Virginia Cooperative Extension
Virginia Tech • Virginia State University
www.ext.vt.edu

Virginia Pine Sawfly

Authored by Eric Day, Insect ID Lab Manager, and Scott Salom, Department of Entomology, Virginia Tech

Distribution and Host

The Virginia pine sawfly has been recorded through New Jersey and Maryland to North Carolina and westward to Illinois. Its main hosts are Virginia and shortleaf pines, but it also feeds on pitch and loblolly pine.

Description of Damage

The Virginia pine sawfly was not considered an important defoliator pest until an outbreak in the late 1950s swept over more than 5.6 million hectares of pine and pine-hardwood forests in Maryland, Virginia, and North Carolina. Tree mortality was only scattered, but growth loss was severe. Heavy defoliation by Virginia pine sawfly for two or more years can weaken trees and make them more susceptible to other mortality agents.

Figure 1. Damage by Virginia pine sawfly larvae (USDA FS Ashville, USDA Forest Service, Bugwood.org).

Early instar larvae feed on the outer portion of needles. After the first two instars, larvae consume entire needles except for the basal portion within the sheath (Fig. 1). Larvae may also feed on portions of developing buds and on tender bark of twigs.

Identification

Adult sawflies resemble flies, but they are actually a type of primitive wasp. Virginia pine sawfly larvae resemble pale green caterpillars with black head capsules. Newly-hatched larvae measure 3 mm (0.1 inch) long. Full-grown larvae are spotted or marked with longitudinal black stripes and measure 16 to 23 mm (0.6-0.9 inch) long (Fig. 2). When threatened, sawfly larvae rear their heads and tails higher than the middle of the body in a characteristic defensive posture.

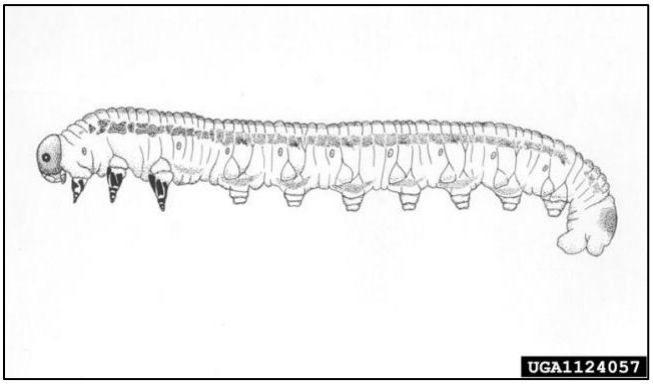

Figure 2. Line drawing of Virginia pine sawfly larva (Randall Blackburn, Smithsonian Institution, Bugwood.org).

Hymenoptera: Diprionidae, *Neodiprion pratti pratti* Stoetzel

Life History

Virginia pine sawfly overwinters in the egg stage inside a pine needle. Larvae hatch in early spring and feed gregariously on the previous year's needles, beginning about 10 to 15 mm (about 0.5 inch) below the tip of the needle. Larval development is usually completed by the time new needle growth expands, so that heavily defoliated trees have a tufted appearance.

Mature larvae leave the host tree to spin cocoons in the litter or soil surface under the tree. They remain in the cocoons as pre-pupal larvae until September, when pupation begins. Adults emerge in October and November. Adult females begin laying eggs soon after mating. Females insert small, white, oval eggs into the edge of needles at equally spaced intervals (Fig. 3), but only in one needle fascicle. There is a single generation per year.

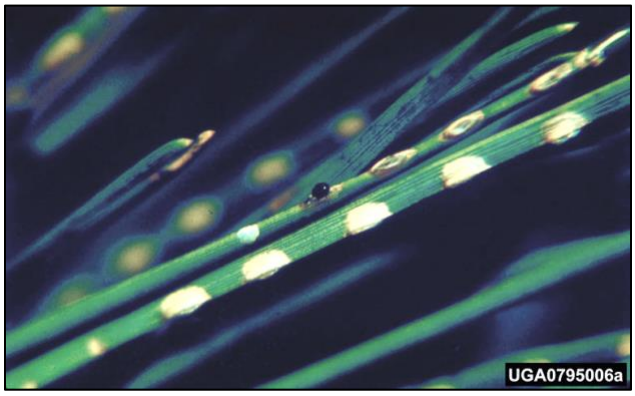

Figure 2. Damage to pine needle from egg laying by Virginia pine sawfly.

Control

There are several natural controls that help reduce Virginia pine sawfly populations. White-footed mice and ants consume large numbers of pre-pupae and pupal sawflies when abundant. An ichneumonid wasp, *Exenterus nigrifrons* Rohwer, is an effective parasitoid of pre-pupal Virginia pine sawfly larvae before they spin cocoons. The introduced parasitoid wasp *Dahlbominus fuscipennis* (Zettersttedt) attacks Virginia pine sawflies in their cocoons. This species was established in Virginia after it was released in infested pine stands. A native polyhedrosis virus destroyed up to 70 percent of sawfly larvae when it was applied from an airplane.

Several chemical treatments have proven effective in preventing damage to ornamental pines. Treatments for Virginia pine sawfly should be applied in April. Although sawfly larvae resemble caterpillars, sprays containing B.t. are not effective against sawfly control. Christmas tree growers and nurseries should check the Virginia Pest Management Guide for Horticulture and Forest Crops (VCE 456-017), for insecticides currently registered for Virginia pine sawfly. Homeowners with infested trees should see the Virginia Pest Management Guide for Home Grounds and Animals (VCE 456-018) for a list of approved insecticides recommended for sawflies under “Defoliators.”

Revision

Theresa A. Dellinger, April 3, 2020.

Visit Virginia Cooperative Extension: ext.vt.edu

Virginia Cooperative Extension programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Edwin J. Jones, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; M. Ray McKinnie, Administrator, 1890 Extension Program, Virginia State University, Petersburg.

2020 2911-1424 (ENTO-375NP)