

# FALL CANKERWORM

By Douglas C. Allen

Two defoliators in the northeast are called "cankerworms." The fall cankerworm is so named because moths are active in October to December, depending on location. Adults of the spring cankerworm appear in April and May. The term "cankerworm" originated in Europe centuries ago, and I have been unable to determine its meaning. It might be more helpful to think of these insects as measuringworms, spanworms, loopers, or inchworms. All of these terms are used frequently as common names for members of the moth family Geometridae (geometri-dee). Collectively, they refer to the unique manner in which the caterpillars "inch along" or walk with a characteristic looping motion.

## FALL CANKERWORM - A REVOLUTIONARY PEST

This is one of our oldest forest pests. Outbreaks of fall cankerworm have been recorded periodically since 1661. In 1793, the Massachusetts Society For Promoting Agriculture offered "a premium of 100 dollars to the person who shall ... discover an effectual and the cheapest method of destroying the canker worm ...." Three years later two enterprising landowners were awarded portions of this "bounty." To the best of my knowledge, fall cankerworm is the only forest insect that has ever had a price on its head!

## SIGNIFICANCE

Periodically, fall cankerworm defoliates significant portions of New York's forests, most especially stands with a significant oak component. Our largest outbreaks of longest duration occur in southern tier counties. It also is considered a pest of northern hardwoods that occur in close proximity to oak stands. In urban areas of the northeast, cankerworm is a common pest of boxelder.

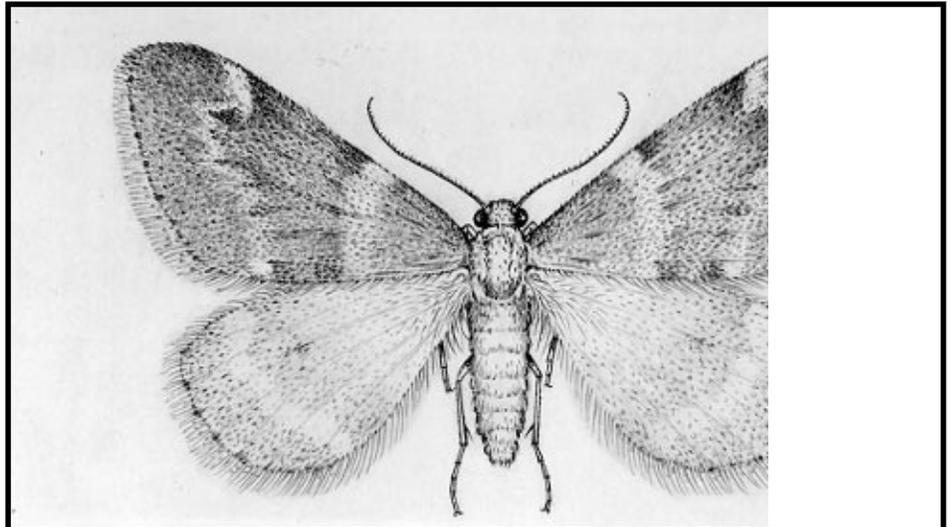
The cankerworm is an early season defoliator. Overwintering eggs hatch from mid April to early May at about the time host leaves are beginning to unfold. In this respect, its feeding behavior resembles that of gypsy moth.

Heavy defoliation early in the growing season is especially important because trees that lose 60-70% or more of their foliage at this time of year are likely to refoliate. Production of this second compliment of foliage during a single season places trees under severe physiological stress. This stress, in



Fig. 1. (Above) Adult female. Note the absence of wings on this moth.

Fig. 2. (Below) Adult male.



turn, may render oak very susceptible to Armillaria root rot and (or) attack by the two-lined chestnut borer, two tree-killing agents that flourish in weakened hosts.

## APPEARANCE

The wingless female moth (Fig. 1) is 1/4" to 3/8" long with a uniform, shiny, ash gray look when viewed from the top. The male is an active flyer with a wing span of 3/4" to 1 1/4". The front wings are greyish, shiny and crossed by two jagged whitish bands (Fig. 2).

The small, barrel shaped eggs are brownish-grey and deposited in masses of 100-200 laid in parallel rows. Masses are found both on the tree trunk and in tight bands that encircle twigs (Fig. 3).

The full grown caterpillar is 3/4" to 1" long and varies from light green to almost black. It has a distinct broad stripe down its

back bordered on each side by a pair of narrow, light lines (Fig. 4). Larval feeding often gives foliage a distinct "shot hole" appearance (Fig. 5). The latter is typical of many loopers. When cankerworms are very abundant, however, all leaf tissues except the midrib and a few major veins may be consumed. Under outbreak conditions, portions of the leaf blade that are not consumed may turn brown.

## BIOLOGY

When caterpillars are full grown, usually by late May to early June, they drop to the ground and burrow a few inches into the mineral soil. At all stages of development, the caterpillars are very sensitive to disturbance and readily drop on silk threads when a branch is disturbed.

Transformation from caterpillar to moth  
(Cont'd)

32 takes place in the soil. Moths emerge during late fall. At this time, females can be seen during deer season crawling up the boles of oak, beech or maple. The flying males are one of several species of loopers referred to as “hunter’s moths,” because of the time of year that they are active.

