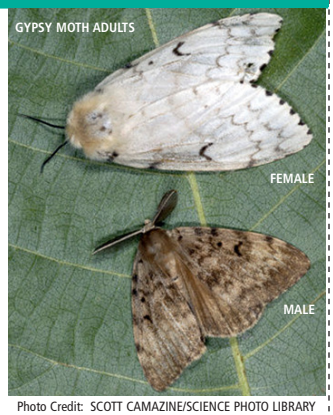
Lymantria dispar

GYPSY MOTH

ENGLISH NAMES Gypsy Moth, European Gypsy Moth, North American Gypsy Moth, Asian Gypsy Moth

SCIENTIFIC NAME *Lymantria dispar*

FAMILY Lymantriidae (Tussock Moth)



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Gypsy Moth is a defoliating insect that feeds during its larval stage on more than 300 species of woody plants. Considered one of the most destructive pests of hardwood forests and ornamental trees throughout the Northern hemisphere, each larva can eat as much as 1 m^2 of foliage in its lifetime.

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RANGE/KNOWN DISTRIBUTION

Two strains occur in North America: European Gypsy Moth and Asian Gypsy Moth. European Gypsy Moth was first introduced to Massachusetts in 1868. It is now established in eastern North America and is spreading west. In Canada, European Gypsy Moth is established in temperate forests from Ontario east through the maritime provinces. Asian Gypsy Moth has been intercepted at the port of Vancouver on ships and containers from Asia but has not established here. Gypsy Moth presence is tracked by a collaborative multi-agency governmental monitoring and eradication program. Climate change is expected to increase the area of climatic suitability for Gypsy Moth, especially in the west.

IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

The preferred tree hosts of Gypsy Moth larvae are oaks (*Quercus* spp.). Entire trees can be defoliated by the larvae. If repeatedly defoliated over successive years, trees become more susceptible to other pests and disease. An established Gypsy Moth population could kill large numbers

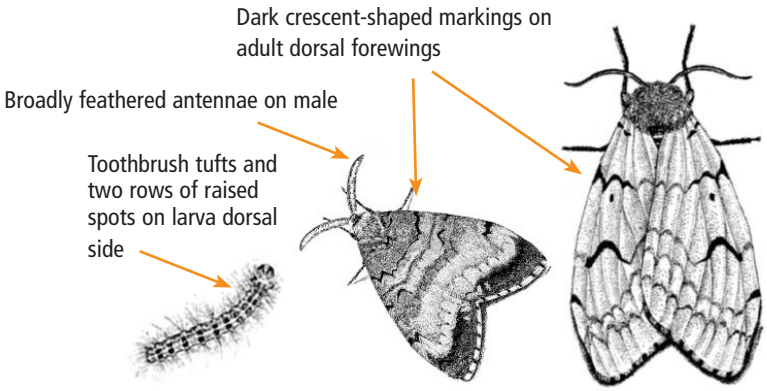
of Garry Oak trees, putting entire ecosystems at risk as lack of canopy leads to changes in light and temperature; as acorns and other Garry Oak-related food sources become scarce; and as dead trees are replaced by other species.

FIELD DESCRIPTION

Eggs are found in ovoid masses 30–60 mm long and 20–30 mm wide, containing 100–1000 eggs. Egg masses are covered with hairs from the female's abdomen, giving them a tan or buff-coloured velvety appearance that becomes sun bleached with age.

Larvae change in appearance as they develop. When newly emerged, they are black or brown with long hairs. As they grow, they become light to dark grey with flecks of yellow. Long dark or golden hairs and two rows of raised spots, or tubercles, appear along the dorsal surface. Older larvae have 11 pairs of tubercles. Typically five blue pairs are followed by six red pairs, although sometimes all eleven pairs are blue. Pupal cases are dark reddish-brown and can be found in sheltered locations such as bark crevices.

