

## Pine Root Collar Weevil

*Hylobius radialis* Buchanan

Coleoptera: Curculionidae

Hunt, D. W. A.; Raffa, K. F.. 1989. Attraction of *Hylobius radialis* and *Pachylobius picivorus* (Coleoptera: Curculionidae) to ethanol and turpentine in pitfall traps. *Environmental Entomology* 18: 351-355.

**Objectives:** To determine if *H. radialis* preferentially selects pitfall traps baited with red pine, *Pinus resinosa* Aiton, stems, turpentine, ethanol, or a combination of these baits; and if the number of *H. radialis* caught in traps is related positively to host damage.

**Abstract:** The pine root collar weevil, *Hylobius radialis* Buchanan, is an important pine, *Pinus* spp., pest in the northeastern USA and southeastern Canada. Larvae develop in the root collars of living hosts, which severely weakens and sometimes kills the host. The relative attractiveness of pitfall traps baited with red pine shoots, turpentine (52.5%  $\alpha$ -pinene, 41.4%  $\beta$ -pinene, 2%  $\alpha$ -phellandrene and 1.1% limonene), 95% ethanol, or a combination of these baits, was tested for capturing adult *H. radialis*. This study was conducted in five Wisconsin Christmas tree plantations of 5-year-old Scots pine, *Pinus sylvestris* L.

*Hylobius radialis* adults were trapped from May through August 1987. Traps baited with a 2-ml vial of turpentine (Sunnyside Corp., Wheeling, IL, USA) and a 2-ml vial of ethanol, at release rates of 200 mg and 40 mg per day (at 22°C), respectively, were most effective for catching *H. radialis*. The sex ratio (% males) of *H. radialis* caught in the traps was 10%, suggesting that this bait combination is highly attractive to females. The number of *H. radialis* ( $Y$ ) captured in pitfall traps was related positively to foliar damage ( $X$ ) ( $Y = 3.2 + 3.4X$ ;  $R^2 = 0.87$ ,  $P < 0.05$ ).

**Sampling Procedure:** Use 10 cm wide and 20 cm long sections of PVC pipe. Drill eight 6-mm entrance holes, at 4 cm intervals, around the circumference of each trap 4 cm from the top. Apply Fluon (DuPont de Nemours, Wilmington, DE, USA) to the inside walls of each trap to prevent weevil escape. Drill two 2-mm holes just below ground level and attach a small wire through the holes. Attach each of the trap baits to this wire. Place a cap on the ends of each trap, and drill two 2-mm holes in the bottom cap to permit water drainage. Bury each trap 16 cm deep so that the entrance holes are flush with the soil surface. Paint the upper cap, and exposed portion of each trap, black in order to resemble the silhouette of a stump.

Traps were positioned within tree rows midway between every second tree, for a trap spacing of 3.4 m. Plots were at least 30 m from adjacent plots and the edge of the plantation.

**Notes:** Forty traps were used for each treatment in this study. No information is provided on the minimum number of traps needed to monitor weevil populations.