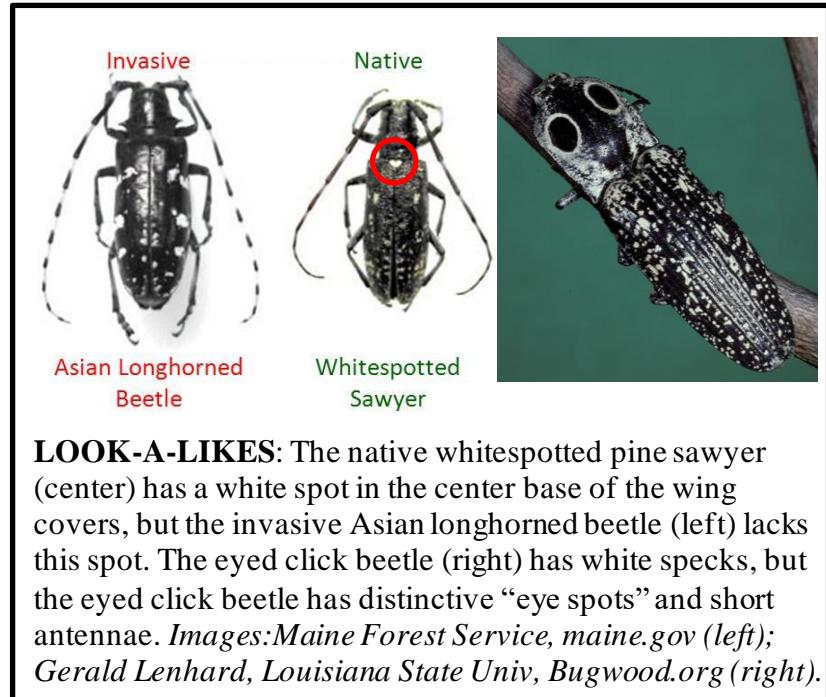
Images: Kenneth Law, USDA Forest Service, fs.usda.gov (top left); Daniel Herms, The Ohio State University, Bugwood.org (top right); Robert A. Haack, USDA Forest Service, Bugwood.org; Michael Smith, USDA Forest Service, fs.usda.gov (bottom right)

LOOK-A-LIKES: What other insects look similar?

The whitespotted pine sawyer (*Monochamus scutellatus*) is the most similar-looking insect to the Asian longhorned beetle in N.C. It can be distinguished by the white spot in the center of the wing covers, behind the head (circled in red; not present on the Asian longhorned beetle). The native sawyer is mottled brown or metallic black in color with faintly banded antennae. It is common and attacks stressed or dying pines and other conifers.

The Asian longhorned beetle may also be confused with the eyed click beetle (*Alnus oculatus*), which is 1 - 1 $\frac{3}{4}$ inch long with white speckles and black “eye spots”. The eyed click beetle is a predator of many wood-boring insects and is not considered a pest.

If in doubt, report it!



LOOK-A-LIKES: The native whitespotted pine sawyer (center) has a white spot in the center base of the wing covers, but the invasive Asian longhorned beetle (left) lacks this spot. The eyed click beetle (right) has white speckles, but the eyed click beetle has distinctive “eye spots” and short antennae. *Images: Maine Forest Service, maine.gov (left); Gerald Lenhard, Louisiana State Univ, Bugwood.org (right).*

DAMAGE: How does the Asian longhorned beetle injure trees?

The larvae of the Asian longhorned beetle tunnel beneath the bark of trees as they feed on tissues that carry nutrients and creates new growth. As the larvae grow, they venture into the woody tissue and continue to form tunnels (called galleries). The larval feeding activity can weaken the structure of the tree and cause breakage and branch dieback.

Once the adults emerge, they feed on leaves and bark of the tree for 10 to 14 days before mating. Future generations continue to infest the tree because adults typically stay on the tree from which they emerged. Signs of the pest are present 3 to 4 years after infestation. While it may vary based on the tree’s health, tree death usually occurs in 10 to 15 years. Infested trees do not recover or regenerate.

Image: Dennis Haugen, USDA Forest Service, Bugwood.org



SPREAD: How does it spread?

The Asian longhorned beetle can be transported through firewood, solid wood packing material, wood debris, branches, logs, stumps, and lumber, even if no beetles are visible. Beginning in the early 1990s, the Asian longhorned beetle has been introduced to North America and Europe at least 16 times through wood packing material. **To help reduce the spread of Asian longhorned beetle and other invasive pests, reduce the movement of host trees; buy local firewood, burn local firewood!**

MANAGEMENT: What can be done?

The most effective management has been early detection and rapid response, which includes removing and destroying all infested trees. This method has eradicated the Asian longhorned beetle on multiple occasions; however, it is incredibly important that the Asian longhorned beetle is detected early for this method to work.

REPORT IT: What should I do if I think I've found the Asian longhorned beetle?

N.C. Forest Service personnel should report suspected Asian longhorned beetle infestations to N.C. Forest Service Forest Health Branch personnel for confirmation. Landowners can email pictures and location to newpest@ncagr.gov.



Additional Information

NCDA&CS Pest Alert:

<https://www.ncagr.gov/plantindustry/plant/entomology/documents/ALBPestAlert.pdf>

Asian longhorned beetle and its host trees (USDA Forest Service and University of Vermont)

<https://www.fs.usda.gov/naspf/sites/default/files/alb-and-host-trees-09-12-2012-print.pdf>

How to recognize Asian longhorned beetle (UMass Extension)

https://ag.umass.edu/sites/agcenter/files/pdf-doc-ppt/recognize_alb_ppt.pdf

Don't Move Firewood

www.dontmovefirewood.org/

For other non-native forest pests of concern to North Carolinians, please visit

http://www.ncforestservice.gov/forest_health/forest_health.htm

*The North Carolina Forest Service is a division of the North Carolina Department of Agriculture and Consumer Services;
Steve Troxler, Commissioner*