

The Gypsy Moth, *Lymantria dispar*



Habitat: The gypsy moth was introduced to the US in Massachusetts 1869. Within the US, gypsy moths are found in deciduous forests in the northeast. The range of the gypsy moth extends as far south as Virginia and as far west as Michigan. Outbreaks have also been reported in western states, including Oregon and other states outside the northeast.

Diet: Gypsy moths in the East prefer oak, apple, sweetgum, birch and other hardwood trees. Caterpillars eat leaves but adults do not eat.

Life Cycle/Reproduction: The four life cycle stages are egg, larva, pupa, adult. The eggs hatch into larvae in early spring. Larvae undergo a series of transitions, called instars. First, second and third instars feed on leaves of trees during the day. Fourth instar larvae feed on leaves at night and can also be found under bark and in leaf litter. Larvae reach maturity in June - July and pupate for one to two weeks. The male adult emerges before the female. When females emerge, she signals to males using chemicals called pheromones. In July or August, adult caterpillars lay eggs on oak tree branches and trunks.

Dispersal: Larvae can be dispersed by wind while on silken threads. Eggs and larvae can also be transported by humans through the transport and introduction of wood, cars, or other property.

Biotic interactions: Decreased predation pressure, decreased disease (from viral and fungal pathogens) and abiotic factors can result in "outbreak years", which occur every 2 - 4 years and can lead to immense destruction of oak and other trees. Some trees recover from defoliation. Recovery depends on the species, the amount of removal, abiotic conditions, and if the tree has been weakened in the past. Predators include insects, arachnids, birds, and ground-dwelling mammals. Fourth instar larvae are especially susceptible to predators. Diseases caused by bacteria, viruses and fungi can also target gypsy moths.

References:

<http://www.na.fs.fed.us/spfo/pubs/fidls/gypsymoth/gypsy.htm>
<http://www.fs.fed.us/ne/morgantown/4557/gmoth/>

Based on the fact sheet, what resources and conditions would favor the growth of a population of moths? What resources and conditions would benefit an individual moth?

Organism	Resources	Conditions
<p><i>Lymantria dispar</i> (Gypsy moth)</p>	<p>Nutrients and energy obtained from feeding while on the host</p> <ul style="list-style-type: none"> -while larvae, depend on the availability of oak trees on which to feed -as adults, depend on the availability of oak trees for depositing eggs 	<p>Biotic Conditions</p> <p><i>Competition</i></p> <ul style="list-style-type: none"> -as larvae, compete with other caterpillars for access to food resources (oak leaves) <p><i>Predation/Death</i></p> <ul style="list-style-type: none"> -caterpillars are susceptible to "predation" by fungus -caterpillars and pupae are susceptible to predation by mice <p><i>Dispersal</i></p> <ul style="list-style-type: none"> -can be introduced to a new area by human activities <p>Abiotic Conditions</p>