

Gypsy Moth Control

The Gypsy Moth is an invasive species brought to Massachusetts in 1868 by a scientist attempting to breed silk spinning caterpillars. By 1920 Gypsy Moths had spread to Rhode Island and they now extend south to Virginia and west to Ohio. The Gypsy Moth has four stages of life: egg, caterpillar, pupa, and adult. Caterpillars emerge from their egg masses in late April and for the next two months will feed on tree leaves. The Gypsy Moth caterpillar will feed upon many species of trees and shrubs, but the leaves of oak trees is their favorite food. When oaks are not available the caterpillar will feed on beech, cherry, maples, pines and spruce trees. During outbreaks the feeding caterpillars drop excrement called frass. The combination of frass dropping from trees and the caterpillars chewing may sound like rainfall.

While there is no easy foolproof method to stop Gypsy Moths there are several things homeowners can do to reduce the damage done to trees. The best technique to use depends on which stage of life the Gypsy Moth is in.

Barrier bands around a tree trunk are most effective in early spring before the eggs hatch. Hardware stores and garden centers may sell these bands or homeowners can create one with common duct tape. Tightly wrap a band of duct tape around the tree, with the sticky side of the tape onto the bark. Be sure to tuck the tape into the fissures and crevices of the bark. Use staples or tacks as needed to keep the band in place. Apply sticky material like Vaseline or Tree Tanglefoot to the tape. Avoid putting this sticky material directly onto the tree bark because it may permanently stain the bark. Caterpillars will collect below these bands as they look for a clear path. Brush the caterpillars into a container of soapy water to kill them. Wear gloves because the hairs of the caterpillar contain histamines and you may have an allergic reaction.

Burlap bands tied around a tree create a resting refuge for caterpillars during the day. These bands must be checked daily to remove the caterpillars, otherwise they will return to the leaves that night. The cord is tied midway on the band so the top half of the fabric drapes down over the cord and lower part of the band. Not all caterpillars will seek refuge in the band and the tree with the burlap band will likely be infested from caterpillars in the canopy of nearby trees. So in areas with tree canopies touching each other this method is not efficient.

Chemical pesticides can be an effective option and several are available to homeowners. Generally they are most effective a few weeks after the caterpillars hatch. The most commonly available pesticides are Sevin and Orthene. Both are effective within 24 hours and their effectiveness lasts for about two weeks for Sevin and one week for Orthene. The drawbacks are that these chemicals are also toxic to bees, and perhaps birds and fish. The safest pesticide to use is commonly called BT (*Bacillus Thuringiensis*) or BTK. BT does not harm bees, birds, fish, or people. But it does target and kill the Gypsy Moth Caterpillar. BT concentrate liquid is not sold at Home Depot or Lowes, but you may find it at garden centers and some hardware stores. It is available on Amazon.com for approx \$12 per pint and sold as Safer Brand 5163 Caterpillar Killer II Concentrate. One tablespoon of concentrate is mixed with one gallon of water then sprayed onto the tree. Thus one pint of concentrate will yield 32 gallons of spray. BT is the product most widely used by government agencies to control gypsy moths.

By mid July the caterpillar will shrink in size to approx 3/4 inch as it enters the pupa stage where it remains for two weeks and then emerges as a moth. For one week the male moths fly around looking for female moths. Female moths do not fly. Fertilized female moths will lay several hundred eggs in one beige oval shaped egg mass about an inch long. Old empty egg masses will remain on the trees for a few years and feel soft and spongy. New egg masses feel hard and firm.

To reduce the following year caterpillar population the egg masses can be killed. The easiest method is with a 50% soybean oil, 50% water mixture. Inexpensive vegetable oil is usually 95% soybean oil. Use a small hand sprayer, such as an empty glass cleaner spray bottle, filled with the 50/50 mixture and spray each egg mass until it is saturated. Keep the mix agitated between sprays. The egg masses can be left in place or removed. The spray can be effectively applied to the egg masses from August to April.

Mother Nature does have ways to control the gypsy moth population, but it generally takes a few years. White-footed mice feed on the gypsy moth pupae but there are not enough mice to effectively control gypsy moth population. Nor would you want that many mice because they are a major so-called 'infection reservoir' of Lyme Disease. Several species of birds do eat gypsy moth larvae but it is not clear how much of an impact they have in controlling gypsy moth population. Parasites such as tiny non-stinging wasps deposit their eggs into gypsy moth egg masses. As the wasp larvae develops it eats the gypsy moth egg, killing it. These wasps have been released into forests and woodlands, but it is not clear how much of an impact they have had on the gypsy moth population.

However, when we have a wet and humid spring a fungus called *Entomophaga maimaiga* will infect and kill the gypsy moth larvae. Unfortunately the past few springs have been relatively dry which helped the gypsy moth population to spike. Another effective enemy of the gypsy moth is a naturally occurring virus called *Nucleopolyhedrosis*. This virus spreads like the common cold in areas of high density gypsy moth populations. When you see a gypsy moth caterpillar bent over that is a sign that it has the *Nucleopolyhedrosis* virus. This fungus and virus are believed to be the reasons gypsy moth populations crash for ten or more years.



Though 2017 may be another bad year of gypsy moths, keep in mind that healthy trees are resilient and often will recover even after several years of moderate leaf loss. But large older trees are more vulnerable to stress caused by leaf loss. The most important thing a homeowner can do to minimize that stress is water a tree during dry periods and apply fertilizer. If a week has gone by with less than an inch of rain, then water the tree. A tree may die after several years if more than 50% of leaves are eaten away each year, and there is a severe drought, and severe winters.

The West Virginia University Extension Service has published a 16-page [Homeowner's Guide to Gypsy Moth Management](#) by Emily Grafton and Dr. Ralph Webb, which can be found on the internet. The Minnesota Dept of Natural Resources has excellent information available on their website regarding Gypsy Moths. Much of the information in this Gloucester document was taken from those two sources.

Summary:

January thru March: Soak egg masses with oil/water mixture.

April thru June: Use sticky barrier bands on trees.

Mid April to Mid May: Apply pesticides such as BT.

Mid April thru August: Use burlap bands on trees.

August thru following March: Soak egg masses with oil/water mixture.

This document prepared by Roy Najecki, Gloucester Conservation Commission, April 2017.