#### NATURAL CONTROL

Severe defoliation usually occurs for two or three years before parasites and predators

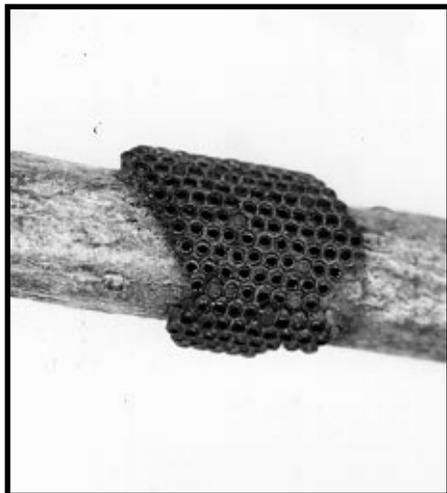


Fig. 3. Egg mass. Openings on the top indicate that many eggs have hatched.

are able to bring about a population collapse. The most important natural enemy is a tiny wasp that attacks as much as 80% of the eggs during the second or third year of an outbreak.

#### MANAGEMENT

I believe that sugarbush operators or landowners whose objective is to manage for oak sawtimber should be prepared to protect foliage when a stand is threatened by persistent (two or more years) of heavy (>50%) defoliation by cankerworm.

There are two options, a synthetic organic insecticide (i.e., a “hard” chemical) or the microbial insecticide *Bacillus thuringiensis* (“B.t.”). The former can be applied shortly after foliage emerges from the bud. To be

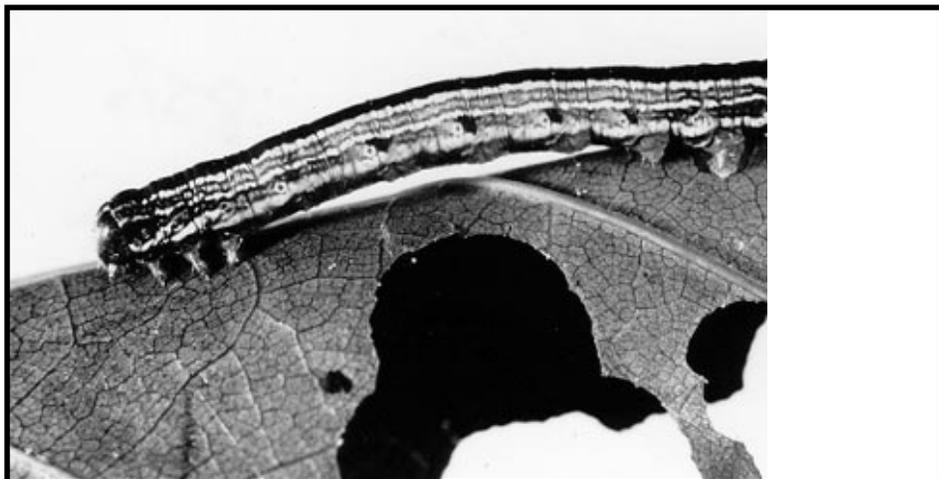


Fig. 4. Mature caterpillar.

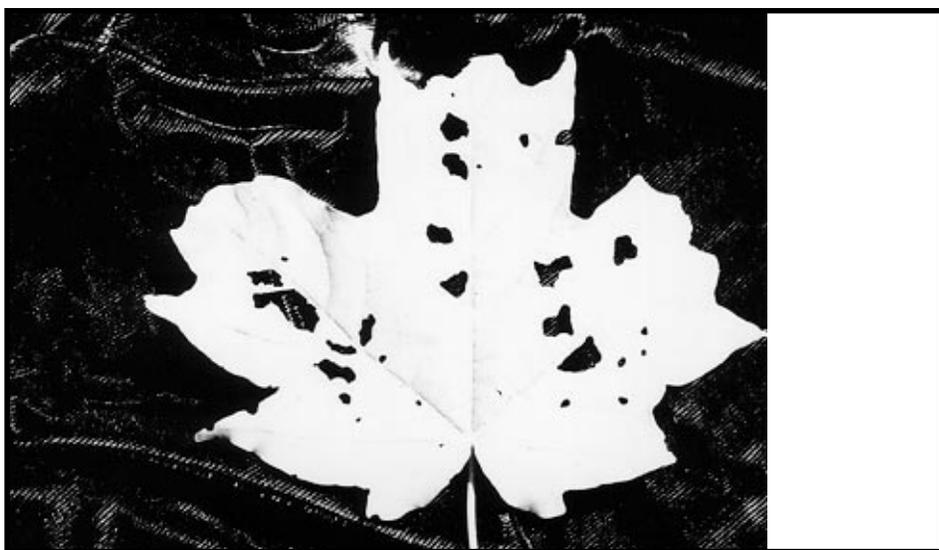


Fig. 5. “Shot hole” feeding typical of many loopers.

most effective, the latter should not be applied until leaves have attained 1/3 to 1/2 their normal size. This difference in timing reflects a difference in the mode of action of these materials. The chemical is effective on contact (the caterpillar merely touches or in some other way comes in contact with a spray droplet), but B.t. must be consumed with foliage. Efficacy of the latter increases with an increase in the amount of leaf surface area that is available to intercept spray drop-

lets containing the microbe. ▲

*Douglas C. Allen is Professor of Forest Entomology in the Faculty of Forestry at the State University of New York, College of Environmental Science and Forestry (SUNY/ESF); 146 Illick Hall, One Forestry Drive, Syracuse, NY 13210. All photos are by Professor Allen unless acknowledged otherwise.*