

Trees without Leaves

Forest tent caterpillars are out in full force in many areas of northwest Minnesota. Forest tent caterpillars are quite common, but this year, we are experiencing an outbreak of another pest as well, the eastern tent caterpillar, a close relative to the FTC.

Both species occur throughout most of the United States and Canada wherever hardwood trees are found. It periodically infests oak, aspen and many other tree species over large areas of northern Minnesota. The caterpillars are commonly -- but mistakenly -- called 'armyworms'. Groups of these caterpillars can defoliate trees, potentially injuring them, but most often not.

The eastern tent caterpillar is a bit different in that they construct silken, funnel-shaped webbings which provide shelter they use at night and during rainy weather. The tent will be small at first but will increase in size and can eventually become quite conspicuous. During the day they crawl out of these tents and feed on tree leaves. Although they are found on a variety of hardwood trees, eastern tent caterpillars are particularly fond of fruit trees, including apple, chokecherry, crabapple, plum, and cherry.

The caterpillar larvae of both species emerge from egg masses in early to mid-May, about the same time aspen leaves begin to open. Caterpillars feed actively on aspen and other broadleaf trees for five to six weeks. Despite its name, the forest tent caterpillar does not make a true silken tent. However, the larvae do spin an inconspicuous silken mat where caterpillars congregate on the trunk and branches.

Right now, the older larvae have become restless and move around trees and other vegetation to find food. Significant damage to nearby plants can occur at this time. In a couple of weeks, full-grown caterpillars wander from where they have been feeding to search for protected places to spin silky cocoons (to pupate). Full-grown caterpillars are about two inches long, mostly blue and black, with a row of white, footprint shaped markings on their backs, and many hairs along the edge of the body.

Adult moths emerge from cocoons about two weeks later in mid-July. These tan moths are nocturnal and are attracted to lights at night. Adults live for about five days. During this time they deposit 100 to 350 eggs in gray cylindrical masses surrounding small twigs. The eggs overwinter and larvae hatch from them during the next spring. There is only one generation per year.

In Minnesota, the number of forest tent caterpillar's changes in relatively predictable cycles. At the beginning of this cycle, forest tent caterpillars can be difficult to find. Over a period of about ten (8-13) years, their populations start to increase until they reach tremendously large numbers. These outbreaks usually last for about three to four years in Minnesota.

Natural controls, including cold or damp spring or early summer weather, starvation, and viral disease, can cause populations to crash quickly to very low numbers. Populations are also significantly reduced by wasps and flies that parasitize eggs, larvae, and pupae. The most conspicuous of these parasitic insects is a large gray fly, *Sarcophaga aldrichi*, which is often a nuisance to humans. This fly, native to Minnesota also increases numbers in response to forest tent caterpillar outbreaks.

Forest tent caterpillars can defoliate a large number of broadleaf trees and plants. In Minnesota, quaking aspens are most frequently attacked. Other highly preferred tree species in Minnesota include balsam poplar, basswood, oak, ash, birch, alder, and fruit trees. When trees are defoliated, forest tent caterpillars may also

damage other nearby plants. Damage has been found on vegetables, fruit trees and other small fruits, and nursery crops. This caterpillar rarely feeds on red maple and conifers, such as pine and spruce.

Trees that are fed upon by forest tent caterpillars are rarely killed by these insects because following complete defoliation, deciduous trees are able to produce another set of leaves during the same season. The main impact of forest tent caterpillar feeding on deciduous trees is a reduction in the rate of growth. Vigorously growing trees can tolerate up to two or even three consecutive years of heavy defoliation without suffering serious damage or mortality. If a prolonged defoliation cycle occurs, (four or more years), moderate to heavily defoliated trees may experience a reduction in growth, suffer branch dieback and could eventually be killed. A stressed tree can be injured or even killed in a much shorter time period than an unstressed tree.

In the home landscape, simple physical procedures (mechanical control) by the homeowner can be carried out to help manage the forest tent caterpillar. One management procedure is to remove and destroy overwintering egg masses from branches of small trees before eggs start to hatch in the spring. Also, caterpillars and cocoons can be brushed off houses, picnic tables, or decks with a stiff broom or brush or knocked down with a spray of water. Be careful not to crush too many caterpillars; they can smear and leave marks on some paints.

A great non-chemical method to deal with eastern tent caterpillars is to wait until they have retreated back to their webbing at the end of the day or on a rainy day and then pull out the webbing, along with the caterpillars. Then bury or bag them to properly dispose of them.

Another management tool available to the homeowner involves chemical treatment with insecticides. Insecticides should be sprayed when caterpillars are small and easy to manage. Larger larvae are more difficult to kill and can continue to heavily defoliate trees before some insecticides take effect. An effective larval insecticide is *Bacillus thuringiensis* var. *kurstaki* (also referred to as Bt), a microbial insecticide approved for organic production. Bt offers effective control and conserves beneficial insects. Other insecticides available to homeowners that conserve beneficial insects are insecticidal soap, spinosad (Conserve), and azadirachtin (Azatin).

More toxic insecticides are available to homeowners but tend to be more dangerous to handle and have the disadvantage of killing non-target beneficial insects which may lead to further problems later.

The most practical solution is patience with possible mechanical removal of tents and cocoons around your home. One common exception may be the newly planted yard tree that is heavily infested. Older yard trees will regrow new leaves once the caterpillars pupate in the next few weeks, but young, newly planted trees may need more protection.

For more information on forages, contact me at 800-450-2465, or at stordahl@umn.edu. Source: Jeff Hahn, UM Entomologist.