

## FIRST RECORD OF THE GENUS *CHARINUS* (AMBLYPYGI: CHARINIDAE) FROM PANAMA

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**Abstract:** The charinid whip spider *Charinus* is herein recorded for the first time from Panama. Additional data on its natural history are given. This species has been found in natural and anthropized areas inside a very humid tropical forest in Panama.

**Key words:** Amblypygi, Charinidae, *Charinus*, natural history, Panama.

### Primer registro del género *Charinus* (Amblypygi: Charinidae) para Panamá

**Resumen:** Una especie de amblypígrado del género *Charinus* es citada por primera vez de Panamá. Se brinda información adicional sobre historia natural de la especie, cuyo hallazgo se realizó en áreas naturales y alteradas dentro de un bosque húmedo tropical.

**Palabras clave:** Amblypygi, Charinidae, *Charinus*, historia natural, Panamá.

In Central America are known 10 described species of Amblypygi, distributed in two genera: *Phrynus* Lamarck, 1801 and *Paraphrynus* Moreno, 1940, in addition, there is an unidentified species of Charinidae living in a cave in Belize (Reddell, 1982; Armas, 2004). The genus *Charinus* Simon, 1890 includes 47 species currently described with 27 species present in the Neotropics (Jocque & Giupponi, 2012),

Reddell (1982) cited a specimen of Charinidae from Belize (Footprint cave, Toledo District), which he claimed is a troglobite of dubious generic identification. Avila Calvo and Armas (1997) cited Reddell's specimen as, "genus and species indeterminate". Apart of this record, Central America does not have any other species with pulvilli. The specimens of *Charinus* sp. here recorded, are the first confirmable record of this genus from Panama and the first confirmable record from Central America.

During a fieldwork in Summit Natural Park in September 2008 and Soberanía National Park, in April 2009, we found 4 specimens of amblypygids (3 in the first location, 1 in the second location). These areas are buffer tropical forests of Panama (fig. 3); the former is a zoological and botanical garden, while the latter is a natural tropical rain forest with few disturbances (see fig. 4). Additional data on a specimen from other locality in Panama is currently studied by the authors, in this case the new specimen come from an area of a secondary forest along the river Campana, and was found among leaves of the palm *Attalea butyracea*.

The specimens were transported to the Medical Entomology Branch of Gorgas Commemorative Institute for Health Research (Panama), where they were identified as Charinidae and sent to the Instituto Nacional de Biodiversidad (Costa Rica) for species identification.

Measurements are provided in millimeters (mm) and were recorded with a vernier or caliper Mitutoyo and an ocular micrometer attached to an Olympus SZ60 dissection microscope. Images of specimens were obtained with a video camera attached to a microscope and the computer software "Montage Explorer" from the Syncroscopy Company.

The examined specimens were deposited in the following collections: Colección Zoológica Dr. Eustorgio Méndez, Instituto Conmemorativo Gorgas de Estudios de la Salud (COZEM-ICGES), Panama, and Instituto Nacional de Biodiversidad (INBio: [urn:lsid:biocol.org:col:1023](http://urn:lsid:biocol.org:col:1023)), Heredia, Costa Rica. To create maps, images were retrieved from [www.maps.google.com/maps](http://www.maps.google.com/maps) (Google, 2009) and edited by image software.

### *Charinus* sp.

Fig. 1 A-C, 2 A-D, 3, 4. Table I

**EXAMINED SPECIMENS.** *Charinus* sp.: PANAMA: One adult female with 13 eggs and two juvenile females (INBio), Provincia de Panama, P. N. Summit, September 4, 2008, in cage of *Eira barbara* (Mustelidae) S. Bermudez and R. J. Miranda, 88 m.o.s.l. (9°03'54"N, -79°38'57"W). One adult female (COZEM-ICGES), with 6 eggs. Provincia de Colón, P. N. Soberanía, entrance to "Camino del Oleoducto", April 14, 2009; under rocks. R. J. Miranda. 48 m.o.s.l. (9°07'19"N, -79°42'53"W). *Charinus acosta*: CUBA: One adult female (INBio), Finca La Chata, Capdevilla, Boyeros, C. Havana. March 16, 2000, L. F. Armas y A. Avila C. (escombros bajo hojarasca) (aprox. at 23°04'36"N, -82°23'46"W) (L. F. de Armas det. 2000).

