



Eastern Tent Caterpillar

By Nathan A. Blount and Dr. John J. Riggins.

Introduction

As springtime in Mississippi arrives, so does the unsightly appearance of eastern tent caterpillar nests. The eastern tent caterpillar, *Malacosoma americanum*, has a long history in the United States with the first documented infestation dating back to 1646. Populations fluctuate yearly, with major outbreaks occurring most often in 8-10 year intervals (Hoover 2002). Even with the fluctuating populations, the caterpillars can be found throughout Mississippi every spring.

Description and Life Cycle

Mature eastern tent caterpillars are approximately 2" long and have a black body with a distinct white line running down their back (Fig. 1). Yellowish-gold markings are also present on the caterpillar, as well as a series of irregular blue spots running down the side. The caterpillar has a black head and also possesses long, tan hairs that are scattered across its body (Layton 2011). Eggs hatch during the spring, at approximately the same time cherry leaves emerge from buds (Hoover 2002). In Mississippi, this is normally the month of March. Caterpillar

larvae are gregarious (feed in groups), and begin constructing their silken webs (also referred to as 'tents') shortly after hatching by spinning small strands of silk as they crawl (Fig. 2). As the caterpillars grow, the webs, which serve as a protective barrier, also increase in size reaching a maximum of a foot or more in length. It is not unusual for caterpillars from different hatches to join together and help build webs. Caterpillars congregate in the webs during night time, periods of abnormally hot weather, and when it rains (Bessin 2003). Feeding takes place on foliage outside the web and caterpillars will feed for six to eight weeks before migrating down the tree to find a protective area to spin their dirty white-colored, oval cocoon which is about 1" in length. Preferred pupation sites include bark crevices on trees, in grass, any object they can fit under, and even buildings. The larvae remains in the pupal stage for approximately three weeks until it hatches into its adult moth form (Hale 2003).

Eastern tent caterpillar moths are reddish-brown in color with two pale stripes present on the forewings (Fig. 3). They have a wingspan of 1.5-1.75 inches (Koval and Binnie 1999). The moths normally emerge from their cocoon at night, which is

also when they are most active. Soon after emergence, mating takes place. Females will lay their eggs in masses encircling small twigs that are approximately pencil-sized or smaller in diameter (Fig. 4) (Bessin 2003). Egg masses contain 150-350 eggs and are collar-like in appearance, being tapered at both ends. A dark brown glue-like substance holds the eggs together and gives the egg mass a shiny blackish finish (Koval and Binnie 1999). Eggs are usually laid during the month of July, and moths die soon after. The eastern tent caterpillar overwinters in egg form, and its life cycle will continue the following spring when eggs hatch. There is only one generation per year (Hale 2003).

Symptoms and Effects

Infestations of eastern tent caterpillars are rather easy to identify due to the signature webs they build in the crotches of tree forks and branches during spring time (Fig. 5). Since the webs are primarily found in crotches of the tree, they take on somewhat of an angular appearance and rarely encompass tree leaves. Defoliation normally occurs within three feet of webs (Hoover 2002). Heavy infestations of eastern tent caterpillars can completely

defoliate trees, but since there is only one generation of caterpillars per year, trees normally recover and put out a new crop of leaves without significant long-term injury (Layton 2011).

Eastern tent caterpillars can also be a general annoyance to humans when the caterpillars begin to disperse in search of more food or places to pupate. During these periods of migration, caterpillars can number in the thousands and cover driveways, roads, and sidewalks making it hard to avoid squishing them and potentially leaving a mess (Hale 2003). Eastern tent caterpillar nests are also sometimes confused with fall web worm nests, which are constructed later in the year. Fall webworm nests are most frequently built near the ends of branches, rather than crotches, and the nests also encompass foliage, unlike eastern tent caterpillar nests (Bessin 2003).

During the year 2001 in Kentucky, eastern tent caterpillars were present in enormous numbers. A rare situation arose where pregnant horse mares began to abort foals after accidentally consuming large amounts of caterpillars that were present on horse feeding grounds. This anomaly is estimated to have cost horse breeders close to \$300 million dollars. Although this situation is far from common, precautions may need to be taken by horse breeders with black cherry or

other susceptible tree hosts near their property (Layton 2011).

Susceptible Host Trees

Black cherry trees (*Prunus serotina*) are the preferred host for eastern tent caterpillars, with apple and crabapple trees being the second most preferred (Layton 2011). Occasionally caterpillars will attack other species of deciduous trees in the south, including peach, plum, pear, rose, and hawthorn (Hale 2003). In the midwestern U.S., caterpillars are known to infest ash, boxelder, elm, maple, birch, willow, poplar, and oak trees (Koval and Binnie 1999).

