





Major pests of birch and maple trees

The birch leafminer

The birch leafminer (*Fenusa pusilla* Lepeletier) attacks the white or paper birch (Betula papyrifera Marsh.), the European white birch (*Betula pendula* Roth), the weeping birch (*Betula pendula* 'gracilis') and the wire or grey birch (*Betula populifolia* Marsh.).

The leafminer produces two or more generations a year, depending on the length of the growing season. The adult, a small black sawfly about 3 mm long, emerges from the soil during the latter part of May. It has a very short life and can only be seen during the egg-laying period. Even at that, it is not easy to see because of its size. The female lays her eggs singly inside the tissue of a newly developed leaf. The tiny larva hatches in about 7-10 days, and starts feeding on the tissue between the upper and lower surfaces of the leaf.

The larva reaches maturity in about 2 weeks. It is about 6 mm long, flat and whitish. Brown and translucent blotches or blisters form on the leaf and become larger as the larva feeds. The leaves then fall prematurely and the larva works its way into the soil, pupates and emerges 2-3 weeks later as an adult sawfly. A generation is completed in about 5 weeks.

Since the insect prefers young tender leaves, the first generation does the most damage. The other generations usually attack the younger leaves at the top of the tree, or at the ends of the branches. A healthy tree can survive the loss of most of its foliage without being seriously affected. However, when this occurs year after year, the tree is weakened and fails to develop properly.

Control

The most effective control is a systemic insecticide that can be applied early in the season, just before the leaves are fully expanded. You can treat the soil, spray the foliage or paint a band on the trunk. It may be necessary to repeat the application 4 to 5 weeks later to control the second generation. Also, fertilize the trees in early spring to maintain vigor.

The bronze birch borer

Life cycle

The bronze birch borer, *Agrilus anxius* Gory, occurs in most areas where birch trees grow. Although it feeds on various birches, it prefers the paper and the yellow birches.

The borer has one generation a year. It overwinters as a larva in the tree's sapwood. A full-grown larva is white, slender, flattened, about 25 mm long, and has two forcep-like spines at the rear. In spring, it pupates.

The first adult beetles, 6 to 10 mm long, emerge about the end of June, with others following until early August. Adults mate soon after emergence and the females lay their eggs singly or in groups, in crevices beneath the bark. The eggs soon hatch, and the larvae bore into the sapwood where they make tortuous feeding galleries ("engravings") while feeding. Larvae may remain in the sapwood for 1 or 2 years, depending on the condition of the host tree.

Damage

The larvae's girdling action injures trunk and branches. The feeding galleries may cross each other several times, and cut off sap circulation, leading to the death of the tree. In trees that survive borer attack, the healed galleries remain as swollen areas. Sparse foliage and yellowish leaves, mainly in the upper crown, are early signs of borers. Sometimes there is new growth in the lower crown that shows twig dieback.

Control

Natural control agents are woodpeckers and parasites such as the wasp *Phasgonophora sulcata* Westwood, but in urban areas these are often ineffective. Once borers become established they are difficult to eradicate. To reduce their population, cut dead, dying or infested branches. Keep trees vigorous by fertilizing in spring and watering during dry summer and fall periods. Do not use weed killers or fertilizer/herbicide mixtures on lawns near the root systems, particularly under the ends of the branches where the feeder roots are. Vigorously growing trees resist attacks by insects and diseases better than trees in poor condition.

The maple bladdergall mites

Galls are unsightly, hard swellings on the surface of plant tissue. Several species of mites cause galls on maple leaves. The most common in eastern North America is *Vasates quadripes* Shimer, the bladdergall mite of silver and red maples. Another species, *Vasates aceris-crumena* Riley, causes finger galls on silver maple. Females of these two species induce gall formation on the new foliage in early spring. Each female becomes enclosed by gall tissue, producing a pouch that gives her a protected brood chamber. By early summer, each gall may contain as many as several hundred feeding young. As the foliage begins to dry in mid-summer, specialized females are hatched. These migrate



630.4 C212 P 1718 1984 c.3 from the gall to protected sites around the buds and in the bark, where they remain until the following spring.

Damage

Gall mites, even when numerous, will not kill a tree. However, the galls can spoil the appearance of an ornamental tree and retard its development. A severe infestation on a young maple can, therefore, have undesirable eonsequences.

Control

Mites overwinter in protected parts of the tree or erevices in the bark. The best time to get rid of them is in the spring before they move to the new foliage. One of the following sprays can be used effectively when the buds are turning green:

- --- Commercial lime-sulphur or dormant oil Applied when the tree is dormant in early spring, before the leaves unfold, or in late fall after the leaves have dropped.
- *Malathion or carbaryl (Sevin®)* One application of a 2% solution when the buds are turning green, followed by a second application 2 weeks later.
- -- *Miticides or acaricides such as Dicofol (Kelthane®)* These may not be readily available in certain parts of the country.

Onee the galls have formed on the leaves and the mites are inside, control is difficult. Some measure of success may be obtained with systemic insecticides. Liquid dimethoate ean be used as a foliage spray or can be painted on a smooth area of the bark in a band 15 to 20 cm wide around the tree trunk, below the branches.

Caution

When using any insecticides and mitieides, read the manufacturer's recommendations and follow them carefully. Never place pestieides within the reach of ehildren and pets, or where they may be mistaken for other substances.

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