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Identification and Management of Fall Webworm

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In mid- to late summer, you may notice silk webs beginning to form around the shoots and leaves of your shade trees. If you look closely, you may see numerous small, hairy caterpillars inside the webs. Over the next several days, the webs become larger and more unsightly. Chances are good that you have a fall webworm infestation. What will fall webworms do to your trees? What should you do about it? The answers to these questions are presented here.

Distribution and Hosts

The fall webworm (*Hyphantria cunea* Drury) (Lepidoptera: Arctiidae) is native to North America and is found throughout most of the United States and southern Canada. Caterpillars construct large, unsightly webs on the outer ends of tree branches (Fig. 1) while they feed in late summer and early autumn.

Fig. 1. Silk webs constructed by fall webworm caterpillars enclose foliage and twigs.

Although a few extensive outbreaks have occurred in eastern North American forests, the fall webworm is primarily a pest of ornamental and shade trees. It will feed on the leaves of at least 80 species of shade, nut and fruit trees. In the eastern United States, the fall webworm usually prefers to feed on the foliage of hickory, walnut, American elm, fruit trees and some maples. It will not feed on evergreen trees such as pines or spruces.

In the United States, many of our most important forest pests, such as gypsy moth, Dutch elm disease and chestnut blight, are natives of Europe or Asia. Fall webworm is one of the rare cases — a North American insect that has become a pest overseas. It was accidentally introduced into Europe around 1940[1] and now feeds on more than 200 plant species in Europe and more than 300 species in Asia.

Identification and Life Cycle

Fall webworm caterpillars have black or red heads and pale green to yellow bodies. Long white or gray hairs arise from two rows of black or reddish bumps called tubercles that run down the back (Fig. 2). Young caterpillars feed in colonies within the web (Fig. 3); older caterpillars may leave the web and feed individually. When disturbed, small caterpillars often rear back and forth or make jerky movements in unison to startle potential predators. Fall webworm caterpillars go through up to 10 molts before they complete their feeding, growing progressively larger with each molt. Caterpillars will be about 1 inch long when fully developed. Fall webworm caterpillars can be found from June through October, but most are present in late July and August.

Fig. 2. Fall webworm caterpillars have long, silky hairs.

Once caterpillars have completed their feeding, they move into bark crevices of the tree or down to the soil, where they spin cocoons. In northern states and Canada, the fall webworm has one generation per year and overwinters in the cocoon stage. In southern states, there may be up to four generations per year.

Fig. 3. Young caterpillars typically feed in colonies within the web.

Fi... aying eggs on a l...

Fall webworm moths are attractive white tiger moths (Fig. 4). In northern states and in eastern Canada, moths are usually all white; in southern states, moths are white with black markings on their wings. Moths emerge between May and July and mate. Each female lays up to several hundred eggs on the un... overs the egg mass with hairs from her ab... ...idsummer.

Impact

Fall webworm infestations are most common on trees growing in open areas, such as along roadsides, in yards and on forest edges. The gray web encloses small twigs and foliage on the outer portions of branches or on the tops of small trees (Fig. 5). The fall webworm is sometimes confused with the eastern tent caterpillar, another insect that spins a silk web and feeds on apple, crabapple and cherry trees. The eastern tent caterpillar, however, feeds early in spring and its webs do not enclose foliage.

Fig. 5. Webs usually enclose the outer portions of branches or the tops of small trees.

When fall webworm caterpillars are small, they feed on the upper surfaces of leaves, causing the leaves to die and turn brown. Larger caterpillars consume everything except the large veins and midribs of leaves. As the larvae grow, they expand the web to enclose more foliage. Skins cast off by the caterpillars when they molt, fecal pellets and dead leaves accumulate in the web, giving it a messy appearance.

Although the webs are unsightly, defoliation by fall webworm usually causes little harm to the tree. The fall webworm feeds on foliage late in the summer, after most photosynthesis has been completed. The trees are already preparing for winter dormancy, so few energy reserves or nutrients are lost. Populations of fall webworm rarely persist in a localized area for more than 2 to 3 years. Persistent infestations on individual trees may eventually cause dieback of individual branches, but trees that are reasonably healthy rarely suffer serious injury from fall webworm feeding.

Management and Control

Fall webworm is attacked by many natural enemies in the United States. At least 50 species of parasitic insects will attack fall webworm, including an important egg parasite and two important caterpillar parasites (Fig. 6). More than 30 predatory insects will also prey on fall webworm caterpillars. In fact, fall webworm is thought to be an important late-season food source for many of these natural enemies, enabling their populations to persist until the following year, when they can again prey on gypsy moths and other tree-feeding pests.

Fig. 6. Larvae ... will eventually ... caterpillar. *Photo by Whitney Cranshaw.*

Natural enemies generally keep fall webworm populations in check, but other control measures may be needed when webs occur on ornamental or landscape trees. When the webs are accessible, they can be pruned out. Webs and caterpillars can be burned, buried or destroyed by soaking in a bucket of soapy water for a few days. Often, it may be possible to control fall webworm by tearing the web apart with a rake or a strong blast of water from a garden hose. To minimize defoliation, webs should be destroyed while caterpillars are still small.

The bacterial insecticide Bt (*Bacillus thuringiensis* var. *kurstaki*) can be sprayed onto foliage and will control fall webworm caterpillars. Bt will affect only foliage-feeding caterpillars and will not harm beneficial predatory and parasitic insects or other animals. It is most effective if applied while caterpillars are young. Bt must be consumed to be effective, so it's important to apply the spray to the foliage around the web. This can be difficult when branches on large trees are infested.

Many conventional chemical insecticides will control fall webworms. Infestations are seldom severe enough to warrant control with insecticides, however, and these products can harm beneficial species, including predatory and parasitic insects that eventually control webworm populations.

Although fall webworm damage is rarely severe, keeping your trees healthy is always important. Water trees in your yard during dry periods, and avoid wounding trees or compacting the soil within the dripline of the trees. Maintaining tree health will help your trees recover from defoliation and other stresses and keep them looking good year round.

[1] W.T. Johnson and H.H. Lyon, *Insects that Feed on Trees and Shrubs* (2nd edition) (Ithaca, N.Y.: Cornell University Press, 1998), p. 166.

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