

***Metagonia debrasi* n. sp.
the first species of
the genus *Metagonia* Simon in Cuba
(Pholcidae, Araneae)**

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Résumé

Le genre *Metagonia* Simon, 1893 est largement représenté du Mexique à l'Argentine. Cette première *Metagonia* récoltée à Cuba est une espèce troglobie aveugle. Elle se distingue des autres *Metagonia* aveugles par les apophyses du clypéus et les détails des organes génitaux. Cette espèce dérive probablement de populations, aujourd'hui éteintes, de la forêt humide.

Introduction

The genus *Metagonia* Simon, 1893, presently includes 67 species of mostly small (about 2-5 mm body length), pale leaf- or cave-dwellers, and is widely distributed in the New World from Mexico to Argentina (GERTSCH, 1986). Most species (53) are from Central America, but South America contains a morphologically and probably also numerically at least as diverse fauna (B.A. HUBER, unpublished data). Only one species has so far been recorded from the Antilles: the eyeless troglobite *M. jamaica* Gertsch, 1986, from Jamaica. Other eyeless troglobites have been described from

Mexico (9 species), Belize (1 species, specimens have either reduced eyes or are eyeless), and the Galapagos Islands (2 species). In this note, we describe the first known Cuban *Metagonia*, which is the third eyeless cavernicole spider from the island (apart from the pholcid *Anopsicus cubanus* Gertsch and the barychelid *Troglothele coeca* Fage).

***Metagonia debrasi* new species
(figs 1-10)**

Metagonia n. sp.: Pérez González & García-Debrás, 1997: 26.

Types. Male holotype (No. 1999), and 2 females paratypes (No. 2000), from Cueva "El Cable" (=Cueva "El Maja"), Boca de Jaruco, Municipio Santa Cruz del Norte, Provincia de Habana, Cuba, October 15, 1995 (A. García-Debrás), deposited in the Biospeleological Collection of the Cuban Speleological Society (ColBK).

Diagnosis. The new species was compared with specimens of all eyeless *Metagonia* species. Distinguished by the paired apophyses on the male clypeus (figs 1, 3; *M. jarmila*, *atoyacae*, *pura*, *luisa*, and *tlamaya* have no apophyses, *reederi*

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has an unpaired apophysis, *jamaica* has an unpaired apophysis with two tips); by the anteriorly bulbed epigynum that is wider than long and has internally an unpaired, asymmetrical complex of sclerotized ducts (figs 8-9; in *M. puebla*, *joya*, *lepida*, *luisa*, *oxtalja*, and *chiquita* the epigynum is not bulged anteriorly; *M. joya* and *lepida* have paired internal sclerotized structures; *M. chiquita* and *puebla* apparently lack internal sclerotized structures; in *M. puebla*, *joya*, and *lepida* the epigynum is wider than long); by the shape of the procursus (figs 4-7; *M. jarmila* has a longer "hinged process", *belavista* and *reederi* have a large pro-lateral projection distally, *M. atoyacae*, *pura*, and *luisa* have a dorso-distal "spine", *M. jamaica* has a distinctive retrolateral process); by the hardly modified male chelicerae (figs 1-2; the chelicerae of *M. jarmila* have a pair of apophyses, those of *M. pura*, *luisa*, and *tlamaya* have conspicuous globular hairs frontally).

Etymology. Named for the collector, the Cuban biospeleologist Alfredo GARCÍA-DEBRÁS.

Description.

Male (holotype, all measurements in millimeters). Total length: 1.7; carapace width: 0.69; carapace length (including clypeus) 0.69; opisthosoma length: 1.04; leg I: 17.0 (4.2 + 0.3 + 4.7 + 6.7 + 1.2); tibia II: 2.7; tibia III: 1.9; tibia IV: 2.8; tibia I l/d=76.

