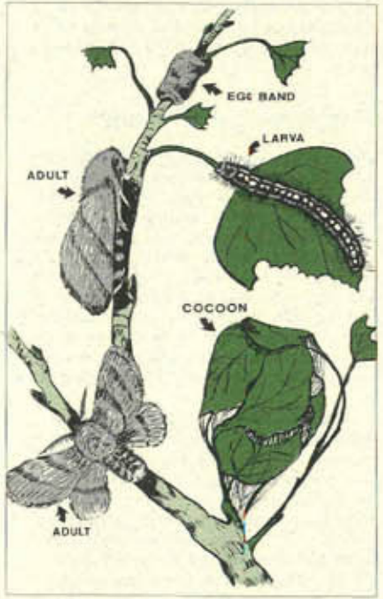
Forest tent caterpillar



Forestry Canada / Forêts Canada

Distribution and Hosts

The forest tent caterpillar (*Malacosoma disstria* Hübner), a species native to North America, is the most spectacular of forest defoliators, affecting mainly trembling aspen forests over large areas of the three prairie provinces. About every 10 years an outbreak erupts that can last for 3 to 6 years. While aspen is its preferred host, during severe infestations the forest tent caterpillar readily feeds on most other hardwood tree species, including other poplars, elm, green ash, mayday, bur oak, birch, and a variety of fruit trees, deciduous shrubs, and some garden plants. The larvae may also defoliate larch trees.

Symptoms and Damage

Defoliation results from larval feeding that begins about the time aspen buds begin to break, in late April or early May. Young larvae of 2–3 mm length emerge as a colony from each egg band and feed initially on the opening buds, later consuming parts of or whole leaves. Defoliation progresses from the outer tree crown inward and downward and is usually complete by mid-June. If tree foliage is denuded before the completion of larval development, larvae migrate and feed on understory shrubs and other vegetation.

Early larval feeding may kill many aspen buds. One or more years of severe defoliation may result in twig mortality, reduced tree growth (radial growth in the stem), and smaller leaf size. Aspen trees are sometimes killed by several years of severe defoliation, but this usually takes place in conjunction with other stress factors, such as summer drought or late spring frosts. The risk of aspen mortality is minimized because these trees refoliate 3 to 6 weeks after defoliation, but defoliated and stressed trees tend to be more susceptible to stem canker disease, decay, and boring insects. Radial stem growth is reduced as defoliation continues: trees may achieve only 10% of their normal growth. In aspen forests annual wood volume losses of up to 4.5 m^3/ha may occur for several consecutive years.

In June hordes of migrating caterpillars are considered a major nuisance when they cause disruption of outdoor activities in high-use recreational areas, campgrounds, or home gardens, or on roadways. During pupation the mature larvae may spin white silken cocoons under the eaves of buildings or on ornamental vegetation that may be unsightly and require removal by hand. In July large numbers of migrating adult moths attracted to outdoor lights may not only be a nuisance but also result in localized infestations.

Causal Agent

Adult moths of the forest tent caterpillar appear in early July and are stout-bodied with wingspans of 35–45 mm. They are yellow to buff-brown in color, with two dark oblique bands on the forewings. In July each female deposits 150–200 eggs in a single gray-brown band 1.5–2.0 cm deep that encircles a small twig. Within 3 weeks a young larva forms in each egg, but it remains dormant until the following spring. Upon emergence, the larva is 2–3 mm long, black, and hairy, and it continues to develop through five growth (instar) stages. In mid-June the mature larva is 45–55 mm long and has bluish bands with prominent white keyhole-shaped markings on the upper body and a fringe of brownish hairs on its sides.

Larvae of the forest tent caterpillar do not spin silken tents, as their name implies. They spin silken threads for pathways to and from their feeding sites on the trees, and they also spin silken mats on which to rest. At maturity, the larvae spin white silken cocoons on trees and other vegetation, and on fences, buildings, and other structures. The pupae form in these cocoons and emerge as moths after about 10 days, completing a 1-year life cycle.

Prevention and Control

Infestations of forest tent caterpillars do not usually last more than 4 or 5 years in a particular area; their numbers are regulated by a variety of factors. Late spring frosts may kill young larvae before or after they hatch, or the frosts may damage new leaf growth, causing larval starvation. When there are high populations, the foliage food source may be depleted 2 to 3 weeks before larval development is complete, forcing larvae to migrate and resulting in high starvation mortality. In the adult stage, dispersing moths may be preyed upon by birds; the moths may also be wind-dispersed and perish in nonhost areas or when attracted to urban lights. Birds are also effective predators of the larvae and should be encouraged. Up to 40 species of natural parasitic and predatory insects contribute to further losses during egg, larval, and pupal stages. One of the most important predators is the tachinid flesh fly (*Sarcophaga aldrichi* Parker), which may destroy over 80% of the larvae. During prolonged infestations, populations may also collapse from disease buildups caused by viruses, bacteria, fungi, and other pathogens.

On small ornamental trees and shrubs in urban and rural landscapes, the egg bands (overwintering stage) can be removed by hand and destroyed between July and the following spring. After hatching, young colonies of larvae can be pruned off or squashed while they are resting in black clusters on the main stem, especially in the evening or on cool days.

When trees are too large or numerous for the removal of larvae by hand, a biological insecticide (*Bacillus thuringiensis*) and various chemical insecticides may be applied to control the larval stage and to protect foliage. Optimum spraying benefits are obtained from treatment applied when larvae are 1–2 cm long, from late May to early June. All decisions on the need for insecticidal control should be based upon environmental risk assessments and surveys of population abundance (egg band or post-hatch larval surveys).

For the most recent information on chemicals available for control of this pest, call Agriculture Canada's Pesticides 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.

Forest Leaflet 10: Forest tent caterpillar
Text: H.F. Cerezke
Illustration: G. Weber

Cat. No. Fo29-31/10E
ISBN 0-662-19017-3
ISSN 1183-8655

Forestry Canada
Northwest Region
Northern Forestry Centre
5320 – 122 Street
Edmonton, Alberta
T6H 3S5

When referring to this publication, please cite:
Cerezke, H.F. 1991. Forest tent caterpillar. For. Can., Northwest Reg., North. For. Cent., Edmonton, Alberta. For. Leafl. 10.

Cette publication est également disponible en français sous le titre *Livrée des forêts*.

Printed on recycled paper.

Canada