

NOTES

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Nest parasites (Coleoptera, Diptera, Hymenopteran) of some wasps and bees (Vespidae, Sphecidae, Colletidae, Megachilidae, Anthophoridae) in Cuba

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Numerous parasites attack wasps and bees. However, knowledge of behavior and incidence upon Neotropical species is scant. Parasites are natural controllers of insect populations, and are thus considered possible selective agents in molding the behavioral patterns of Hymenopteran. This paper reports associations between parasites and hosts, knowledge basic to understanding the ecological and evolutionary relationships among species.

Nest parasites of some solitary wasps and bees were obtained during visits to several Cuban localities. Cell contents were kept in the laboratory until insects emerged. Voucher specimens are deposited in the author's entomological collection.

Following is the list of hymenopteran and their parasites, along with localities and dates of collecting.

VESPIDAE

Polistes m. major Palisot de Beauvois: *Melittobia* sp. (Hymenopteran: Eulophidae), Güines, La Habana, x.93.

Mischocyttarus cubensis (Sauss.): *Sargus lateralis* Macquart (Diptera: Stratiomyidae), El Hondón, Topes de Collantes, Sancti Spiritus, vii.93.

Pachodynerus nasidens (Latr.): *Amobia erythrura* (Wulp) (Diptera: Muscidae), Rancho Luna, Cienfuegos, xi.88; *Macrosiagon cruentum* (Germar) (Coleoptera: Rhipiphoridae), Batabanó, La Habana, xi.90; *Acroricus cubensis* (Cresson) (Hymenopteran: Ichneumonidae), Bibijagua beach, Isla de la Juventud, xii.90; *Melittobia* sp., Caimito beach, La Habana, iv.89; *Chrysis purpuriventris* Cresson (Hymenopteran: Chrysididae), Caimito beach, xi.89.; *C. insularis* Guérin, Bibijagua beach, xii.90. Krombein (1967) and Genaro (1994) cite *Chrysis* spp, as parasites of eumenines.

All parasites came from individuals of *P. nasidens* that nested as inquilines of *Sceliphron* spp. The term inquiline is used here for insects that occupy and adapt to nesting in the empty abandoned clay cell of *Sceliphron*. Benefits of inquilines in avoiding the need to build clay nests, or the need to search for natural cavities (which were probably scarce) had in turn the costs of being more frequently parasitized. Freeman and Parnell (1973) consider inquilines as the alternate prey of a facultative predator, since the parasites can maintain their population at the expense of other species when the host is inactive.

The entomological collection of P. Alayo contains two specimens of *Chrysis superba* Cresson (Chrysi-

dae) (det. W. G. Rodenstein) that emerged from a clay cell of *Eumenes* sp., Stgo. de las Vegas, La Habana, 2.ii.32 (col. L. C. Scaramuzza) and *Zeta confusum* (Bequaert & Salt), Jaronú, Camagüey, 15/22.iv.32 (as *Eumenes confusus*).

SPHECIDAE

Sceliphron jamaicense (Fabr.): *Macrosiagon cruentum*, Bibijagua beach, xii.90. Two specimens of *Megaselia* sp. (Diptera: Phoridae) emerged as scavengers from one cell, Caimito beach, viii.87; *Mirotelenomus* sp. (Hymenopteran: Scelionidae), Caimito beach, iv.89; *Eiphosoma* sp. (Hymenoptera: Ichneumonidae), Caimito beach, iv.88; *Acroricus cubensis*, Gallego beach, N Isla de la Juventud, vi.88; *Melittobia* sp. Caimito beach, iv.89, *Chrysis insularis*, Bibijagua beach, xii.90. The species of the genus *Macrosiagon* are parasites of eumenines (Krombein, 1967; Callan, 1977, 1981) and less frequently of sphecids (Callan, 1981).

Sceliphron assimile (Dahlbom): *Acroricus cubensis*, Güines, x.88; Batabanó, xi.90 and Puntos Brava, La Habana, vi.92. Females of this species commonly flew around clay nests of *Sceliphron*. Dow (1932) reports *A. cubensis* as parasite of *S. assimile* and describes the cocoon, while Alayo and Tzankov (1974) cite it as parasite of *S. assimile* and *S. jamaicense* (as *S. annulatum*). *Melittobia* sp., Batabanó, xi.90 and Puntos Brava, vi.92. At these localities this eulophid parasitized respectively 36.7% (Batabano) and 41.0% (Puntos Brava) of 32 and 25 cocoons of *S. assimile*. Alayo and Hernández (1978) cite this species as parasite of *S. assimile*.

COLLETIDAE

Hylaeus n.sp.: *Cleonymus* sp. (Hymenopteran: Pteromalidae), Cienfuegos Botanical Garden, vi.89.

ANTHOPHORIDAE

Centris poecila Lep.: Two specimens of *Acanthocerus gundachi* Harm. (Coleoptera Acanthoceridae) emerged from one cell in Güines, x.86.

I would like to correct here an error in a previous paper (Genaro and Sánchez, 1993): it is not *Holopyga* sp. that parasitizes *Cerceris festiva* Cresson, but *Hedychrum cyaniventre* (Cresson). The later species also parasitized *Cerceris cubensis* Cresson (given there as *Hedychrum* sp.).

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