

## **Description of the first troglobitic species of the genus *Phrynus* (Amblypygi: Phrynidae) from Cuba.**

### ***Descripción de la primera especie troglobia del género Phrynus (Amblypygi: Phrynidae) de Cuba.***

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#### **Abstract**

*Phrynus noeli*, sp. n., is described from a cave in western Cuba. This species, that shows several adaptative characters to cavernicole environment, is the first troglobitic member of the genus as well as the only known troglobitic amblypygid from the West Indies.

#### **Resumen**

Se describe *Phrynus noeli*, sp. n., de una cueva del occidente de Cuba. Esta especie, que exhibe varios caracteres adaptativos al medio cavernícola, constituye el primer miembro troglobio de este género, así como el único amblopígido estrictamente cavernícola que se conoce de las Antillas.

**Key words:** Troglobite, West Indies, amblypygid, biospeleology.

**Palabras clave:** Troglobios, Antillas, amblopígidos, bioespeleología.

## **INTRODUCTION**

The large amblypygids of the family Phrynidae are common inhabitants of caves in tropical and subtropical America. Nevertheless, most of them are troglaphiles being troglobites only five Mexican species of the genus *Paraphrynus* (REDDELL, 1981).

*Phrynus* Lamarck, 1802, is a widely distributed genus in America (QUINTERO, 1981) that contains the only known phrynids in most of the West Indies islands. Some species, as *Phrynus longipes* Pocock, 1893, and *P. armasi* Quintero, 1981, are the largest invertebrate predators in caves of the Greater Antilles.

In this paper, we describe a new species of *Phrynus* from Cuba, which shows several morphological adaptations to cave life, *v. gr.*: a pale appearance, obsolete ocular tubercle, elongated appendages, and long and fine pedipalp spines.

## **METHODS**

For measurements and nomenclature of both pedipalp spines and leg trichobothrias we have followed QUINTERO (1981).



## RESULTS

*Phrynus noeli*, new species  
(Figs. 1-4)

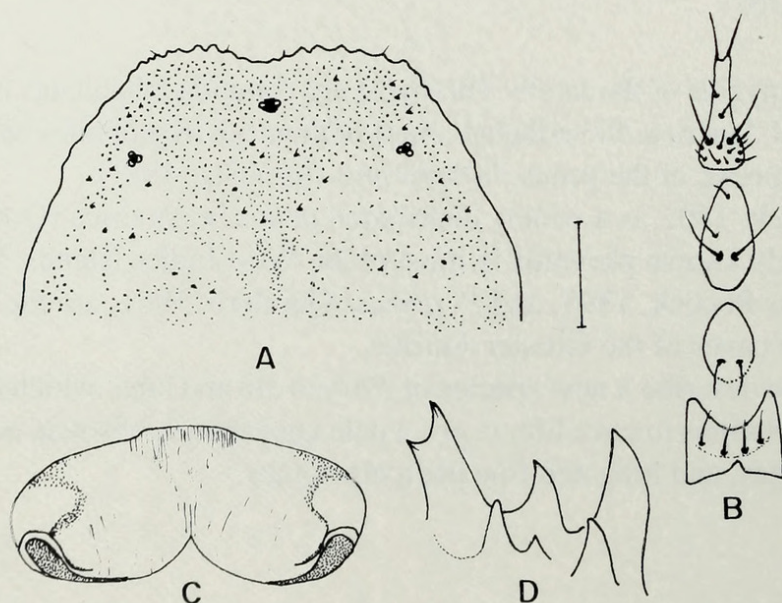
**Type data:** A female carrying seven embryos, taken at Salon del Caos, Gran Caverna de Santo Tomás, Sierra de Quemado, Viñales, Pinar del Río province, Cuba, on September, 1992 by Abel Pérez González. Deposited at Institute of Ecology and Systematic, Academy of Sciences of Cuba.

**Diagnosis:** Female adult length, 11.0 mm. Body of pale brown appearance. Ocular tubercle very small, black. Pedipalps and legs elongated; the former with large and sharp spines. Basal segment of chelicera with three teeth on external margin of anteroventral surface. Pedipalp's tibia with nine dorsal spines of which the third is longer than basitarsus. Leg I with 29 tibial segments and 60 tarsal ones. Gonopods as shown in fig. 1C, weakly sclerotized. Male unknown.

