

Response of the Brown Spruce Longhorn Beetle, *Tetropium fuscum* (Fabr.) to Host Volatiles

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Abstract

Studies were undertaken to develop an attractant and trap for survey and detection of the brown spruce longhorn beetle, *Tetropium fuscum* (Fabr.) (Coleoptera: Cerambycidae), a European beetle recently found established in Halifax, Nova Scotia. Cortical volatiles of *T. fuscum*-infested red spruce, *Picea rubens* Sarg., were sampled *in situ* in May 2001 and analyzed by gas chromatography-mass spectrometry. A synthetic "spruce blend" lure was then made up approximating the relative concentrations of the major monoterpenes found in the analysis, i.e., (+) and (-) -pinene, (-) -pinene, (+) 3-carene, (+) limonene, and -terpinolene. Field trapping bioassays were conducted to determine the attraction of the spruce blend and to compare the efficacy of the Lindgren 12-funnel trap, IPM Intercept trap, and a cross-vane pan trap, for capture of *T. fuscum*. The spruce blend was significantly attractive to *T. fuscum*. More than 60 brown spruce longhorn beetles were captured in a total of 30 spruce blend-baited traps whereas 0 beetles were captured in 30 unbaited traps; 2-3 times more males were captured than females. Mean catch was greatest in the cross-vane pan traps, followed by the Intercept traps and funnel traps but differences among trap types were not significant. A second field bioassay designed to test the effect of combining ethanol with the spruce blend was inconclusive due to low overall catch. Experiments will be repeated in 2002 to confirm or reject the trends observed in 2001, and to test ethanol as a possible synergist to spruce blend attraction.