EFFECTS OF LURE COMPOSITION AND RELEASE RATE ON CATCH OF EDRR TARGET SPECIES AND OTHER FOREST COLEOPTERA

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ABSTRACT

The USDA Forest Service's Early Detection and Rapid Response Program (EDRR) is a nationally coordinated program that employs traps for detecting, delimiting, and monitoring newly introduced exotic bark and ambrosia beetles. The utility of the trapping portion depends upon effectiveness of lures—a difficult proposition because target species are varied and likely have specific host-finding behaviors. Our goal was to assess effects of release rates and compositions of host-based general attractants on catch of EDRR target species and other forest dwelling beetles.

Companion experiments were implemented in central Louisiana (LA) and northern California (CA) between April and August 2008. The first experiment addressed primarily the effects of monoterpene composition and release rate, while the second addressed ethanol (ETOH) dosage and interactions with monoterpenes. Commercial releasers were used along with homemade bottles (various wicks) to increase flexibility in release rates. Monoterpene treatments were α-pinene or mixtures based on pine monoterpene compositions in LA and CA. Lure release rates were measured during the studies; in Louisiana, rates of monoterpene release ranged from 1.3 to 2.6 g/d and ETOH varied from 0.6 to 14 g/d.

Each experiment was conducted for 1 month. The first experiment consisted of six treatments with six replicates (36 traps), all having ETOH and either α-pinene or blended monoterpenes. The second experiment consisted of nine treatments (3 x 3 factorial) with six replicates (54 traps). Treatments in the second experiment were crossed from three monoterpene lures (Phero Tech UHR -α-pinene, Synergy LA blend, Synergy CA blend) and three ETOH lures (Synergy UHR-ETOH [x2], bottle ETOH with a pipe cleaner wick [x2], bottle ETOH with burner wick [x2]). This experiment was conducted in July, 1 to 2 months after the conclusion of the first experiment. Collections are still being processed, but to date, LA experiments have produced 26 EDRR target species (including one new North American record, *Xyleborus octiesdentatus*) and more than 50 additional beetle species.