

Managing the Gypsy Moth in Montgomery County

The exotic gypsy moth is a serious threat to forests, trees and shrubs in Montgomery County. Though primarily foraging on oak, it attacks about 300 plant species. A gypsy moth larva (caterpillar) can consume about ten square feet of foliage before pupation. Defoliation can exceed 90% when caterpillars occur in high concentrations. Surviving trees refoliate later in the summer with smaller, paler leaves. Healthy trees can survive one or two defoliations. However, weaker trees often die from secondary agents (e.g., fungus, wood borers, etc.). Favored overstory trees include oak, basswood, boxelder, and willow. Favored understory species include alder, serviceberry, and witch hazel. For a more complete list visit: <http://gypsymoth.ento.vt.edu>.

Gypsy moth eggs hatch as oak leaves begin to develop in late April. The young caterpillars climb to tree tops and are dispersed by the wind. The caterpillars forage for about six weeks, and then enter the pupal stage. The non-feeding adults emerge from their pupal cases a few weeks later. The flying male locates the non-flying female, which lays an egg mass containing up to one thousand eggs. Egg masses are laid on protected areas of trees, rocks, houses, trailers, firewood, outdoor furniture, etc. There is only one generation per year, so these eggs are the over-wintering stage.

The various life stages have distinguishing characteristics relative to other moths. The beige, velvety egg masses range from dime to quarter size. The brown caterpillars are very hairy with five pairs of raised blue dots followed by six pairs of raised red dots along their backs. The very dark brown pupa cases are about 1 to 2 inches long. Male moths are medium brown with darker brown stripes and margins on their wings, and the white females have minor brown markings. Gypsy moths are confused with the eastern tent caterpillar and fall webworm. Unlike the gypsy moth, they form very large silken nests that contain large numbers of caterpillars. Tent caterpillars build their communal nests in the forks of trees, particularly cherry trees. Fall webworms develop later in the summer. For photos and information about the gypsy moth's life stages, the tent caterpillar, and the fall webworm see the above website.

Natural controls include some native predators (e.g., birds, mice, ground beetles), introduced parasitoids (e.g., flies and wasps), and disease agents (e.g., fungus and virus). The fungus (*Entomophaga maimaiga*) and virus (NPV) are the most effective. The fungus is effective in cool, wet weather, even at low caterpillar densities; and the virus works in warm, wet weather when caterpillars are under stress from crowding or lack of food.

Homeowners can combat gypsy moths by destroying egg masses (August through April), caterpillars, pupae, and female moths (May through July); and managing vegetation. Inspect buildings, woodpiles, vehicles, outdoor furniture, tree trunks, rocks, etc. (Consider removing unnecessary items from your yard.) Scrape egg masses into a container of soapy water and let them soak for a day to ensure that all eggs have been killed. Alternatively, leave the egg masses in place and drench with a 1:1 solution of soybean oil (e.g., Golden Oil) and water.

Protect individual food trees by tying a burlap band about 5 feet above ground. Fold a 12-18 inch wide strip of burlap in half and drape over a piece of string. The burlap length should just exceed the tree's circumference, so the ends overlap; and be loosely attached to the tree, so that larvae can crawl beneath it from either the bottom or the end. During daylight, lift the burlap and scoop caterpillars and pupae into a detergent solution and let them soak for a day. Ring trees with an impermeable material like tar paper or duct tape, and apply Tanglefoot®, grease or tar to entrap caterpillars. (Petroleum products can damage trees, so don't apply them directly to the

bark.) There are also commercially available sticky tapes such as Bug Barrier Tree Band. Remove objects such as dead branches, lumber, rock piles and equipment around your yard and home that provide shelter for gypsy moth larvae and pupae. The white female moths cannot fly. Search for them on tree trunks and in dry, sheltered areas during July before they lay their eggs. Spoon them into a jar of detergent solution, and keep them there for a day.

When caterpillars are dense, and many trees are infested, consider using pesticides. Apply them in May after young caterpillars begin to feed, but before serious defoliation. (Be sure to comply with label directions.) Effective pesticides fall into two broad groups: biological (e.g., bacteria and viruses) and chemical. *Bacillus thuringiensis var. kurstaki* (*Btk*) is the most commonly used biological insecticide, but it also affects many non-target moths and butterflies. Insecticides containing *Btk* include Dipel®, Thuricide® and Caterpillar Attack®. Be certain you purchase *kurstaki* rather than a different variety. A virus based insecticide, Gypcheck, attacks only the gypsy moth, but is produced in very limited quantities. The most commonly used chemical insecticide is Diflubenzuron (Dimilin®), which is often more effective since it persists longer in the environment. It is a restricted use pesticide that requires a pesticide license to apply; and it affects many more non-target species. Small trees may be sprayed with a garden sprayer. A licensed pesticide applicator can treat taller trees. Check for references, licenses and bonding.

Homeowners with heavy caterpillar infestations may request inclusion in the Virginia Cooperative Gypsy Moth Suppression Program. Montgomery County is one of several local governments that participate in this cost-share program with the Virginia Department of Agriculture and Consumer Services. *Btk* and Dimilin® are applied by aircraft to qualifying forested residential areas.

Manage your vegetation by maintaining good nutrition and moisture for your trees' fine feeder roots and planting species that are unattractive to gypsy moths.

- Fertilize and water trees during dry conditions, and after defoliation
- Don't apply lime or herbicides beneath tree canopies
- Mulch or replace lawn grasses beneath trees with less competitive ground covers
- Don't cut roots, compact the soil, or cover roots with fill material
- In forested yards retain natural forest floor cover that provides the acidic and moist conditions preferred by oaks, and habitat for natural predators
- Careful pruning can make refoiliation less stressful
- Consider thinning trees to reduce competition for nutrients and moisture
- Plant or favor trees and shrubs unattractive to gypsy moths, such as yellow poplar, conifers, honeylocust, hickory, maple, ash and dogwood. The above web site can help in identifying landscape plants

If you have questions, want to report gypsy moths, or are interested in the Virginia treatment program, please contact [Charles Putnam](#), Montgomery County Gypsy Moth Program Coordinator at 977-Tqcpqmg"U0"Uwkg"3I ."Ej tkwcpudwti ."XC."46295."*762+5: 4/79; 20