Specimens examined from Panama, resemble *Charinus acosta* (Quintero, 1983) from Cuba; general characteristics are body size 4.3 to 7.8 mm, with 23 tibial and 41 tarsal segments in feeler. Median eye well developed and eye tubercle low, reduced in size. Basal cheliceral tooth I with distal cusp longer than the proximal cusp.

**NATURAL HISTORY.** The specimens from Summit Natural Park were collected in a cage of *Eira barbara* (Mustelidae), under wood. They shared the habitat with *Ornithodoros puer-toricensis* (Argasidae), Myriapoda, Opiliones and other arthropods. The specimen from Soberanía National Park was found under a rock, near the road, sharing the habitat with beetle larvae and cockroach nymphs.

**Table I. Measurements (mm) of *Charinus* sp. (Panama) and *C. acosta* (Cuba). H, height; L, length; W, width.**

| Characters       | Panama (Summit) | Panama (Soberanía) | Cuba    |
|------------------|-----------------|--------------------|---------|
| Carapace, L/W    | 2.5/3.2         | 1.7/2.5            | 2.4/3.1 |
| Abdomen, L/W     | 4.3/2.6         | 2.9/2.1            | 4.2/2.4 |
| Pedipalp, L      | 5.8             | 3.5                | 5.6     |
| Femur of leg, L: |                 |                    |         |
| I                | 5               | 3.3                | 4.8     |
| II               | 3.4             | 2.2                | 3.2     |
| III              | 3.8             | 2.6                | 3.7     |
| IV               | 3.3             | 2.2                | 3.2     |

Compared to the species here reported, it resembled *Charinus acosta*, that has been reported as the only demonstrated species of Amblypygi with obligatory parthenogenesis, this characteristic might explain its wide distribution in Cuba (Armas, 2000, 2005, 2006). A possible explanation for the current distribution of the species in Cuba, could be the anthropocoria or also the habitat fragmentation, where now only remnants of the original distribution remain (Teruel, 2011).

In Cuba, *Charinus acosta*, has a marked reproductive period between March and August (Armas, 2005), we recorded 2 females with eggs sacs, one in May and another in September.

Armas (2005, 2006) also found a variation in the quantity of eggs from four to nine eggs produced in the sac, and this was related to the size of specimens. More eggs were found in larger specimens. The female found at Summit was bigger (see table I) than Armas published records and it carried an eggs sac with 13 eggs. Like Armas found in Cuba, larger females carry more eggs. The other female found at Soberanía, was shorter (see table I) and carried less eggs, 6 in total.

Armas (2006) established that *C. acosta* lives under rocks and logs in dry forests and anthropized areas. The two records found in Panama come from similar microhabitats; however, both came from tropical humid forests, one of these forests had little disturbances (Soberanía), while the other is more anthropized (Summit).

Weygoldt (2005, 2006a, 2006b) divided the *Charinus* genus in four groups based in female gonopods (*C. bengalensis* species group, *C. brasiliensis* species group, *C. australianus* species group and *C. seychellarum* with unique gonopod). *C. acosta* and *C. sp* belongs to the *C. australianus* species group since it has a flat rounded cushioned gonopods with a sharp edge and a seminal receptacle, it represent the first species of this species group present in Central America, until now, the group was represented in the Neotropics by two species, *Charinus koepcke* Weygoldt, 1972 (Peru) and *Charinus vulgaris* De Miranda & Giupponi, 2011 (Brazil). (De Miranda & Giupponi, 2011)

Armas *et al.* (2012) recorded as *Charinus cf acosta* several Colombian specimens, which clearly resembles our Panamanian material. It is possible that a complex of species will be involved in these countries, but a better understanding of the female gonopods is needed for elucidating this enigma.

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**Fig. 1.** Female *Charinus* sp. (specimens from Panama). **A.** General aspect of carapace and abdomen; **B.** Sternum, ventral view; **C.** Gonopods, dorsal view.

**Fig. 2.** Female *Charinus* sp. (specimens from Panama). **A.** Right chelicera, outer view; **B.** Right chelicera, inner view; **C.** Right pedipalp, dorsal view; **D.** Right pedipalp, dorsal view.

**Fig. 3.** Geographic distribution of *Charinus* sp and *Charinus acosta*. Circles show new records of *Charinus* sp. from Panama, Stars, show registered records from *C. acosta* from Cuba (Armas 2006, Teruel *et al.*, 2009, Teruel, 2011).

**Fig. 4.** Habitat of *Charinus* sp. at Soberanía National Park, Panama, Prov. Colón.