**Colour in alcohol:** Base colour uniformly pale brown, lightly darker on ocular area. Ocular tubercle black.

**Carapace:** Anterior edge with a moderate median notch (Fig. 1A), furnished with about 20 tubercles; surface finely granulose with sparsely greater setiferous granules; ocular tubercle very small; frontal process concealed.

**Pedipalps:** Trochanter with four well developed spines on inner lateral surface. Femur with seven dorsal spines and seven ventral ones; Fd-3 is longest, Fd-5 is lightly lon-



**Fig. 1.** *Phrynus noeli*, sp. n. female holotype. A, carapace, anterior half; B, prosomatic sterna; C, gonopods, dorsal view; D, tooth of the ventral anterior surface of the basal segment of the right chelicera, external view. Scale (in mm): A, 1.00; B-C, 0.50; D, 0.25.



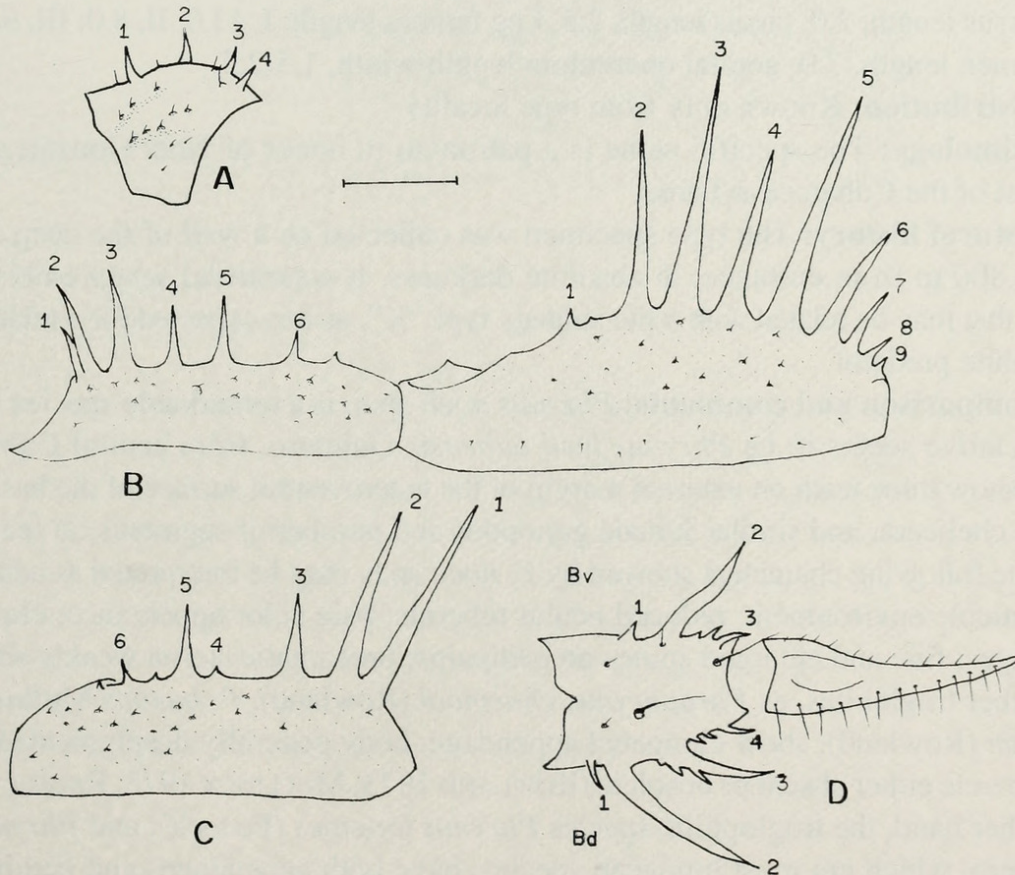
ger than Fd-4; Fd-7 is minute; Fv-3 as long as Fv-4 and half the length of Fv-1. Tibia with ten dorsal spines and nine ventral ones; Td-2 lightly longer than Td-4, which is longer than Td-6; the longest spine (Td-3) is longer than basitarsus and a little smaller than tarsus. Basitarsus with four dorsal spines and three ventral ones; Bd-1 well developed; Bd-3 with three basal spines of which the apical one is well developed and longer than Bd-4. Tarsus without a minute spine in basal inner surface; postarsus fused to tarsus with no evident suture line; cleaning organ composed by two rows of setae.

**Chelicera:** Basal segment with three teeth on external margin of the anteroventral surface. First tooth of internal margin with distal cusp greater than basal one.

