



## White Pine Weevils

### Pest Note



Canada

Photos courtesy of: Steven Katovich, USDA Forest Service, Bugwood.org; Clemson University, USDA Cooperative Extension Slide Series, Bugwood.org; James B. Hanson, USDA Forest Service, Bugwood.org; Joseph O'Brien, USDA Forest Service, Bugwood.org



**White pine weevil**

Photo: Dave Powell, USDA Forest Service, Bugwood.org



**White pine weevil grub**

Photo: Clemson University, USDA Cooperative Extension Slide Series, Bugwood.org



**White pine weevil grub damage**

Photo: James B. Hanson, USDA Forest Service, Bugwood.org



**Shepherd's crook**

Photo: Steven Katovich, USDA Forest Service, Bugwood.org

### White pine weevils: What are they?

The white pine weevil causes extensive damage to many types of evergreen trees. It is also known as the Engelmann spruce weevil and the Sitka spruce weevil.

Adult weevils are about 8 mm (1/4 inch) long. These beetles are dark brown with white and tan patches on their backs. They have the characteristic and prominent hooked snout of the weevil.

White pine weevils produce one generation a year. The adults overwinter in the "duff" or debris beneath trees, and in the spring they climb up to the top of the leader stem to feed and mate. Weevils can also spread by flying on warm sunny days. Their eggs are laid mainly from late April to early June in small holes made in the bark of the previous year's tree leader.

The eggs hatch after 10 to 14 days and the larvae will begin to feed as a group, forming a ring around the leader stem as they eat their way downwards first in the inner bark and then between the wood and the bark. This feeding action cuts off the water flow, causing the deformity and death of the leader stem. Trees will lose up to two or three years of height growth in the five or six weeks of feeding.

Finally, the larvae will build pupal cells in the stem where they remain inactive for five to six weeks. They emerge as adults from late July until early September. The adults will feed on nearby tree branches until it is time to move to the duff for overwintering.

### What can they do?

This harmful pest attacks at least 20 different species of trees. In eastern Canada, it prefers the eastern white pine, the jack, Scotch and red pines and the Norway spruce. In western Canada, it attacks mainly the Sitka, white and Engelmann spruce. Ornamentals like the mugho pine and blue spruce are also susceptible.

A shepherd's crook in the new expanding leader is a classic sign that an evergreen tree is infested with the white pine weevil, although other pest attacks may result in similar symptoms. The curling and death of the leader stem of the tree indicates the presence of larvae in that stem. The needles on the affected stem will turn yellowish-green, then reddish-brown, and will eventually fall off. This damage generally appears in mid-June or early July. The first sign of attack, though, is the appearance of droplets of resin oozing from tiny feeding holes in the leader stem early in the spring.

Repeated infestations may stunt the growth of trees and also cause deformed or forked trunks, a serious problem for Christmas tree growers. The forked trunks are created as one or more side branches of the tree assume the function of the dead leader stem. Trees growing in the open without the canopy cover provided by larger trees appear to suffer greater deformation of the trunks. Small trees will sometimes die as a result of an infestation. Also, damaged trees are more susceptible to disease, especially heartwood rot.

### Responsible Pesticide Use

#### Before Purchasing a Pesticide

- Identify the pest correctly.
- Use physical control methods and alternatives to pesticides.
- Read the label directions and safety precautions before buying the product. The label must include the name of the pest to be controlled and the treatment location (e.g., indoor, outdoor, garden uses, pet treatment).
- Purchase only the quantity of product needed for the treatment.
- Consider hiring a licensed pest control operator.

#### Using a Pesticide

- Carefully read all label instructions and precautions before using pesticides.
- Do not drink, eat or smoke while applying pesticides.
- Persons and pets should vacate the area during treatment. Cover or remove aquaria.
- If kitchen area is to be treated, cover or remove food, dishes and utensils.

#### After Using a Pesticide

- Always wash your hands thoroughly after handling any pesticide product.





## How can I manage them?

The white pine weevil prefers open-growing trees 1.5 to 8 m (6 to 25 feet) tall, in sunny locations. Changing the environment can help prevent or reduce infestations.

Grow evergreen trees under a canopy of 50% shade to make the leader shoots less attractive to the white pine weevil. Use a canopy of hardwood trees or artificial screening to achieve shade cover. Choose well-drained sites for planting new trees, or improve drainage for existing trees, as it has been noted that imperfect drainage results in trees being more severely attacked by the weevil.

Close spacing, 2 × 2 m (6 × 6 feet), of pine trees in a plantation encourages height growth and natural thinning of weevil-attacked trees.

Pruning infested trees can be an effective control for ornamentals or small plantations if it is done as soon as possible after the first signs of infestation are noticed, usually when top wilting is first noticed. Prune close to the topmost unaffected whorl of branches. Immediately burn or destroy the pruned branches and leader stems to prevent weevil emergence.

After pruning out the infested leader, choose a strong lateral branch in the top that coils or spirals (this is called a whorl) and train it in a vertical position, tying to a stake that is secured along the upper part of the trunk. Check regularly that the ties do not damage (girdle) that stem or the trunk, as it may take a few years before the stake can be removed. Other lateral branches on this top whorl should be removed if they appear to be competing with the selected leader.

Band tree trunks and the base of leader stems with a sticky tape or a sticky substance applied to a band. Do not apply sticky substances directly to tree bark, because this may prevent adult weevils from reaching the leader stems. Unfortunately, as adult weevils are capable of flying on warm, sunny days, using this method alone may not provide complete control.

## Products

At present, dimethoate is the only product registered to control the white pine weevil. It is registered for use on Sitka spruce trees only and must be applied by a certified professional. In addition, the product cannot be applied in residential areas, including parks, schools and playgrounds.

Dimethoate is a systemic insecticide. It should be applied at the time of egg laying, generally early May.



*White pine weevil  
Photo: Dave Powell,  
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### Health Canada Pest Management Regulatory Agency

2720 Riverside Drive, Ottawa ON K1A 0K9  
Phone from inside Canada: 1-800-267-6315

Phone from outside Canada: 613-736-3799 (long distance charges apply)

Fax: 613-736-3798

[www.healthcanada.gc.ca/pmra](http://www.healthcanada.gc.ca/pmra)

- Do not permit persons or pets to contact treated surfaces until residue has dried completely.
- Provide adequate ventilation of treated areas after use.
- Wipe clean all surfaces that come in direct contact with food, such as counters, tables and stovetops, including indoor and outdoor surfaces.
- Always store pesticides out of reach of children and pets and away from food and beverages.

#### Accidental Poisoning

- Call a poison control centre immediately and seek medical attention.
- Take the pesticide container or label with you to the emergency facility or physician.
- Follow first aid statements on the label.
- In case of accidental poisoning of pets seek veterinary attention immediately.
- Report pesticide incidents to manufacturers (phone number on label). They are required to send them to Health Canada.

#### Disposing of Pesticides

- Do not reuse empty pesticide containers. Wrap and dispose of in household garbage.
- Follow the product label instructions or contact provincial authorities for disposal of pesticides.

**Note:** These are general recommendations.

Consult the label for specific instructions.

When in doubt, contact a professional.

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