

Western Tent Caterpillar

Silken tents in early spring

Name and Description—*Malacosoma californicum* (Packard)
[Lepidoptera: Lasiocampidae]

Adults are heavy bodied with a wingspan of 1-2 inches (2.5-5 cm) (fig. 1). The color of the moths of both sexes varies from dark red-brown to yellow, tan, or gray. Forewings have a pair of lines that can be either darker or lighter than the wing color. Egg masses are covered with a hardened, glossy material that varies in color from dark brown to pale gray (fig.2). When first hatched, larvae are about 1/8 inch (3 mm) long and are dark brown to black in color with whitish hairs (fig. 3). Mature larvae are about 2 inches (4.5-5.1 cm) long and are highly variable in color and markings. Most larvae have a pale blue head capsule and body speckled with black markings (fig. 4). They have a mid-dorsal stripe formed by a blue-white to pale blue dash on each body segment. The mid-dorsal stripe is edged with two bands that may be black or yellowish orange, banded with black. The body is covered with orange or orange-brown hairs with white tips. When full-grown, caterpillars are about 2 inches (50 mm) long. Cocoons are of white silk dusted with a white to yellow powder. This insect is the most variable of the North American species of *Malacosoma*, in which six subspecies and several unclassified forms have been recognized.

Hosts—Hosts include a wide range of tree and shrub species. In the central and southern Rocky Mountains, quaking aspen is the preferred host. Other reported tree hosts include alder, cottonwood, crabapple, fruit trees, oak, poplar, and willow. Chokecherry is a host throughout its range, especially on the western slopes of Colorado. Other shrub hosts include bitterbrush, *Ceanothus* spp., mountain mahogany, nine-bark, serviceberry, sumac, wild currant, and wild rose.



Figure 1. Adults of western tent caterpillar: female (left) and a male (right). Photo: Jerald E. Dewey, USDA Forest Service, Bugwood.org.



Figure 2. Female western tent caterpillar adult with an egg mass. Photo: Jerald E. Dewey, USDA Forest Service, Bugwood.org.



Figure 3. Hatching larvae of western tent caterpillar. Photo: Whitney Cranshaw, Colorado State University, Bugwood.org.

Life Cycle—Western tent caterpillar has one generation per year. White silken tents in the branches of host plants provide evidence of western tent caterpillar presence in spring. These are generally visible shortly after bud burst. Larvae live and feed as a colony, enlarging the tent as they grow (figs. 3, 5-6). If disturbed,



Figure 4. Mature larvae of western tent caterpillar. Photo: William M. Ciesla, Forest Health Management International, Bugwood.org.

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larvae wave their bodies and twitch. When not feeding, larvae remain in the tent, which they use as shelter, protection, and a molting site. Late-stage larvae become solitary feeders and no longer use the tent. The larvae mature in 30-42 days, depending on weather conditions. Pupation occurs within silken cocoons spun on branches in the remaining leaves of host trees, on non-hosts, or in leaf litter. The duration of the pupal stage is from 12-18 days. Adult emergence usually takes place in late July to early August.

Both males and females are strong fliers and, during outbreaks, swarms of moths are common. Eggs are laid in

flat, clasping masses on the twigs and branches of host trees. Each female lays a single egg mass. Live branches less than 3/4 inch (19 mm) in diameter are the preferred egg laying sites. Larvae hatch 3-4 weeks later but remain inside the egg until the following spring.

Damage—Successive years of defoliation of aspen and other hosts can cause reduced diameter growth, branch dieback and top-kill, reduced production on fruit trees, and, in rare cases, mortality. In Colorado, entire aspen stands across large areas have been defoliated. During outbreaks, western tent caterpillar may be only one component in a complex of factors causing such widespread aspen defoliation, along with other insect defoliators and leaf diseases. Chokecherry fruit is an important food source for some indigenous cultures, and intense defoliation reduces fruit set. Chokecherry is also used as a food source by many wildlife species. Defoliation of range shrubs can reduce browse. Defoliated trees and tents are unsightly, and large hordes of wandering larvae are a nuisance in residential and recreation areas.

Management—Because western tent caterpillar is more of a nuisance than a damaging pest, infestations normally are allowed to run their course without intervention. A large complex of natural enemy species feeds upon western tent caterpillar and, together with unfavorable weather and foliage depletion, regulates population size. High populations usually collapse within a year or two due to natural controls, although outbreaks in the Southwest have lasted longer and caused significant aspen mortality.

When populations are low, the egg masses on small plants can be removed by hand and destroyed between July and the following spring. Hand picking can inflict significant larval mortality. Destruction of occupied tents by hand or with a brush leads to colony collapse. Pruning to remove egg masses, tents, or groups of larvae must be done sparingly to avoid injuring the plant. Using fire to accomplish this is not recommended as it damages the plant more than the defoliation.

Outbreaks in fruit trees, forests designated for timber or fiber production, heavily used recreation sites, or around homes in urban-wildland interface areas may require direct control. Several chemical and biological insecticides are registered for western tent caterpillar control.



Figure 5. Tents indicate western tent caterpillar infestation, viewed from within an aspen stand. Photo: William M. Ciesla, Forest Health Management International, Bugwood.org.



Figure 6. Tent of western tent caterpillar on a mountain mahogany stem. Photo: William M. Ciesla, Forest Health Management International, Bugwood.org.

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