

**A NEW TROGLOPHILIC CRAB, *CHACEUS TURIKENSIS*, FROM  
VENEZUELA, AND ADDITIONAL NOTES ON THE STYGOBIONT CRAB  
*CHACEUS CAECUS* RODRIGUEZ AND BOSQUE, 1990 (DECAPODA:  
BRACHYURA: PSEUDOTHELPHUSIDAE)**

by

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## I - INTRODUCTION

For several years, the extensive karstic areas of western Venezuela, in the Sierra de Perijá, have been the target of several expeditions carried out by the Venezuela Society of Speleology. Between 1987 and 1989, explorations on the northern slopes of the valley of the Guasare River, Cueva Punto Fijo, led to the discovery of a new species of blind crab, *Chaceus caecus* Rodriguez and Bosque 1990. In 1990, during explorations in the valley of the Rio Socuy, which runs parallel to the Guasare valley, the same species was collected at several caves, including Cueva El Samán, now considered as the largest cave in Venezuela.

In 1991, the efforts of the Society, in association with the Union of Basque Speleologists, were concentrated in Mesa Turik, a flat top mountain located several miles south of the Guasare River area. Here a new species of troglomorphic crab, *Chaceus turikensis*, was discovered. In the present contribution this new species is described and notes on *Chaceus caecus* are added.

Abbreviations used are: cl. = carapace length; cb. = carapace breadth; fow. = frontorbital width, IVIC = Reference Collection of the Instituto Venezolano de Investigaciones Científicas, Caracas; MBUCV = Museo de Biología, Universidad Central de Venezuela, Caracas; MBLUZ = Museo de Biología, Universidad del Zulia, Maracaibo.

## II - DESCRIPTIONS

Family Pseudothelphusidae Rathbun, 1893

Tribe Strengerianini Rodriguez, 1982

Genus *Chaceus* Pretzmann, 1965

*Chaceus caecus* Rodriguez and Bosque 1990 (Fig. 2 F-H)

**Material.** - (1) Cueva Los Laureles, Rio Socuy, Estado Zulia; 600 m altitude; 4 March 1990; J. LAGARDE and J. OTERO; on the mud near the water's edge, 700 m from the cave's entrance; 1 male, cl. 17.5, cb. 29 mm, fow. 14.9 mm (IVIC). - (2) Cueva El Samán, Rio Socuy, Estado Zulia; 470 m altitude; 9 March 1990; J. OTERO and A. VILORIA; under a stone in a dry gallery, 2400 m from the cave's entrance; 1 male (broken carapace), aprox. cl. 20.5 mm, cb. 34 mm (IVIC). - (3) Cueva El Samán (El Laberinto), Rio Socuy, Estado Zulia; 9 March 1990; F. HERRERA; 1 immature female, cl. 19.7 mm, cb. 25.3 mm, fow. 14.4 mm (IVIC). - (4) Cueva El Samán (galeria La Culebra), Rio Socuy, Estado Zulia; 10 April 1990; F. HERRERA; 1 female with 8 juveniles under the abdomen, cl. 20.5 mm, cb. 33.1 mm, fow. 17.3 mm; 1 female, cl. 21.4 mm, cb. 35.2 mm, fow. 18.7 mm (IVIC). - (5) Cueva La Retirada, Rio Guasare basin, Estado Zulia; 900 m altitude; collected in stream, current speed 50 liters/sec, 420 m from the cave entrance; 17 December 1991; F. HERRERA and F. MICHELANGELI; 2 males, cl. 20 and 18.5 mm, cb. 32.9 and 30 mm, fow. 17.5 and 15.9 mm (IVIC). - (6) Cueva El Sumidero De La Retirada, Rio Guasare basin, Estado Zulia; 815 m altitude; collected in stream, current speed 30 liters/sec; 17 December 1991; R. CARREÑO and F. HERRERA; 1 male carapace broken; 1 male cl. 16.3 mm, 27 mm, fow. 25.1 mm (IVIC). - (7) Cueva de los Cantos, Rio Guasare basin, Estado Zulia; 740 m altitude; collected on land near stream, current speed 250 litres/sec, 420 m from the cave entrance; 17 December 1991; B. URBANI and F. HERRERA; 1 female cl. 13.5 mm, cb. 20.8 mm, fow. 12.5 mm (IVIC). - (8) Cueva El Veladero de La Retirada, Rio Guasare basin, Estado Zulia; 850 m altitude; collected in gallery without a stream, but wet, 250 m from the cave's entrance; 17 December 1991; F. HERRERA and F. MICHELANGELI; 1 female cl. 15 mm, cb. 24.3 mm, fow. 13 mm (IVIC).

