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Eastern Tent Caterpillar: Biology and Control
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● Eastern Tent Caterpillar

Biology and Control

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The eastern tent caterpillar (ETC) (*Malacosoma americanum*) is native to southeastern Canada and the eastern United States. It is commonly found infesting various deciduous trees in open areas along roadsides and fields in urban areas, and commercial orchards.

DAMAGE SYMPTOMS. Formation of silken tents in forks or crotches of trees in the spring and early summer; trails of silk spun by the caterpillars as they move from the tent to feed on foliage; disappearance of leaves.

SIMILAR DAMAGE. Fall webworm (*Hyphantria cunea*) caterpillars form tents or webs that

resemble those of ETC but these occur on branch tips and only during mid- to late summer in Michigan.

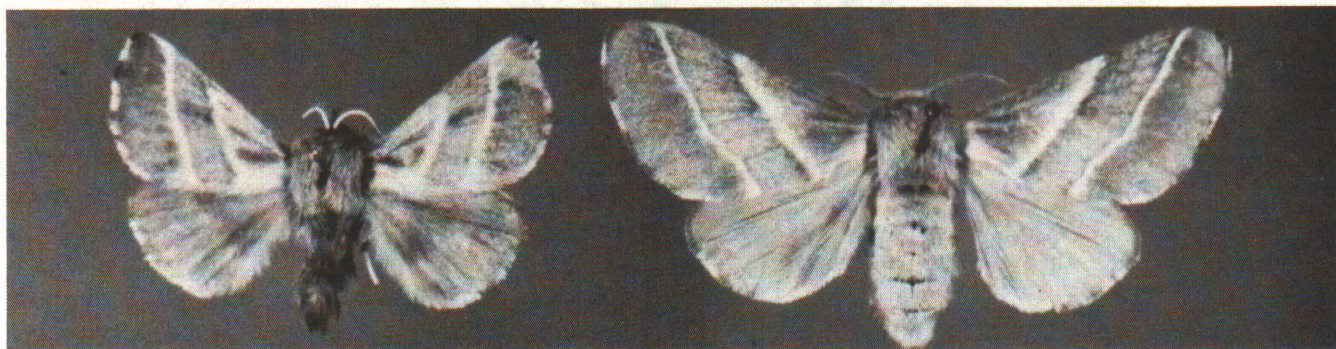
HOSTS. Cherry is the preferred host but apple, peach, prune, hawthorn, crabapple and cotton-easter are also attacked. Mature caterpillars may leave these plants and feed lightly on other deciduous trees and shrubs before pupation.

IDENTIFICATION.

Eggs: ETC eggs are deposited in a band around small twigs or branches and covered with a foamy brown substance which hardens into a mass. The egg masses are 10-20 mm ($\frac{1}{2}$ - $\frac{3}{4}$ ") long with approximately 90 to 220 eggs per mass.



Eastern tent caterpillar in fork of tree (late April-late May) with caterpillars moving from tent to feed.



Adult male (left) and female (right) moths of the eastern tent caterpillar (mid-June). Note characteristic diagonal stripes on forewings.

Larvae: Mature larvae have a black head capsule and a brown body characterized by the presence of a yellow-white mid-dorsal stripe bordered on either side with black wavy lines, blue spots, and reddish brown and yellow stripes. Newly hatched larvae are 2-3 mm long ($1/16''$) while fully mature larvae reach a size of 40-50 mm ($1\frac{1}{2}$ -2"). Each caterpillar has 4 pairs of fleshy legs on the bottom of the abdomen and 3 pairs of hard jointed legs located on the underside of the thorax just behind the head.

Pupae: The dark brown pupae (22 mm long) are enclosed by a tough silken cocoon covered with a pale yellow powder.

Adults: Yellowish to buff-brown moths with two diagonal lines running across the front wings. Wingspread varies from 32-45 mm ($1\frac{1}{4}$ - $1\frac{3}{4}''$). Males are slightly smaller than females.

LIFE CYCLE. Eggs are laid on twigs in mid to late June and overwinter in this stage on the tree. Larvae hatch from the eggs at bud break in mid to late April (April 10-20) and immediately begin spinning a silken tent. The newly hatched larvae initially feed on opening buds and subsequently concentrate on the new foliage as it becomes available. Larvae leave the tent to feed at various times of the day returning only to rest. As larvae begin to mature at the end of May and early June, they leave the tent and seek out protected areas to form pale yellow cocoons. It is during this time that many people observe these large caterpillars wandering about their yards or climbing sides of buildings, fence posts, cars, etc. However, since little or no feeding occurs at this time, no controls are necessary. Adult moths emerge in 10-14 days to mate and lay eggs.



Egg mass on twig (mid-summer).

