

## RESPONSE OF *RETICULITERMES HESPERUS* (ISOPTERA: RHINOTERMITIDAE) COLONIES TO BAITING WITH LUFENURON IN CALIFORNIA, USA

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**Abstract** Colonies of *Reticulitermes hesperus* were baited to test the efficacy of lufenuron (Zyrox™) and to assess reinvasion of the foraging sites vacated by eliminated colonies. Twelve colonies of *R. hesperus* were characterized with cuticular hydrocarbon analyses, mark-recapture, agonistic behavioral studies, and genetic (microsatellite) analyses. Six colonies were not baited and six were baited. All six colonies baited with lufenuron were devoid of termites within an average of 70 days (range of 51 to 93 days) of deployment of the bait. Five of the independent monitoring stations housing the baited colonies remained unoccupied for >12 months; one independent monitoring station housing a baited colony was subsequently occupied by a different colony. Wood consumption by unbaited and baited colonies was not significantly different during the 2 months prior to baiting, 0.376 vs. 0.234 g/day/colony respectively, nor during the 3 mo immediately after baiting, 0.264 vs. 0.107 g/day/colony, respectively. Wood consumption among all colonies, both unbaited and baited, essentially ceased, 0.039 vs. 0.005 g/day/colony, respectively, during the winter and early spring months from November through April. However, as feeding increased in the spring, summer and early fall, unbaited colonies consumed significantly more wood, 0.451 g/day/colony, than the baited colonies, 0.006 g/day/colony. Association of foragers in the independent monitoring stations and bait stations as members of the same colony, consumption of bait, disappearance of foragers from, and cessation of feeding in, independent monitoring stations visited by baited colonies provided “cause-and-effect” links between the deployment of baits and destruction of baited colonies.