

Pales Weevil

Hylobius pales (Herbst)

Coleoptera: Curculionidae

Fettig, C. J.; Salom, S. M. 1998. Comparisons of two trapping methods for *Hylobius pales* (Coleoptera: Curculionidae) in Virginia. *Environmental Entomology* 27: 572-577.

Objectives: To determine if standard pit traps attract more *H. pales* than PVC traps; and if weevil density is related positively to weevil-induced seedling damage, thus providing a tool to predict future stand risks.

Abstract: The pales weevil, *Hylobius pales* (Herbst), is a major regeneration pest of Christmas tree plantations in the eastern USA. The development of an effective, easily-implemented sampling strategy to detect when serious infestations are imminent is highly desirable, but does not exist currently in Virginia. A study was conducted during 1994 and 1995 in white pine, *Pinus strobus* L., Christmas tree farms in Floyd and Montgomery Co., Virginia. Most trees were of harvestable age (5-8 yr), and had no history of insecticide application during the previous five years. Methods were evaluated for trapping walking *H. pales* and for their potential at forecasting seedling damage.

Weevil gender, trap rotation and density of ground cover did not explain a significant proportion of the variation in trap catch. Standard pit traps baited with a white pine billet and 5:1 mixture of 95% ethanol: turpentine caught significantly more weevils than PVC traps baited only with a 5:1 mixture of 95% ethanol: turpentine. Trap catch was related positively to seedling damage and wound surface area (mm²) in 1995 ($Y = -6.62 + 0.087X$, $R^2 = 0.98$, $P < 0.002$; $Y = -422.69 + 4.80X$, $R^2 = 0.99$, $P = 0.011$), but not in 1994. Although catches of both trap types are related positively, PVC pitfall traps did not detect the large initial peak that occurred in early summer. In addition, early season catch trends varied between the two methods at a time when weevil monitoring would have the greatest implication on management decisions. For these reasons, the use of pit traps for monitoring weevil populations in Virginia is recommended.

Sampling Procedure:

Pit traps: One freshly-cut white pine billet, 8-12 cm in diameter and 30 cm long, is treated with a registered insecticide to prevent weevil escape. A shallow depression is made in the ground within 20 cm of a healthy tree and the billet is placed firmly within the shallow depression. A 25-ml vial containing a 5:1 ethanol: turpentine mixture (62.1% α -pinene, 20.1% camphene, 10.8% β -pinene, 2.6% limonene, 1.8% benzene, and 1.3% 3-carene) (Klean Strip SD-81, W. M. Barr. Memphis, TN) is then placed adjacent to the

billet. Cover the trap with a black tile and fresh white pine foliage to reduce desiccation. Place traps at a density of approximately 12 per hectare. Weevils should be collected and baits replaced biweekly.

PVC pitfall traps: The basic pitfall trap design has been described in detail by Rieske and Raffa (1993). The only pertinent difference is that the 5:1 ethanol: turpentine mixture is released from a single, 25-ml vial.

Notes: The strong positive relationship between trap catch and seedling damage is based solely on four data points. Therefore, these results should be interpreted with caution.

Reference:

*Rieske, L. K.; Raffa, K. F. 1993. Potential use of baited pitfall traps in monitoring pine root weevil, *Hylobius pales*, *Pachylobius picivorus*, and *Hylobius radicis* (Coleoptera: Curculionidae) populations and infestation levels. *Journal of Economic Entomology* 86: 475-485.