Entire prosoma ochre yellow, carapace slightly indented medially but without thoracic groove (fig. 1), ocular area slightly elevated, without any trace of eyes (figs 1, 3). Clypeus protruding, with a pair of dorso-ventrally flattened apophyses (figs 1, 3). Chelicerae slightly darker than prosoma, with a few slightly modified hairs near the bases of the fangs: the hairs are shorter and the bases of the hairs are stronger and more heavily sclerotized than usual (fig. 2). Palps as in figs 4-7, trochanter with strong ventral apophysis, femur very enlarged distally;

procursus relatively complex distally, with simple, slightly twisted "hinged process" ventrally; bulb globular with tubular embolus ending in a spine (fig. 4). Legs yellowish, without dark rings, without spines and curved hairs. Opisthosoma monochromous ochre gray, with large white spot above spinnerets, posteriorly higher than anteriorly, rounded and overhanging spinnerets.

Female (paratypes). Carapace width: 0.61, 0.66; tibia I: 4.0, 4.2; in general very similar to male, but without modifications on clypeus and chelicerae. Epigynum light colored, transversely ridged (figs 8-9), internally with a pair of oval pore plates and a complicated system of sclerotized ducts (figs 9-10).

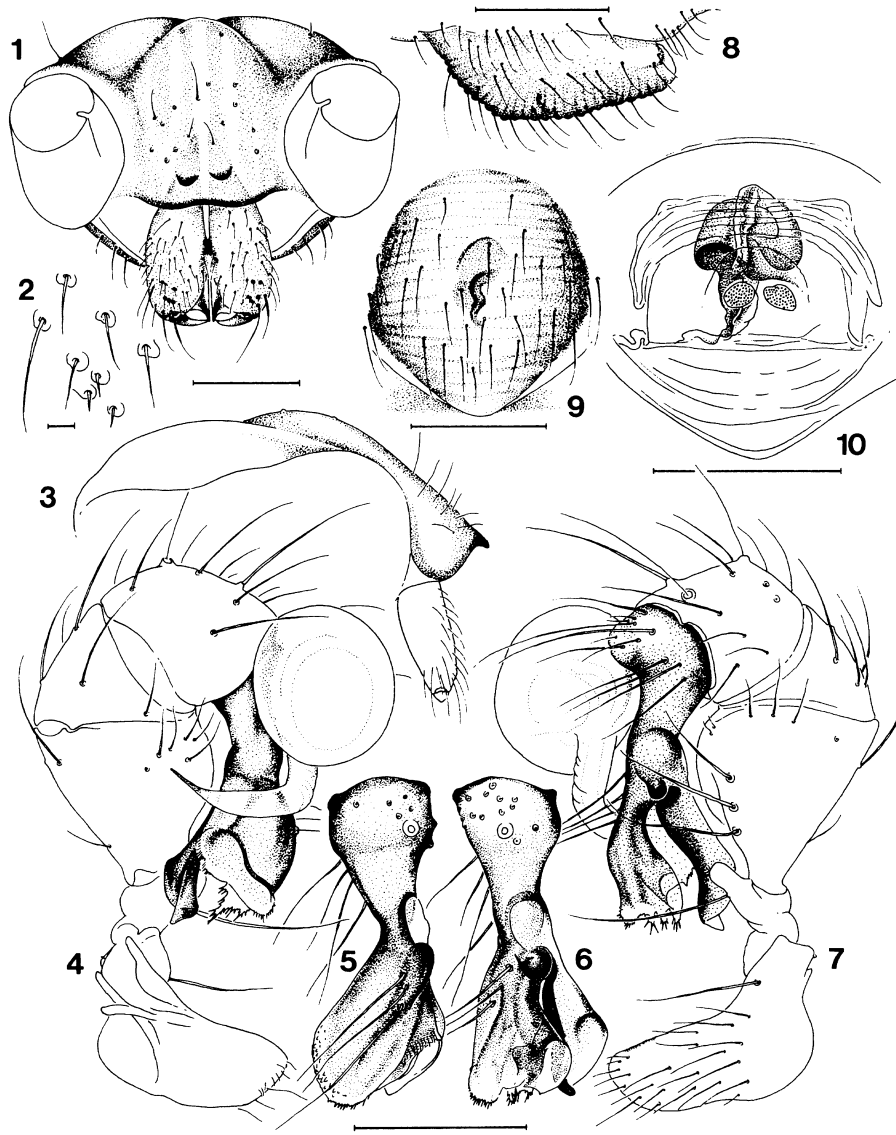
Distribution. Known only from the type locality.

