



White Pine Weevil

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Plants Attacked and Distribution

The white pine weevil (WPW), *Pissodes strobi*, attacks Eastern white pine, Norway spruce, Scotch pine and other pines. WPW is found throughout Virginia.

Description of Damage

WPW usually attacks only the upright terminal leader. The previous year's leader (the first whorl) and the new growth both die from the attack. Damage is first evident in March or early April when overwintering females chew holes in the leader for feeding and egg laying. These holes, eight inches to ten inches below the terminal bud, produce resinous bleeding that eventually dries to a white crystalline crust. By late May or early June, the larval damage is evident as the current year's leader droops like a shepherd's crook (Fig. 1), turns pale yellow and then reddish-brown. In July, the attacked shoot will have 1/8-inch (3mm) diameter exit holes and tunnels and sawdust under the bark where the immature weevils completed their development. A lateral shoot will eventually take over as the terminal leader, but may have to be trained and have competing shoots removed for the best physical appearance to the tree. Trees of medium size, 4-40 feet (1-12 m), are most commonly attacked. WPW is a serious pest of forest plantations, Christmas tree farms, yard plantings, and landscapes.

Identification

The immature stage found in the leader is a small, creamy-white, legless grub with a dark brown head (Fig. 2). The adult is a small dark brown weevil 0.25-0.38 inch (6-10 mm) long (Fig. 3). It is covered with irregular-shaped patches of rusty brown and white scales. Near the end of each wing cover is a large white patch.



Figure 1. Typical "shepherd's crook" sign of white pine weevil infestation of a pine leader (Steven Katovich, Bugwood.org).



Figure 2. Grub of white pine weevil inside pine stem (Lorraine Graney, Bartlett Tree Experts, Bugwood.org).



Figure 3. Adult white pine weevil (Sandra Jensen, Cornell University, Bugwood.org).

Life History

One generation of WPW occurs per year. Adults overwinter hidden in the ground litter or other protected places. When the weather warms in March, they become active and fly to the upright leaders of the host trees. Adults feed for seven to ten days, chewing tiny holes in the bark. Females begin to deposit eggs individually in their feeding punctures. Within several days, the eggs hatch and the tiny larvae begin feeding under the bark, within the shoot, and then down the stem. During this time, terminal buds open on the tree and new shoots develop normally. As the larvae become larger and the tunneling more extensive, the new growth wilts, droops, and by early July turns brown. By the end of June or early July, the larvae enter the pupal stage and transform to adults that chew their way out of the stem. Adults may fly in summer and fall, but they usually seek hibernation sites in the ground litter and do little if any feeding until next spring.

Control for Homeowners and Backyard Situations

Remove and destroy the infested top of the tree in the late spring before adult weevils emerge and seek hiding sites. In early March, treat the top sections of the tree with an insecticide such as permethrin. This interrupts the egg laying by the adults and prevents the establishment of larvae in the tree's leader.

Commercial Production

Scouting: Look for resinous bleeding on leaders in late March or early April as an indication of when adults are feeding and laying eggs. Also, check trees

in June to determine which tops are actively infested with WPW. Also determine the percentage of trees that are infested in the fall.

Threshold for Christmas Tree Farms and Forestry Plantations: If fall surveys indicate that more than 5 percent of the trees were infested with WPW the previous season, plan on treating the whole plantation or block.

Mechanical Control: Prune and destroy infested tops in late June. Make sure stems are cut below where weevils are feeding. Tops must be cut before adult weevils make exit holes and leave.

Cultural Control: Remove all old, unattended stands of white pine and Norway spruce that may harbor populations of WPW.

Chemical Control: Treat the terminal leader with a registered insecticide before buds open. Do not treat the lateral shoots as they are not attractive to the weevils. Apply insecticide no later than late March or early April. It may be necessary to treat valuable specimen trees each year. Consult the latest Virginia Pest Management Guide for Horticultural and Forest Crops Pest Management Guide (VCE 456-017) for current insecticide recommendations.

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