

8

One explanation for the high numbers of fire ants here is that native ants are weighed down by natural enemies, while fire ants have escaped theirs. Importing fire ant enemies that were left behind in South America may reestablish a more natural ecological balance. If this happens, fire ants will lose their competitive advantage and populations should drop.

7



Adult flies emerge from the head capsule in 5-6 weeks during hot weather. Emergence only occurs the first few hours after sunrise. Newly emerged flies are ready to mate and lay eggs within several hours of emergence. Female flies have between 100-200 eggs in their bodies and live 1-3 days.

Puparium still in head capsule.



Two puparia removed from head capsule, ventral and dorsal views

6

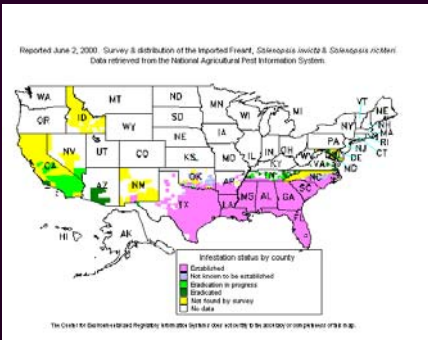
Flies take less than 1/2 of a second to inject their egg into an ant. Fire ant workers are aware of the presence of the phorid flies and stop or reduce foraging within 2-3 minutes of an attack. Workers then retreat into exit holes or find cover.



5

Parasitized fire ant workers appear normal until just before the phorid maggot turns into a pupa. The ant head serves as the phorid's 'cocoon', protecting the pupa until a new fly emerges

Compiled by Fudd Graham and Vicky Bertagnolli
Adapted from:
Porter, S. D. 1998. Biology and behavior of *Pseudacteon* decapitating flies (Diptera: Phoridae) that parasitize *Solenopsis* fire ants (Hymenoptera: Formicidae). Fla. Entomol. 81: 292-309.



1

The first fire ants arrived in Mobile from South America around 1918 and began their invasion from the shores of Alabama. Their success is a result of aggressiveness and a lack of natural enemies.

2

Phorid flies in the genus *Pseudacteon* are also natives of South America. They are natural enemies of fire ants. Over 25 species of this parasitoid are known to attack fire ants.



3

Phorids parasitize fire ants by laying their eggs inside the body of the ant. The maggot migrates to the fire ant's head about four days after hatching.



4

- Four stages of decapitation:
- 1) Phorid maggot secretes an enzyme that causes ant membranes to degenerate; ant unable to walk
 - 2) Maggot consumes tissues in head
 - 3) Maggot pushes mouth parts aside
 - 4) Puparium forms inside head

