

Winter Moths – A Homeowner’s Guide

How to Protect Your Trees and Bushes from Defoliation

Winter moths (*Lepidoptera brumata*) are an invasive species originally from Europe. Their population is unchecked on this continent since it lacks the wide variety of predators and parasites which keep their numbers in check throughout most of Europe. While it is unclear how they arrived in the America’s their earliest appearance was in the Nova Scotia area of Canada in the 1950’s and again on the opposite eastern side of the country in the 70’s. There, in certain parts of Nova Scotia, winter moths were responsible for 40% of oak tree mortality. They have since spread through the northwest and northeast of North America and arrived in Massachusetts in the 1990’s.



Winter moths pupate in the soil until winter when they emerge as fully grown moths. The wingless females sit at the base of trees and attract males through chemicals called pheromones. The females will then climb the tree and lay as many as 150 eggs each all over the tree, especially in protected parts like the crevices in the bark and underneath lichen.

Winter moth larvae are a serious threat to deciduous trees (e.g. with broad leaves that are shed annually) such as red maple and oak as well as flowering bushes. In the summer, sometimes as early as March, the eggs hatch and caterpillars emerge. Winter moth larvae are usually less than an inch long and very thin, making it easy for them to eat their way into fruits and not yet blossomed buds as well as making them easy to miss. The larvae will easily eat their way through not yet blossomed buds, especially of fruit trees such as apple and blueberry, and when they grow bigger they will consume vast amounts of leaves, often picking trees clean in colder weather when leaf growth is stunted. Some larvae

Wintermoth Operophtera brumata



Fig.1
Male Wintermoth



Fig. 2
Female Wintermoth



Fig. 3
Wintermoth Caterpillar

will hang themselves from branches on silk threads. These threads will sway in the wind, allowing them to either drop onto nearby plants, usually bushes, or be carried away by strong winds to land in previously uninfected places, a phenomenon called “ballooning”.

Finally, once they have had their fill and became fully grown, they will return to the soil at the base of the trees and bushes they devour. There they will remain to pupate until the winter when they emerge as adults and begin the cycle anew.

Fear not though! There are cheap, easy, and effective ways to keep your trees and bushes safe from harm.

The first method is to kill off the eggs before they can hatch. Winter moths begin laying their eggs in late-November on tree trunks and branches. So, in mid-November you can wrap your trees in a pest barrier to prevent the eggs from being laid in the first place. Alternatively, in the spring you can use a dormant oil spray on your trees to kill off any eggs that have been laid. This is best done when the temperature outside reaches around 45°F as this is when the females are mostly likely to lay their eggs.

However, this will likely not reach eggs buried in the crevices of bark or under the protection of lichen and neither method will have any effect on wind-blown larvae that have hatched elsewhere.

Bacillus thuringiensis, or simply BT, is a cheap and commercially available bacterium which acts as a pesticide. It is environmentally friendly and specifically targets the caterpillars of moths and butterflies. If this fails, however, there is an alternative. Call an exterminator and ask that they use Spinosad, another equally effective bacterium pesticide that also targets caterpillars.

The key is to act quickly. Winter moth eggs usually hatch when the temperature outside reaches around 55°F, sometimes as early as March. If the larvae are not dealt with quickly then they will eat their way deep into the buds and fruits of your trees and bushes where you cannot reach them. And remember, some of the larvae will be carried far and wide from your yard and into your neighbors’ yards as well as the surrounding environment.

In 2011 the Rhode Island DEM in conjunction with URI and Joseph Elkinton, Ph.D., introduced the fly *Cyzenis albicans* into the wild. This parasitic fly is a natural enemy of the winter moth from Europe and was introduced in Nova Scotia in 1954 and by 1962 the winter moth was gone from the area. These flies only target winter moths and are not attracted to people or our homes. So hopefully, in a few years’ time, we will see a decline in the number of winter moths and eventually none at all. In the meantime, it is up to each of us to do what we can to protect our trees and bushes before serious damage can be done.

