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**United States  
Department of  
Agriculture**

Animal and  
Plant Health  
Inspection  
Service

Program Aid No. 1655

# Wanted: the Asian Longhorned Beetle

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## Introduction

The Asian longhorned beetle (*Anoplophora glabripennis*) has earned the title of pest both here and in its home country of China. This beetle is a serious pest of hardwood trees and has no natural enemies in the United States. If this insect were to become established here, it could turn into the gypsy moth of the 21<sup>st</sup> century, destroying millions of acres of America's treasured hardwoods, including national forests and backyard trees. The beetle has the potential to damage such industries as lumber, maple syrup, fruit, and tourism.

But thanks to observant homeowners, the beetle's sneak attack on the United States has been discovered. In New York and Chicago, residents have alerted the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS). Now APHIS, together with State and local governments and local residents, is working to halt the march of the beetle. But in order to be successful, everyone needs to be involved in protecting trees from this pest.



**Figure 1**—The Asian longhorned beetle, if it becomes established in the United States, could turn into the gypsy moth of the 21<sup>st</sup> century.

## The Beetle

The Asian longhorned beetle is a big, showy insect: it is about an inch long, shiny, and black with bright white spots. Each adult has a pair of curved black-and-white antennae that are even longer than its body.

The Asian longhorned beetle attacks healthy hardwoods of many different species, including Norway, sugar, silver, and red maple, horsechestnut, poplar, willow, elm, mulberry, and black locust. Adult female beetles chew holes in the bark of the trees to lay their eggs. After hatching, the white, wormlike immature beetles bore into tree trunks and branches, causing sap to flow heavily from wounds. After these beetles mature, they will chew their way out of the attacked tree, leaving behind exit holes about a half inch in diameter.

Adult Asian longhorned beetles are active only during the summer and fall months. They reside deep inside infested trees during the rest of the year. This fact makes it virtually impossible to eradicate these pests with insecticides.



**Figure 2**—APHIS has traced the Asian longhorned beetle back to solid wood packing materials from China.

There are no known lures to attract Asian longhorned beetles. Blacklight traps, which attract other wood-boring pests, do not work on this one. Research continues as scientists experiment with traps using sex attractants (pheromones), like those used for gypsy moth and Mediterranean fruit fly.

In the absence of a trap, APHIS and cooperating State inspectors must tackle the difficult task of completing a survey of beetle-infested areas. Inspectors must examine individual trees for exit and entry holes. They also look for piles of frass (insect waste and sawdust) at the base of infested trees and in branch crotches, and for sap leaking from wounds in the trees. Unseasonable yellowing or drooping of leaves when the weather has not been especially dry are signs that the Asian longhorned beetle is present. Leaf symptoms show up when the immature insects, growing inside the tree, have bored through tissues that carry water and nutrients to the leafy canopy above. Once the pest has sufficiently disrupted those pathways, affected trees will die.

## The Threat to U.S. Trees

Asian longhorned beetles normally do not spread quickly on their own. When they become established in a location where there are hardwood trees, the beetles attack one or a few trees at first, eating until the tree is exhausted as a food source. Then they spread to nearby trees. Under their own power, Asian longhorned beetles can fly hundreds of feet. With a wind assist, they can go even farther.

However, people can unintentionally increase the speed or spread of an infestation by cutting or trimming an infested tree and moving the wood, which contains maturing beetles, elsewhere. To limit human-caused spread of the Asian longhorned beetle, officials from the State and Federal governments establish quarantines in areas where infestations have been discovered. The infested areas in New York and Chicago have both been quarantined to prevent the movement of infested wood. No one may remove firewood, trimmed branches, stumps, roots, or other wood debris from these quarantine areas.

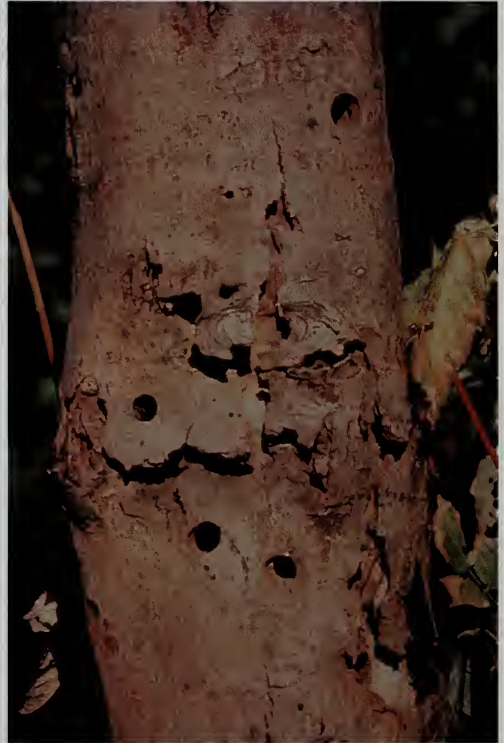


Figure 3—Asian longhorned beetle damage.

