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## Forest Health Protection and State Forestry Organizations

# Management Guide for White Pine Weevil

*Pissodes strobi* (Peck)

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This is the most significant pest of spruce reproduction in the Northern Region.

#### Host:

Engelmann spruce and occasionally lodgepole pine

### Damage

It attacks and kills or badly injures terminal leaders on spruce reproduction from 1 to 30 feet in height. This may result in dieback, height growth loss, or deformity of the main stem.

Repeated attacks can produce multiple leaders, and may also result in tree mortality.



White pine weevil damage on the main leader. Photo by William Ciesla

### Key Points

- Damage is dieback, height growth loss, or deformity of main stem.
- Only one generation a year.
- Newly hatched larvae feed down the terminal just under the bark.

### Life History

There is only one generation a year, but brood development overlaps. Most stages can be found at any time from spring to fall, and all stages except the egg can overwinter. They typically overwinter as adults in debris on the forest floor. Adults emerge and make feeding punctures (resin droplets are usually associated with these wounds) in the bark of the previous year's leader in May, and by June females lay eggs in the punctures. Newly hatched larvae feed down the terminal just under

the bark and become mature about midsummer. During that time, the current year's leader will distort and wilt to form a "shepherd's crook". This gradually fades to yellow, red, and then gray or brown, which indicates weevil attack. Oval-shaped pupal cells are constructed in the wood and covered with shredded wood fiber (chip cocoons). Emergence of new adults continues from August until fall. They feed at random on bark and then drop to the ground to overwinter.

## Identification

The adults feed at random on bark and then drop to the ground to overwinter.

Leaders and terminals begin to droop (shepherd's crook) when girdled, then die and turn gray or brown. Resin droplets on the previous year's leader usually indicate adult weevil puncture wounds. Look for oval-shaped "chip cocoons" under the bark of terminals. These remain imbedded in the wood long after the beetles emerge and are characteristic of their presence. Adults are of typical weevil form, with well-developed, curved snouts and clubbed antennae. They are about 6mm

long and have rough wing covers mottled reddish-brown to black with cream-colored markings.



Adult white pine weevil and adjacent puncture wounds.  
Photo by James Hanson

## Management Considerations

**Direct Control.** -- The insecticides Dimilin 4L and Metasystox R have been used for management in the past. However, chemical registrations change frequently, so it is advisable to contact County, State, or Federal pesticide coordinators for updates on current registrations and application methods.

**Silvicultural alternatives.** -- Some silvicultural practices can reduce weevil damage. Heaviest weevil damage occurs on trees from 5 to 20 feet in height in even-aged, open-grown spruce stands. Plant spruce in closely spaced, well-stocked stands or small blocks. In some areas, large blocks of young, even-aged spruce should not be planted. Douglas-fir may be substituted.

**Natural control.** -- Several species of flies in the genus *Lonchaea* have been reported as predators. Birds have been found to feed on larvae and pupae, and small rodents will feed on hibernating adults in forest floor litter. Other factors include food competition between larvae, the drowning of larvae in pitch, and conditions affecting overwintering adults.

## *Other Reading*

B.C Ministry of Forests.

1996. Terminal Weevils Guidebook. B.C. Ministry of Forests, Forests Practices Code.

Coulson, R.N., and J.A. Witter.

1984. Forest Entomology, Ecology and Management. John Wiley and Sons, Inc. New York.

Furniss, R.L., and V. M Carolin.

1977. Western Forest Insects. United States Department of Agriculture, Forest Service Miscellaneous Publication no. 1339. Washington, DC: US Department of Agriculture, Forest Service.

Hamid, A., T.M. Odell, and S. Katovich.

1995. White Pine Weevil. U.S. Department of Agriculture Forest Service

Hagle, S., K. Gibson, and S. Tunnock.

2003. Field Guide to Diseases and Insect Pests of Northern and Central Rocky Mountain Conifers United States Department of Agriculture, Forest Service Report number R1-03-08.

McGregor, M.D., ad T. Quarles.1971.

Damage to spruce regeneration by a terminal weevil, Flathead National Forest, Montana. USDA For. Serv., Div. of State and Private Forestry, Missoula, MT. Rpt. 71-9, 7 pp.

Stevenson, R.1967.

Notes on the biology of the Engelmann spruce weevil, *Pissodes Engelmanni* Hopk. (Coleoptera: Curculionidae),and its parasites and predators. Can. Ent. 99: 201-213.

Wright, K H

1960. Sitka spruce weevil (*Pissodes sitchensis*). USDA For Serv., Forest Pest Leaflet 47, 15 pp. illus.

### Forest Health Protection and State Forestry Organizations

#### Assistance on State And Private Lands

Montana: (406) 542-4300

Idaho: (208) 769-1525

Utah: (801) 538-5211

Nevada: (775) 684-2513

Wyoming: (307) 777-5659

N. Dakota: (701) 228-5422

#### Assistance on Federal Lands

US Forest Service  
Region One  
Missoula: (406) 329-3605  
Coeur d'Alene: (208) 765-7342

US Forest Service  
Region Four  
Ogden: (801) 476-9720  
Boise: (208) 373-4227

