PennState Extension

Birch Leafminer

The birch leafminer is a key pest of gray birch and paper birch trees.

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Fenusa pusilla (Lepeletier)

The birch leafminer is a key pest of gray birch, *Betula populifolia*; and paper birch, *B. papyrifera*, in Pennsylvania. It seldom feeds on the foliage of sweet birch, *B. lenta*, yellow birch, *B. alleghaniensis*, or European white birch, *B. pendula*. This pest is native to Europe and was first recorded in the United States in Connecticut in 1923.

Description

Birch leafminer damage. Photographer: E. Bradford Walker, Vermont Department of Forests, Parks & Recreation

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Adults are small, black sawflies about 3 mm long. They are broadly joined between the thorax and abdomen. Other members of the insect order Hymenoptera are narrowly joined between these same body regions. Larvae are small, whitish, and slightly flattened, and when mature they are 6 mm long.

Life History

This pest overwinters as mature larvae in the soil beneath the tree. Pupation occurs in the early spring. In spring (early May in southern Pennsylvania; mid- to late May in northern Pennsylvania) adults start to emerge, mate, and lay eggs. Eggs are inserted singly inside the soft newly expanding foliage. After seven to ten days eggs hatch into larvae, which feed for two to three weeks between the upper and lower leaf surfaces. Larvae and black fecal matter (frass) are easily seen in the leaf mines when infested foliage is held up to light. Mature larvae cut holes through the leaf and drop to the ground where they build a resting (pupal) cell. First generation adults emerge two or three weeks later. Adults of the second generation usually emerge during mid- to late June in southern Pennsylvania and about one week later in northern Pennsylvania. Two generations usually occur each year.

Damage

Injury appears early in the summer as irregular brown "scorched" areas on the foliage (Fig. 1). At first the leaf mines are separate and small, but eventually they overlap to form large blotched or blistered areas. Some birch trees are almost completely defoliated as a result of feeding activity by the larval stage of this insect. Usually foliage at the top of infested trees first turns brown.

Normally, a healthy tree may have part or all of its foliage affected by this pest without being seriously injured. However, repeated defoliation may seriously weaken or kill a tree. This defoliation stress may allow successful attack by secondary pests such as fungi and the bronze birch borer, *Agrilus anxius*.

Management

Whitebarked Himalayan birch, *B. jacquemontii*, Dahurian birch, *B. davurica*, and river birch, *B. nigra* are reported to be less susceptible to attack by this pest. Increased use of these trees in nurseries and landscapes may impact populations of this pest. Releases of natural enemies of this pest may have also decreased the frequency of outbreaks of this key pest of birch.

Effective management is dependent on timing that can best be determined by careful observation of host plant foliage. Thorough spray coverage is important. If needed, birch trees should be treated with registered insecticide formulations when adults are active in early May when leaves are almost fully expanded for the first generation and in mid- to late June for the second generation. Registered systemic

insecticide formulations may also be effective in managing this pest when applied according to label directions as soil injections early in the growing season. When using these insecticides be sure adequate soil moisture exists around the trees being treated so that optimal uptake of these products is achieved.

Warning

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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