SPONGY MOTH

Invasive fact sheet

Spongy moth caterpillar

Adult female moths and egg masses

The spongy moth (formerly known as gypsy moth), *Lymantria dispar*, is a defoliating insect of mostly hardwoods. A native of Europe and Asia, the spongy moth was introduced into North America in 1869. Spongy moth can remain at low levels for several years and then numbers can rise every few years. Extreme infestations can defoliate large areas of a forest and repeated consecutive defoliations can cause significant tree mortality.

Description

Adults: Females are mostly white with a wingspread of 2"; males are light tan to dark brown with a wingspread of 1½". Females are flightless; males are good fliers and are often seen flying about in large numbers. Moths are found from early July through August. They do not feed on foliage.

Eggs*:* Egg masses are buff-colored, velvet-textured, and 1½" by ¾". Clusters are mostly deposited on tree trunks especially on sides leaning towards the ground. Also on undersides of branches. They can also be found on stone walls, furniture, houses, and cars. Egg masses can contain 500 to 1,000 eggs per mass.

Larvae*:* Caterpillars are brown-black and hairy, with six pairs of red dots and five pairs of blue dots on the back when mature. Fullgrown larvae are 2" long.

Pupae*:* Pupae are dark brown and shaped like a conical cylinders ¾" to 1½" long. They can be found attached to many objects including trees, buildings, rocks, and logs.

Spongy moth caterpillars emerging from eggs

Spongy moth pupae

LIFE CYCLE

The spongy moth goes through four stages of development—egg, larva (caterpillar), pupae (cocoon), and adult (moth). This species produces one generation per year.

Eggs start to hatch around early May in the northernmost United States.

Larvae: Caterpillars may remain in the lower forest canopy or, when in high populations, migrate upwards to the tree tops, where each one spins down on a long silken thread. The caterpillars use a process of dispersal known as "ballooning". The caterpillars hang in the air, waiting for a strong wind to break the thread and carry them to a new more favorable location.

Young larvae chew small holes in leaves, while older larvae consume entire leaves except for the larger veins and midribs. caterpillars are voracious eaters, tend to feed at night, and gather in protected areas during the day.

Whole trees can be defoliated reducing growth and vigor, as well as aesthetic, recreational, and wildlife values. If total defoliation is experienced over several consecutive years, mortality may result. Preferred species include oaks but they will defoliate many other tree species.

Pupae: Larva pupate in June-early July. Adults emerge in 10-14 days and no longer feed. Females stay near where they emerge.

Adults: Adults mate and females lay eggs in mid July to August.

MANAGEMENT

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Natural Biological Control

Entomophaga maimaiga is a fungus that attacks spongy moth larvae. Dry weather in spring of 2021 was not good for fungi, and that absence may have allowed spongy moth numbers to increase in the spring and summer of 2021.

Nucleopolyhedrosis virus (NPV) causes high levels of caterpillar mortality when the *Lymantria dispar* population is at very high densities. Virus-infected larvae are shiny and hang limply in an inverted "V" position.

Dead spongy moth caterpillar killed by the fungal pathogen Entomophaga maimaiga. Photo: Steven Katovich, Bugwood.org

Larvae infested with virus. Photo: John H. Ghent, USDA Forest Service

Parasites and predators such as rodents, birds, parasitic wasps, spiders, ground beetles, fungi, and viruses may destroy many insects but none of these natural predators can prevent a spongy moth outbreak. They can maintain populations at low levels and lengthen the time between outbreaks.

Other Control

The most commonly recommended pesticide treatments contain the bacteria, *Bacillus thuringiensis kurstaki* (Btk). Btk must be applied to trees in May when caterpillars are less than 1/2-inch long. Timing is critical as Btk is significantly less effective on older/larger caterpillars.

This strain of bacteria is specific to moth larvae, and its toxic properties get activated when it interacts with particular enzymes in the caterpillar's digestive tract. It kills caterpillars that eat it within a week of its application. Btk is not specific to spongy moth and may reduce populations of native moths and butterflies. Timing and limited area are the best way to limit this.

Btk is found naturally in soil and degrades within a week when exposed to sunlight. Btk has no affect on animals, birds, people, or even other insects. It is sold under various labels (Dipel, Foray, and Thuricide, to name a few).

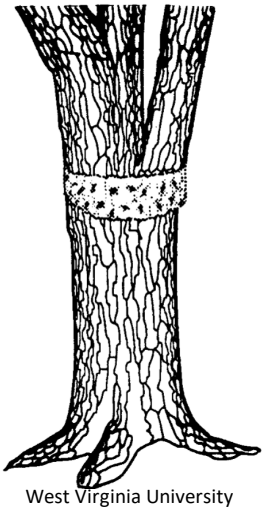
Mechanical Control

If you have a few trees to protect, in urban or suburban areas:

Egg Masses: From late fall through winter and early spring, egg masses can be scraped into a container with soapy water and submerged for 2 days to kill the eggs. Be careful not to damage tree bark: using a plastic card works well. Remember, egg masses contain hundreds of eggs so removing them eliminates the most caterpillars with the least effort.

You can also kill eggs by spraying with a horticultural oil labeled for spongy moth egg masses (available at lawn and garden centers or online). Neem Oil is an organic horticultural oil. Mix concentrate as directed and soak egg masses to smother eggs before they hatch.

Caterpillars: Reverse duct tape or other material can be wrapped around trunks and spread with a product such at Tree Tanglefoot. When caterpillars crawl up or down the trunk, they will get stuck on the bands and die. Do not apply sticky materials directly to bark. Petroleom based products can damage and girdle a tree. Chicken wire can protect small animals.



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Burlap, wrapped around trunks and then folded over wrapping twine, will trap caterpillars, which can be squashed or scrapped off into a bucket of soapy water. This will require daily maintenance.

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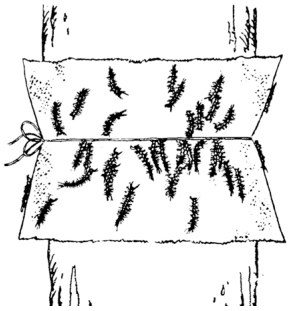

Pupae and Adult Females: Spongy moth pupae can be crushed or brushed into a container of soapy water to prevent them from making it to the adult stage. Pupae are often tucked away in protected spots.

Adult spongy moths appear within two weeks of pupating. Adult females (pale colored) have limited mobility and can also be crushed or brushed into a container in soapy water. Since each female can easily lay upwards of 1,000 eggs, eliminating adult female moths can help limit future problems!

Essex Conservation and Trails Committee