



## *Lymantria dispar*

**Hosts:** Mainly oak (*Quercus*), poplar (*Populus*), and gray birch (*Betula populifolia*). The caterpillars will feed on most hardwoods except ash (*Fraxinus*). After feeding initially on hardwoods they then become capable of feeding on all conifers except fir (*Abies*).

**General Information:** *Lymantria dispar*, formerly gypsy moth, was introduced into this country from Europe in 1869 and occurs generally throughout most of Northeastern United States. During favorable conditions for *Lymantria dispar*, outbreaks may appear suddenly and may continue for two to five years in any one location. Natural control factors such as starvation, disease, parasites and predators eventually combine to bring about a sudden collapse of these outbreaks. Prolonged sub-zero temperatures can also kill the overwintering eggs that are not insulated under a snow cover. Spread of infestations occurs mainly from wind dispersal of newly-hatched caterpillars. All stages of *Lymantria dispar* can also be carried long distances on vehicles that travel through infested areas. Egg mass surveys overwinter can help landowners and managers understand what level of damage to expect from *Lymantria dispar* the following spring.

**Life Cycle:** The **eggs** are laid in clusters during late July and August. The clusters which are normally the size of a quarter and covered with buff-colored hairs can be found almost anywhere: at the base of trees, on the underside of branches, under loose bark, in crevices, under rocks or other debris on the ground, on structures and outdoor furnishings and more. The egg clusters contain from a few to several hundred eggs, but usually average 100 eggs.

The eggs overwinter, usually hatching in May. Most of the **caterpillars** mature by early July after reaching a length of about two inches. *Lymantria dispar* caterpillars are hairy, generally dark brown to black in color, and have a small knob on each side in back of the head (most distinct in small larvae). Fully grown larvae have 5 pairs of blue spots followed by 6 pairs of red spots in rows on their backs. As the caterpillars get larger, their consumption of foliage accelerates, and trees may appear to be denuded "overnight," especially since they do most of their feeding during the night.

At maturity the caterpillars generally crawl to some protected spot and **pupate** in naked, reddish-brown to brownish black pupal cases. Adult **moths** emerge about two weeks later to start a new cycle. Empty pupal cases and eggs are often found together. The female moth is of an off-white color with dark markings and with a wingspan of about two inches, but it cannot fly so it tends to lay its eggs in sheltered places within crawling distance of the place where it emerged. The males are smaller and darker brown in color with black markings. Males are active fliers and frequently come to lights.



*Images: Lymantria dispar* life stages. From left to right, egg mass, late-instar larva, female moth and egg mass, male moth.

**Damage:** Most healthy hardwoods can usually tolerate one to several years of severe defoliation by *Lymantria dispar*. However, white oak is very vulnerable to this pest and hemlock and pine can be killed in one season when 90 to 95% of the foliage is consumed. In hardwood stands the understory and partially-shaded trees (weaker trees) are the first to be killed by repeated defoliation.

When present in large numbers the wandering caterpillars and their droppings can become a nuisance to home, camp and cottage owners in wooded areas.

## Management:

### A. Homeowner with a Few Trees

Non-chemical: Limited infestations can be alleviated during the fall and winter by scraping the egg clusters into a container and then destroying them. After egg-hatch and noticeable feeding, the caterpillars can be trapped and destroyed under a burlap skirt tied around the trunk of the tree; or the caterpillars can be contained by applying a band of tanglefoot around the trunk of infested trees to form a barrier to prevent them from wandering and becoming a nuisance around homes.

Insecticides can also be applied in May and June to control the caterpillars. Later applications are generally not warranted as most damage is done.

### B. Forested Areas

Chemical\*: The homeowner remedies described above may not be effective when host trees are plentiful. Forested areas can be treated by truck-mounted or aerial spray applications. Materials registered to control *Lymantria dispar* (formerly gypsy moth) caterpillars include products with the active ingredients: *Bacillus thuringiensis var. kurstaki* (Btk), spinosad and many others. Btk should be applied before the larvae reach the 4<sup>th</sup> instar (4<sup>th</sup> instar caterpillars will have a mottled head-capsule and paired red and blue spots) since these more mature caterpillars are not as susceptible to Btk treatment.



Image: Early-instar caterpillar susceptible to Btk treatments

**\*NOTE:** These recommendations are not a substitute for pesticide labeling. Read the label before applying any pesticide. Pesticide recommendations are contingent on continued EPA and Maine Board of Pesticides Control registration and are subject to change. A database to search Maine registered pesticides can be found at [www.thinkfirstspraylast.org](http://www.thinkfirstspraylast.org).

**Caution:** For your own protection and that of the environment read the pesticide label and apply only in strict adherence to the directions and precautions.

Note: In June 2021 the Entomological Society of America discontinued gypsy moth as an approved common name for *Lymantria dispar* as part of an effort to remove offensive and derogatory language from insect common names. The former common name is retained in portions of this factsheet to assist the public in finding information on management of this significant tree and forest pest.

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