Adult Gypsy Moth females are flightless, typically whitish with a dark zigzag pattern across the wings, with a wingspan of 55–70 mm. Males are tan to brown, with a wingspan of 37–62 mm. Both sexes have a dark, crescent-shaped mark on the forewing, and have antennae segments that are longer on one side, giving the appearance of a comb (pectinate). The males' antennae appear feathery. Both Asian and European Gypsy Moth are similar in appearance, except that the Asian strain females are larger and are strong fliers.



LIFE HISTORY

Gypsy Moth has one generation per year. Egg masses are found from late August through mid-March and are the overwintering stage. Females lay one egg mass in August on sheltered parts of trees, rocks, limbs on the ground, and other outdoor objects. Larvae hatch from April to May, coinciding with budding of host trees. Larvae disperse by hanging from a silk thread in tree tops and being carried on the wind to potential host plants. There they remain, eating foliage and undergoing progressively larger growth stages for up to seven weeks. Young larvae chew small holes in leaves, while older larvae consume entire leaves except for the larger veins and midribs. Larval development is complete by mid-summer, at which time larvae find a sheltered location to pupate. The pupal stage lasts approximately two weeks.

Adults emerge late July through early August. Females do not fly but remain at their pupation site, sending out pheromones that attract potential mates. Males emerge, fly, and find potential mates, living for about one week after emergence. Females mate once, lay one egg mass, and die. Adult Gypsy Moths do not feed.

HABITAT

In North America, Gypsy Moth is found in temperate natural and urban forests and tree plantations. Larvae feed on hundreds of plant species, but the most common hosts native to our region are Garry Oaks (*Q. garryana,* the main host), alders (*Alnus* spp.), birches (*Betula* spp.), hawthorns (*Crataegus* spp.), Pacific Crab Apple (*Malus fusca*), poplars, cottonwoods, aspens (*Populus* spp.), cherries (*Prunus* spp.), and willows (*Salix* spp.). Gypsy Moth larvae prefer feeding on healthy trees.

MANAGEMENT

Develop a long-term, realistic program for invasive species removal before undertaking any work. Before taking action, obtain expert advice. Please refer to the introductory section of this manual.

The Provincial and Federal governments cooperate on Gypsy Moth monitoring and control. Pheromone traps are used to detect and monitor new introductions. However, the best method of Gypsy Moth management is prevention. Gypsy Moth is predominantly spread during the egg mass stage. Egg masses are dispersed on vehicles, tents, trailers, and firewood. Always check your belongings for egg masses before travelling from an area where Gypsy Moth has established.

Do not undertake control measures on your own. If you find egg masses or caterpillars you suspect might be Gypsy Moths, do not disturb them. Instead, photograph them and note the specific location. If you think you have found a Gypsy Moth, collect it or photograph it and note the location. Report your findings to the Provincial Gypsy Moth Program at 250-387-8739 or to Tim.Ebata@gov.bc.ca. You can also contact the Canadian Food Inspection Agency at 250-363-3618 (Vancouver Island) or 604-666-6513 (Mainland). Land management agencies, such as municipalities and land trusts, should work with the Provincial Gypsy Moth Program to address suspected outbreaks.

Larvae of some native butterfly and moth species, such as Douglas-fir Tussock Moth and Silver Spotted Tiger Moth, can be mistaken for Gypsy Moth larvae. If you're not sure, refer to the provincial check-list page (see references).

SELECT REFERENCES

Ministry of Forests, Lands and Natural Resource Operations. Caterpillars that can be mistaken for Gypsy Moth. www.for.gov.bc.ca/hfp/gypsymoth/caterpillars.htm

Canadian Food Inspection Agency. Gypsy Moth. www.inspection.gc.ca/english/plaveg/pestrava/lymdis/tech/lymdise.shtml

Régnière, J., V. Nealis, and K. Porter. 2009. Climate suitability and management of the Gypsy Moth invasion into Canada. Biological Invasives, Vol. 11, Issue 1, pp 135-148.

A bibliography of literature specific to Gypsy Moth is available at www.goert.ca/invasive.

For more information contact the Garry Oak Ecosystems Recovery Team, or see the website at www.goert.ca