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Research Update on *Solenopsis (Labauchena) daguerrei*, a Parasitic Ant of Imported Fire Ants

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Summary

Solenopsis (Labauchena) daguerrei (Santschi) is a parasitic ant of imported fire ants. This parasite produces no worker caste, and is totally reliant on its host colony for its care. Having no worker caste, only reproductive males and females represent this species. *S. daguerrei* will attach, or yolk, themselves to queens of the black and red imported fire ants, *Solenopsis richteri* and *S. invicta*, respectively, and divert resources from the host queen(s). In addition, the host colony also feeds and maintains the brood of *S. daguerrei*. Thus, *S. daguerrei* is a potential stress factor of fire ant colonies. This parasite is found in South America, and is being held in quarantine in the United States at the Center for Medical, Agricultural, and Veterinary Entomology in Gainesville, Florida.

Field studies and observations of the impact of *S. daguerrei* on *S. richteri* were conducted in sites located in Buenos Aires Province, Argentina. Mean percent parasitism from pastures located at 21 sites (San Eladio, Argentina) was 5.1% (range: 1.2 to 23.7%; total 2,580 *S. richteri* colonies examined). Mound densities were 33% less in sites with *S. daguerrei*, where there were 161 ± 14 (\pm std. err.) mounds/ha, while parasite-free sites had 239 ± 15 mounds/ha. The number of *S. richteri* queens per colony was 47% less in parasitized colonies (parasitized = 2.9 ± 0.5 , range: 1 - 40 versus non-parasitized = 5.5 ± 2.0 , range: 1 - 180). In addition, both female and male *S. richteri* alates were observed in parasitized colonies. This is in contrast to reports by Silveira-Guido et al. (1973) who did not observe alates in parasitized *S. richteri* colonies.

There was a 3:1 female to male sex ratio for *S. daguerrei* from excavated *S. richteri* colonies. However, colony sex ratio was highly variable where females in a colony ranged from 4.6 to 100%, and males ranged from 0 to 95.3%. Female alates were observed in field colonies in all months except Sept., Oct., and Nov., which is the spring in Argentina. Male alates were not observed in July through Nov. (winter-spring). *S. daguerrei* queens were observed in colonies throughout the year. The monthly presence of alates and queens in quarantine colonies corresponded to the field observations in Argentina. Alate flights by *S. daguerrei* were induced in quarantine by drenching and misting fire ant mounds located in buckets of soil. *S. daguerrei* were weak fliers, and mating was observed on the mound surface as well as in nest cells. Mating also occurred in the absence of flights.

S. daguerrei was not found in any of the non-fire ant colonies examined in Argentina from Dec. 1996 to March 1998. The following ant colonies were examined 92

Pheidole, 1 *Brachymyrmex*, 21 *Acromyrmex*, 1 *Linepithema*, 25 *Camponotus*, and 2 *Neivamyrmex*. The colonies that were examined were from areas where 4.7% (145 of 3,092) of the *S. richteri* colonies were infested by *S. daguerrei*. In quarantine, attempts to transfer *S. daguerrei* from *S. richteri* to *S. invicta* colonies have not been successful. As a result, attempts will now be made to develop methods of transfer from *S. richteri* to *S. richteri* before transfers across species are made.

Acknowledgement

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References Cited

Silveira-Guido, A., J. Carbonell, & C. Crisci. 1973. Animals associated with the *Solenopsis* (fire ants) complex, with special reference to *Labachena daguerrei*. Proc. Tall Timbers Conf. Ecol. Animal Control Habitat Management. 4: 41-52.