

HOW TO IDENTIFY SAWFLIES

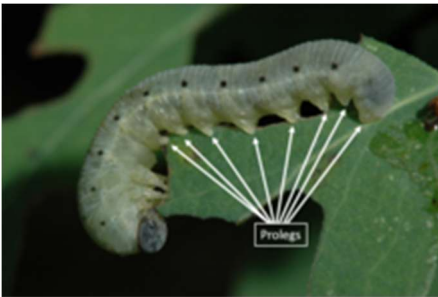


Adult female sawfly

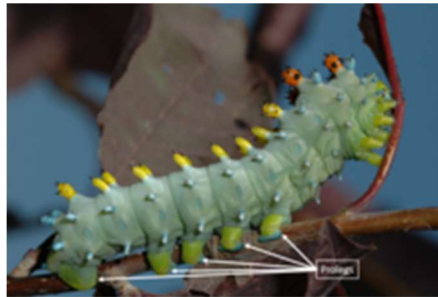
Sawflies are related to wasps and bees. Their name comes from the saw-like ovipositor (egg-laying structure) of adult females. Adult sawflies are small, stout-bodied, non-stinging wasp-like insects, and are seldom noticed in the landscape.

Differences between sawfly larvae and butterfly and moth caterpillars

Sawfly larvae are more commonly seen than adult sawflies. They look similar to butterfly and moth caterpillars. They differ from each other in the number of prolegs—the fleshy, leg-like projections on the abdomen.



Sawfly caterpillar



Caterpillars have fewer pairs of prolegs

- Caterpillars have two to five pairs of prolegs on the abdomen.
- Sawflies have six pairs of prolegs or more.
- The prolegs on slug sawflies are small and may be overlooked.
- Sawfly larvae are smooth with little or no hair and are no more than one inch long when fully grown.
- Moth and butterfly caterpillars can be smooth, hairy or spiny, and vary in size when mature. They may often be larger than one inch long.

Biology of sawflies

Most sawflies in Minnesota have one generation per year (that is it takes one year to go completely through their life cycle once), although some go through two generations.

Adult females use their saw-like ovipositors to cut slits into needles, leaves, or tender new shoots to lay eggs.

Eggs hatch into larvae that feed on foliage of their host plants for about four to six weeks.

- It is common for most sawflies to feed gregariously, in non-social groups.
- When in such a group, if they are threatened, they can simultaneously raise and arch their bodies as a defensive tactic (presumably to scare away would be predators).

Many sawflies overwinter in the soil as pre-pupae (the stage between a mature larva and pupa) or pupae in cocoons; some species also overwinter as eggs or larvae. Adults typically emerge in the spring or early summer.

When sawflies are first active in the spring depends on:

- Where in Minnesota they are found (generally the further north in the state, the later they will first become active).
- Whether spring is early, late, or normal.

Damage caused by sawflies

Sawfly feeding can vary from slight to severe. The larvae typically feed in groups, and it is not uncommon for feeding to occur on just a few branches, although a severe infestation can cover an entire plant.

Conifer-feeding sawflies:

- Some species emerge very early in the spring before new growth on trees has occurred and eat older needles from previous years.
- Sawflies emerging later in spring feed on new growth.
- A few species eat both new and old foliage, and these species can completely strip conifer trees of their needles in one season.



Windowpane feeding by Roseslug Sawfly



Sawfly damage on conifer. Note the missing needles and partially fed on needles

Deciduous plant-feeding sawflies

- Larvae often feed along the edges of the leaves and can chew the leaf blade down to the midrib.
- Slug sawflies feed by chewing leaf tissue on one surface of the leaf between the veins, a type of feeding known as windowpane feeding.
- Damaged leaves at first are whitish; eventually these injured areas turn brown.

Healthy, mature deciduous plants can typically tolerate sawfly feeding in one season.

- Even when it is severe, as deciduous plants can regrow leaves.
- However, recently transplanted trees and shrubs and plants that have been severely defoliated in several consecutive years are more susceptible to injury.

Sawflies attacking conifers feed on the surface of needles at first, leaving needles discolored, distorted, and straw-like.

- As the larvae grow larger, they consume entire needles.
- With the exception of tamarack, conifers do not regrow new needles once they are consumed.

Even if sawfly defoliation does not impact plant health, defoliation may negatively affect the appearance of trees or shrubs.

How to protect your plants from sawflies

Management for sawflies depends on many factors:

- Time of year
- Health of the plant
- Conifer or deciduous tree or shrub
- Number and size of sawfly larvae

Healthy plants can tolerate sawfly damage

- Keep trees and shrubs healthy; a healthy plant does not suffer as much damage from sawflies.
- Select plants that are hardy for your area and plant them in sites that encourage growth.
- Maintain plant health through proper cultural care, including watering and fertilizing.

Pick sawflies off plants

- Small numbers of sawflies can be physically removed from plants and killed by putting them into a pail of soapy water.
- You may also crush them on the plants or use a high-pressure water spray to knock them off.

Using pesticides

Treat sawfly larvae when they are young and half their full-grown size or less when pesticides are more effective. If larvae are fully grown, the damage is done and treatment is not effective.

Most sawflies feed in groups, and it is possible to spot treat them instead of treating the entire plant. This helps reduce the amount of pesticide used.

Low impact pesticides

Insecticidal soap and horticultural oil are effective when managing small numbers of young sawfly larvae.

- These products have minimal impact on natural enemies.
- Repeat applications might be needed as the product only affects sawflies it directly contacts.

Azadirachtin and spinosad are effective for one or two weeks so sawflies that feed on treated foliage are still affected.

Bacillus thuringiensis var. *kurstaki* (Btk) is a common low impact insecticide used against moth and butterfly caterpillars. It is specific to caterpillars and does not kill sawfly larvae.

Contact residual insecticides

Examples of contact residual pesticides that are effective include permethrin, bifenthrin, lambda cyhalothrin, and carbaryl are most effective against young sawfly larvae. One application is usually sufficient.

Systemic insecticides

Systemic insecticides are pesticides that are transported by the plant through tissues that carry food and water to the leaves and needles. When sawflies feed on the needles and leaves, they receive a toxic dose. Common examples are imidacloprid and dinotefuran.

CAUTION: Be careful when applying systemic insecticides to hardwood trees and shrubs that are attractive to bees. This includes linden, crab apple and sugar maple, as well as junberry (serviceberry), pagoda dogwood, nannyberry viburnum and many other shrubs. This does not include evergreen trees and shrubs.

Apply systemic insecticides to trees and shrubs only after flowering has already occurred to reduce pesticide exposure to bees. If sawflies are active when trees and shrubs are flowering, use an alternative method of treating them.

Do not apply systemic soil drench pesticides when flowering plants are next to trees or shrubs.

CAUTION: Mention of a pesticide or use of a pesticide label is for educational purposes only. Always follow the pesticide label directions attached to the pesticide container you are using. Remember, the label is the law