

Tent Caterpillars



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Tent caterpillars attack several species of broadleaf trees and shrubs, producing unsightly webs, or tents. When their populations become large, the caterpillars can defoliate trees, stunting their growth. They attack ornamental and fruit trees.

The keys to eliminating tent caterpillars are identifying them early and accurately, understanding their life cycle, and using appropriate cultural or chemical control measures.

In Texas, four closely related, troublesome species are the eastern tent caterpillar, *Malacosoma americanum*; the western tent caterpillar, *Malacosoma californicum*; the Sonoran tent caterpillar, *Malacosoma tigris*; and the forest tent caterpillar, *Malacosoma disstria*.

Life Cycle

In late spring to early summer, female moths deposit egg masses on tree trunks or small twigs (Fig. 1). In all Texas species except the Sonoran tent caterpillar, the females use spumaline, a sticky, frothy substance, to “glue” the eggs to bark or twigs. The spumaline also serves as a hard, protective covering around the egg mass.

Egg masses remain on the trees during most of the summer, fall, and winter. Caterpillars, or larvae, hatch from the eggs in early spring about the time the leaves on their host plants emerge. Within a few days, eastern and western tent caterpillars feed on these new leaves.

Tent caterpillars form small webs and enlarge them as they grow. The web is most often found in a crotch of small limbs (Fig. 2) and protects the



Figure 1. Eggs of the tent caterpillar.



Figure 2. A tent caterpillar web in a tree.

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Figure 3. Tent caterpillar larvae.



Figure 4. A tent caterpillar adult.

larvae at night and during rainy spells. Because the larvae move from their tents to feed on leaves, damage can occur some distance from the web. Defoliation is often concentrated because tent caterpillars feed in groups.

Eastern and western tent caterpillars form large, conspicuous webs. The Sonoran tent caterpillar spins a small web when it molts but does not live in it at other times.

As they grow, the larvae molt or shed their skin several times. During growth stages, or instars, caterpillar size progresses between molts from small ($\frac{1}{8}$ inch) to large ($1\frac{3}{4}$ inches). The color pattern can also change from instar to instar.

One of the most common tent caterpillars is the forest tent caterpillar (Fig. 3). It does not build a tent but spins a loosely woven resting mat on trunks and larger branches. Dozens of caterpillars may congregate on these mats between feedings.

As forest tent caterpillars complete their development in late spring, the larvae move several yards and may feed on a variety of herbs, shrubs, and trees before finding a site on which to spin a cocoon for pupation. Common sites include protected places such as in the web, under bark, in dead plant material on the ground, inside a rolled leaf, or under the eaves of houses. Forest tent caterpillars often draw leaves together to form a cocoon site.

Cocoons are loosely constructed of silk and have a white or yellowish crystalline substance scattered throughout the mass. Do not handle cocoons because the crystalline substance can irritate skin.

Adult tent caterpillars are brown and yellowish moths with two diagonal markings on the front wings (Fig. 4). Their wingspans are about 1 inch.

These moths are attracted to lights.

All tent caterpillar species have one generation per year. Adults live for only a few days, during which they mate and lay eggs and do not feed.

Biology

Immature tent caterpillars are colorful and about $1\frac{3}{4}$ inches long when fully grown. They have a few long hairs on their bodies, mostly along the sides. Individual species are identified by larval coloration and markings.

If you find tents with larvae that do not match the descriptions in Table 1, they are probably fall webworms. Fall webworms can have several generations per year and produce tents during late summer and fall. (For more information, see Texas AgriLife Extension Service publication E-233, *Fall Webworms* available at <http://AgriLifeBookstore.org>.)

Species	Color of upper surface of larvae	Tent characteristic	Hosts
Eastern tent caterpillar	Solid white	Large	Apple, cherry, hawthorn and related plants; sometimes oak
Western tent caterpillar	White dashes	Large	Oak, wild plum
Forest tent caterpillar	Keyhole-shaped markings	Mat of silk at molting	Blackgum, oak, sweetgum and others
Sonoran tent caterpillar	No white marks, black on third from last segment	Several smaller webs	Oak and other deciduous trees

Management

Base your management program on the amount of defoliation, unsightly webs, and the nuisance the caterpillars cause. For best control, you may need to use a combination of cultural and chemical techniques.

Cultural control. During winter pruning, inspect the trees for egg masses, which appear as swellings on small, bare twigs. Normal pruning often removes the tent caterpillar eggs before they hatch. Dispose of the egg masses pruned from the trees.

Prune twigs containing webs when you first notice them in the spring. If they are in areas where you cannot or do not want to prune, destroy the webs by hand using a long pole or high-pressure water spray. Burning the web and caterpillars is hazardous and not recommended.

Kill caterpillars knocked from the tree or crawling around the home by crushing them or placing them in a bucket of warm, soapy water. Sweep up the dead caterpillars and dispose of them.

Biological control. Beneficial insects can reduce tent caterpillar populations. Parasitic wasps in the genera *Cotesia*, *Bracon*, and *Hyposter* attack the larval stage of tent caterpillars. *Trichogramma* species attack tent caterpillars eggs. Birds, lizards, and insects such as assassin bugs and paper wasps also feed on tent caterpillars.

Chemical control. Before spraying for tent caterpillars, consider that although the individual leaves already fed upon will remain damaged, trees that have been defoliated early in the season will usually put on new leaves. It is useless to spray if the tent caterpillars have been allowed to feed and complete their development. Even so, removing the tent will eliminate the unsightliness of the tent itself. Tents are resistant to weather and will remain in the tree a long time unless they are removed.

Insecticides can be used on webs as a spot treatment. Apply them in the early morning or evening to concentrate the spray on the tents when the caterpillars congregate.

During the winter, smother the eggs by spraying them with dormant oil, a highly refined oil that spreads uniformly and coats dormant insects and eggs. The product label will include which species may be sprayed with these oils. When using horticultural (petroleum-based) oils, spray the plant well, since the level of control depends on the thoroughness of the coverage.

Some naturally derived products include

active ingredients such as *Bacillus thuringiensis* (*Bt*) variety *kurstaki*, spinosad, or insecticidal soap. These products work best on smaller caterpillar stages. When spraying *Bt* *kurstaki* and spinosad on foliage, spray the plant thoroughly so the product will be picked up and eaten by the caterpillars. *Bt* is selective in that it targets only caterpillars, while spinosad works on insects that chew a lot of foliage. Insecticidal soap is a contact-kill insecticide and must be sprayed directly on the caterpillars to kill them.

Plant-derived insecticides include active ingredients such as pyrethrum and d-limonene. Some of these formulations work when they come into contact with the pest, while some may have an oil-based component similar to horticultural (petroleum-based) oils. Both petroleum-based and plant oils must be applied with good coverage directly to the pest to ensure that the product works properly.

Many longer-lasting, synthetic pesticide products provide faster, longer-lasting control than do most plant-derived insecticides and work on all growth stages of the caterpillar. However, most of these products can kill beneficial insects as well as the caterpillars. Active ingredients to look for include bifenthrin, cyfluthrin, esfenvalerate, fluvalinate, permethrin, lambda-cyhalothrin, indoxacarb, acephate, and carbaryl.

Professional pest management providers have access to products with the active ingredient chlorantraniliprole which are not available to homeowners without a pest management license.

Pesticide users are responsible for the effects pesticides have on their own plants or household goods as well as any problems caused by drift from their properties to neighbors' properties or plants. Also, regulations on insecticides and pesticides are subject to change. For the most reliable instructions, always read and carefully follow the instructions on the product label.

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