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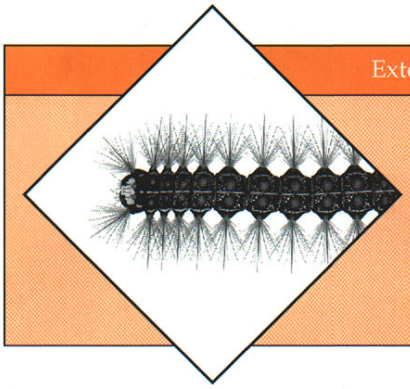

Gypsy Moth and Your Shade Trees

Michigan State University Extension

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The gypsy moth is an important pest of many forest and shade trees in the northeastern United States. This insect is not native to North America. Gypsy moth was accidentally introduced into Massachusetts in 1869 and has been slowly spreading through the northeastern United States.

The first gypsy moth outbreaks in Michigan occurred in the mid-1980s in the central part of lower Michigan, in Midland and Clare counties. Since then, much of northern lower Michigan has experienced at least one gypsy moth outbreak. High populations are expected to occur in many areas of southern lower Michigan during the next few years.

The gypsy moth can be an annoying pest in urban forests, especially during the caterpillar stage. Gypsy moth caterpillars feed on the leaves of more than 300 species of trees, but they especially like oak, basswood (linden), aspen, apple, crabapple and willow trees. When gypsy moth populations reach outbreak levels, shade trees may be heavily defoliated. The high numbers of large, hairy caterpillars that may be present and the resulting rain of frass (fecal pellets) from infested trees can be distressing for residents, especially for people who have not experienced a gypsy moth outbreak before.

This fact sheet was produced to provide answers to some questions about gypsy moth that are frequently asked by urban dwellers.

How do I know if I have gypsy moth in my yard?

Many insects are found on urban trees, but there is only one gypsy moth! Gypsy moth caterpillars have pairs of red and blue spots along the back and long, dark hairs. They feed on the leaves of oaks, aspen, apple, crabapple, basswood and many other species of trees from late May until early July. The caterpillars spin reddish brown cocoons in July and pupate for one to two weeks.

Adult moths then emerge from these cocoons, usually between mid- to late July and early August. The moths live only a few days and do not feed. Adult males are brown with dark markings on the wings and are active fliers. Adult females have white wings with black chevron markings but do not fly. Each female lays one tan egg mass, which is covered with tiny hairs. Egg masses may be small, about the size of a quarter, or may be up to 3 inches long. Egg masses are laid in July or August, overwinter and hatch the following April or May. Color photos of the life stages of gypsy moth can be found in MSU Extension bulletin E-2302.

Many other insects feed on oak trees and are sometimes mistaken for gypsy moth. Color pictures of gypsy moth and other oak defoliators are in MSU Extension bulletins E-2633 and E-2299.

Will gypsy moth kill my trees?

NO! An oak or other hardwood tree that is completely defoliated during the summer may look as if it's dead, but healthy trees will produce a second set of leaf buds, usually in late July or early August. This second set of leaves will produce enough energy for the tree to survive the winter. Severe defoliation does stress the tree, but healthy trees can tolerate even complete defoliation for a few years. However, if trees are affected by other stress factors such as drought, disease or poor growing conditions, there is a greater chance that they will die.

How can I keep my trees healthy?

The best thing that you can do for your trees is to keep them well watered, particularly during dry periods in the summer. Also, avoid wounding your trees with lawn mowers or other equipment. Wounds will increase the risk that trees will be affected by disease. Avoid compacting the soil or damaging the root system of trees.

Is there anything that I can do to help reduce gypsy moth populations in my yard?

You bet! Search for egg masses on trees, firewood and outdoor furniture. Scrape egg masses into a coffee can filled with soapy water, or burn or bury the egg masses. Bands placed around tree trunks can be used to trap caterpillars or

prevent them from climbing into the canopy. See MSU Extension bulletins E-2300, E-2301, E-2302 and E-2591 for information on these strategies.

