



Entomological Notes

Department of Entomology

EUROPEAN PINE SAWFLY

Neodiprion sertifer (Geoffroy)

The most common sawfly species that attacks pines in Pennsylvania is the European pine sawfly. The larval stage feeds on the needles of pines growing in landscapes, nurseries, and Christmas tree plantations. Damage caused by larvae results in the reduced aesthetic value of an infested tree. Native to Europe, this pest was accidentally introduced to North America in 1925. Its range extends from Ontario, Canada, in the north, to Missouri in the south, and from the New England states in the east, to Iowa in the west.

DESCRIPTION

Mature larvae are grayish green, 18–25 mm long, and caterpillarlike in appearance. They have three pairs of thoracic legs and seven pairs of fleshy abdominal prolegs on the lower side of the abdomen. Mature larvae have shiny black heads and five characteristic stripes that run parallel along the length of their bodies (Fig. 1). On each side of the body are two adjacent stripes; the one nearest to the legs is dark green or black and the stripe located right above it is grayish green. A light green stripe runs directly down the middle of the back of a mature larva. The eggs appear as an even spaced row of light brown spots along the length of a pine needle. Adults are wasplike, brown to black, and approximately 10–12 mm long.

LIFE HISTORY

During September and October females slit the edges of pine needles with saw-like structures on the tip of their abdomens and lay eggs into these openings. Females usually select needles grown that year located near the end of a lateral branch. Typically, one female will lay 6–8 eggs in a single needle in each of approximately 10–12 needles. Only one generation occurs per year and this species overwinters as eggs. Hatching occurs from late April through early May and larvae begin to feed in groups on the previous year's needles and sometimes the bark of new shoots. If larvae defoliate the tree of last year's needles before reaching maturity, they will crawl to another host tree to continue feeding. In late May and early June mature larvae usually drop to the ground to prepare to undergo

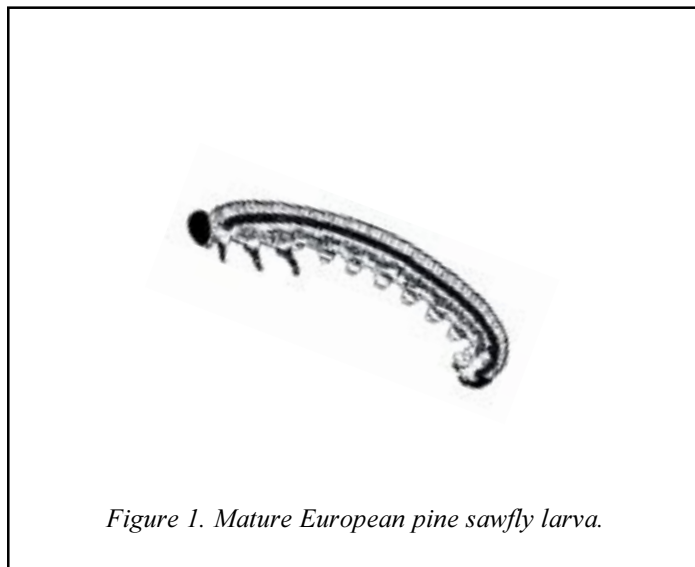


Figure 1. Mature European pine sawfly larva.

the transformation to the pupal stage. In late August mature larvae begin to pupate inside tough, golden brown cocoons in the leaf litter. Adults emerge from early September until late fall.

DAMAGE

The larval stage of this pest causes damage to several different species of pine. It prefers mugo pine, *P. mugo*; Scots pine, *Pinus sylvestris*; red pine, *P. resinosa*; jack pine, *P. banksiana*; Japanese red pine, *P. densiflora*; and table mountain pine, *P. pungens*. However, this species will also infest eastern white pine, *P. strobus*; Austrian pine, *P. nigra*; ponderosa pine, *P. ponderosa*; shortleaf pine, *P. echinata*; and pitch pine, *P. rigida*, if they grow in close proximity to preferred pines. Young larvae eat the surface of the needle causing needles to appear dry and strawlike. Older larvae continue to eat the needles from tip to base. Repeated defoliation severely stunts the growth of the tree and results in a thin, unsightly appearance. This aesthetic damage is most apparent on mugo pine in landscapes and nurseries and Scots pine grown in Christmas tree plantations. Since larvae rarely attack new foliage and most trees are seldom entirely defoliated, pines usually survive an infestation. Although larvae can also feed on the bark of new shoots causing shoot deformation and twig mortality, this pest is not a serious threat to the health of a tree.

MANAGEMENT

Host trees should be monitored for the presence of eggs in needles between September and mid-April. In late April and early May begin looking for tufts of dry, straw-like needles on the previous year's growth. This is a symptom that indicates feeding by young larvae and may be the best time to effectively manage this pest. One nonchemical management strategy for this pest would be to remove larvae by pruning an infested branch if this does not affect the tree's overall shape and beauty. Although predators and parasites such as rodents, birds, and insects exist, these natural enemies are usually not effective in managing this pest in the landscape and nursery. It may be possible to plant varieties of Scots pine that are less susceptible to damage caused by this pest. Northern cultivars of Scots pine are known to be more resistant to attack than southern ones. Since adults can fly, populations on unmanaged host trees may be a source of future infestations. Therefore, another management suggestion may be to remove host pines that are no longer of value in a landscape or nursery.

Apply registered insecticides according to label directions in early to mid-May to manage larvae when they are small. This treatment strategy will protect most host plants growing in landscapes, nurseries, and Christmas tree plantations.

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.

Gregory A. Hoover
Sr. Extension Associate
Dept. of Entomology
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Norman B. Barr
Graduate Student
Dept. of Entomology

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