

# Rhode Island Department of Environmental Management

## Gypsy Moth in Rhode Island – Life Cycle

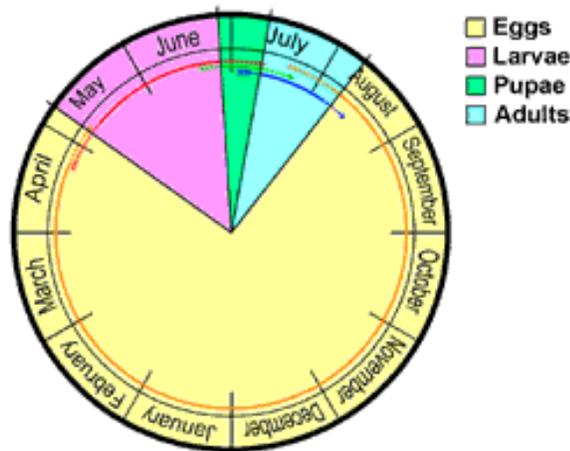


female gypsy moth laying eggs

gypsy moth larva (late instar)

gypsy moth pupal cases

male gypsy moth



### Life Cycle

Gypsy moths produce only one generation each year, passing through 4 stages: egg, larva, pupa, and adult. Only larva damage trees and shrubs.

Generally, gypsy moths lay their egg masses on tree trunks, the undersides of branches, in crevices, under loose bark, and under or on rocks, tree stumps, foliage, outdoor equipment and vehicles. The egg stage lasts until late April or early May the following year. Hairs from the female's abdomen surround the eggs, providing some protection from winter temperatures and natural enemies. Larval development is completed inside the eggs about a month after laying, but the larvae enter diapause and do not emerge until the following spring. Egg hatch usually begins at about the same time that red oak buds open.



Most larvae will hatch from an egg mass within a week, but the hatch period may be up to a month in egg masses in cool, shaded, areas. Newly-hatched larvae are about 1/8" long and remain near their egg mass if the weather is rainy or if temperatures are below 45°F. Once they have left the egg masses, larvae are attracted to light and move upwards, spinning a thread of silk, until they reach the top of the tree or other object on which they hatched. Under some conditions, they may spin down on silk threads. If the wind is strong enough, the threads may break and carry the larvae up to 650' within the forest canopy. Rarely, larvae may disperse up to 12 miles if they are carried out of the canopy by updrafts (Montgomery and Wallner 1988, Taylor and Relling 1986).

Larvae feed first on new leaves. When not feeding, the young larvae stay on the undersides of leaves, where they form a silk mat on the leaf surface for attachment. Molting occurs at intervals of about one

week, which allows the larvae to grow in size. Males usually undergo four molts and females usually undergo five, but as many as nine have been recorded. After the third molt, when population density is



low to moderate, larval behavior changes dramatically. Rather than always remaining in the canopy, larvae leave the foliage during daylight hours and seek hiding places on the boles of trees or on the ground. Under



high-density conditions, even large larvae remain in the canopy during the day.

At the end of the larval period, larva surround themselves with a sparse silk net, rest for one to two days, and then become a pupa. The pupa breaks out of the larval cuticle, turns dark brown, and remains in its silk net for about two weeks. When development is complete, the newly-formed adult breaks out of the pupal skin, expands its wings over a period of several hours, and begins its adult life.

Adults emerge from pupae during July and August. Emergence is accelerated under extremely high-density conditions. Males usually appear one to two days prior to females and fly in zig-zag or (less commonly) straight patterns. Vertical objects such as tree trunks where females are most likely to be found attract the males. Most males will fly less than 1/2 mile (usually less than 650') from their site of emergence. Females do not fly.



Several hours after emerging, females release a sex pheromone in bursts from abdominal glands. This chemical attracts males, who follow the scent upwind to locate the female and begin mating. Mating may last up to 1/2 hour, and females begin depositing eggs within 24 hours. Multiple mating may be common among males, but is probably rare among females, since the release of pheromone is inhibited by mating. Adult moths live about one week.