



Redheaded Pine Sawfly

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DISTRIBUTION AND HOSTS: The redheaded pine sawfly occurs from S.E. Canada throughout the eastern U.S. Feeding is primarily restricted to the two and three-needled pines, such as Jack, red, shortleaf, loblolly, slash, longleaf, and pitch pines. White pine and Norway spruce may also be defoliated.

IDENTIFICATION: Sawfly adults look similar to true flies, yet have two pair of wings instead of one pair. Adult females are 6 to 9.5 mm in length while males are 5 to 6.5 mm. Except for legs and wings, males are completely black and females are predominantly black with the underside of their abdomen being whitish. Eggs are oval, 0.5 mm long and 0.25 mm wide. They are laid individually in a row of slits cut into the edge of the needles. All eggs laid by a female are generally grouped on needles of a single twig. Sawfly larvae resemble caterpillars; yet have at least six pair of "stublike" prolegs behind the three pair of true legs on the insect's abdomen. In contrast, caterpillars never have more than five pair of prolegs. Larvae emerge from eggs 2 to 5 mm long. After feeding, the larval body develops black spots and the head capsule becomes orange-red. In the fourth and fifth instars, black spots surround the eyes. At this stage, the body is deep-yellow. Larvae spin cocoons to overwinter and pupate in. The cocoons are red-brown, cylindrical with rounded ends, and are 10 mm long for females and 7.5 mm long for male. *Neodiprion lecontei* (Fitch)



Redheaded Pine Sawfly adult [L L Hyche, Auburn University, Bugwood.org]



Redheaded Pine Sawfly larva [A Mayfield, Florida Department of Agriculture, Bugwood.org]

DESCRIPTION OF DAMAGE The redheaded pine sawfly is the most widespread and destructive of the pine sawflies and is considered an important pest of ornamental, forest, and especially plantation trees. It usually feeds on young trees, preferably 0.3 to 4.6 m tall. Trees growing under stress in shallow soils, very wet or dry sites, or under stress from competing vegetation are especially susceptible to infestation and heavy defoliation. Outbreaks occur periodically and tend to subside after a few years of heavy defoliation. Severe outbreaks have resulted in death or deformity of young pines.

LIFE HISTORY: In Virginia, there are two to three generations/year. The redheaded pine sawfly overwinters in the prepupal stage in its cocoon spun in the litter of the soil beneath the infested trees. Pupation occurs soon after the onset of spring warm weather, and adults emerge in a few weeks. Eggs deposited in the needles hatch in 3 to 5 weeks. Larvae feed gregariously on new and old needles and also on the tender bark of young twigs. In Virginia, larvae begin spinning cocoons in late June, early July. Second generation adults emerge in July

and August. Larvae feed through September and then spin their cocoons. In warmer areas, adults will emerge at the end of September to late October and lay eggs for a third generation that remains active into December.

CONTROL: For ornamental plantings and Christmas trees, the best approach is apply spot sprays where and when new colonies are found. This insect tends to be sporadic in location and can occur from May to September. See the current Virginia Pest Management Guide for control options. Numerous natural control agents play important roles in keeping redheaded pine sawfly populations down. Outbreaks often collapse from rodents feeding on the pupae and diseases killing the larvae. Of the 58 species of parasitic and predatory insects affecting this pest, the native egg parasite *Closterocerus cinctipennis* Ashmead (Hymenoptera) and the larval parasite *Spathimeigenia* spp. (Diptera) are the most important. Silvicultural practices recommended for preventing redheaded pine sawfly outbreaks include: 1. remove competing vegetation before planting pines; 2. avoid planting pines in high hazard areas such as frost pockets, or on excessively dry, wet, or nutrient deficient soils; and 3. promote early closure of pines to prevent competing vegetation such as weeds or hardwoods.



Damage on pine [MN Dept. of Natural Resources Archive, MN Dept. of Natural Resources, Bugwood.org]

REFERENCES

- Benjamin, D.M. 1955. The biology and ecology of the redheaded pine sawfly. USDA For. Serv. Tech. Bull. No. 1118. 57 pp.
- Drooz, A.T. 1985. Insects of Eastern Forests. USDA For. Serv. Misc. Publ. #1426. 608 pp.