Management

Control is normally not necessarily for eastern tent caterpillar infestations, as the main implication is usually the unsightly appearance of webs. However, in certain extreme instances, infestations can be severe enough to warrant intervention. Most trees have some level of resistance to defoliation, but the degree to which they are resistant varies by species. Healthy and vigorously growing hardwood trees will not be harmed from a single total defoliation. In severe infestations where trees are completely defoliated each year (consecutively) or more than one time per year, the situation may start to warrant control to protect the life of the tree. Maintaining tree vigor through regular watering, fertilization, pruning, and avoiding root compaction will

minimize the effects from the eastern tent caterpillar and many other tree pests. It can also be beneficial to take preventative measures on newly established young trees by removing and destroying webs and larvae (Layton 2011). This can be accomplished through hand destruction, pruning out webs, and destroying twigs containing egg masses. If the landowner is willing, removal of wild cherry trees can also curtail infestations (Hale 2003).

Chemical control can be used in situations of extreme infestation or to protect young trees (Layton 2011).

Insecticides should be applied in early spring when the caterpillars are still small. Apply directly to webs and the immediate area within a foot of the webs. For maximum effectiveness, it is best to apply first thing in the morning when caterpillars are still inside their webs and when the web is less than 3" in diameter (Hoover 2002). A properly timed insecticide application can completely eliminate the caterpillar. As larvae mature, insecticides become less effective (Bessin 2003). An insecticide containing *Bacillus thuringiensis* var. *kurstaki* (Bt) is recommended as it doesn't affect non-foliage feeding species of insects and is harmless to people, animals, and plants (Koval and Binnie 1999). Other effective insecticides include carbaryl, methoxychlor, and malathion (Bessin 2003). It is very

important to thoroughly read all labels on insecticides and follow the exact directions.

Mother Nature has her own way of regulating eastern tent caterpillar populations. Caterpillars are prey for a variety of species including birds, toads, and other insects. Beneficial wasps parasitize all stages of the caterpillars and many caterpillars die from disease when weather conditions are not optimal (Hoover 2002).

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Figure 1: Eastern tent caterpillar (*Malacosoma americanum*) larvae. Photograph by: William M. Ciesla, Forest Health Management International, www.forestryimages.org.



Figure 2: Web of the eastern tent caterpillar on a black cherry tree. Photograph by: Steven Katovich, USDA Forest Service, www.forestryimages.org.



Figure 3: Eastern tent caterpillar adult. Photograph by: Lacy L. Hyche, Auburn University, www.forestryimages.org.



Figure 4: Eastern tent caterpillar egg mass. Photograph by: Robert L. Anderson, USDA Forest Service, www.forestryimages.org.

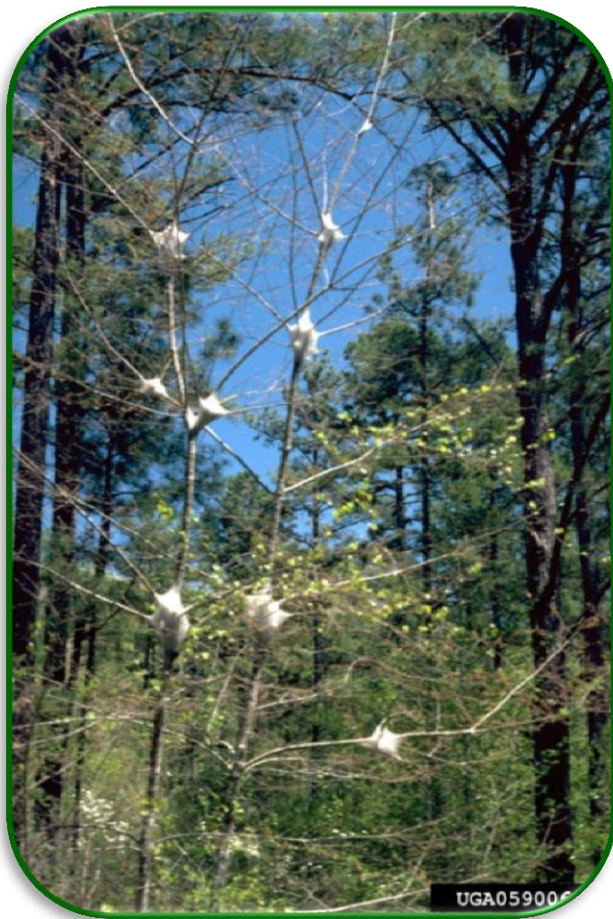


Figure 5: Tree heavily infested by eastern tent caterpillars. Take notice of webs in crotches. Photograph by: Robert L. Anderson, USDA Forest Service, www.forestryimages.org.