



The Plant Doctor's LANDSCAPE TIPS

By David L. Roberts, Ph.D, Michigan State University Extension

BRONZE BIRCH BORER

INTRODUCTION:

Decline of certain species of birch trees (*Betula* sp.) is caused by the Bronze Birch Borer (*Agrilus anxius* = BBB). The insect is classified as a flat-headed, metallic, wood-boring beetle and is related to its introduced "foreign cousin," the Emerald Ash Borer (*Agrilus planipennis*), which is lethal to North American ash trees. Birches vary in their susceptibility to the BBB. European white birch (*B. pendula*) and its close relative European weeping birch are highly susceptible and may be killed by the insect. Yellow birch (*B. alleghaniensis*), paper birch (*B. papyrifera*) and river birch (*B. nigra*) tend to be tolerant if not resistant to the insect.

SYMPTOMS AND LIFE CYCLE:

The BBB overwinters as mature larvae beneath the bark of birch trees. In the spring, the larvae pupate, and adults emerge from mid May through July with peak emergence in June. Adults feed on birch foliage and mate; females lay eggs in bark crevices where tiny larvae hatch and bore through the bark to the phloem tissue. Larvae feed in the phloem tissue, often in a zigzag pattern, and gradually enlarge over the balance of the summer. Mature larvae overwinter and emerge as adults the following spring.

Trees affected by the BBB gradually decline, usually beginning from the top down (Photo 1). Ridges in the bark appear as the tree responds with callus tissue formation where the larvae have fed directly beneath the bark (Photo 2). The bark often becomes stained as sap and fermenting liquids leak from the wounds created by the BBB (Photo 3). Adults, which are rarely seen, emerge through D-shaped holes (Photo 4). As the tunneling increases over several years, and as more cambial tissues are destroyed – resulting in less and less water and nutritional movement through the tree – the tree begins to exhibit decline or dieback symptoms. Susceptible species may be killed by the BBB in just a few seasons.

MANAGEMENT:

Obviously, the best management procedure is to plant nonsusceptible species of birch in landscapes. Unfortunately, many "experts" still recommend highly susceptible species due to the fact that species such as European White Birch have been traditionally planted in nurseries and have been traditional architectural recommendations. For established plants prone to infestations by the BBB, adequate nutrition and moisture are important to help the tree ward off BBB attacks and to promote healing after those attacks. Although some recent scientific evidence may suggest that fertilized trees may attract the BBB, other scientific evidence suggests that stressed trees also attract the BBB.

Chemical treatment is also an option. Insecticides can be applied as sprays during adult activity periods as trunk injections prior to adult emergence to allow for distribution through the tree in preparedness for larval feeding, or by soil treatment the fall before to allow time for adequate uptake and distribution of the pesticide through the tree prior to larval and adult feeding. Because a variety of treatment options are available, it is wise to thoroughly review them to select the best option for particular situations. ■

For more information, please feel free to email me at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU or MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.



Photo 1. Typical decline symptoms caused by the Bronze Birch Borer begins at the top of the tree and progresses downward.

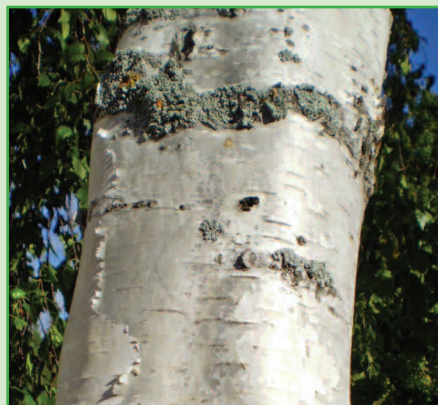


Photo 2. Ridges appear in the bark directly over the area where larvae are feeding in the phloem. These ridges represent the response of the tree to larval feeding.



Photo 3. Staining of the bark sometimes occurs from leakage of sap and other fermenting products from borer attacks.



Photo 4. The Bronze Birch Borer emerges through D-shaped emergence holes, created from the insect's flat head on an otherwise round hole as the insect emerges through the bark. The emergence holes measure only about one-eighth inch across.