



Pales Weevil

By John J. Riggins, Forest Entomologist

Introduction

The pales weevil, *Hylobius pales* (Herbst), has historically been the most severe insect pest of pine seedlings in the Eastern United States. Pales weevil can feed on all pines within its range. It is also capable of feeding on hemlock, larch, Douglas-fir, spruce, and northern white cedar. Adult pales weevils are small reddish-brown to black weevils about 1/3 of an inch in length. They have a line of orange to yellowish-white scales on their head and patches of similar scales on their elytra (wing covers). The larvae have pale, white, C-shaped bodies, dark heads, and no legs. Full grown larvae and pupae can be found in chip-cocoons under the bark, which are small depressions filled with slivers of wood. Adult weevils are attracted to fresh pine cutovers, where they lay eggs in the stumps. This can quickly lead to a severe, localized population explosion of pales weevils. If replanting occurs immediately without any protection for the seedlings from insecticides, mortality of 30-60% was once common in the Southeast, and cases of more than 90% have been reported. The pales weevil is

also of particular concern to Christmas tree growers. Female weevils are drawn to the smell of resin on fresh cut stumps and on damaged and recently dead pine trees in the spring between March and June. After locating a suitable host, the females lay their eggs on the roots and root collar of the host tree or stump. The larvae initially burrow and feed downward in tunnels, but eventually migrate to the outer bark above ground to pupate (metamorphosize). The newly-emerged adults appear in August-September and feed on shoots and twigs. As weather cools, they seek a site to overwinter in litter below the tree, and emerge in the spring to start the cycle again. In the past, the pales weevil life cycle caused many problems with plantation forestry management plans. Clear-cuts create a huge number of stumps, which attract all the pales weevils in the area to infest the residual stumps. Severe problems would arise if the sites were re-planted before or during the time when new adults emerge from the stumps.

Damage, Signs, and Symptoms

Adult weevils feed on the bark of young seedlings and on developing shoots of older trees. When heavy feeding

occurs, the stems of the seedlings are girdled, resulting in tree death. The first symptom of weevil feeding on seedlings is wilt along with feeding that exposes the xylem. During the months of June through August look for wilted or dead seedlings or dead shoot tips (A.K.A. flags) on larger trees and/or resin bleeding on twigs, shoots, and at the base of flagged shoots.

Control

Pales weevil control can be accomplished by removing old stumps and dead trees after harvest, or drenching stumps and surrounding soil with a registered insecticide between early-April and mid-May if stumps are left in the field. Additionally, seedlings can be treated with a spray, dip, or soil drench at time of planting. Consult with a registered forester and/or a licensed pesticide applicator regarding options for approved insecticides for pales weevil control. Finally, the least expensive method is to delay replanting of a recently harvested site for 6 to 12 months. If planting is delayed, no damage will occur since all the weevils will have migrated away from the site. There is little environmental impact associated with delayed re-generation; however, there can

be a significant economic impact because of the loss of one year of growth. Insecticide treatments should be used on areas that have been harvested after June and regenerated the following fall or winter. Also, consider the following guidelines from the Texas Forest Service (<http://texasforestservicetamu.edu/main/popup.aspx?id=1189>):

- If no pine has been cut from an area to be planted, there will be no weevil problem.
- If a pine stand is cut before June 1 and the area will be planted during the

following winter, there will be no weevil problem.

- If 3 cords of pine/acre or less are cut from an area or pushed down during site preparation after June 1, losses should be less than 5% if the area is planted during the following winter.
- If 5 to 10 cords/acre of pine are cut or pushed down during site preparation, losses may be up to 25% if the area is planted the following winter.
- If over 10 cords of pulpwood or 5,000 board feet of sawtimber are cut or

pushed down during site preparation after June 1, use treated seedlings or plant seedlings next year.

For additional information contact:

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Figure 1: Adult pales weevil.

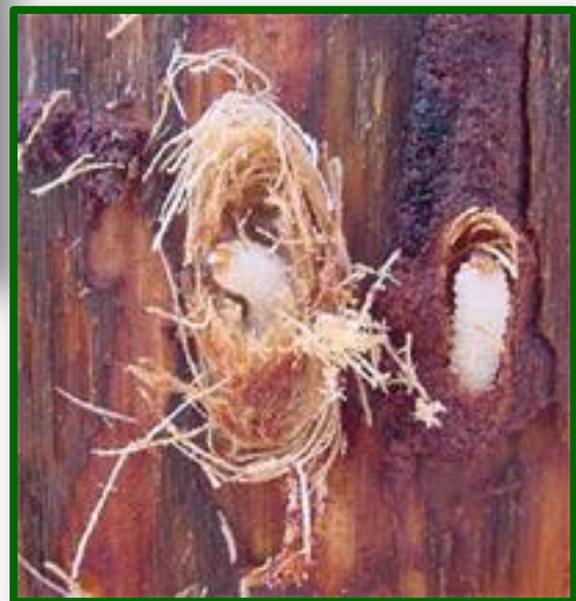


Figure 2: Pales weevil larvae preparing for metamorphosis in chip-cocoons.

