

Cankerworm and Winter Moth

Will parts of Massachusetts be subject to large Cankerworm outbreaks again in 2003?

- We believe that Plymouth County, areas surrounding Boston and parts of Cape Cod will be subject to more defoliation in spring 2003 based on the enormous moth flight last Nov./Dec. 2002.

- Both fall and spring cankerworms have been active in coastal areas of Massachusetts for several years now. However, another defoliating caterpillar species, the Winter Moth, has been found in Plymouth County. The winter moth (*Operophtera brumata*) is remarkably similar to fall cankerworm (*Alsophila pometaria*) in both adult and caterpillar stages. It is believed that the winter moth is **now more prevalent than** cankerworm. However, both this new pest and the fall cankerworm should appear in mixed populations.

What is this a new pest and where did it come from?

- The new pest is called the winter moth and has never been reported before in Massachusetts in such numbers. It is the first known occurrence of it in outbreak proportions in New England. It was introduced from Europe where it is a severe pest and has been found in eastern and western Canada along with the states of Washington and Oregon.

- The initial outbreak of cankerworms began several years ago in eastern Massachusetts and consisted of both fall and spring cankerworm species, which is common. However, starting 2 years ago, it is now believed that the cankerworm populations began to subside, and that a new pest, the winter moth began to build in numbers.

Why did we not know that this new pest was here and increasing its numbers before now?

- Cankerworms, both fall and spring, are native insect pests. Cankerworm populations will appear in an area and exist in damaging numbers for several years before going into decline due to natural controls. Then they may not reappear in that area for one or more decades. The winter moth, however, is an introduced insect pest and as such does not have sufficient natural controls yet to cause the populations to decline. The fall cankerworm species and the winter moth species both produce adult moths around Thanksgiving time. The moths will often persist into December and are attracted to lights. The moths look alike and act alike. The male moths have wings and fly. The female moths are wingless and cannot fly. Both species mate and lay eggs that will hatch the following spring. The eggs of both the cankerworm and the winter moth hatch in the early spring and both look like inchworms or loopers. They also share many of the same host plants: maples, basswood, apples, crabapples,

cherry, blueberry, and oak. Therefore, it was assumed that the continuing large numbers of these caterpillars were all fall cankerworms because winter moth had never before been known to exist in any parts of New England in large numbers.

So how do you tell the species apart?

- Not very easily.
- The fall cankerworm adult male moths are small dull-colored moths that appear around late November and may sometimes be seen into early December. The females are gray, wingless moths. Adult male winter moths are a light brown to tan color with tiny elongate scales on their wings that give the hind wing margins a fringed appearance while females of the species are gray and wingless. Winter moth adults can be active from late November into January given the right weather conditions. Males of both species are active at night and are very attracted to lights. Larvae of both species are looper (inchworm) caterpillars. They achieve a maximum size of about one inch and are green in color. The fall cankerworm has 3 pairs of prolegs (abdominal legs near the posterior end of the body) while the winter moth has only 2 pairs of prolegs and a longitudinal white stripe running the length of each side of the body. They are very similar at first glance.

What is their life cycle?

- Both species overwinter in the egg stage, usually on the host tree but eggs may be found elsewhere. Winter moth caterpillars may appear as early as late March while cankerworms hatch a bit later, usually around the time of bud break of the host plant. Early hatching winter moth caterpillars like to tunnel into buds, especially the flower buds of blueberry, apple, crabapple, cherry, and flowering trees. They move from bud to bud and are capable of inflicting much injury. Later, they feed on foliage. During years of high population numbers, they may destroy every flower bud and then also cause complete defoliation. Cankerworms are free-feeders on foliage and are capable of causing much injury including defoliation. Both species feed until approximately mid-June when they then move to the leaf litter/soil to pupate. Adult moths emerge in late fall/early winter, mate, lay eggs, and die.

What do these pests attack and how do they cause injury?

- Cankerworms are commonly found on many different deciduous trees, including: oaks, maples (especially Norway), hawthorn, crabapple, and others. Winter moth caterpillars share many of the same host plants but are also a serious pest on blueberry, cherry, basswood, white

elm, and Sitka spruce (United Kingdom). Cankerworm caterpillars initially create holes in the foliage that leads to a tattered appearance. Continued feeding leads to complete defoliation of the host plant. Winter moth larvae burrow into both foliar and flower buds, usually starting with the flower buds. They will chew their way into one bud, then chew into adjacent buds within the cluster, repeating the injury. At night as they mature, they become free feeders on foliage. Both species will feed on other plants (roses, perennials, etc.) that are located under or near infested trees.

How do I know if these pests are in my area?

- Around Thanksgiving time last year (2002) there were many reports of huge numbers of cankerworm moths flying in Plymouth County and areas of Cape Cod. Within two weeks of that, there were countless reports of phenomenal numbers of the winter moth, in virtually the same locations. Any places that experienced such flights last fall can expect large populations of one or both of these species followed by much damage to plants.

What can be done?

- Orchardists need to be particularly aware of the winter moth. The potential exists for both apple and blueberry crops to be heavily damaged. By the time one realizes that the flower buds have been consumed, it will be too late for action. Therefore, favored host plants in susceptible areas should be monitored carefully. Bark crevices should be inspected for egg clusters. By late winter, winter moth eggs will be reddish-orange in color. Upon hatching, winter moth caterpillars climb high into the host plant and produce a long strand of silk to make themselves air buoyant. They will be carried by the wind to a new host plant. This process of dispersal is called “ballooning”. Homeowners and nursery managers in the affected areas will also have to deal with these pests during the spring of 2003.

- A **dormant oil spray** to the trunks and branches of trees may be helpful in killing the overwintering eggs before they hatch. However, some egg clusters are under bark flaps and loose lichen and may be protected from oil sprays. Eggs may also be in other locations on or off the host plant. Caterpillars may also invade host plants by ballooning onto them after treatment has been applied.

- Some products are available that act as a barrier to climbing caterpillars. This is known as “tree banding”. These are generally heavy weight paper strips that are covered with a sticky substance that snares climbing caterpillars. **However, research does not support their effectiveness and they are not recommended.** If utilizing such practices is desired, NEVER place a sticky substance directly onto the bark of the host plant; it may

be toxic to the plant.

- ***Bacillus thuringiensis*** (B.t. (kurstaki), a bacterium specific to caterpillars of butterflies and moths, works very well on the younger larvae of both winter moth and cankerworms while they are free feeders.
- **Spinosad**, which is currently only available to licensed pesticide applicators, is another biorational compound that works well against both of these species.
- **Insecticidal soap** may be effective against the younger caterpillars but only when they are exposed on the host plant.
- **Chemical insecticides.** Many compounds, such as Sevin and malathion are labeled for these pests. Consult your local supplier and always read, understand and follow all label directions for pesticide products.
- **Trees heavily defoliated** by winter moth caterpillars will be severely stressed. Trees must put out a second flush of growth in order to survive. **Water is critical to trees at that time.** Supplemental watering of trees will be necessary if a drought or little rainfall occurs naturally.

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