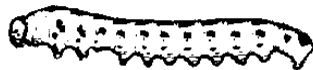


PINE SAWFLIES

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SAWFLY LARVA

Sawflies are members of the same insect order (Hymenoptera) that includes ants, bees, and wasps. The larval stage has a caterpillar-like body that may be brightly marked with stripes or spots. Some species change significantly in appearance as they grow, making identification confusing. Large numbers of sawflies can strip the needles from a tree in a short period. Several species can be found on pines in Kentucky.

Introduced Pine Sawfly

This distinctive sawfly has a black head and black body that is covered with yellow and white spots. The larvae prefer to feed on the needles of eastern white pine but also will eat Scotch, red, Austrian, jack, and Swiss mountain pine. Short leaf and Virginia pines have been attacked but usually are not heavily damaged.

Defoliation is most severe in the crown to upper half of the tree but heavily infested trees can be completely defoliated. If this occurs after the winter buds have formed, many branches or even the entire tree can be killed.

There are two generations each year. Larvae of the first generation feed on needles from the previous year. Young sawflies eat the more tender outer parts of the needles while older larvae consume them entirely. They are full-grown (about inch long) in July. The second generation of this sawfly feeds on both old and new needles during August and September.

Redheaded Pine Sawfly

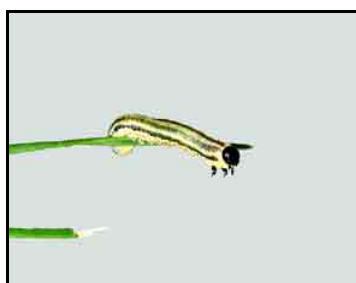
These distinctive larvae have red heads with 2 black eye spots and a yellow-white body with six rows of black spots. These sawflies are 1" to 1-1/4" long when full grown.

The redheaded pine sawfly can be very destructive, attacking trees 1 foot to 12 feet tall. Infestations may be worse on trees already under stress due to a poor site or if under severe competition from other trees. This species attacks jack, short leaf loblolly, slash, red, Scots, and

other 2- and 3-needled pines.

There can be two or three generations each year, starting in the spring. The larvae feed gregariously on new and old needles as well as the tender bark of young twigs. They generally feed downward from the top of the tree. After completely defoliating a tree, they may crawl to pines several yards away.

European Pine Sawfly



These green and black striped sawflies with black heads can feed on many hosts including Scotch, Eastern white, and Austrian. They feed on the previous year's needles and do not damage new needles.

These sawflies can feed on twig bark, causing growth deformities. Trees are seldom killed by the feeding of this insect. Full grown larvae are about 1 inch long.

White Pine Sawfly

This sawfly is pale yellow caterpillar with a black head and four rows of black spots along its body. It feeds primarily on white pine but will attack red, Mugo, and other short-needled pines. The larvae of a single generation feed on old and new needles in July and August.

Loblolly Pine Sawfly

The loblolly pine sawfly, a long time pest in Arkansas, has attacked loblolly pines in western Kentucky during some years. The larvae, about 1-1/4" long when full grown, have a chocolate brown head and dull green body. There are heavy black stripes along each side with two lighter stripes below them. This insect is a spring and summer feeder that is found most often on medium to large trees in forest stands.

General Sawfly Life Cycle

Female sawfly wasps have a saw blade-like plate to make a slit in pine needles. Their eggs are then inserted in the small openings. Upon egg hatch, the small larvae begin to feed. Individual species are active at different times of the year and some have more than 1 generation.

Sawfly larvae resemble the caterpillars of moths and butterflies with a visible difference. While butterfly and moth caterpillars have 2 to 5 pairs of fleshy prolegs on the abdomen; sawflies have more than 5 pairs. This distinction can be important with regard to selecting control measures. The biological insecticide (Bt or *Bacillus thuringiensis*) that works well against butterfly and moth caterpillars is not effective against sawflies.

Mature larvae spin a cocoon that turns brown and resembles a bud tip. The adult will emerge from the pupal case and start the life cycle again.

Sawfly Control

Sawfly populations are usually controlled by combinations of natural enemies, predators, starvation, disease, or unfavorable weather. Outbreaks can occur when natural control does not produce high mortality. Regular inspection of pines will help to detect sawfly infestations before the larvae reach a size that can cause significant defoliation. Since eggs are laid in clusters, feeding by groups of larvae can cause unsightly damage to ornamental or landscape plantings as well as tree nurseries.

If only a small number of colonies are present and accessible, they can be handpicked, shaken off, or pruned from the tree and destroyed.

Some of the insecticides that can be used for sawfly control are listed below by the common name of the active ingredient (in parentheses) followed by an example brand name. Recognizing the pesticide common name allows you to find comparable products that contain the same active ingredient. Be sure to read the product label carefully before purchasing any pesticide.

(acephate)	Orthene Turf, Tree & Ornamental Spray
(bifenthrin)	Ortho Houseplant & Garden Insect Killer
(carbaryl)	Sevin
(cyfluthrin)	Bayer Advanced Garden Multi-Insect Killer Concentrate
(esfenvalerate)	Ortho® Bug-B-Gon Garden & Landscape Insect Killer Concentrate
(imidacloprid)	Bayer Advanced Garden Tree & Shrub Insect Control
(permethrin)	Ortho Mosquito B Gon Tree, Shrub, and Lawn Spray

Insecticidal soaps may be effective if the insects are contacted directly by the spray. Frequent inspection of trees will allow early detection of damaging infestations.

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Fig. 2 Male European pine sawfly