**Legs:** I (right) with 29 tibial segment an 60 tarsal ones; first tarsomere of feeler 1.5 time longer than second one. II-IV with a white transversal band on dorsal and lateral surface of second tarsomere. Leg IV metatarsal trichobothria ratio: sbf=0.21; sbc=0.24; stf=0.29; =0.59; =0.62.

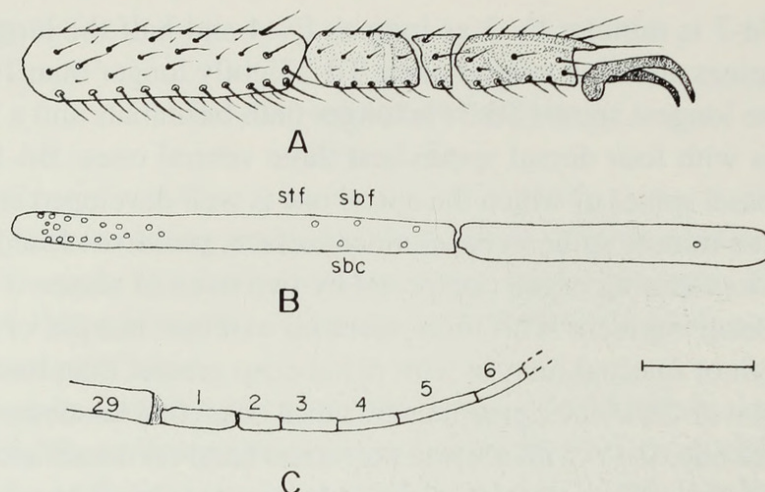
**Prosomatic sterna:** tritosternum relatively short, with 16 setae; Tetrasternum and pentasternum very weakly sclerotized; the former with four setae, and the last with two setae. Metasternum with four setae.

**Gonopods:** As shown in fig. 1C; weakly sclerotized.



**Fig. 2.** *Phrynus noeli*, sp. n. Female holotype pedipalp. A, trochanter, dorsal view; B, femus and tibia, dorsal view; C, femur ventral view; D, basitarsus and tarsus, internal view. Scale (in mm): 1.00.





**Fig. 3.** *Phrynus noeli*, sp. n. Female holotype. A, tarsal segment of leg III; B, leg IV matatarsus and last tibial segment, showing trichobotrial pattern; C, first tarsomeres of feelers (1-6). Scale (in mm): A, 1.00; B-C, 0.50.

**Measurements** (in mm): Carapace median length, 4.0; carapace width, 5.8; Pedipalps: femur length/width, 3.8/0.9; Tibia length/width, 4.3/0.9; spine Td-3 length, 2.3; basitarsus length, 2.0; tarsus length, 2.5. Leg femora length: I, 13.0; II, 8.0; III, 9.0; IV, 8.0. Abdomen length, 7.0; genital operculum length/width, 1.5/2.5.

**Distribution:** Known only from type locality

**Etimology:** The specific name is a patronym in honor of Noel González Gotera, a student of the Cuban cave fauna.

**Natural history:** The type specimen was collected on a wall of the deep cave zone, about 800 m from entrance, in absolute darkness. It was carried seven embryos, a low count that may be related with a life strategy type “K”, as it is expected for a relatively large troglobite predator.

**Comparison and comments:** *Phrynus noeli* sp.n. is a remarkable species which closest relative seems to be *Phrynus levii cubensis* Quintero, from central Cuba. Both of them show three teeth on external margin of the anteroventral surface of the basal segment of the chelicera, and similar female gonopods and number of segments on feelers.

The following characters showed by *P. noeli* sp.n. may be interpreted as adaptative for cavernicole environment: reduced ocular tubercle; pale color appearance; elongated appendages; fine and enlarged spines on pedipalps; prosomatic sterna weakly sclerotized.

Other troglobites, as *Paraphrynus chacmool* (Rowland), *P. baeops* Mullinex, and *P. chiztum* (Rowland), show elongated appendage, body generally despigmented, and ocular tubercle either absent or obsolete (ROWLAND 1973, MULLINEX 1975, REDELL 1981). On the other hand, the troglophilic species *Phrynus longipes* (Pocock), and *Phrynus armasi* Quintero, which are most hipogean species, have both appendages and pedipalp spines elongated.

We suppose that *P. noeli* sp.n. is a recent troglobite as suggested by its complete eye count.



## ACKNOWLEDGEMENTS

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