Habitat. *Metagonia debrasi* has only been collected on the walls of the twilight zone. The accompanying fauna includes *Modisimus ovatus* (Araneae, Pholcidae), and *Phrynus armasi* (Amblypygi, Phrynidae) (A. PÉREZ GONZÁLEZ pers. obs.).

Material examined. -CUBA: Habana, Boca de Jaruco: types above.

Discussion

The presence of *Metagonia* in Cuba proofs GERTSCH (1986) right who predicted the existence of further species (apart from *M. jamaica*) in the Antilles. It is interesting to note that all the island species found so far (two on Galapagos, one on Jamaica and Cuba respectively) are eyeless troglobites (GERTSCH, 1986; GERTSCH & PECK, 1992; present note). The apparent absence of epigeic species might result from extinction of the ancestral species due to changes in climate as suggested by PECK (1990) for the Galapagos Islands. The environment around the "El Cable" cave is presently characterized by dry and very degraded secondary vegetation. Such a habitat does not favor the existence of *Metagonia* species which, in the epigeic habitats, apparently



Figures 1-10. – *Metagonia debrasi* n. sp. - 1, male prosorna, frontal view. 2, modified hairs on male chelicerae (shown is the patch of one side). 3, male carapace and chelicerae. lateral view. 4, left pedipalp, prolateral view. 5, left procurus, dorsal view. 6, left procurus, dorso-prolateral view. 7, left pedipalp, retrolateral view. 8, epigynum, lateral view (anterior side on left). 9, epigynum, ventral view. 10, epigynum cleared in KOH, dorsal view. – Scale lines: 0.2 mm (except fig. 2: 0.01 mm).

have a strong preference for very humid forests (B.A. HUBER, pers. obs. in Central America). *Metagonia debrasi* has possibly derived from an epigeal ancestor that lived in the area when there was a humid forest. Further evidence for this assumption comes from another arachnid, *Tityopsis inexpectata* (Moreno) (Scorpiones, Buthidae), which inhabits the humid forests of western Cuba and, apart from that, has only a relict population in the same cave as *M. debrasi* (PÉREZ GONZÁLEZ & GARCÍA-DEBRÁS, 1997).

The "El Cable" cave is an example of a "hot cave" ("cueva de calor"), because one of its rooms houses a huge colony of gregarious bats of the species *Phyllonycteris poeyi* Gundlach in Peters, and is characterized by high temperature (35°C) and high humidity (100%). The bat colony produces big quantities of guano which supports a rich and varied fauna. The presence of an eyeless troglobite such as *M. debrasi* in this cave is in apparent contradiction with a hypothesis proposing that large quantities of energy (e.g. bat guano) in a cave reduce the strength of selection, while low quantities represent a limiting factor favoring processes of adaptation to the life in caves (DECU & JUBERTHIE, 1994, and references therein). However, intensive collecting has failed to record the spider from any part of the cave except the area of the least trophic richness (i.e., the area without bat guano).

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References

- DECU, V. & JUBERTHIE, C., 1994. – Cuba
In: C. JUBERTHIE & V. DECU (eds),
Enciclopedia Biospeologica, **I**: 459-
475.
- GERTSCH, W.J., 1986. – The spider
genus *Metagonia* (Araneae: Pholcidae)
in North America, Central America,
and the West Indies. *Texas Memorial
Museum, Speleological Monographs*,
1: 39-62.
- GERTSCH, W.J. & PECK, S.B., 1992. –
The pholcid spiders of the Galápagos
Islands, Ecuador (Araneae, Pholcidae).
– *Canadian Journal of Zoology*, **70**:
1185-1199.
- PECK, S.B., 1990. – Eyeless arthropods
of the Galapagos Islands, Ecuador:
Composition and origin of the crypto-
zoic fauna of a young, oceanic archi-
pelago. – *Biotropica* **22** (4): 366-381.
- PÉREZ GONZÁLEZ, A. & GARCÍA-DEBRÁS,
A., 1997. – Registros nuevos de fauna
para algunas cuevas cubanas. –
Cocuyo, **6**: 25-29.