

# ○ Gypsy Moths



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**Gypsy Moth**

The insect pest Gypsy Moth feeds on hundreds of varieties of trees and shrubs. The moth prefers the oak as a host tree - such as New Jersey's state tree, Northern red oak.

**The Problem**

The Gypsy Moth, originally from Europe, was introduced to Massachusetts in 1869 by a French botanist trying to develop the silkworm industry. Once the insects escaped from his laboratory, they colonized and spread. Currently gypsy moths populate 19 states. Without intervention this pest spreads at a rate of about 13 miles per year.

**Management**

To control gypsy moths a property owner should monitor populations, maintain tree health, remove and destroy egg masses, and trap larvae by banding trees with burlap. Heavy infestation may require treatment with insecticide such as Bt (*Bacillus thuringiensis*) - a naturally occurring bacteria. Bt is often recommended because it only affects the caterpillar stage of moths and butterflies. Spray the tree's leaves with Bt from late April to early May when caterpillars first hatch and are less than 5/8" long. Bt does not work on older caterpillars or other moth life stages. Some Bt brand names are: Dipel, Thuricide, and Caterpillar Attack. Read all instructions before applying pesticides. Homeowners should consider hiring a NJ Certified Tree Expert to develop a control plan to protect their tree resource.

**Tree Effects**

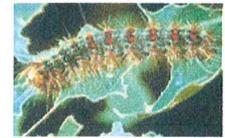
If a healthy tree is defoliated, the tree may re-leaf during the summer, but with smaller leaves. This stress to the tree makes it more susceptible to borers, fungus, and drought. A healthy tree may be able to survive one or two defoliations. A stressed tree may partially or totally die from defoliation and the impact may not be seen for many years.

**Growing Populations**

In 1981, New Jersey suffered the worst gypsy moth defoliation of 800,000 acres. From aerial surveys, New Jersey foresters have determined that populations are on the rise again. From 42,000 acres defoliated in 2005, the infestation has risen to over 127,000 acres in 2006, and 324,000 in 2007.



Newly Hatched Larvae



Larva eating leaves



Female (whitish) Male (brown)

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## The Gypsy Moth on Home Grounds

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This sheet contains information on a series of practices to reduce defoliation by gypsy moth caterpillars under home grounds conditions. However, the control measures described herein may not be satisfactory within, or adjacent to, areas of high gypsy moth density.

### Life Cycle

The gypsy moth develops in four stages: egg, larvae (caterpillars), pupa (transformation stage), and adult (moth). Only the larval stages are destructive.



Eggs are deposited in a cluster called an “egg mass” from June into August. The oval egg masses vary in size, but are generally about 1 inch long and 1/2 inch wide. Egg masses are covered with buff-colored hairs from the female’s body. Trees, stones, buildings, and most shaded objects are suitable sites for egg deposition. The egg stage passes through the remainder of the summer, fall, and winter.

Eggs usually begin to hatch in late April and continue to hatch for about 2 weeks. Young caterpillars (larvae) are clothed with many hairs and can be carried for considerable distances by the wind. They feed from late April to early July. Full-grown caterpillars may be 1 1/2 to 2 1/2 inches long with several pairs of warts along the top of their bodies. The first five pairs of warts are blue; the last six pairs are red.

Gypsy moth caterpillars have a voracious appetite and can cause extensive defoliation of trees. Some favored host trees include: apple, linden, oak, and willow; however, other hardwood species may be attacked. Hemlock, pine, and spruce may be damaged by late-stage caterpillars.

It is not uncommon to observe large numbers of “migrating” caterpillars crossing roads and on the sides of dwellings and other stationary objects. Migrating caterpillars can stain paint on houses and when handled, their body hairs may irritate the skin of susceptible people.

Caterpillars enter the pupal stage during June, and adult moths emerge after 10 to 14 days. Male moths are brown with blackish bands across the front pair of wings. They can be seen flying about while searching for female moths, especially up and down the trunks of trees. Female moths have white wings with black markings, but do not fly (exception is the Asian Gypsy moth found on the west coast). After mating, the female deposits her eggs. There is only one generation per year.

### Control

Egg masses can be destroyed from August to late April by scraping them off with a penknife or a thin putty knife. Collect the egg masses in a container and burn them. All egg masses that fall to the ground while scraping should also be collected and burned.

From mid to late May, burlap strips tied to the trunks of trees will capture some gypsy moth caterpillars. Each strip should be at least 18 inches wide and long



enough to encircle tree trunks. Place a strip around the tree and secure the middle with twine. Fold the upper edge of the burlap down over the twine to form a skirt-like band. Inspect all burlap strips every day. Remove and kill all caterpillars hiding in the strips by hand. The bands can be removed in late July. Banding of trees with sticky material or burlap strips will not guarantee caterpillar control because young caterpillars may be blown into trees from adjacent areas.

When young caterpillars begin to feed in May, trees can be protected from defoliation by applying insecticides.

Compressed air (or knapsack) sprayers can be used by homeowners for short trees. A trombone sprayer is necessary for small trees (about 15 feet). Thorough spray coverage of foliage is necessary for adequate control. Tall trees require use of special equipment such as a mist blower or a high-pressure, high-gallonage hydraulic sprayer. Certified tree experts and landscape maintenance firms usually have equipment and experience needed to service home grounds. Names and addresses appear in the yellow pages of your telephone directory under "Landscape Contractors" "Tree Service," and "Nurserymen."

**Some insecticides labeled for gypsy moth control are listed below\*:**

Material and Formulation	Amount for Hydraulic Application			Mist Blower 50 gallons
	100 gallons	3 gallons	1 gallon	
acephate (Orthene)				
75% Soluble powder	2/3 lbs.	————	————	2/3 lbs.
<u>Bacillus thuringiensis</u>				
Thuricide HPC	2 qts.	3 fluid oz.	1 fluid oz.	10 qts.
Dipel Pro DF	1/4-1 lbs.	9 tbsp.	3 tbsp.	5 lbs.
Foray 48B	1.3 to 6.7 pts.	3 tsp.	1 tsp.	3.25-15 qts.
Javelin WG	0.12-1.25 per acre	3 tsp.	1 tsp.	————
carbaryl (Sevin)				
50% Wettable powder	2 lbs.	6 tbsp.	2 tbsp.	————
4 Flowable	0.75-1 qt.	2 tbsp.	2 tsp.	1 gals.
80% Sprayable	0.9-1.25 lbs.	4 tbsp.	4 tsp.	5 lbs.
cyfluthrin (Decathlon, Tempo)				
20.0% WP	1.3 oz.	————	————	————
10.0% WP	1.9-6.7 oz.	————	————	————
Dimilin (Application by Certified Applicators <u>only</u> )				
25W	1 to 4 ounces in sufficient water volume (1.5 to 10.0 gallons/acre) to achieve uniform coverage of foliage. Limit to 1 application/year.			
Esfenvalerate 0.4%	————	6 tsp.	2 tsp.	————

**Read and follow all directions and safety precautions printed on the insecticide label.**

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