With no traps and no insecticides, the only way to eradicate the beetle is to remove and destroy infested trees, an expensive, difficult, and unpopular operation. Damage from the 1996 infestation in New York cost State and Federal governments more than \$5 million. Thousands of street and residential trees in New York City and on Long Island have been cut, chipped, and burned to prevent the spread of the Asian longhorned beetle.



## APHIS' Role in Excluding Foreign Pests

How did the Asian longhorned beetle get to the United States? APHIS pest risk analysis indicates that it hitchhiked its way into the United States in solid wood packing materials, such as pallets and crates, from China.



**Figure 4**—Currently, the only way to eradicate the beetle is to cut, chip, and burn infested trees.

APHIS analyzes threats to U.S. agriculture and develops import restrictions on commodities based on the risks they present. In the last 13 years, trade with China has increased tremendously, to \$73 billion a year (up from just \$5 billion in 1985). As a result, the volume of pallets and crates

passing through ports of entry has grown exponentially because trade goods are generally shipped in wood packaging materials. This packaging material can conceal a broad spectrum of pests.

The best way to fight the Asian longhorned beetle and similar nonnative wood borers is to exclude such pests from the country in the first place. To stop this specific beetle's mode of transportation, APHIS has made regulatory changes that require all solid wood packing materials imported into the United States from China and Hong Kong to be heat treated, fumigated, or treated with preservatives prior to departure from China. APHIS also requires that each shipment from China that contains solid wood packing material be accompanied by a certificate, issued by the national government of China, stating that the solid wood packing material has been treated. In order for these regulatory changes to be successful, importers of Chinese goods must follow the new rule. APHIS will continue to educate cooperators and stakeholders about the importance of excluding the Asian longhorned beetle and other foreign pests.

APHIS Plant Protection and Quarantine officers at U.S. ports are the first line of defense against exotic plant and animal pests and diseases. APHIS port personnel will continue to inspect high-risk cargoes for the Asian longhorned beetle and other pests. In addition, all international passenger baggage, cargo, packages, mail, and conveyances are subject to inspection upon entry into the United States.

## A United Effort

USDA's Forest Service is working with State and local governments to reforest communities where the Asian longhorned beetle has forced authorities to cut down trees. For each tree destroyed, a new one will be planted, preferably using species that won't be susceptible to the Asian longhorned beetle.

The fight against the Asian longhorned beetle isn't over yet. Tree removal is still taking place in New York and Illinois. Survey crews return to infested areas to check and recheck trees for further signs of infestation. Thanks to tips from the public, crews can check specific trees that are exhibiting signs of the beetle.

Please beware of the Asian longhorned beetle. By respecting quarantine lines and regulations, you can help prevent the further spread of this devastating pest.

For more information, please visit the APHIS Website at [www.aphis.usda.gov](http://www.aphis.usda.gov) and click on the button for Asian longhorned beetle under "Hot Issues." To report a sighting of the Asian longhorned beetle, please contact your local USDA-APHIS office.



**Figure 5**—APHIS inspectors, teamed with State and local cooperators, survey the quarantine area to look for infested trees.

## The Beetle's Story

In August 1996, a man in the Greenpoint neighborhood of Brooklyn, NY, noticed perfectly shaped round holes in the maple trees in front of his home. When he saw sawdust all over the ground near the base of the trees and on the sidewalks, he thought vandals had drilled holes in his trees. He called the department of parks and recreation. An inspector determined that the holes were being drilled by a black-and-white beetle that had taken up residence in his trees.

After sending the beetle to entomologists for identification, the parks department learned their find was the dreaded Asian longhorned beetle. Officials were amazed at the extent of damage the beetles had done on the trees. They quickly notified USDA-APHIS of the infestation.

Within weeks, another infestation was found on Long Island, in Amityville, NY, after officials learned that wood from an infested tree had been moved from Greenpoint to Amityville. Inspectors from USDA and New York State began to comb both affected neighborhoods to determine the extent of the infestations. Quarantine areas were soon established to prevent infested wood from being moved.

The Asian longhorned beetle was a new pest to the United States, and it quickly proved to be a challenge to entomologists. Scientists began researching trapping and other methods to stop the

beetle. One thing became clear from the research: the only way to win the war with the pest, at this time, was to cut, chip, and burn infested trees. APHIS, the Forest Service, and New York swung into action.

Almost 2 years later, in July 1998 in Chicago, a city parks employee stopped to pick up cut wood from a friend's house in the Ravenswood neighborhood. When he went to unload his truck a few days later, he found a black-and-white beetle on the mirror of his truck. Curious about the unusual beetle, he went to the Internet and typed a description of the bug into a search engine. What he saw shocked him: an APHIS pest alert picturing the insect he saw on his mirror—the Asian longhorned beetle. He quickly called USDA.

After positively identifying the insect, State, city, and Federal authorities established a quarantine area. Hundreds of trees in Ravenswood were found to be infested. Two more areas of infestation in greater Chicago were found: one in Addison in DuPage County to the west and the other in Summit, south of the city. Infested trees in all those areas will be removed, chipped, and replaced.

APHIS continues to survey and look for this and other wood-boring pests. By detecting these pests early, APHIS and its partners can work to save the rest of America's precious street trees and forests.

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