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**Remarks.** The brood found under the abdomen of a female from Cueva El Samán (cl. 33.1 mm) consists of 8 juveniles with a mean cl. 3.54 mm (range 3.31-3.67 mm), cb. 4.51 mm (range 4.38-4.63 mm) and a fow. 3.39 (range 3.31-3.47 mm) (Tabl. 1). The size of these juveniles is large relative to the size of the mother (cb. juvenile/cb. mother = 0.22). The number of offsprings is small, since the clutch in other Pseudothelphusidae fluctuates - according to the size of the respective species at reproduction - between 25 and 125 eggs. The eyes in the juveniles of *Chaceus caecus* are not reduced, as is the case in the adults, but there is no trace of pigment in the cornea; the legs are not particularly slender (merus width/length = 0.24, length of dactylus/length of merus = 0.73).

Tabl. 1 - Measurement taken in the brood of *Chaceus caecus*.

Specimen N°	cb.	cl.	fow.
1	4.63	3.63	3.31
2	4.50	3.56	3.41
3	4.50	3.50	3.41
4	4.59	3.63	3.31
5	4.44	3.50	3.44
6	4.38	3.44	3.38
7	4.44	3.41	3.41
8	4.63	3.67	3.47
X	4.51	3.54	3.39

*Chaceus turikensis*, n. sp. (Fig. 12 A-E)

**Material.** - (1) Cueva de Las Lianas, mesa Turik, Estado Zulia; 9 March 1991; C. GALAN and F. HERRERA; 1 male holotype, cl. 15 mm, cb. 26.6 mm, fow. 13.7 mm; 1 female paratype, cl. 17.5 mm, cb. 17.6 mm, fow. 14.4 mm (MBUCV). - (2) Cueva de la pared Norte, Mesa Turik, Estado Zulia; 9 March 1991; J. UGARTE and F. HERRERA; 1 male, cl. 13.3 mm, cb. 24.1 mm, fow. 12.8 mm; 1 immature female, 10 mm, cb. 16.6 mm, fow. 9.2 mm (MBUCV). - (3) Cueva de la Pared Norte, tunnel 5, lateral gallery, Mesa Turik, Estado Zulia; 9 March 1991; F. HERRERA; 1 male, cl. 10.7 mm, cb. 17.7 mm, fow. 10.2 mm (MBUCV). - (4) Cueva de la Pared Norte, Mesa Turik, Estado Zulia; 17 March 1991; L. A. VILORIA and J. LAGARDE; 1 female, cl. 17.9 mm, cb. 31.8 mm, fow. 15.6 mm (IVIC). - (5) Cueva del Rio, Mesa Turik, Estado Zulia; 19 March 1991; L. A. VILORIA and J. IPINA; 4 juveniles the largest a male, cl. 6.8 mm, cl. 10.5 mm, fow. 6.9 (MBLUZ). - (6) Cueva del Laberinto, Cabecera del Rio Palmar, Estado Zulia; 22 March 1991; L. A. VILORIA; 1 male, cl. 11.9 mm, cb. 20.7 mm, fow. 10.8 mm. - (7) Cañón del Rio Apón, Mesa Turik, Estado Zulia; 14 March 1991; R. CARREÑO; 1 male, cl. 14 mm, cb. 25.2 mm, fow. 12.5 mm (MBUCV).

