



# Entomological Notes

Department of Entomology

## ELM SPANWORM

*Ennomos subsignaria* (Hubner)

The elm spanworm is a serious defoliator of shade and forest trees in the eastern United States. Generally, this native pest feeds on elm, hickory, oak, red and sugar maple, American beech, and ash. This species also attacks a number of other hardwoods. The elm spanworm has been detected as a pest in Pennsylvania since 1931. In 1993 noticeable defoliation (greater than 30% of the foliage removed) occurred in 15 counties on more than 1.2 million acres in Pennsylvania. Defoliation was most apparent in Sullivan and Bradford Counties in the east to Warren and Forest Counties in the west. Damage was also observed in Somerset County. This outbreak began in 1991 when elm spanworm defoliated 65,000 acres, mostly in Elk and McKean Counties. In 1992 the infestation spread to Potter County with defoliation in the state increasing to more than 300,000 acres.

### DESCRIPTION

The elm spanworm adult is a powdery white moth with a wingspread of 30 to 37 mm (1 to 1 1/2 inches). Its body is fairly stout and hairy. Females lay the eggs in compact masses on the underside of twigs, large branches, or on tree trunks. The eggs are bright yellow green when first laid in summer but darken to dull olive gray or brown in winter. Mature larvae, sometimes referred to as “loopers” or “inchworms,” are about 50 mm (2 inches) long. The body of the larval stage may be dull or slate black and the head rust-colored. Some larvae may be light green with yellow head capsules (Fig. 1). When population levels are low, there is a higher proportion of lighter colored larvae. The pupal stage is light brown, sometimes patterned with dark brown spots.

### DAMAGE

All damage is caused by the larval stage of the elm spanworm. As soon as egg hatch occurs, larvae begin to feed on the underside of leaves, causing a shothole effect. As larvae mature, they eat all leaf material between the major veins. Larvae are capable of completely defoliating shade trees and large areas of mixed hardwood forest during outbreaks.

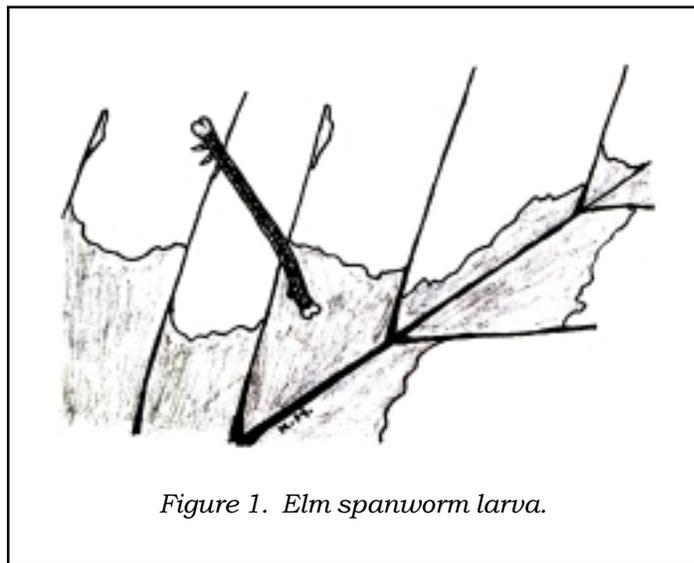


Figure 1. Elm spanworm larva.

### LIFE HISTORY

During July females lay eggs in irregular, single-layered, compact masses on the underside of twigs, large branches, or on tree trunks. Each female lays an average of 250 eggs. The eggs are oblong-elliptical, with a white serrated ring around the end. Elm spanworm spends winter in the egg stage. Egg hatch may begin in mid- to late May. After hatching, the larval stage passes through five or six instars, and then it pupates. To prepare for pupation, mature larvae spin coarse, netlike cocoons of silken threads, often on partially defoliated leaves. In severely defoliated stands, cocoons may be spun on exposed branch tips, in bark crevices, or stumps in the undergrowth. The pupal period varies from 9 to 17 days. Adults emerge in late June through July. They are on the wing at night. If an infestation is close to a urban area, male moths may fly to lights in large numbers frequently described as resembling a snowstorm in the summer.

### MANAGEMENT

Trees should be monitored from mid-May through early June for signs of elm spanworm larvae. If necessary, a registered insecticide should be applied when larvae are small. Where possible, prune small twigs that are infested with masses of eggs. Two egg parasi-

toids, *Telenomus droozi* and *Ooencyrtus ennemophagus* are known to keep this pest at low population levels. These small, beneficial insects can destroy more than 80 percent of the eggs during an outbreak.

## **WARNING**

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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