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Last Updated December 2016

Gypsy Moth

ALymantria dispar (L.) Syn. Porthetria dispar (L.)3

Alberta Regulation:
Agricultural Pest Act

Natural Resources Canada

Natural Resources Canada

Overview:

Gypsy moths are part of a group called tussock moths because their larvae bear dense brushes of hairs.[4] Their native distribution is Europe, North Africa, Asia, and Japan. The European race was accidentally introduced to the eastern U.S. in 1868 and spread to Quebec and Ontario as well as western states and then northward along the coast.[1] Individuals of the Asian was race were discovered in Vancouver in 1991 on shipping containers, as well as Washington and Oregon.

Gypsy moths have over 300 known hosts plants including both native and introduced trees/shrubs such as fruits, nuts, and ornamentals. The Asian race has broader host range - also feeds on larch and some cedars and firs - and spreads faster.[1]

In the European race of gypsy moths, only males can fly - both sexes of Asian race are strong fliers. Light can attract the moths over great distances making airports, sea ports, and urban parking lots favoured sites for egg laying.[1] While European race females will lay eggs near their pupation sites, Asian race females will lay eggs on objects associated with lights.[1] While some countries do inspect ships and cargo containers for pests, the time between inspection and the ship leaving port can be long enough for gypsy moths to lay eggs.

Identification:

Adults: The adult female moth is creamy white with dark wavy lines across the forewings. Males are smaller and have brown forewings with darker markings.[4]

Larvae: Are very hairy and 30-65 mm long when mature. Body color is yellow-brown with dense, black mottling. There is a middorsal row of blue and red tubercles (rounded outgrowths).[4]

European Race: Females flightless, 1st instar larvae uniform in colour, larvae feed at night and move to resting sites during day, pupates in litter, and eggs are laid near the female's pupation site.[1]

Asian Race: Both sexes strong fliers (10-13 km), 1st and 2nd instars variable in colour, larvae feed and rest in canopy, pupates on foliage, and females lay eggs away from pupation site (can be kilometers away).[1]

Ecology[1]:

Gypsy moths have one generation per year and overwinter in the egg stage, usually under snow. Hatching occurs mid to late April, possibly extending to the end of May depending on temperature. The small, hairy larvae move up host trees to feed on the foliage. Some larvae disperse to other trees via "ballooning" where larvae are blown about by the wind on long silk threads produced by glands on their heads. This natural dispersal usually advances an infestation by 5 km per year. Feeding persists for 6-8 weeks, dependent on environmental conditions and host condition. Gypsy moth females generally have six larval instars and males five. The earlier instars feed primarily at night while later instars feed around the clock. If foliage is lacking the larvae will disperse along the ground. Around the beginning of July feeding ceases and pupation begins and females and males pupate over an average of 10 to 13 days respectively. The pupal period of a population lasts about a month. Moths be-

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Gypsy Moth (Continued)

gin emerging in July, extending into August. The adults live for several weeks but do not feed. Females attract males with pheromones, after which prolific egg laying occurs into September.

Economic Impacts:

Defoliation by gypsy moth larvae reduces growth and can cause mortality of deciduous tress and shrubs. Associated costs include; reduced timber harvesting, hazard tree removal, and possibly tourism as well in destination-city parks.[1]

Environmental Impacts:

Rare, native deciduous trees and shrubs already vulnerable to alien insects and urbanization are threatened by gypsy moth feeding.[1]

Sociological Impacts:

Hairs of the caterpillar contain histamines which can induce skin rashes or respiratory problems in some people. Tree mortality in urban areas negatively affects both aesthetic and property values.[1]

Prevention:

Monitoring is the best way of preventing gypsy moths from becoming established in Alberta. Gypsy moths are considered quarantine pests by the Canadian Food and Inspections Agency (CFIA). Annual gypsy moth surveys are conducted in Alberta by using pheromone traps.[3]

Control:

Chemical: There are a number of restricted and commercially available products registered for use on gypsy moth. Restricted products require applicator certification. Always check product labels to ensure the product is registered for use on the target species in Canada by the Pest Management Regulatory Agency. Consult your local arborist, Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: The biological insecticide *Bacillus thuriengiensis kurstaki* (Btk) is consumed by the caterpillars and releases a toxic protein in the digestive system. The accidentally introduced 'small wasp' is parasitic on gypsy moth eggs.[2]


Larvae

Natural Resources Canada


Birch Defoliation

Natural Resources Canada


Pupa

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Pupation

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Egg Masses

Natural Resources Canada

REFERENCES

1 Humble, L. and Stewart, A.J.. 1994. Gypsy Moth, Forest Pest Leaflet. Canadian Forest Service. ISBN 0-662-21581-8

2 Gypsy moths. Government of Canada. Accessed: July 8, 2016.

3 Gypsy moth. Natural Resources Canada, Government of Canada. https://tidcf.nrcan.gc.ca/en/insects/factsheet/9506. Accessed: July 8, 2016.

4 Ives, W.G.H. and Wong, H.R.1988. Tree and shrub insects of the prairie provinces. Canadian Forestry Service. Government of Canada. p. 127.

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