Homeowner's Guide for Pesky Caterpillars

Figure 1. NASA satellite image of New England in May 2016 before caterpillar outbreak.

Figure 2. NASA satellite image of New England in June 2016 revealing extensive caterpillar defoliation.

For more than two decades caterpillars have been making their mark on trees and shrubs in the Northeast. The increased populations of **gypsy moth caterpillars**, **eastern tent caterpillars**, and **forest tent caterpillars** have left trees weak from defoliation (unable to photosynthesize) and vulnerable to other insects and disease. Weather conditions play an important role in controlling the caterpillar outbreaks. The fungus *Entomophaga maimaiga*, an introduced species from Japan, is known for killing off these pests, but can only do so with moisture and high humidity. With heavy rainfall and air temperatures between 50 and 80 degrees Fahrenheit, the fungus spores are able to germinate. Once the fungus is digested it grows throughout the exoskeleton of the caterpillar ultimately killing it within a week's time. By contrast, months of little to no rainfall will prohibit fungus germination and result in massive caterpillar outbreaks leaving miles of land decimated and homeowners concerned.

To help prevent and control caterpillar outbreaks it is important for homeowners to start early. Caterpillars can be controlled at the egg or larval stage from late Fall to early Spring (before leaves form). Egg masses can be removed and burned or soaked in water or kerosene; although, if the egg mass is not easily reached it is advised to spray the mass with a strong dose of horticultural oil insect spray. At the first sign of a caterpillar, spray the tree or shrub and repeat every 2-3 weeks. As they emerge, use traps to capture moths before reproduction. For homeowners searching for garden-safe and natural insecticides, sprays containing *Bacillus thuringiensis* (B.t.), a soil-dwelling bacterium, can control caterpillar outbreak but is harmless to other insects and plants (check labels for list of applicable insects & plants). Tree bands can also be used to prevent caterpillars from reaching foliage and nearby trees. Examples of products for treatment/control include Monterey Bt, Garden Insect Spray with Spinosad, TreeTangleFoot, Sticky Bands, and Safer Garden Dust. Also, make sure to keep yards clean of dead wood and leaf litter as these areas tend to be common grounds for egg laying.

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Figure 3. Gypsy Moth Caterpillar

Figure 4. Eastern Tent Caterpillar

Figure 5. Forest Tent Caterpillar

	Gypsy Moth		Eastern Tent	Forest Tent
Scientific Name	*Lymantria dispar*		*Malacosoma americanum*	*Malacosoma disstria*
Origin	Invasive, Introduced to Massachusetts in 1869 by Étienne Léopold Trouvelot, an amateur entomologist, with the intent to develop a new breed of silkworm		Native	Native
Target Plants	Oak, Elm, Maple, Basswood, Birch, Aspen, Apple, Speckled Alder, Willow, Cherry, Cottonwood, Black Gum, Hickory, Hornbeam, Larch, Sassafras, Hemlock, Pines, Spruces		Wild Cherry, Apple, Crabapple, Ash, Oak, Birch, Maple, Cottonwood, Elm, Black Gum, Red Gum, Peach, Pear, Plum, Willow, Witchhazel, Poplar	Oak, Aspen, Black Gum, Red Gum, Elm, Cottonwood, Birch, Cherry, Basswood, Ash, Maple, Sycamore, Tupelo
Egg Mass Color	Tan (may bleach in Winter)		Dark Brown to Gray	Dark Brown to Gray
# of Eggs	500-1000		150-400	150-400
Egg Mass Location	Dead wood (firewood common). Branches. Trunks of trees. Rocks. Foliage. Vehicles. Outdoor furniture. Sides of buildings.		Branches & twigs of trees & shrubs.	Branches & twigs of trees & shrubs.
Egg Mass Season	August – early May		July – early Spring	July – early Spring
Larvae Webbing	Do not produce a web		Form tent-like web in branch forks	Do not form tents. Form silken mats on surface of branches
Larvae Appearance	Dark caterpillars with five pairs of blue dots & six pairs of red dots along back		Black caterpillars with row of blue spots on sides and solid white line down middle	Black caterpillars with row of blue spots and keyhole white spots down center
Larvae Size	~ 2 inches long		~ 2 inches long	~ 2 inches long
Larvae Season	May - June		Early Spring - June	Early Spring - June
Pupae Appearance	Dark brown shell-like cases		Silken cocoon	Silken cocoon
Pupae Season	Early Summer, June - July		Early Spring - June	Early Spring - June
Pupae Location	Sheltered areas, tree bark crevices or leaf litter		Tree trunks, leaf litter, and fences	Tree trunks, leaf litter, and fences
Moth Appearance	<u>Female</u> Flightless, White with brownish marks	<u>Male</u> Fly, Grayish brown	Light brown with two white bands	Light brown with two dark brown bands

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