

GENERAL AND SPECIFIC GYPSY MOTH PREDATORS

Ronald M. Weseloh

Department of Entomology, Connecticut Agricultural Experiment Station, New Haven, CT 06504

ABSTRACT

General larval predators of low-density gypsy moth, *Lymantria dispar* (L.), populations have been assessed by exposing caterpillars tethered by threads. Most mortality occurred on tree trunks and in leaf litter. Small mammals were responsible for 80% of the predation and brown wood ants of the *Formica fusca* group for the remainder. Almost all of the ant predation occurred in the litter. Predation accounted for practically all of the larval mortality. Predation by ants was investigated further because even slight increases in predation rates of low-density populations may influence gypsy moth numbers. Neonate larvae were seldom preyed upon, but first instars that had fed and 2nd instar larvae were especially vulnerable. These instars spend most of their time in trees, so ways of encouraging ants to climb trees should increase mortality of small gypsy moth larvae. It was found that ants could be induced to climb trees and attack gypsy moth larvae there by spraying sugar solutions on tree trunks, and this might be helpful for increasing control of the pest.

Investigations have also been carried out on predation by *Calosoma sycophanta* L., a large imported carabid beetle that is quite specific to the gypsy moth. Previous work shows that about 300 beetles per ha are able to produce enough progeny to destroy about half of gypsy moth pupae during an outbreak. Furthermore, adults disperse little, even though they are strong fliers. These characteristics suggest that small scale field releases of the beetle may be effective, and these have recently been done with some success. This beetle has a potential for being an important controlling factor of high gypsy moth populations.

IMPACT OF SMALL MAMMAL PREDATORS ON GYPSY MOTH

Joseph S. Elkinton¹, Harvey R. Smith², and Andrew M. Liebhold³

¹Department of Entomology, University of Massachusetts, Amherst, MA 01003

²USDA Forest Service, Northeastern Forest Experiment Station
51 Mill Pond Road, Hamden, CT 06514

³USDA Forest Service, Northeastern Forest Experiment Station
180 Canfield Street, Morgantown, WV 26505-4360

ABSTRACT

Research in western Massachusetts, on Cape Cod, and on Bryant Mountain in Vermont conducted over the past decade has confirmed the importance of mortality during the late larval and pupal stages to gypsy moth population dynamics. Predation by small mammals is the dominant source of mortality during this period and the onset phase gypsy moth populations has been preceded by decreases in the density of *Peromyscus leucopus*. These findings support earlier theories concerning the importance of predation in the dynamics of the gypsy moth population system. Predation rates are affected by alternate food supplies. Additional experiments have explored whether predation is density dependent.