

The Asian Gypsy Moth - Canada's *Insecta non grata*

Identified as one of the top ten exotic pests that should be given priority at the Canadian Forest Service, the Asian gypsy moth poses a serious threat to forests, biodiversity and the economy in Canada. How can we make sure this insect is recognized upon its arrival in Canada?

The Asian gypsy moth is present in a number of Asian countries, including China, Japan, Korea and Russia. It is not established in Canada, but its presence has been detected on a few occasions in Canadian ports. Indeed, drawn to the bright lights of port facilities, female Asian gypsy moths lay their eggs on the exterior surfaces of ships as well as on various cargo materials. After the eggs have hatched – while travelling or at destination – the wind disperses the larvæ, which are in search of food. The Asian gypsy moth attacks over 500 species of trees, including certain conifers (larch, pine and spruce) and a wide variety of deciduous trees (oak, poplar, willow, linden, birch, elm and apple trees).



Female European gypsy moth.
Photo: NRCan.

The difference between Asian and European gypsy moths

Due to its biological characteristics, the Asian gypsy moth is a much more dangerous insect than its western counterpart, the European gypsy moth, which has established itself in North America following its accidental introduction in Massachusetts in 1869. For example, contrary to their European counterparts, female Asian gypsy moths are able to fly and can thus rapidly colonize a large territory. Furthermore, they attack approximately twice as many hosts as the European gypsy moth does.

Inspectors' gadgets

A simple visual inspection of egg masses or young larvæ is not sufficient to differentiate between the two types of gypsy moths. Therefore, upon the request of the Canadian Food Inspection Agency (CFIA), researchers from the Canadian Forest Service, Université Laval and the University



Female Asian gypsy moth. Photo: NRCan.

of British Columbia created a molecular diagnostic test that rapidly differentiates the known strains of Asian and European gypsy moths. The test can also identify five other species of exotic gypsy moths that pose a threat to Canadian forests. In order to develop the test, researchers first created a database of molecular markers from gypsy moths of 12 different origins (Asia, Europe and North America). A prototype is currently at the validation phase.



Photo: CFIA

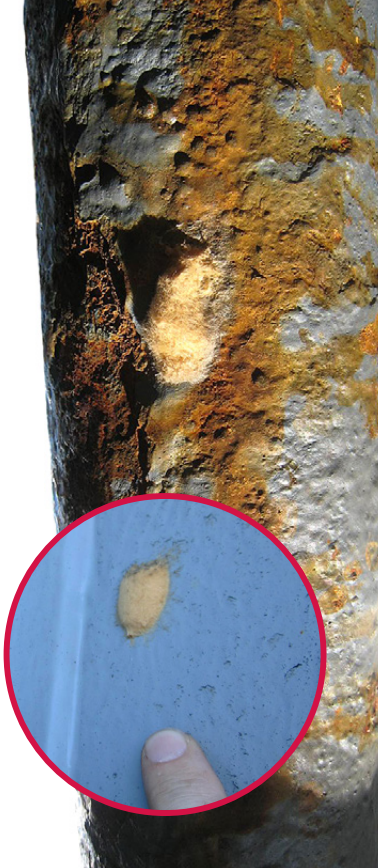
Asian gypsy moth egg masses.

Branching Out

from the Canadian Forest Service - Laurentian Forestry Centre



The CFIA, whose experts inspect ships in Canadian ports, will apply this test to the masses of eggs and larvæ it intercepts. It will then confirm, in the laboratory, whether the specimen is a gypsy moth and, if so, where it comes from. In the event of an outbreak, this tool could also help follow the movements of the insect and define its propagation.



Females lay egg masses in spaces that are sheltered from the rain and the sun.



Applying a coat of paint on egg masses is not an efficient way of eliminating them.

Exotic forest pests can cause significant economic losses and damage to natural ecosystems. For example, export limits related to the Asian gypsy moth represent between 1.8 and 4.7 billions of dollars for the Canadian industry. Many plant protection organizations worldwide have adopted an early detection strategy in order to deal with this pest.



For more information, please contact:

Michel Cusson

Natural Resources Canada
Canadian Forest Service
Laurentian Forestry Centre

1055 du P.E.P.S., P.O. Box 10380, Stn. Sainte-Foy
Quebec City, Quebec G1V 4C7
418-648-3944 • michel.cusson@canada.ca
nrcan.gc.ca/forests

Photos: CFIA