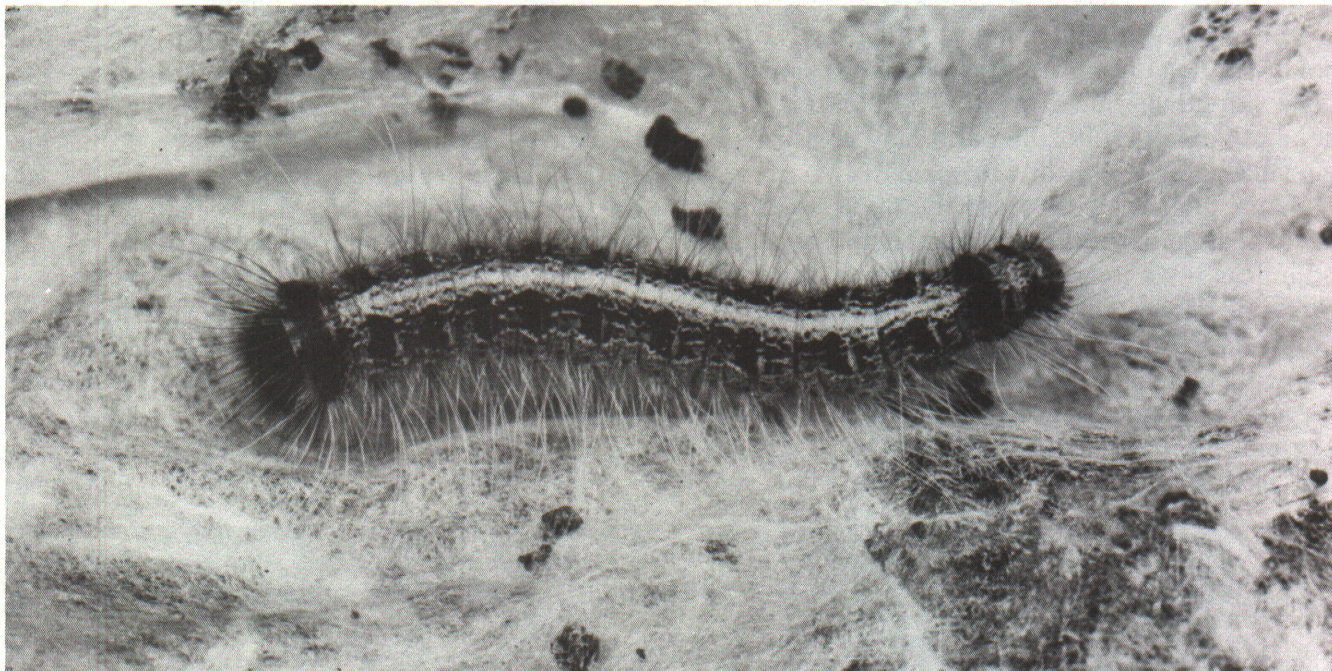
DESTRUCTIVE STAGES. The majority of defoliation is done by the older larvae; young larvae do very little damage and adults do not feed at all.

TREE STRESS. Defoliation of mature trees by tent caterpillar during May is not particularly serious; typically new leaves will flush out within a month after defoliation. However, if a tree is young or in a very dry environment, severe defoliation may cause death. Tree stress can become severe if complete defoliation

occurs several years in a row or if the same tree is defoliated for a second time by other insects later the same season. Repeated defoliation, in addition to stresses such as drought, may kill the tree or predispose it to attack by other insects or diseases.

CONTROL. The control of ETC is recommended

only in situations involving ornamental trees and shrubs where extensive defoliation would be detrimental to the aesthetic appearance of the infested plant. Control is not recommended for trees in forests, woodlots, along roadsides and ditches or right of ways. Remember that in most situations, trees will put out new leaves



Mature caterpillar on surface of tent (late May). Note characteristic stripe along the back.



Pale yellow cocoon of the eastern tent caterpillar on tuft of grass (late May-early June).

even when completely defoliated by ETC. When control is necessary, we suggest first using a non-chemical technique (see below) and/or a non-toxic spray material such as *Bacillus thuringiensis*.

Biological: Many parasites and predators attack tent caterpillar larvae and pupae. In localized situations, caterpillars may be effectively controlled by these natural enemies. Birds feeding on larval stages can totally eradicate a colony in one day. Parasitic wasps may also be very effective, however, the tent caterpillars are not immediately killed and may require 1 to 2 weeks before dying due to parasitism.

Some chemicals are highly toxic to many natural enemies of the ETC and should be avoided unless the extent of the infestation warrants these measures. Of the chemicals we have listed below, only *Bacillus thuringiensis* is non-toxic to natural enemies.

Non-chemical: Removal of the overwintered egg masses from twigs and branches is one of the easiest methods to prevent further tent

caterpillar problems. The egg masses can be easily removed with your fingers and crushed, no special tools are needed. They are easiest to spot after leaf drop in the fall and should be destroyed anytime before late April.

Hand removal or pruning is also recommended for the newly formed tents in the spring. Burn, crush or place in a plastic garbage bag for disposal. Burning tents which are still on the tree is not recommended because of possible damage to the tree itself.

Chemical: Foliar sprays of carbaryl (Sevin), diazinon, methoxychlor, malathion, or *Bacillus thuringiensis* (sold as Dipel, Thuricide, Bactur, or Biotrol) will control the caterpillars. The latter (B.t.) is a biologically active material that is specific for caterpillars of moths and is non-toxic. Use it where exposure to humans (e.g. children) is a concern. It is also harmless to beneficial insects such as predators, parasites or honey bees.

Photos, M. Keith Kennedy



Small tents can be removed with pruning shears or by hand and destroyed.