Extension

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Conifer Sawflies

Pest Fact Sheet 40

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UNH Cooperative Extension Programs	
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Introduction

A number of sawfly species are important defoliating pests of ornamental trees in New Hampshire. The damage is done by the larvae which are caterpillar-like, resembling moth or butterfly (lepidopterous) larvae.

Description and Damage

To differentiate sawflies with lepidopterous larvae, count the number of pairs of prolegs on their abdomen. Viewed from the side, the first segment is the head. Then there are three thorax segments. The abdominal segments are **after** the thorax. Sawfly larvae have six or more pairs while lepidopterous larvae have five or less and their prolegs bear small hooks called crochets. Sawfly prolegs (the fleshy legs on the abdomen) do not have tiny hooks (crochets) on them. Another distinguishing characteristic is the number of eyes on the side of their head capsule. Sawfly larvae have one on each side while lepidopterous larvae usually have six on each side (forming a c-shape).

Sawfly larvae often feed in groups (are gregarious) and strip one branch of needles or leaves before moving on to another branch. Most sawflies prefer old needles but some species also feed on new growth. Severe defoliation can cause trees to die.

When mature, the larvae spin tough capsule-like cocoons on the ground, in the litter, or on trees. The wasp-like adults emerge from the cocoons and lay eggs singly in slits cut in the needles. These slits are cut by a saw-like ovipositor, from which sawflies get their name.

The following sawflies are important pests in New Hampshire:

Red-Headed Pine Sawfly (Neodiprion lecontei): This native sawfly is one of the most destructive species of sawflies attacking pines. Pines having needles in clusters of two to three are preferred, such as red, Scotch, Jack, pitch, and mugo pines. Occasionally Eastern white pines may be attacked.

Red-Headed pine sawfly larvae. Credit: Glenn (Dode) Gladders, UNH Cooperative Extension.

Sawfly populations can be controlled by parasitoid wasps.

Did You Know?

Most sawflies prefer old needles but some species will also feed on new growth. Severe defoliation can cause trees to die.

Introduced pine sawfly larvae. Credits: Dode Gladders, University of New Hampshire.

Full-grown larvae are yellowish-white with six rows of conspicuous black spots and a reddish head. Red-headed pine sawflies spend winter as prepupae in capsule-like cocoons in the ground. After pupation, the emerged females lay eggs in the previous year's needles. The newly hatched larvae feed in groups on new and old needles defoliating branches. They become full-grown in 25-31 days. When ready to pupate, they drop to the ground and spin a reddish-brown cocoon. There can be more than one generation per year. Most feeding takes place in May and June.

European Pine Sawfly (Neodiprion sertifer): This species was introduced in the U.S. in 1925 and is now established throughout New England. It prefers red and Scotch pines, but also attacks mugo, Jack, and Japanese pines.

During late summer to early fall, newly emerged adult females lay eggs in the current year's needles. The eggs hatch in April to mid-May. The larvae feed gregariously on older needles, but do not injure new growth. Full-grown larvae are grayish-green and about ⅞" long. They have a lighter longitudinal stripe down their middle bordered with two whitish lines and a greenish or blackish stripe which can be broken into a series of spots. Their head and thoracic legs are black. Pupation occurs in late August or early September. There is one generation per year. Trees stripped in successive years may die.

Yellow-Headed Spruce Sawfly (Pikonema alaskensis): This sawfly feeds on all spruces. The larva is light green with a brown or reddish-yellow head and a green stripe on each side of its body. It spends winter as a prepupal larva in a cocoon. Adults appear in early June and lay eggs in needles. Larvae feed on new growth from mid-June to mid-July. There is only one generation per year.

Balsam Fir Sawfly (Neodiprion abietis): This species prefers balsam fir but also feed on spruce. The larvae are dark green with six black stripes. Their head is black. The overwintering eggs hatch in May and feed for a month. Pupation occurs in cocoons on trees or on the ground. Adults appear in August and oviposit in needles.

Balsam Shootboring Sawfly (Pleroneura brunneicornis): Mature larvae spend winter in cocoons on the ground. Adults lay eggs in the expanding buds of balsam fir in early May. The larvae feed in tunnels excavated in the center of new shoots. Mined shoots die and turn reddish-brown, resembling frost damage.

Introduced Pine Sawfly (Diprion similis): This species was introduced from Europe in 1914 and is now present throughout the northeast. It prefers white pine but also feeds on Scotch, red, Jack, and mugo pines. When full-grown, larvae are about 1" long with a black head. Their greenish-yellow

body have a double brown or blackish stripe the entire length of their back. The sides of their body are dark brown mottled with yellow and black.

They spend winter as prepupae with adults appearing from May to mid-June. Females deposit eggs in the edge of older needles. Young larvae feed gregariously while older larvae feed singly. There can be two generations per year plus a partial third generation.

Management

IPM Strategies:

- Cultural Practices — The best management is preventive measures related to plant health. Correct plant selection, proper site selection when planting, and then continued recommended cultural care ensures that plants are in excellent health. The better condition a plant is in, the more damage it can tolerate without affecting its health status. If sawflies are in small numbers, you can clip out the colony and destroy the larvae.
- Biological Control — Natural enemies, such as rodents, birds, and predacious and parasitic insects play an important role in reducing sawfly populations. Often we employ biological insecticides containing *Bacillus thuringiensis* to control caterpillars. These products DO NOT control sawflies, so it is important to read the description on how to tell sawflies from caterpillars.
- Chemical Control — Sometimes chemical insecticides are recommended in protecting young conifer plantations.
- For specific chemical controls consult your county Extension Specialist for recommendations.

Stop! *Read the label on every pesticide container each time before using the material. Pesticides must be applied only as directed on the label to be in compliance with the law. All pesticides listed in this publication are contingent upon continued registration. Contact the Division of Pesticide Control at (603) 271-3550 to check registration status. Dispose of empty containers safely, according to New Hampshire regulations.*

Updated: Dr. Alan Eaton and Rachel Maccini, July 2016

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