

LYMANTRIA DISPAR DISPAR

(formerly known as gypsy moth)



Department of
Environmental
Conservation

What is *Lymantria dispar*?

Lymantria dispar dispar (LDD) is a moth native to France that was first introduced to the United States in 1869. It is now widespread in the Northeast and considered "naturalized", meaning they will always be a part of our ecosystem. LDD populations rise and fall in cycles, varying over the years from very few (most years), to large numbers with very noticeable leaf damage and tree defoliation. In New York, we tend to see regional outbreaks, or large spike in population numbers, every 10-15 years. Outbreaks usually end when disease and predator populations catch up enough to knock the LDD population back down.

Identification

LDD caterpillars (larval stage) can be seen starting in early to mid-May, grow to about 2.5 inches in length, and are black and hairy with five pairs of raised blue spots followed by six pairs of raised red spots along their backs. Adult moths can usually be seen starting in July. Females are white with brown markings, have a 2-inch wingspan, and cannot fly. Males are brownish with a 1.5-inch wingspan and feathery antennae.

Egg masses are light brown and covered with a dense mat of fine hairs. Egg masses are often laid on tree trunks and branches but can also be found on sheltered surfaces, from firewood to lawn furniture.

What do they do?

LDD caterpillars feed on more than 300 species of trees and shrubs, eating the young, tender leaves in the spring. In New York, they are known to feed on oak, maple, apple, crabapple, hickory, basswood, aspen, willow, birch, and more, although oak is their preferred species. When populations of LDD are high, or when oak and other preferred trees are limited, they will eat conifer species including pine, spruce, and hemlock. During outbreaks, thousands of acres of trees can be damaged.

Can trees recover?

As the caterpillars pupate and turn into moths, a healthy tree that has been fed on will grow new leaves and have a full canopy again within a few weeks. However, defoliation (loss of leaves) can reduce the health and vigor of a tree, causing it to become more susceptible to other stressors. Tree death can occur when extreme drought, flooding, or attacks by disease or other insects occur in the same year. Long-term damage depends on the type of tree, as well as the amount of defoliation.

- **Conifers:** If a needle-bearing tree loses more than 50% of its needles, it probably won't recover. Check it for new needle growth in the months after the caterpillars are gone.
- **Hardwoods:** If there are no other stressors, deciduous/hardwood trees can usually withstand 2-3 successive years of defoliation, though new leaves will probably be smaller than usual. If a tree loses ALL its leaves and does not grow any new ones in late summer, check it in the spring. If it still does not leaf out then, it has died.



Caterpillars start off completely black, with the blue and red spots showing up after their second molt. Photo by Karla Salp, Washington State Department of Agriculture, Bugwood.org



Adult female moths lay egg masses on trees and other hard surfaces.

Control Options for Landowners

BE ADVISED: Although these options may help protect individual trees or small areas, they will not eliminate a local gypsy moth population. In most cases, LDD outbreaks end naturally as disease becomes more prevalent and predator populations increase in response to the larger amount of host/prey available.

Squishing and Scraping

You can help decrease future LDD populations by squishing caterpillars and moths and destroying egg masses when you see them. To make sure an egg mass is destroyed, scrape the mass off trees or other structures into a container of detergent.

Bands, Barriers, and Traps

In late April, before LDD hatch, sticky/barrier bands may be placed around a tree's trunk to catch the caterpillars as they crawl up the tree. These bands can be bought or made at home using common household materials. Detailed instructions on how to make your own trap are available on DEC's website: <https://www.dec.ny.gov/animals/83118.html>. Please check sticky/barrier bands often in case unintended wildlife such as birds and small mammals have been caught and replace as necessary after rain events. The hairs on the caterpillars can cause skin irritation; wear gloves when handling the used traps.

In mid-June when caterpillars are larger, replace sticky/barrier bands with a burlap trap. These instructions are also available on DEC's website: <https://www.dec.ny.gov/animals/83118.html>. These traps are useful in protecting individual trees, but are not practical for a large, forested setting.

Insecticide Options

Treating an individual property with an insecticide is unlikely to impact a larger, regional outbreak but may impact other invertebrates. Carefully consider these potential impacts prior to application.

Microbial insecticides are biopesticides made from naturally occurring bacteria, viruses, fungi, or protozoans that can be targeted to a specific pest. The most common of these is *Bacillus thuringiensis* (Bt), which occurs naturally in soil and on plants. The Bt subspecies *kurstaki* (Btk) is the most appropriate to use for LDD control.

Btk works best on young caterpillars, which become more resistant to treatment as they mature. When Btk is eaten, the caterpillar becomes paralyzed, stops feeding, and dies of starvation. Btk is harmless to people, animals, and plants, but does affect other young moth and butterfly larvae. Proper application will help limit exposure to non-LDD larvae.

Chemical insecticides are contact poisons. These chemicals can have an impact on a variety of beneficial, native insects (such as bees), as well as nesting birds and other wildlife so use should be limited. Spraying is not effective against LDD pupae or egg masses, and it is less effective once caterpillars reach one inch in length.

Horticultural Oil Insecticides (aka Dormant Oils) are solutions refined from petroleum or plants and, when applied, smother insects or disrupt the protective coating around eggs. As with chemical insecticides, horticultural oils are non-selective but have the advantage of being relatively safe for humans and animals. The oils should be applied to egg masses in late March to early April before caterpillars emerge, and again in October to early November after adult have ceased activity.

More Information

Visit DEC's LDD webpage for more information including how to help trees recover from LDD damage, how to help predict next year's caterpillar populations, and annual outbreak updates: <https://www.dec.ny.gov/animals/83118.html>.

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