

TENT CATERPILLARS IN NORTHERN ARIZONA ABOVE 6000 FOOT ELEVATIONS

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Tent caterpillars are common insects in northern Arizona forests as well as in urban trees. The species that can be found in northern Arizona are the forest tent caterpillar *Malacosoma disstria*, sonoran tent caterpillar *M. constrictum*, southwestern tent caterpillar *M. tigris*, and western tent caterpillar *M. californicum*. They are similar in habit and appearance. Hosts of tent caterpillars in northern Arizona include, oak, willow, poplar, birch, ash, apple, apricot, cherry, plum, currant, and hawthorn.

Tent caterpillars feed upon developing buds, and young and mature leaves of their host. It is common for trees defoliated early in the growing season to re-leaf and fully recover from feeding damage. Death of mature trees is rare from these pests. Young, newly planted trees, though, may not have enough root reserves available to sustain heavy defoliation. Extra care should be taken to protect these young trees from extensive feeding.

Indirect effects occur when tent caterpillar populations become high and the insects become a nuisance. People in parks or in their yards, when sitting or picnicking under infested trees, do not enjoy having the insects fall out of the trees and land upon them and their food. Avoidance of these spots may be the most reasonable solution.



Figure 1. Tent caterpillar larva.



Figure 2. Mass of silken threads of the tent caterpillar.

Most tent caterpillars have similar life cycles and habits. They overwinter as fully developed embryos in the eggs. They hatch about the same time as the leaves and flowers begin to develop on the host tree. The young larvae begin to feed as soon as they emerge (Fig. 1). They form a tent or pad of silken threads (Fig. 2). The tent or pad is used for resting and for protection from predators and severe weather. The larvae feed gregariously in the early instars and alone during the later instar stages, at which time they consume the majority of leaf material. They feed for four to six weeks, then form a cocoon in which to pupate. They spend approximately two to three weeks in the cocoon. Upon emergence as adults, they mate and lay eggs on live twigs in masses of up to 200 eggs. The egg masses, grey to brown in color, can be found from mid-summer until the following spring.

The embryos mature for several weeks into first instar larvae but eclose. The larvae remain in the eggs until the following spring.

Depletion of leaves due to over population of caterpillars may result in starvation and death, a major factor in population dynamics. Many parasites, predators and diseases attack tent caterpillars. They can be parasitized

by flesh flies of the *Sarcophaga* genus in very high numbers (Johnson and Lyon, 1991). Eggs, larvae, and moths are eaten by birds (Furniss and Carolin, 1977). Very high mortality can be caused when the nucleopolyhedrosis virus infects the population. Fungi in the *Entomophthora* genus can be pathogenic to forest tent caterpillar (Johnson and Lyon, 1991).

The biocontrol agents *Bacillus thuringiensis* (Bt) var. *kurstaki* and var. *berliner* provide excellent control of tent caterpillars. Bt is a naturally occurring bacterium that will cause paralysis within the gut of immature insects in the family Lepidoptera (moths and butterflies); no other group of organisms is affected. Due to the specific nature of this pesticide, it is very safe to apply. Bt can also be mixed with nucleopolyhedrosis virus for control of the western tent caterpillar.

Mechanical methods can be effective in controlling tent caterpillars on small trees and shrubs. Physical removal of egg masses and the caterpillars from the trees can greatly reduce their numbers. Egg masses are best removed during the winter when they are easily spotted. The caterpillars are best removed during the early instar stage while they are feeding in a group and utilizing the tent or pad.

There are many chemical insecticides registered for the control of tent caterpillars, but use of chemicals is recommended only in instances where high value trees are heavily infested and other management tactics have failed. For currently registered chemicals consult with your local county Extension office or with a pesticide sales person.

References

- Furniss, R.L. and V.M. Carolin. 1977. Western Forest Insects. U.S. Department of Agriculture Forest Service, Miscellaneous Publication No. 1339.
- Johnson, W.T. and H.H. Lyon. 1991. Insects That Feed on Trees and Shrubs, 2nd Edition. Comstock Publishing Associates, Ithaca, New York.

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