

The Amber-Marked Birch Leaf Miner

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Additional information on this insect can be obtained from your local Alaska Cooperative Extension office, Alaska State Forestry office, or from:

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The amber-marked birch leaf miner

Profenusa thomsoni (Konow)

The amber-marked birch leaf miner (AMBLM) is believed to have been introduced from Europe into the northeastern United States in the early 1900s. Since then, it has become established throughout many parts of Canada, and was first reported in Edmonton, Alberta in the early 1970s.

The first specimens of AMBLM in Alaska were recorded in Haines in 1991. By 1996, the AMBLM was reported in Anchorage. Intense outbreaks with noticeable defoliation were a yearly occurrence in the Anchorage Bowl and, to some degree, in the Mat-Su Valley, for approximately a decade after introduction. The AMBLM was detected in Fairbanks in 2002, where the population of the insect appears to be growing. Hardest hit have been urban birch trees; until recently damaged trees in natural settings have not been observed.

This brochure describes the life history and life stages of the AMBLM and presents homeowners with guidelines for minimizing damage to ornamental and native birch.

Life History:

Amber-marked birch leaf miners spend the winter in the prepupal stage in the soil beneath defoliated birch. Pupation occurs in the summer and the adults (almost always females) emerge in June and July depending upon temperature and humidity. Adult emergence may last for more than a month. Eggs are deposited singly in slits cut in young leaves, and males are not needed for females to reproduce. Larvae feed on the tissues between the leaf surfaces. Young larvae feed singly (Figure 1). As the individual larval mines increase in size, they coalesce and form large, hollowed-out brown areas in the leaf. As many as 20–40 larvae may be found feeding in one

leaf. Mature larvae chew their way out of the leaf and drop to the ground. They enter the litter layer and form small earthen cells, 2.5 to 5 cm below the soil surface. There they spin brown papery cocoons. There is one generation of AMBLM per year.

Description:

Mature larvae are somewhat flattened, yellowish white, and are about 6 mm long. Adults are black and about 3 mm long. Adult populations are comprised of females.

Guidelines for Reducing Damage:

The most obvious sign of infestation is severe browning and distortion of foliage beginning in July and August. Damage appears to be more serious on open-grown ornamental birch than on birch in forest stands. However large stands of affected forest have been recently reported on the Kenai Peninsula. Defoliation of birch



Figure 1. A birch leaf with six amber marked birch leaf miner larvae beginning to feed on the leaf tissue. Their feeding creates small mines, which turn into brown “blotches” on the leaf surface.



Figure 2. By late summer outbreaks of amber marked birch leaf miner can turn the entire foliage of a tree brown, such as the tree pictured above.

trees in the Fairbanks area has also increased dramatically since 2011. Heavily defoliated trees may be more susceptible to attack by other insects and pathogens. Tree mortality as a result of birch leaf miner defoliation has not been observed in Alaska.

It is important to that birch growing in urban settings have the best possible conditions. Care should be taken to avoid injuring the roots, either mechanically or through soil compaction. Soil should neither be placed on top of nor removed from the area beneath the crown of the tree. Birches are very susceptible to drought conditions, especially

in urban areas. In order to avoid moisture stress, adequate water should be provided to the trees, at least once a week, throughout the growing season. Spring fertilization also helps to promote tree vigor and to minimize the effect that defoliators such as leaf miners might have on a tree. The University of Alaska Cooperative Extension Service should be consulted for specific information on the type and amount of fertilizer or pesticide to be applied.

In 2006 a biological control project was initiated involving the USDA Forest Service, the Alaska Division of Forestry, the Animal and Plant Health Inspection Service (APHIS) and the University of Massachusetts-Amherst. From 2006 through 2011 they released a species of wasp that attacks the AMBLM larvae in numerous locations around the Anchorage Bowl and the Fairbanks area. The introduced wasps in combination with native wasps found attacking AMBLM and poor weather conditions appear to have reduced populations and damage in the Anchorage area. In 2007, a similar release of introduced wasps was made on Eielson Airforce Base, and in 2011 in Fairbanks, AK.

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