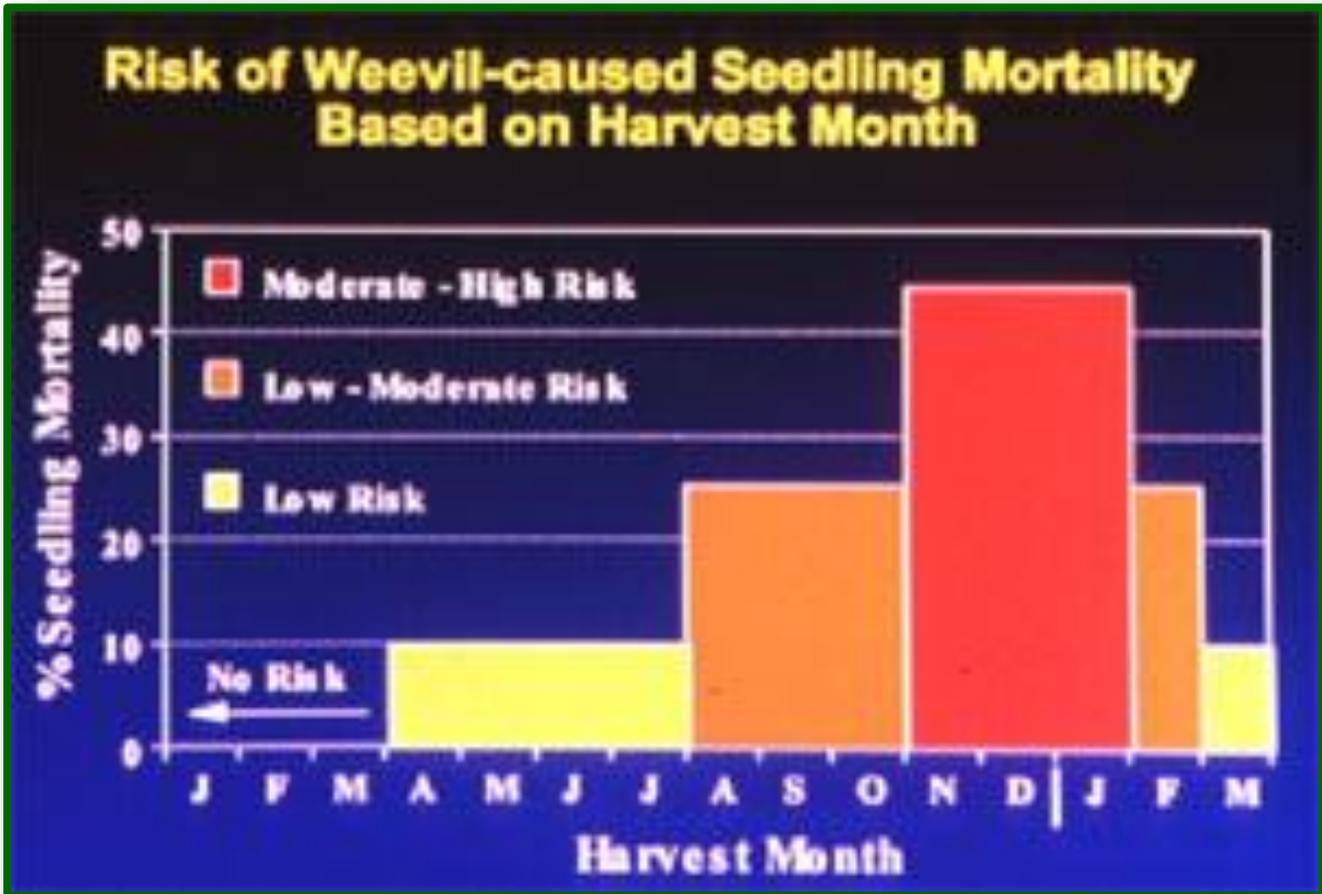


Figure 3: Risk of weevil-caused seedling mortality based on the month in which a stand is harvested. Photo Credits: Texas Forest Service; Clemson University - USDA Cooperative Extension Slide Series, www.forestryimages.org