
service in ACTION

Gypsy moth: characteristics and control

David A. Leatherman, David S. Farmer
and David S. Hill¹

no. 5.539

Quick Facts

Gypsy Moth is one of the most destructive defoliators of trees and shrubs in the United States.

Oaks are the preferred hosts, but gypsy moths also eat aspen, willow, apple, and almost 500 other trees, shrubs, and vines.

Severe defoliation reduces tree vigor, allowing for secondary pest infection and possible death.

Females lay their egg masses on outdoor objects such as lawn furniture and vehicles and can be transported quickly over long distances.

Eradication of discovered gypsy moth populations in Colorado may be possible through the integrated use of chemical and biological controls.

In 1869 gypsy moth was introduced into the Boston area from France for experimental cross-breeding with silkworms. Some caterpillars escaped and established on the surrounding vegetation. Without their natural enemies to keep populations in check, gypsy moths soon became a major pest species in northeastern United States.

The insect has continued to spread. Infestations have been found as far west as Washington, Oregon and California. The principle means of transport is by accidental movement of the egg masses. Since the females lay their eggs on outdoor articles such as lawn furniture and vehicles, they can be transported with human assistance over long distances. This ability to "hitch-hike" makes the gypsy moth a continued threat to ornamental and native trees and shrubs.

This information provided by:

This Service in Action fact sheet was produced in cooperation with the Colorado State Forest Service.



1. David A. Leatherman, entomologist, David A. Farmer, forester, and David S. Hill, intern, Colorado State Forest Service. Reviewed by Whitney S. Cranshaw, Colorado State University Cooperative Extension entomologist and associate professor, entomology. 1/92. ©Colorado State University Cooperative Extension. 1994. For more information, contact your county Cooperative Extension office.

Since 1970, defoliation in the U.S. has exceeded 500,000 acres annually. In 1984, the first gypsy moth was found in Colorado.

Description and Life Cycle

First appearing in late April or early May, the young caterpillars can be blown several miles on the wind. They are black with five pairs of blue dots and six pairs of red dots along their back (Figure 1). A mature larva is 1-1/2 to 2 inches long. Larval hairs, while irritating and a possible cause of rashes in some people, are not normally considered poisonous. In July, the caterpillars enter the pupal or "cocoon" stage. They are dark brown with buff-colored clumps of hair. Adult moths emerge within two weeks.



Figure 1: Nearly full-grown gypsy moth caterpillar. Actual size is about 1-1/2 to 2 inches long.

Adult male moths are dark brown with black wavy lines across their forewings and are most easily identified by feather-like antennae. Adult females are nearly white with wavy dark bands across the forewings (Figure 2). Females do not fly but will crawl short distances. Males have a wing span of 1 1/2 inches; the wing spans on females can reach 2 inches. Adults do not feed and live only about a week, during which mating occurs. Females lay eggs in August and early September.



Figure 2: Male gypsy moth. Note feathery antennae.

Host

Any area below 10,000 feet in elevation that has broadleaf trees is thought to be a potential infestation site. Preferred hosts in Colorado include oaks, aspen, poplar species, willow, apple, birch and mountain ash, but gypsy moths also eat almost 500 other species of trees, shrubs and vines. The areas of concern for Colorado (listed in order of decreasing risk) are urban shade trees and ornamental shrubs; low-elevation aspen; "oakbrush" or Gambel oak; vegetation along rivers and streams; and West Slope orchards.

Conifers, such as Douglas-fir and some pines, also have been attacked in certain western infestations. The mostly pure stands of evergreens typical of Colorado, however, are unlikely to be seriously damaged.

Damage

In urban areas, gypsy moth caterpillars are nuisances as they feed on shade and ornamental trees and shrubs. The caterpillars and debris from their feeding get into pools, on sides of houses, on patios, etc. Severe defoliation reduces host plant vigor, which allows for secondary pest infection. During a long-term outbreak, repeated defoliation can result in host death.

Extensive defoliation of forested areas is unsightly and costly. Heavily damaged park and forest lands are not attractive to tourism. Industry that depends on aspen for raw material and firewood also may find supplies reduced.

Gypsy moth defoliation can alter wildlife habitats. Defoliation reduces both hiding cover and forage for many wildlife species.

Areas declared by regulatory agencies to be infested with gypsy moth are subject to quarantines that could be both costly and inconvenient.

Controls

Detection is the first step to control the gypsy moth. This can be done by visual inspection, but by far the most effective means has been the use of pheromone traps. These traps mimic the scent of female moths and attract male moths. Once an infestation is detected, use traps the next year at higher densities to pinpoint the area needing treatment, and/or as a partial control in themselves by catching large numbers of males.

Identified infestations usually are treated by spraying with ground equipment or aircraft. Sprays used must combine environmental safety and effectiveness and normally are applied in May.

Experimental methods such as the release of irradiated egg masses, that yield sterile moths, have been used successfully in Colorado. Future techniques will probably integrate all of the above and new approaches involving new materials and/or natural controls such as parasites and predators that may evolve.

Eradication of introduced populations is possible in Colorado but depends on early detection. Trapping is a real key to success in managing this insect pest safely and inexpensively.