May 2005
6.17
WEB July 2010

By Darren Blackford
US Forest Service

Forest Health Protection and State Forestry Organizations

Management Guide for

Forest Tent Caterpillar

Malacosoma disstria **Hubner**

The forest tent caterpillar (FTC) is the most widely distributed and destructive tent caterpillar in North America (Furniss and Carolyn, 1977).

Preferred Host
- Quaking Aspen

Minor Hosts
- Popular
- Willow
- Alnus
- Birch
- Cherry

Topics

Damage	1
Life history	1
Identification	1
Management	3
Other Reading	3
Field Guide	
Management Guide Index	

Key Points

- Complete defoliation of aspen for three or more years may kill or reduce radial growth by 90 percent.
- Forest tent occur throughout Regions 1 and 4 where suitable hosts are found.
- Outbreaks typically last only two or three years but may cover extensive areas.

Damage

Defoliation results from larval feeding that begins about the time aspen buds begin to break. 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 inward and downward from the outer tree crown 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 (Cerezke, 1991). Complete defoliation of aspen for three or more years may kill or reduce radial growth by 90 percent.

Life History

Forest tent caterpillar overwinters as larvae inside eggs in masses on twigs mostly in upper crowns. Larvae emerge when leaves begin to unfold and feed for 5 to 6 weeks, or until about the end of June. They do not spin tents, but form silken mats on trunks or branches on which they rest. Pupation takes place in July inside cocoons of pale yellow silk. Cocoons reside in folded leaves, bark crevices, or other sheltered sites. Moths emerge in late July from the cocoons and lay cylindrical egg masses.

Identification

Larvae can bee seen on leaves from mid-May to July. New larvae are black with long hairs. With each instar, markings on its dorsum characteristically marked with whitish or yellowish, keyhole-shaped spots and patches of very fine orange-or reddish-brown lines become more evident (Fig. 1).

Figure 1. Mature larva of the forest tent caterpillar.

Fifth instars are about 50 mm long. The mature larva is dark brown with a bluish head and blue to blue-black sides. Look for lemon-yellow cocoons in July and egg masses from August to May. Adults are light yellow to yellow brown, with wingspread of 25 to 37 mm (Fig. 2). The forewings are crossed with two straight lines of slightly darker color, and the space between the lines is often darker so as to form a band. The egg masses are deposited as dark-brown, spiral rings completely encircling small twigs (Fig. 3). Eggs are cemented together and are coated with a frothy, glue-like substance which hardens and turns glossy dark brown.

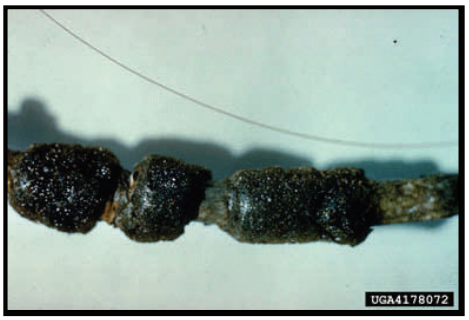

Figure 3. Egg mass deposited on a small twig.

Figure 2. Adult moth of the forest tent caterpillar displaying the dark lines along the forewings.

Management

Forest tent caterpillars numbers are regulated by a variety of factors and their infestations do not usually last more than 4 or 5 years in a particular area.

Biological control: The collapse of large outbreaks of FTC can be attributed to depletion of food supplies, unfavorable weather conditions, and natural enemies such as predators, parasites, and pathogens.

- In the Northern Region, parasites and a nucleopolyhedrosis virus usually help terminate outbreaks.
- Below average temperatures from November to April and above average rainfall from May to July are unfavorable to population survival.
- 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 non-host 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.

(Continued from page 2)

- One of the most important predators is the tachinid flesh fly (*Sarcophaga aldrichi* Parker), which may destroy over 80% of the larvae.

Cultural control: 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. In June, when the caterpillars are migrating, a collar may be placed around the base of trees requiring protection.

Chemical control: The biological insecticide *Bacillus thuringiensis*, and various chemical insecticides, can be applied to host trees aerially in early spring. It is sprayed onto the foliage of host plants, which are later ingested by the caterpillar. The toxin produced by the bacterium destroys the digestive tract of larvae and usually causes death within a few days after ingestion. Optimum spraying benefits are obtained from treatment applied in the spring when larvae are 12 cm long. The need for insecticidal control measures should be based upon environmental risk assessments and surveys of population abundance (egg band or post-hatch larval surveys).

Other Reading

Batzer, H. 0., and R. C. Morris.1978. Forest tent caterpillar. USDA For. Serv., Forest Insect and Disease Leaflet 9, 8 pp. illus.

Brown, C. E.1966. Habits and control of the forest tent caterpillar. Can. Dept. For., Misc. Pub. No. F 23-966, 6 pp.

Cerezke, H.F. 1991. Forest tent caterpillar. Nat. Resour. Can., Can. For. Serv., North. For. Cent., Edmonton, Alberta. For. Leafl. 10.

Hildahl, V. and A. E. Campbell.1975. Forest tent caterpillar in the prairie provinces. Can. For. Serv., Northern Forest Res. Centre, Edmonton, Alberta. Info. Rept. NOR-X-135, 11 pp. illus.

Forest Health Protection and State Forestry Organizations

Assistance on State And Private Lands

Montana: (406) 542-4300

Idaho: (208) 769-1525

Utah: (801) 538-5211

Nevada: (775) 684-2513

Wyoming: (307) 777-5659

Assistance on Federal Lands

US Forest Service
Region One
Missoula: (406) 329-3605
Coeur d'Alene: (208) 765-7342

US Forest Service
Region Four
Ogden: (801) 476-9720
Boise: (208) 373-4227