

Bronze Birch Borer: A Toronto Master Gardeners Guide

The bronze birch borer (*Agrilus anxius*) is a beetle native to North America. The borers' larval feeding tunnels under the bark girdle the trunk or branch of the tree and interrupt the flow of nutrients and sap which eventually leads to the tree's starvation. Older trees or those weakened by environmental stress or other insect infestations are most susceptible to attack.

The adult bronze birch borer is a slender, olive-bronze, 10 mm long beetle. The larva is flat-headed, white and 12 mm long.

The bronze birch borer can be a serious pest of several species of birch: white or paper birch (*Betula papyrifera*), grey birch (*B. populifolia*), and European birch (*B. pendula*).



Besides being more resistant to the Bronze Birch Borer, river birch (*Betula nigra*) features peeling bark which adds to its interest in all seasons.

Photo: Helen Battersby

Symptoms of Bronze Birch Borer

The first signs of damage by the bronze birch borer are sparse, yellowing foliage and browning tips on the upper branches of the affected tree. The dieback starts at the top of the tree and works downward. Infested branches may show swollen ridges on the bark, indicating the locations of feeding galleries (conspicuous swollen areas on the trunk are caused by the healing process of a survivor tree). D-shaped exit holes in the bark are a definite sign of the emergence of adult borers.

Birch leafminers also turn the leaves of birch trees brown, but their damage shows up throughout the tree, not only at the top. Also, although the birch leafminer is not likely to kill the trees, a heavy infestation can weaken a tree's ability to resist attack by the bronze birch borer.

Life Cycle and Habits

In early spring, the overwintering larvae migrate close to the surface of the bark, where they pupate and mature into adults. The adults emerge through the bark (making the distinctive D-shaped holes) in late spring. The adult beetles feed on the leaves for up to 6 weeks and lay their eggs in crevices beneath outer layers of bark or in wounds in the bark. Newly hatched larvae then bore into the bark and begin feeding in the cambium layer. The life cycle requires one to two years, depending on time of egg laying and conditions of the host tree.

Organic Management/Control Strategies

Healthy trees are the best defence against bronze birch borer attack. Fertilize and water trees adequately to keep them vigorous. Prevent defoliation and injury to the foliage by controlling other pests such as aphids, scales and birch leafminers. An area of mulched soil around the base of the tree will cut down on competition from grass roots and help prevent injury to the bark from lawn mowers and weed eaters. Water the tree regularly, especially if there are signs of twig and branch dieback at the top of the tree.

Try planting species of birch trees that may be less susceptible to bronze birch borer attack, such as White Spire birch (*Betula platyphylla* var. *japonica*), Asian white birch (*B. maximowicziana*) or River birch (*B. nigra*).

When one or two branches are infested, heavy pruning and burning of the infested branches, along with practices to maintain the vigour of the tree, should control these insects.

Severely infected trees, i.e. that show dieback in one half of the crown, should be cut down and destroyed. All wood should be burned/removed from the property.

References:

1. Johnston, Warren T. and Howard H. Lyon. *Insects that Feed on Trees and Shrubs - 2nd edition*. Ithaca, New York: Cornell University Press, 1988.

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