

Three Pine Weevils New to Indiana¹

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The pales weevil, *Hylobius pales* (Herbst)², and *Pissodes affinis* Randall² are serious pests of cutover pine land. The weevils are attracted by the odor of resin into areas where pine trees have been cut. They lay their eggs under the bark of recently cut stumps and weak trees where the larvae later develop (4).

The adult weevils of both species feed on the bark of the trees. The external nibbling produces small round holes, usually in patches. These feeding areas often girdle small seedlings and lateral branches, which subsequently die. Damage is usually at its worst in early summer, although occasional seedlings may be killed throughout the entire growing season.

The adults of both species are nocturnal. They normally feed at night or during cloudy weather. During the daytime the adults hide in the litter beneath the tree.

Pales Weevil

The pales weevil is an increasingly troublesome pest of pine plantings in southern Indiana. This robust weevil seems to prefer white pine, but red and scotch pines may also be severely damaged. All pine species can be attacked as well as fir, hemlock, spruce, cypress, juniper, arborvitae, birch and ash, according to Warner (6).

The weevil is a dark reddish brown to black and marked irregularly with gray or yellowish hairs. It is about $\frac{1}{3}$ to $\frac{1}{2}$ inch long and has a prominent snout. The white eggs are laid at the base of stumps or seedlings. The grubs, which tunnel beneath the bark, are creamy white with brown heads. When full grown, they construct a shallow, oval shaped cell about $\frac{1}{2}$ inch long. Each cell is filled with a layer of excelsior-like shredded wood, called a "chip cocoon". The adults emerge in September and overwinter in the duff and debris beneath the tree (2).

The pales weevil was first discovered in Brown county in 1962. Since then this insect has been found in Porter, Pike, Vanderburg, Spencer, Jennings, Tippecanoe and Jefferson counties by the author.

Pissodes affinis

This pine weevil superficially resembles the white pine weevil in appearance, but its life history and damage are entirely different. The body is a dark reddish brown with two pairs of creamy white spots on the elytra. The insect is $\frac{1}{4}$ to $\frac{5}{8}$ of an inch in length. Overwintering adult weevils emerge in early May. They feed on the bark of pine trees up to 50 feet in height. Feeding continues throughout the summer, and the adults overwinter in the duff. Adults emerge in early June, feeding and flying about in search of food and breeding

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2. Identification verified by John Kingsolver, U. S. National Museum.

3. Collected by Paul Lamb, identification by the author.

sites. The common hosts are white, red, Scotch and jack pines (3, 6).

The *Pissodes* weevil was first discovered in Elkhart county in 1961. Since that time, it has been found in Bartholomew, Brown, Harrison, Jennings, Jefferson, Knox, Marion, Monroe, Pike, Porter, Spencer, Tippecanoe, Warrick and Vanderburgh counties by the author.

Eggs are laid in mid-May at the root collar of stumps usually just an inch or two below the soil line. The larvae tunnel beneath the bark and usually complete their feeding in about 50 to 60 days (6). The larval feeding zone is usually a few inches above and below the soil line. However, when the population is heavy, the feeding may extend several feet up on the trunk and down in the roots. The mature larvae are about $\frac{1}{4}$ inch long and white with brown heads. Pupation occurs in shallow, elongated pits covered with excelsior-like wood fibers. The insect remains in a prepupal stage over winter. Pupation occurs in April and adults emerge in May and June.

White Pine Weevil

The white pine weevil kills the tops of pine and spruce trees, especially white pine, jack pine and Norway spruce. The weevil will attack all conifers except balsam fir and hemlock (1).

The adult weevil, superficially identical to *P. affinis*, overwinters in litter on the ground. When the pine buds begin to swell in the spring, the weevils emerge and congregate on the terminal shoot to feed and deposit their eggs. Pitch flow from feeding and egg-laying punctures in the bark is the first sign of weevil attack. Later, after the larval stages bore downward beneath the bark, the top two to four whorls of growth die. The mature larvae form oval pits in the wood, which are lined with excelsior-like shredded wood. These structures are called "chip cocoons". Adults emerge in late summer and feed on the buds and branches prior to entering hibernation in the fall.

The loss of the central leader, due to weevil attack, results in crooks or forks which reduce the quality of ornamentals and both quality and quantity of timber. Trees from three to twenty feet tall are subject to attack.

To date, the white pine weevil has been found only in Morgan county³, but the increased usage of pine trees for many different purposes ensures a wide distribution of this insect in Indiana.

Literature Cited

1. DIRKS, C. O. 1955. White pine—nature's gift to New England. Protect it from the white pine weevil. Maine Farm Res. **3**(3):3-8.
2. FRIEND, R. B. and H. H. CHAMBERLIN. 1940. Some observations on pales weevil injury to white pine plantings in New England. Conn. AES Bul. **461**: 530-537.
3. MARTIN, J. L. 1964. The insect ecology of red pine plantations in central Ontario. II. Life history and control of Curculionidae. Can. Ent. **96**(11): 1412.
4. RENNELS, R. G. 1966. The pales weevil. III. Res., Summer: 5.
5. WARNER, R. E. 1966. A review of the *Hylobius* of North America, with a new species injurious to slash pine. Coleopterist's Bul. **20**(3):69-71.
6. WELLS, A. B. 1926. Notes on *Hylobius pales* and *Pissodes strobi* Peck as nursery pests. Jour. Econ. Ent. **19**:413.