Proceedings in the 2002 Imported
Fire Ant Conference. Athens, GA.
March 24-26, 2002.

HOST LOCATION BEHAVIOR IN A PARASITOID OF IMPORTED FIRE ANTS

L. W. Morrison[1] & J. R. King[1,2]

[1] Center for Medical, Agricultural and Veterinary Entomology,
USDA-ARS, P.O. Box 14565,
Gainesville, FL 32604 USA

[2] Entomology and Nematology Department,
University of Florida,
Gainesville, FL 32611

ABSTRACT. Imported fire ants (*Solenopsis invicta* and *S. richteri*) are serious pests in the southeastern U.S. The release of natural enemies as biological control agents may reduce the abundance of these pests. Species of parasitoid flies in the genus *Pseudacteon* (Diptera: Phoridae) are currently being released and evaluated at selected field sites. We studied the mechanisms by which one of these species, *P. tricuspis*, locates its host, *S. invicta*, in a series of field observations and experiments. The parasitoids were frequently attracted to host workers at disturbed colonies, but were almost never attracted to host workers foraging at baits. When conspecific non-nestmate workers were introduced to baits, resulting in aggressive interactions, parasitoids appeared at the majority of baits. Moreover, larger numbers of parasitoids appeared at baits to which greater numbers of non-nestmate workers had been added. Addition of non-nestmate workers to disturbed colonies resulted in increased numbers of parasitoids attracted. *Pseudacteon tricuspis* is apparently attracted to the alarm pheromones released by the ants involved in aggressive interactions or colony disturbances, and not to recruitment pheromones released when foraging. Comparisons with other studies suggest that not all *Pseudacteon* ant parasitoids use the same host location cues, or at least not to the same degree. *Pseudacteon tricuspis* is likely to be relatively more effective as a biocontrol agent in areas with frequent mound disturbances or more competing ants. This study indicates the need to release other *Pseudacteon* species with complementary host location behaviors.