Locust Borer

Fact Sheet No. 35
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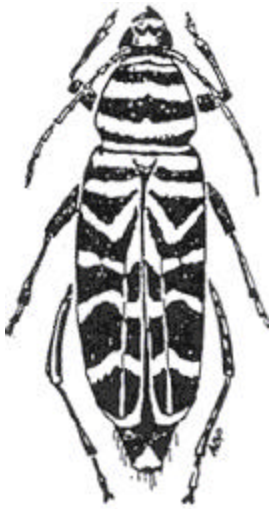
Biology, Description, and Habits

The locust borer, Megacyllene robiniae (Forster) belongs to the beetle family Cerambycidae, commonly known as the longhorned beetles, a name which refers to the long antennae of most of the species in this group. This insect occurs in eastern Canada and in most of the United States, wherever its host, black locust, grows. It has been known as a pest of black locust since 1702. For the past 35 years, starting in Salt Lake City, locust borer has spread and damaged black locust in most of the counties of the Wasatch Front and northern Utah. Honey locusts or other trees are not affected by this species, whose only host is the black locust.

Adults are black, 3/4 of an inch long with a series of bright yellow lines running across the entire body. On the elytra (wing covers) the bands are V-shaped and on the base on the wings they form a distinct "W." The legs and long antennae are yellow to reddish. Adults emerge about the time goldenrod blooms, in late summer or early fall, and are frequently observed feeding on the pollen of goldenrod and other flowers during the morning hours. They are usually most abundant in Utah during September.

During peak egg-laying in late September, the females deposit 100-200 small, white, oval eggs singly or in groups of 6 to 8 in bark crevices and around wounds on the trunk and larger branches. Eggs hatch in 5 to 8 days and the small white larvae (immatures or grubs) bore into the inner bark where they pass the winter as first instar larvae. Larvae resume feeding about the time leaf buds begin to swell in the spring. Larvae bore into the sapwood and eventually into the heartwood, producing a tunnel 3-4 inches long.



Full grown larvae are about 1 inch long, 1/4 inch wide, soft-bodied, distinctly segmented, and legless. They have a white, cylindrical body with fine pubescence and a reddish-brown head. The head is small with chitinized chewing mouthparts. Each spiracle along the segmented abdomen is distinctly brown. Movement is accomplished by contraction of the body segments, because of the lack of legs. As the larvae grow, they frequently return to the surface of the bark and enlarge their tunnels. Most larvae reach full size between mid- July and mid-August. Shortly after, they transform into pupae (a cocoon-like stage) in their tunnels. There is one generation produced each year.

Damage

The boring activity of the larvae starts when the tree becomes active in the spring. The larvae bore up and in towards the heartwood, frequently returning to the opening to enlarge it. After reaching the heartwood the larvae bore down staying near the margin on the trunk and in the center of the branches. Larval tunneling in the trunk and limbs results in broken and dead limbs, weakened trees, excessive sprout production, and even death of the tree.

Low vigor trees, damaged trees, and trees under environmental, drought, or nutritional stress are most likely to be infested. Trees of less than six inches diameter are most often attacked, while those larger than eight inches diameter are generally safe from attacks.

Symptoms

To help the young larvae bore and digest the wood it secretes a substance that stains the wood yellow. This stain radiates into the tissue around the winter cell. As winter progresses the yellow turns brown. This stain remains in the wood and extends out as the larvae mine further into the wood.

Early season borer feeding often produces oozing sap and wet spots on the bark during the bud swell period. A yellow sawdust is ejected when they reach the heartwood in late summer. As larvae bore deeper into the tree, they eject this sawdust- like material out of the burrow entrance. New holes produced by the larvae often destroys the cambium tissue. To heal the injury the tree grows faster in that area and a knotty swelling appears giving the tree

a gnarled look.

Control

Cultural practices that improve or maintain the vigor of black locust trees will decrease the need for preventative or rescue applications of insecticides. Healthy, vigorous trees have little borer damage. During vigorous spring growth of the tree, larval mortality is at its highest, probably because of the high sap flow.

The most important natural enemy of the borer is the woodpecker. The Downy Woodpecker and the Hairy Woodpecker can consume up to 30% of a population. However, the good that they do is confined to their area of habitat and their feeding is spotty. Another enemy of the adult locust borer is the wheelbug, a member of the order Hemiptera. This bug uses its piercing-sucking mouthparts to stab the beetle, injecting a paralyzing fluid and then sucking the body fluids out.

If insecticides are required, sprays should be applied to the trunk and larger limbs. Treated portions should be thoroughly wetted with the spray. Applications should begin in mid to late August and be repeated at three week intervals through the end of September. These sprays are directed at egg-laying adults and newly hatched larvae. Some degree of control can also be obtained on infested trees by spraying in the spring. Make the first application about bud break and repeat in 10-14 days. These sprays are directed at the young larvae as they feed just below the bark surface and as they return to the surface to enlarge their entrance holes. Some references indicate that insecticide treatments may last from two to four years, so treatment may not be necessary each year. Timings of late summer and fall applications may vary by location and from year to year.

The most-often recommended insecticides for locust borer control are sprayable formulations of chlorpyrifos and lindane. Other sprayable insecticides labeled for borers on locust include certain formulations of diazinon, phosmet, pyrethrins, naled, and thiodicarb. Injectable insecticides include formulations of acephate and dicrotophos. Other insecticides labeled for borers on ornamental trees in general include certain formulations of carbaryl, dimethoate, endosulfan, malathion, and methoxychlor. Some formulations of chlorpyrifos, diazinon, and dicrotophos are restricted-use-pesticides and can only be purchased and applied by properly-licensed applicators.

NOTE: Many home uses of chlorpyrifos, diazinon, and methoxychlor have recently been canceled or will be canceled in the near future. However, formulations of these insecticides that are in the possession of a homeowner can still be used according to label directions.

Precautionary Statement

All pesticides have both benefits and risks. Benefits can be maximized and risks minimized by reading and following the labeling. Pay close attention to the directions for use and the precautionary statements. The information on pesticide labels contains both instructions and limitations. Pesticide labels are legal documents, and it is a violation of both federal and state laws to use a pesticide inconsistent with its labeling. The pesticide applicator is legally responsible for proper use. Always read and follow the label.