



# OHIO DEPARTMENT OF AGRICULTURE GYPSY MOTH PROGRAM



Division of Plant Industry, Plant Pest Control Section  
8995 E. Main St. Reynoldsburg, OH 43068 Phone: (614)-728-6400  
<http://www.ohioagriculture.gov/gypsymoth>



## Gypsy Moth Damage to Trees

The impact Gypsy Moth will have on a particular forest stand depends on a) how much defoliation occurs in the stand, and b) how well the trees in the stand can tolerate that level of defoliation. The amount of defoliation a stand of trees experiences depends on the gypsy moth population level in the area, the tree species composition, and on the number of larval hiding places. Gypsy moth population levels are usually estimated in terms of egg masses per acre. New egg mass numbers in excess of 250 per acre generally indicate that noticeable defoliation is imminent. Stands that contain a high proportion of preferred food species are more likely to be defoliated than those with more species variability. Stands that contain numerous larval hiding places, such as thick bark crevices, crooked trunks, wounds, and/or dead branch stubs, should support higher population levels, and hence, experience more defoliation.

Individual tree responses to defoliation will be affected by the amount of defoliation and the tree's condition. The amount of defoliation depends on the size of the gypsy moth population in the stand and on the tree species. Light defoliation will weaken but usually not kill a tree. Heavy (more than 50-60 percent) defoliation of broadleaf deciduous trees (such as oaks, maples, etc.) will often cause them to lose their remaining leaves and develop a second set of smaller, less efficient leaves. Weakened, less vigorous trees are more susceptible to secondary pests such as wood borers or root diseases. Repeated annual defoliation of broadleaf deciduous trees will ultimately result in the death of the tree.

In contrast, conifers (pines, spruce, fir, etc.) often die as a result of the initial heavy defoliation because they are unable to produce a second set of leaves. Stands containing low vigor trees and /or trees that have been stressed during the previous two or three years by such things as prior defoliation, drought, extensive timber harvesting, or other site disturbances will not tolerate defoliation as well as unstressed stands, and will usually sustain some mortality.

### Most Preferred

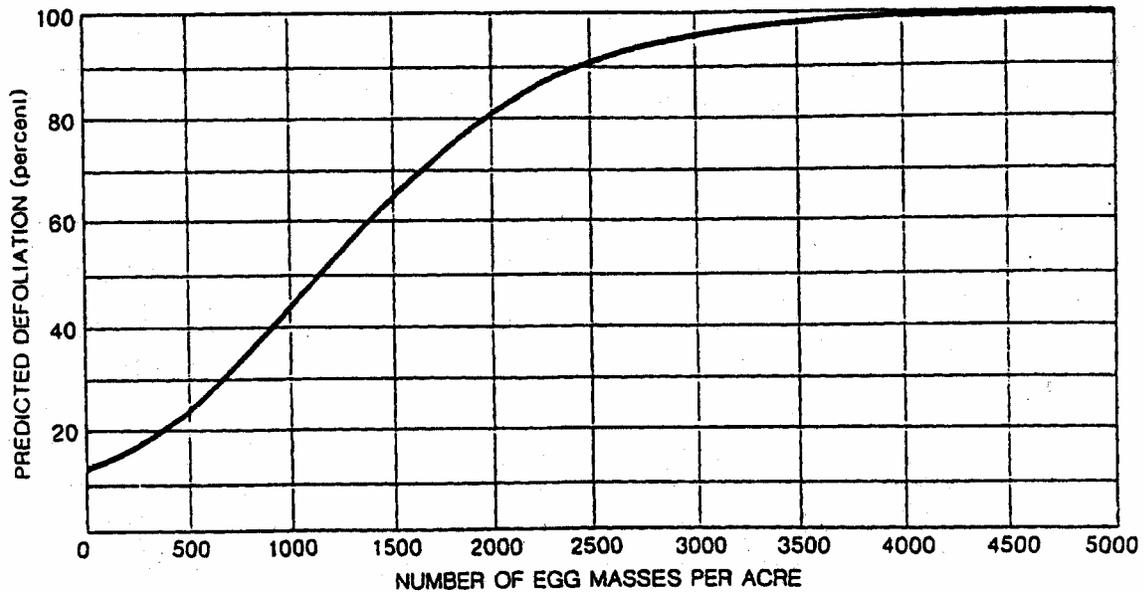
Alder  
Apple  
Aspen  
Basswood  
River Birch  
Boxelder  
Hawthorn  
Larch  
Mountain Ash  
Oak  
Sweetgum  
Willow

### Intermediate

A.Hornbeam  
A.Beech  
Black Gum  
Buckeye  
Sweet Birch  
Cherry  
Chestnut  
Cottonwood  
Cucumber tree  
Dogwood  
Elm  
E.Hophornbeam  
Hickory  
Magnolia  
Maple  
Persimmon  
Pine  
Redbud  
Sassafrass  
Serviceberry  
Sourwood  
Walnut

### Less Preferred

Arborvitae  
Ash  
Catalpa  
E.Red Cedar  
Fir  
Grape  
Holly  
Honey Locust  
Horsechestnut  
Black Locust  
Mulberry  
Spruce  
Sycamore  
Tulip tree



A graph for predicting gypsy moth defoliation (Gansner et al 1985).

**Light Defoliation 1 – 30%; Moderate Defoliation 31 – 60%; Heavy Defoliation 61 – 100%**

One of the requirements for inclusion into the Ohio Department of Agriculture’s Gypsy Moth Suppression Program is 250 egg masses per acre in a residential area and 1,000 egg masses per acre in a forested area. Suppression treatments at 250 and 1000 egg masses per acre were determined to suppress gypsy moth populations, prevent defoliation and minimize the associated impacts.

### **Results Of A Ten Year Study To Determine Tree Mortality Following Heavy Defoliation In Pennsylvania**

	Average Oak Mortality	Average Mortality All Tree Species
Following 1 year heavy defoliation	<b>18%</b>	<b>14%</b>
Following 2 year heavy defoliation	<b>89%</b>	<b>38%</b>
Following 3 year heavy defoliation	<b>98%</b>	<b>48%</b>

*Source: Division of Forest Pest Management, Pennsylvania Bureau of Forestry*