Pheromone traps are used by scientists and pest managers to detect new gypsy moth populations in uninfested areas. These traps are rarely effective in controlling gypsy moth populations, however. See MSU Extension bulletin E-2585 for more information on pheromone traps.

Many natural enemies—such as birds, mice, predatory insects and insect parasitoids—feed on gypsy moth. You can encourage these natural enemies by avoiding the use of broad-spectrum insecticides and by providing habitat for birds and predators. Several biological control agents have been introduced into Michigan to help control gypsy moth. *Entomophaga maimaiga*, the gypsy moth fungus, is a recent introduction that affects large numbers of caterpillars in some years. A virus disease that affects caterpillars often causes gypsy moth outbreaks to collapse. See MSU Extension bulletins E-2302, E-2604 and E-2622 for information on gypsy moth natural enemies.

Some residents use Bt (*Bacillus thuringiensis* var. *kurstaki*) to reduce gypsy moth populations. Bt is a bacterial disease that affects only foliage-feeding caterpillars. It must be sprayed on leaves and the leaves must be eaten by young caterpillars for the Bt to be effective. Bt is not harmful to humans or other mammals, birds, fish or beneficial insects. More information on Bt is available in MSU Extension bulletins E-2421 and E-2591.

You can spray Bt on your trees yourself or hire professional tree care companies to spray trees. Also, some municipalities or neighborhoods are participating in the Michigan Voluntary Gypsy Moth Suppression Program administered by the Department of Agriculture. This program helps pay costs of Bt application in residential areas during gypsy moth outbreaks. Your neighborhood may be eligible to participate if you meet the program requirements. Contact your county suppression program coordinator, the regional Department of Agriculture office or your county MSU Extension office to learn more about this program.

Will I have to deal with gypsy moth next year?

In most areas, gypsy moth populations will remain high for one to three years, then collapse and return to low levels. This population collapse usually is the result of a virus disease called NPV that affects gypsy moth caterpillars. When populations are high, the caterpillars must compete with one another for food and resting spots. Stressed caterpillars become more susceptible to the NPV disease. After a year or two of heavy defoliation, the NPV disease, in combination with other natural enemies, will generally control the outbreak. More information on NPV can be found in MSU Extension bulletin E-2604. Gypsy moth populations usually remain at low levels for five to 10 years. Eventually, however, some factor triggers another outbreak and a new cycle begins.

Can't we just get rid of ALL the gypsy moths?

Nope — gypsy moth is here to stay and is now a part of Michigan's forest and urban forest ecosystems. But you can help keep gypsy moth from spreading into new areas that are not yet infested. Gypsy moth females like to lay their egg masses in dark, protected locations such as the undersides of lawn chairs or picnic tables or on firewood. Egg masses may also be found on recreational vehicles or trailers or in the wheel wells of cars.

Female gypsy moth and egg mass

If you unknowingly transport egg masses to a new location, you may be helping to start a new gypsy moth population and many headaches for other people! Be sure that you know what a gypsy moth egg mass looks like. Inspect firewood, vehicles, lawn furniture and other outdoor items that might have egg masses. If you find egg masses, scrape them off into a can of soapy water, or burn or bury them.

Where can I get more information?

Contact your county MSU Extension office. The staff there can provide you with the Extension bulletins listed here and give you up-to-date information on the gypsy moth situation in your neighborhood.

MSU Extension Bulletins on Gypsy Moth Management

Gypsy Moth in Michigan: Homeowner's Guide	E-2302
Gypsy Moth Management Calendar for Homeowners	E-2591
Comparison of the Gypsy Moth, Eastern Tent Caterpillar and Forest Tent Caterpillar	E-2299
Common Oak Defoliators in Michigan: It's Not Always Gypsy Moth!	E-2633
Cloth Banding Trees to Suppress the Gypsy Moth	E-2300
Barrier Bands to Suppress the Gypsy Moth	E-2301
Pheromone Traps and the Gypsy Moth	E-2585
Using Bt to Control Gypsy Moth	E-2421
Entomophaga maimaiga: A Natural Enemy of Gypsy Moth	E-2604
Calasoma sycophanta: A Natural Enemy of Gypsy Moth Larvae and Pupae	E-2622

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