NEW HOST FOR THE PARASITIC ANT *SOLENOPSIS DAGUERREI* (HYMENOPTERA: FORMICIDAE) IN ARGENTINA

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The parasitic ant *Solenopsis daguerrei* (Santschi) has been reported as an inquiline of fire ants in South America. It lacks a worker caste, so all adults are reproductive males and females. The parasite queens and occasionally some virgin females attach themselves to the host queens, and divert resources from them. The fire ant workers tend *S. daguerrei* in a manner similar to their own mother queens (Bruch 1930). The host workers also feed and maintain the brood of *S. daguerrei*. According to Silveira-Guido et al. (1973) this parasite inhibits the egg production of the fire ant mother queen, thus causing the ant colony to collapse and eventually die out. Recently it was reported that multiple-queen colonies of fire ants parasitized with *S. daguerrei* have fewer queens than non parasitized ones (Calcaterra et al. 1999). Because of these findings, this parasitic ant is a candidate for introduction for the biological control of imported fire ants in the United States and is under quarantine conditions at the USDA-ARS CMAVE, Gainesville, FL. However, before *S. daguerrei* can be released from quarantine, its host specificity must be determined.

Surveys on fire ant natural enemies in South America revealed that *S. daguerrei* has been found in Argentina, Uruguay, and Brazil, in colonies of *S. richteri* Forel, *S. invicta* Buren, *S. saevissima* F. Smith, and *S. macdonaghi* Santschi (Silveira-Guido et al. 1973, Briano et. al. 1997, Pesquero et al. 1998, Calcaterra et al. 1999). Here we report a new host species for *S. daguerrei*.

As part of the study of the specificity of *S. daguerrei*, a field host range survey was conducted in San Eladio (60 km W of Buenos Aires), Argentina, the only place where *S. daguerrei* has been found consistently since 1995. This area had the highest abundance (7% of fire ant colonies) of *S. daguerrei* recorded in South America to date (Briano et al. 1997).

The surveys were conducted from December 1996 to May 1997 and from November 1997 to May 1998 and consisted in walking through the pastures to visually detect the ant colonies. When an ant nest was found, it was excavated, scattered on the ground, and thoroughly examined for *S. daguerrei* adults. Some colonies were excavated and put into 10-liter buckets for separation in the laboratory by flotation (Banks et al. 1981). The floated colonies were put in rearing trays (40 by 30 by 15 cm) and examined later.

Alcohol samples were kept of most ant species found. Samples of 34 parasitized fire ant colonies were preserved in hexane to confirm their identification by gas chromatography analysis of cuticular hydrocarbons and venom alkaloids (Vander Meer & Lofgren 1988). Voucher samples were deposited at the USDA-ARS, SABCL collection and at the USDA-ARS, CMAVE, Gainesville, FL.

We sampled a total of 4,316 ant colonies of 9 different species in 4 subfamilies, however 96% of them were fire ants. Other species examined were: *Pheidole bergi* Mayr, *Acromyrmex lundi* Guérin, *A. ambiguus* Mayr, *Camponotus punctulatus* Mayr, *Neivamyrmex pertyi* Shuckard, *Linepithema humile* Mayr, and *Brachymyrmex* sp.

S. daguerrei was found exclusively in 161 colonies of fire ants (Table 1). Taxonomic studies revealed that 95% of the parasitized colonies corresponded to *S. richteri*. The

TABLE 1. FIELD HOST RANGE OF *S. DAGUERREI* IN SAN ELADIO, ARGENTINA

Ant Species Visually Detected	No. of Colonies Examined and (%) Parasitized by *S. daguerrei*		
	1996/7	1997/8	Total
Myrmicinae			
Solenopsis spp.	2,580 (5.1)	1,551 (1.9)	4,131 (3.9)
Pheidole bergi	67	45	112
Acromyrmex spp.	10	28	38
A. ambiguus	—	11	
A. lundi	—	17	
Formicinae			
Camponotus punctulatus	8	21	29
Brachymyrmex sp.	1	0	1
Dolichoderinae			
Linepithema humile	1	0	1
Ecitoninae			
Neivamyrmex pertyi	0	4	4
Total	2,667	1,649	4,316

remaining 5% was identified by the senior author as *Solenopsis quinquecuspis* Forel. This agrees with Trager (1991), who reported that the fire ant species present in the study area are effectively *S. richteri* and *S. quinquecuspis*. This is the first report of *S. quinquecuspis* as host of *S. daguerrei*.

The field observations reported here showing specificity of *S. daguerrei* to the genus *Solenopsis* are limited to one area and few ant species. Consequently, further surveys will be conducted to confirm this finding.

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SUMMARY

A field host range study was conducted in San Eladio, Buenos Aires Province, Argentina. *Solenopsis daguerrei* (Santschi) was found exclusively parasitizing 3.9% of the colonies of *Solenopsis richteri* Forel and *Solenopsis quinquecuspis* Forel. *S. quinquecuspis* is reported as a new host for *S. daguerrei*.

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