

## 26. Sawflies

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### Hosts and Distribution

Table 26-1 summarizes prominent conifer sawflies (family Diprionidae), their hosts, and distribution.

### Damage

Damage to conifer seedlings in forest tree nurseries is generally minimal. However, when outbreaks exist in the immediate vicinity of the nursery, seedlings may be defoliated by migrating larvae in search of suitable host foliage.

### Diagnosis

Pine sawfly larvae characteristically feed gregariously in small groups for at least a short period after hatching. Look for the early instars feeding on the edge or edges of individual needles. The larvae begin at the distal end, often first attacking those needles upon which the eggs were laid. The damaged portions of the needles turn brown, twisting as they become desiccated. As the larvae grow larger, they consume the entire needle, feeding in groups or as individuals.

The larvae develop specific patterns of stripes and spots as they mature beyond the third instar (fig. 26-1). These patterns are useful in identifying the larvae of some species, particularly larvae of the redheaded pine sawfly, the white pine sawfly, and the introduced pine sawfly. However, a large number of other *Neodiprion* species are somewhat similar in appearance and in behavior. In these cases, morphological characteristics, such as the saw and lancets of the adult female, are beneficial in making a positive identification.



**Figure 26-1**—Mature larvae of red-headed pine sawfly.

### Biology

No one life cycle is applicable to all species of conifer sawflies. The following life history, which is for the redheaded pine sawfly, contains elements common to many species.

After overwintering in tough, brown cocoons (fig. 26-2), the sawflies pupate in the early spring. A few weeks later, adults emerge and mate (fig. 26-3). Females lay their eggs in slits cut into needles (fig. 26-4). Upon hatching, the tiny, nondescript larvae can only strip needles, causing them to curl



**Figure 26-2**—Cocoons of introduced pine sawfly.



**Figure 26-3**—Mating adults of red-headed pine sawfly.



**Figure 26-4**—Egg slits on pine needle made by redheaded pine sawfly.

like dried straw. As they mature, the larvae consume virtually the entire needle and assume distinctive body markings. Like many sawfly species, the larvae of the redheaded pine sawfly feed in groups or colonies. Mature larvae drop to the ground and spin their cocoons. There may be one to five generations per year, depending upon the locale.

Cocoons of the introduced pine sawfly are often spun on low vegetation up to 70 feet from the preferred host, upon which it has fed.

## Control

**Cultural**—If infestations are localized, handpicking of sawfly colonies may control the problem.

**Chemical**—Apply insecticides when the larvae are young (first and second instars) to minimize seedling damage. Two insecticides widely used against conifer sawflies are carbaryl and malathion.

## Selected References

U.S. Department of Agriculture, Forest Service. 1987. A guide to common insects and diseases of forest trees in the Northeastern United States. NA-FR-4. Broomall, PA: U.S. Department of Agriculture, Forest Service, State and Private Forestry, Northeastern Area: 63-68.

U.S. Department of Agriculture, Forest Service. 1985. Insects of eastern forests. Misc. Pubj. 1426. Washington, DC: U.S. Department of Agriculture, Forest Service. 608 p.

**Table 26-1**—Sawflies, their hosts, and distribution in the United States

Species	Hosts	Distribution
Blackheaded pine sawfly ( <i>Neodiprion excitans</i> )	Most hard pines	Southeastern States
European pine sawfly ( <i>Neodiprion sertifer</i> )	Most pine species	Northeastern States; Midwest
Hemlock sawfly ( <i>Neodiprion tsugae</i> )	Hemlock and Pacific silver fir	Western States
Introduced pine sawfly ( <i>Diprion similis</i> )	Chiefly soft five-needle pines, eastern white pine preferred	Northeastern States west to the Lake States; also limited distribution in Southern Appalachians
Lodgepole pine sawfly ( <i>Neodiprion burkei</i> )	Lodgepole pine	Western United States
Redheaded pine sawfly ( <i>Neodiprion lecontei</i> )	Virtually all domestic eastern pines; loblolly, shortleaf, Virginia, pitch, slash, and longleaf preferred	Eastern United States
Two-lined larch sawfly ( <i>Anoplonyx occidens</i> )	Western larch	Northwestern States
Virginia pine sawfly ( <i>Neodiprion pratti pratti</i> )	Southern pines and red pine	New Jersey and Maryland south to North Carolina and west to Illinois
White pine sawfly ( <i>Neodiprion pinetum</i> )	Eastern white pine	Throughout range of eastern white pine
Yellowheaded spruce sawfly ( <i>Pikonema alaskensis</i> )	Spruces	Northern States south to Colorado