

and campers for egg masses. If found, egg masses must be removed and destroyed before travelers return home.

For the most recent information on chemicals available for control of this pest, call Agriculture and Agri-Food Canada's Plant Industry Directorate in Ottawa (toll-free) at 1-800-267-6315.

Chemical pesticides are toxic to humans, animals, birds, fish, and beneficial insects. Follow all instructions and precautions listed by the manufacturer.

Forestry Leaflet 29: Gypsy moth
Text: J.P. Brandt
Illustration: D. Lee
© Minister of Supply and Services Canada 1994
Cat. No. Fo29-31/29E
ISBN 0-662-21431-5
ISSN 1183-8655

Natural Resources Canada
Canadian Forest Service
Northwest Region
Northern Forestry Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5

When referring to this publication, please cite:
Brandt, J.P. 1994. Gypsy moth. Nat. Resour. Can., Can.
For. Serv., Northwest Reg., North. For. Cent., Edmonton,
Alberta. For. Leaf. 29.

Cette publication est également disponible en
français sous le titre *Spongieuse*.



Printed on recycled paper.

Canada



Gypsy moth



Female
gypsy moth
and egg mass

Empty
pupal case



Natural Resources
Canada

Canadian Forest
Service

Ressources naturelles
Canada

Service canadien
des forêts

Distribution and Hosts

Gypsy moth (*Lymantria dispar* [L.]) is a pest of trees in many regions of the world but is not native to North America. Two strains of gypsy moth have been recovered in North America: the European strain, of which the female is flightless; and the Asian strain, of which the female is capable of flight. In North America the European gypsy moth is found primarily in eastern Canada and the United States. The European strain was introduced into the northeastern United States about 1869. In Canada this strain of gypsy moth was found first in Quebec in 1924 and then in New Brunswick in 1936; both of these infestations were eradicated. In the last 20 years, however, Quebec, Ontario, New Brunswick, and Nova Scotia have all been infested with the European strain. The Asian strain was introduced into Canada on several occasions when egg masses were accidentally transported to British Columbia on ships; the latest incident occurred in 1991. In each case the Asian strain was eradicated. In this leaflet, most information will relate to the European gypsy moth in eastern North America because it has been thoroughly studied in that region.

The principal means of dispersal of the European gypsy moth is by accidental transportation of egg masses laid by the female moth. In infested areas egg masses can be laid on any vehicle or on such things as firewood and then easily transported to uninfested areas. In the prairie provinces a number of male moths (European strain) were trapped between 1982 and 1992, but as of 1992, gypsy moth populations were not established anywhere in Canada west of Ontario. The European gypsy moth's preferred hosts are oaks, poplars, and maples, but it is capable of feeding on 500 different plant species that include conifers and many herbaceous plants.

Symptoms and Damage

Defoliation in May and June is the most conspicuous symptom of attack by gypsy moth. In appearance, defoliation by gypsy moth is similar to damage caused by forest tent caterpillar, a pest commonly found in the prairie provinces. Whole leaves are consumed by the gypsy moth caterpillars, which, as older larvae, feed at night and move during the day to sheltered places under bark or the underside of branches. Gypsy moth populations are usually episodic, with extensive defoliation occurring during outbreaks. In eastern North America, tree mortality is associated with repeated severe defoliation by this pest.

Egg masses are another symptom of gypsy moth presence. The egg masses are beige and covered by minute hairs. They can be found easily on the underside of branches, in bark crevices, under stones and leaves, or in other sheltered places from late fall until early spring.

Causal Agent

The gypsy moth overwinters in egg masses. In eastern Canada eggs hatch in May; in the prairie provinces eggs would hatch from mid-to-late May. Small larvae feed by day, but as they grow their feeding habits change and they feed only at night and move to sheltered places by day. Full-grown larvae are about 60 mm in length, mottled yellow-black, sparsely hairy, and have double rows of spots down their backs, the first five pairs of which are blue and the next six pairs, red. Larvae usually feed singly and are only found in groups while hiding during the day. By July in eastern Canada, larvae are fully grown and seek locations to pupate. Pupae are attached by single silken threads to bark crevices, the underside of branches, or other sheltered places. Pupation lasts

about 14 days, after which adult moths emerge to mate. Adult moths are light brown with black markings on the wings and a wingspan of 55–60 mm. The bodies of females are larger than those of males. Females of the European strain cannot fly; therefore, they remain near their pupal cases. Males seek out females by homing in on a pheromone (chemical sex attractant) released by the females. After mating, females of the more common European strain lay their eggs in masses not far from where they pupated. Females of the Asian strain may disperse after mating to lay their eggs elsewhere. Egg masses may contain up to 1000 eggs, but more commonly about 300. There is one generation each year.

Prevention and Control

Small infestations of gypsy moths on ornamental trees can be controlled by collecting the egg masses and destroying them before the eggs hatch. If the pest is not detected until the larval stage, a contact insecticide registered for use against gypsy moth can be used. A biological alternative that is effective is the bacterial insecticide *Bacillus thuringiensis* (Bt).

A number of parasites and predators have been introduced into North America to try to control gypsy moth infestations. Fungi and viruses have also been used in an attempt to control the gypsy moth. While these organisms are not effective for the short-term reduction of gypsy moth populations in local infestations, they do play a role in long-term regulation of gypsy moth populations and are beneficial. Work is continuing at many research institutions in an attempt to enhance these organisms' beneficial effects.

Residents of the prairie provinces who travel to gypsy moth-infested areas in eastern Canada and the United States should spend time there inspecting their vehicles, trailers,