

THE ASIAN LONGHORN BEETLE

—A POTENTIAL THREAT TO MAPLE

By Douglas C. Allen

I want to bring this particular insect to the attention of forest owners, not to unduly alarm you, but rather to make you aware of a potentially serious situation. This introduced pest was first observed in the northeastern United States during August, 1996 in the Brooklyn area of New York City. Its potential as a serious tree pest, however, extends far beyond the City and its environs.



Fig. 1 The Asian Longhorn Beetle.

WHY THE CONCERN?

Three characteristics of the Asian Longhorn Beetle have alarmed scientists in the northeast: maples (all species of *Acer*) appear to be among its favored hosts; unlike most woodborers of this type it readily attacks, and eventually may kill, what appear to be healthy trees; and, as is the case with most introduced pests, the absence of effective natural enemies combined with an abundance of susceptible trees and very favorable climatic conditions are prime ingredients for a very high reproductive potential.

Maples are the most abundant trees in many of our urban areas, and their removal and replacement can be costly. Similarly, sugar maple has an important ecological and economic position in many northeastern hardwood forests.

ORIGIN OF THE PROBLEM

Brooklyn is a major port that receives shipping from overseas. Available evidence indicates that the beetle entered here in wooden dunnage (braces used to support cargo) that accompanied steel pipe flanges imported from China. The wooden timbers used were made of poplar, a favored host for this insect in Asia.

THE INSECT

Asian Longhorn Beetle, *Anoplophora glabripennis* (an-know-plo-fora glay-bre-pen-iss), is native to northeast Asia and is especially common throughout Korea, Japan and southern regions of the Peoples Republic of China.

The adults are handsome insects 0.8 to 1.3 inches long with conspicuous antennae that exceed the length of the body. They are shiny black with distinct white spots and each segment of the antenna is banded with black and white (Fig. 1).

Larvae (the immature stages that excavate galleries in wood) are white, fleshy, legless, distinctly segmented and approximately two inches long when full grown (Fig. 2). The worm-like larval stages differ mainly in size; very small when first emerging from the egg and becoming progressively larger with age.

DAMAGE

The first indication of attack is the appearance of oval to round bark wounds 0.4 to 0.5 inches in diameter (Fig. 3). These



Fig. 2 Mature larva.

are egg laying sites prepared by female beetles.

Larvae emerging from eggs placed in



Fig. 3 Egg laying site (black arrow).

the center of each circular opening bore into the wood beneath. In doing so, eventually they produce conspicuous accumulations of bright white frass (a mixture of wood chips and fecal matter) which commonly appear at the base of the tree or adhere to bark on the upper surfaces of large branches.

Heavily infested portions of a tree or branch have loose bark, exposed sapwood and conspicuous adult exit holes approximately 0.4 inches in diameter (Fig. 4).

The first symptom of damage is the appearance of dead and dying branches. Eventually, both sapwood and heartwood of heavily infested trees are riddled with galleries (Fig. 5) and infested branches and tree trunks may become very susceptible to wind breakage. Beetle larvae are able to invade the tree trunk at any location from ground level upwards, as well as branches as small as 1.5 inches in diameter. Trees that are attacked repeatedly for several years eventually die once the main stem is severely damaged.

BIOLOGY

To the best of our knowledge, there is only one generation each year. Adults are active from mid-June until October. Lar-

(Cont'd)



Fig. 4 External signs of damage; loose bark, exposed sapwood and adult emergence holes (black arrow).

vae overwinter within the galleries and transform into adults sometime during early summer.

We are uncertain about how far beetles are likely to disperse. However, circumstantial evidence indicates that they probably move only short distances from the host tree. We suspect that New York's infestations became established sometime in the early 1990s. The fact that the current known distribution in New York is confined to two relatively small areas indicates that the population has spread slowly.

This wood borer is capable of attacking more than 50 species of trees; including maples, poplars, willows (these are the three most common hosts in China), black locust, plum, pear, and horsechestnut. In New York City, Norway maple, sugar maple, boxelder maple, and silver maple seem to be preferred.

CURRENT SITUATION IN NY

There are two known infested areas in New York, the site in Brooklyn mentioned above and a second area in the vicinity of Amityville on Long Island. Shortly after the beetle was discovered in 1996, personnel from several city, state and federal agencies combined forces to attack the problem. The U. S. Department of Agriculture, Plant Pest Quarantine (PPQ) group

within the Animal and Plant Health Inspection Service (APHIS) and the City of New York Parks and Recreation Department have been especially responsive by surveying the infested areas and identifying trees that have been attacked.

A Project Management Team was appointed during the fall of 1996 to coordinate efforts aimed at containing the infestation and to organize surveys for beetle infested trees. Also, a Science Advisory Panel was convened to evaluate what is known about the beetle in Asia, to assess the most current information regarding New York's situation and, based on this, to recommend pest management strategies and identify needed research.

Following much deliberation and review of available information, it was decided that the immediate removal and destruction of all trees known to be infested (a total of approximately 900 in Brooklyn and Amityville combined) should be the first step in an integrated approach to contain the problem. This work currently is un-

derway at both sites and should be completed before adult emergence begins in 1997. Plans are being formulated to intensify survey efforts this summer. Additionally, it was determined that research is needed to more carefully document the biology of the Asian Longhorn Beetle in New York, to improve survey methods and to develop direct control measures.

BE ON THE ALERT

If you notice unusual wood borer damage to maples on your property or encounter beetles resembling the one depicted in Fig. 1, contact your local office of the Department of Environmental Conservation immediately. ▲

Douglas C. Allen is Professor of Forest Entomology in the Faculty of Forestry at the State University of New York, College of Environmental Science and Forestry (SUNY/ESF); 146 Illick Hall, One Forestry Drive, Syracuse, NY 13210. All photos are by Professor Allen unless acknowledged otherwise.



Fig. 5 Extensive damage to the interior of a large branch. The Gallery is 0.5" wide.