



Fall cankerworm: *Alsophila pometaria*

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Other names: Cankerworms are also known as inchworms, loop worms, and spanworms - this is credited to their distinctive way of moving. In order to travel, a cankerworm must grab leaves or branches with its front legs and then pull the rest of its body forward. This causes the abdomen area to contract and gives the worm the appearance of arching its back.

Identification: Both adult sexes are greyish-brown in coloring. Male moths are small in size and have a wingspan of only 1-inch. Adult females are wingless and look much like spiders when crawling on the forest floor or tree bark. Larvae vary in color and can be light green, dark green, or black. They typically have a black stripe that runs down the middle of their back from head to tail, as can be seen in Image 1. Fall cankerworm larvae are also easily confused for the spring cankerworm. However, fall cankerworm has three pairs of functional abdominal prolegs, while their spring counterparts only have two.

Life History: Fall cankerworm is a sporadic pest in Virginia and years with defoliation are often followed by many years without any sightings of this pest. Adult moths emerge from the forest floor sometime in October and November. The males generally surface before the females and can be seen flitting from tree to tree with their new wings. Once the females emerge mating takes place and the females crawl up trees in order to find suitable places to lay their eggs (Figure 2). Adults die soon after mating and egg laying has occurred. From there, egg masses overwinter and are ready to greet the spring months in April and May. When egg masses hatch the larvae are small, reaching only an inch in size once full grown. They are voracious eaters and enjoy munching on the opening spring buds and new leaves. Larvae also have the distinct advantage of being able to spin silk. They can use these silk strands to move from tree to tree in search of food. During mid to late June, larvae begin to drop to the ground to pupate in the soil. They then emerge in the fall and the cycle begins again.

Hosts: The fall cankerworm is a generalist and can be found on all broadleaf trees. However, it has been noted by professionals in the field that oak varieties tend to be the species preference.

Distribution: Fall cankerworms are native to North America and are found throughout the United States and Canada. According to the Virginia Forest Service, their earliest recorded outbreak was in 1661. One hundred and two years later, 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 cankerworm...” (Ciesla and Asaro, 2013). The fall cankerworm is still a prevalent pest today and there was an outbreak in central and eastern Virginia in 2011. By 2012, around 2.5 million acres of broadleaf forest suffered varying degrees of defoliation. Thankfully however, outbreaks are generally localized or short in duration. They occur in natural forests, urban forests, and windbreak plantings, among others.



Fig. 1 – Larvae

Image courtesy of John H. Ghent, USDA Forest Service, Bugwood.org



Fig. 2 – Wingless female laying eggs

Image courtesy of John H. Ghent, USDA Forest Service, Bugwood.org

Description of Damage: Once spring arrives, cankerworm larvae devour opening buds and new leaf growth. Initial damage looks as if there are small BB holes in leaves that grow rapidly in size. As time progresses the larvae will devour entire leaves and gives them the appearance of being skeletonized – eating all, but the midrib and leaf veins. However, damage typically does not harm the overall health of a tree. Mature, healthy trees are able to withstand a single season of complete defoliation with little effect on tree health - even up to two years. However, three or more years of defoliation can cause long-term injury. In addition, if there are other stressors present (drought, disease, or other insect pressures) that appear over a long period of time tree health could very well be reduced.

Control: While natural controls generally keep the cankerworm population under control occasional infestations occur. One way to combat an infestation is to apply a pesticide. See the Virginia Pest Management Guide for Ornamentals for current control options. A commonly used pesticide is *Bacillus thuringiensis* (Bt). Bt is sprayed early in the season when larvae are first noticed on the leaves. Once Bt is applied the larvae will stop eating after ingestion of the pesticide, and will typically die within three days. Other foliar insecticides can be applied as well. A physical control that can be utilized by homeowners is known as tree banding. Banding is done sometime during November and December, and prevents the wingless females from crawling up the trunk to lay eggs. The basic method of applying a tree is outlined below:

1. Install a strip of batting or insulation around the tree at breast height and below all limbs
2. Position a band of tarpaper or roofing felt 6-12 inches wide around the batting or insulation you installed. Short staples may be used for this – do not use nails.
3. Apply Tanglefoot or sticky material in a band several inches wide onto the tarpaper. Wear disposable gloves for easy clean up. Bands must remain sticky and clear of excessive debris, and may need to be "refreshed" periodically.
4. Please note that banding will be ineffective if nearby trees are infested and not banded. Make sure that banded trees do not have interlacing crowns with neighboring trees, or band all trees in that area.

There are a few biological controls that help regulate cankerworm numbers, such as *Telenomus alsophilae* - a type of wasp that parasitizes egg masses. Ground beetles in the Genus *Calasoma* are also known for devouring larvae. Additionally, weather can play a roll in how large the annual population size becomes. For example, if there is a late frost that kills host plants (broadleaf trees), then the larva are will be without food and starve.

Literature Citations

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