

IN THE SUMMER OF 1998 an exotic insect, the Asian longhorned beetle, was discovered in Chicago. It is hard to believe that another new exotic insect, the emerald ash borer, is now threatening ash trees in Illinois. The beetle was discovered in the summer

of 2002 in the Detroit area where it has killed nearly all the ash trees in that locality. Presently, it is well established in 13 Michigan counties and one area in Ontario across the river from Detroit. Smaller infestations have been found in southern Michigan, two counties of northwestern Ohio, one county in Maryland, and one adjoining county in Virginia.

The borer has killed about 6 million ash trees in Michigan. It probably became established in Michigan some 5 to 10 years ago. The insect is native to China, Korea, Japan, Taiwan, and parts of Russia. In all likelihood the borer was introduced into Michigan in ash wood used as shipping material from one of those countries. In Michigan, white, green, and black ashes have been attacked. Infestations appear to be limited to ash trees.

Scientists estimate that ashes comprise about 6% (or about 115 million trees) in the forests of Illinois. This number does not include countless ash trees in urban environments, which are now threatened.

The Asian longhorned beetle adult is quite large, almost  $1\frac{1}{4}$  inches long, so it is a beetle that is easily recognized. When the longhorned beetle emerges from the tree bark it leaves an emergence hole that is about  $\frac{3}{4}$

inch in diameter. In contrast, the emerald ash borer is a much smaller beetle, only about  $\frac{1}{2}$  inch in length, so it can be easily overlooked. Several of these small beetles could be on the trunk of a tree or leaf or could fly inside a vehicle and not be noticed. The emergence hole in the bark is small, only  $\frac{1}{8}$  inch across and easily unnoticed. So this beetle is more likely to go undetected until ash trees show severe decline.



A LARVA FEEDING UNDER THE BARK MAKES S-SHAPED FEEDING TUNNELS.

# THE EMERALD ASH BORER: AN EMINENT THREAT TO ILLINOIS

by James E. Appleby, Phil Nixon, Charles Helm, Ken Kruse, and Kathy Sharpe

THE HEAD OF AN EMERALD ASH BORER LARVA

The adult beetle is a dark emerald green. The underside is a metallic green. In Michigan, the adult beetles begin emerging from ash trees in the latter half of May and can be seen until about mid-August. Adults are most commonly seen during the months of June and July on sunny days feeding on the ash foliage or crawling on the branches and trunks of ash trees. The female beetle deposits eggs in crevices of ash bark during June and July. The eggs hatch about 10 days later. The cream-colored larvae feed under the tree bark where they make S-shaped feeding tunnels, thereby killing the bark tissues. When the larva is mature it measures about  $\frac{3}{4}$  inch in length. The segments just behind the head are enlarged, giving the head a club-like appearance. Larvae overwinter under the bark. The following year the larvae change into the pupal stage and then become adults.

Many species of tree borers attack only weakened or dying trees, but the emerald ash borer doesn't appear to make a distinction. Generally, it is after several years of being infested that a tree shows dieback in the upper canopy. As the infestation becomes severe, many ash sprouts grow rapidly at the base of the dying tree. These sprouts later become infested. Some infested trees develop a bark crack. If the bark is removed, the serpentine larval mines can be seen.

Ash trees in the Midwest are in a state of decline due to such factors as drought, poor growing sites, native ash borer infestations, and ash yellows disease. Tree symptoms caused by these factors can be confused with symptoms caused by the emerald ash borer. The D-shaped emergence holes of the emerald ash borer are characteristic and should not be confused with the  $\frac{3}{16}$  inch roundish holes that are made in ash trees by the native ash borers. A native tiger beetle that is a brilliant green and often seen on the ground in open areas and an emerald-colored cuckoo wasp have different body shapes, so these insects should not be confused with this borer.

All counties infested by emerald ash borers are under quarantine. Ash trees, branches, logs, lumber, and firewood are not to be moved out of quarantined areas. It is imperative that everyone abides by these rules to prevent this beetle from spreading into new areas. It is obvious that the borer had been in Michigan for quite a few years before being discovered and so there is a concern that ash trees, logs, and firewood

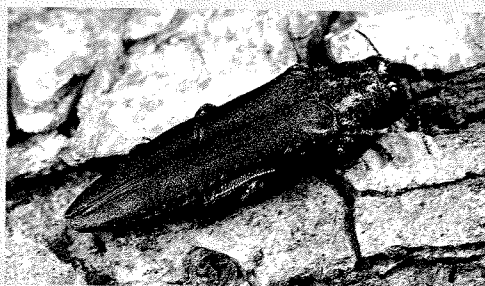
may have been brought into Illinois before the quarantine laws were imposed. The most likely ash trees that might be infested in Illinois are trees that were planted within the last eight years, in ash trees near an industrial site that has previously imported ash wood from Michigan or wood products from foreign countries, and in areas where firewood is commonly used, such as campsites and homes having fireplaces. Contact your local Illinois Department of Natural Resources forester or county extension office if you suspect an infestation of this insect.

Presently researchers at Michigan State University, the USDA Forest Service in cooperation with the Michigan Department of Natural Resources, the Michigan Department of Agriculture, and the USDA-APHIS-PPQ are conducting intense studies on the emerald ash borer. This is an extremely dangerous ash pest and has the potential to be very destructive to the ash resources of Illinois. For more information visit the following Website, which has additional links: <http://www.na.fs.fed.us/spfo/>.

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D-SHAPED EMERGENCE HOLES



ADULT EMERALD ASH BORER



BASAL SPROUTING OF DYING ASH TREE