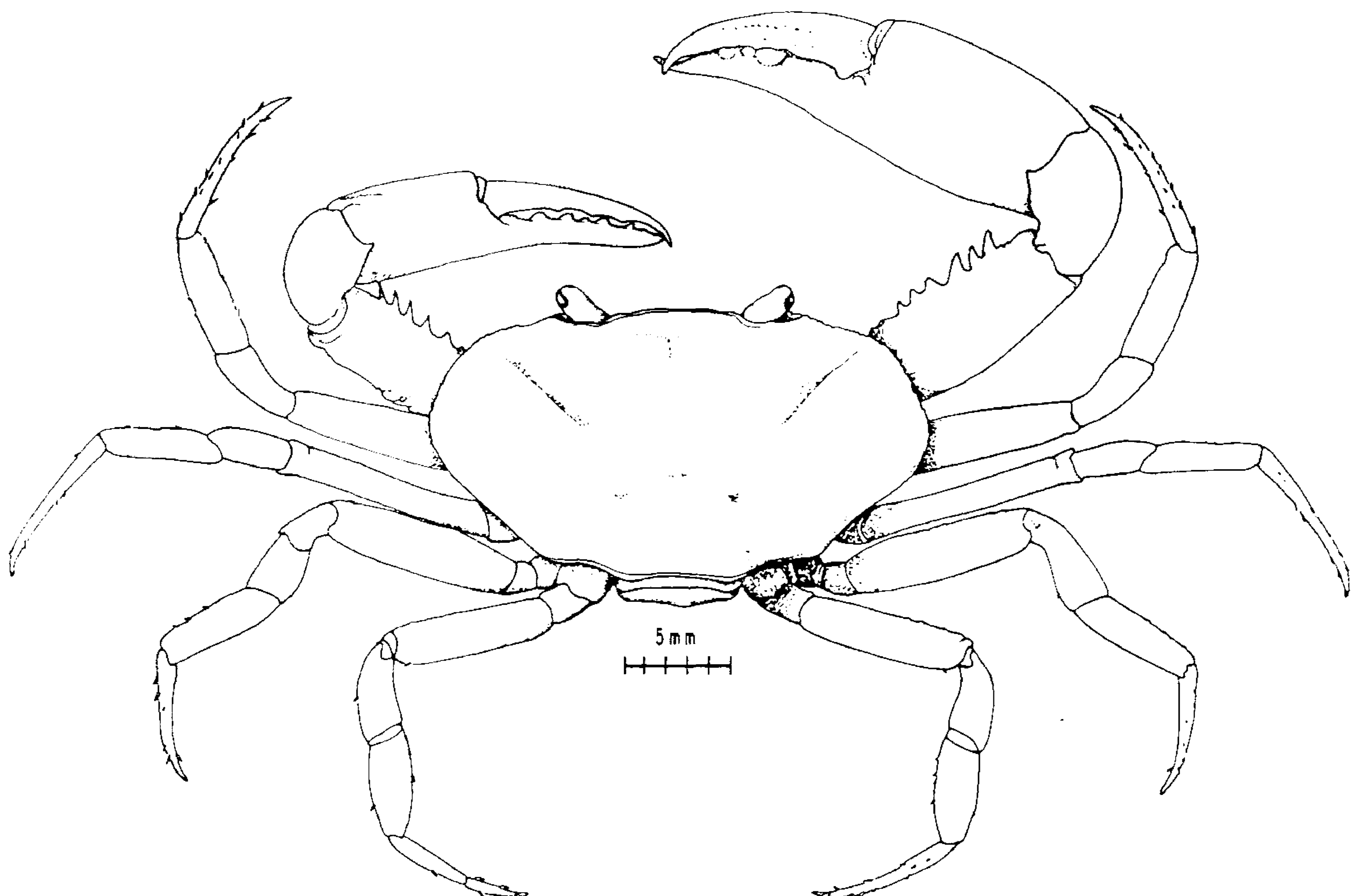


Fig. 1 - *Chaceus turikensis*, n. sp., holotype.

**Description.** The carapace is wide ( $cb/cl = 1.77$  in the holotype,  $1.79$  in the female paratype). The cervical groove is wide and shallow, slightly arquate; it does not reach the margin of the carapace. The anterolateral border does not meet the external orbital angle directly, as in most species of the family, but reaches a point above this angle, and from there it runs to meet the orbital angle diagonally. The lateral border of the carapace is covered by dentiform papillae which are obsolescent in the holotype specimen. The postfrontal lobes are obsolescent, its position is marked only by two slight elevations of the carapace's surface; the median groove is represented by a wide, shallow depression. The carapace between the prostfrontal lobes and the front is inclined forward, slightly concave in frontal view. In the holotype this area is smooth, whereas in the paratype it is covered by numerous close-set papillae directed forward. The upper margin of the front is obsolescent, marked only by a few minute papillae; the lower margin is sinuous. The front is very low, higher toward the sides, almost vertical.

The eyes does not fill the orbital cavity, the cornea is normally pigmented. The largest cheliped has the palm moderately swollen; the fingers slightly gape when closed. The exognath of the third maxilliped is  $0.77$  the length of the ischium of endonath. The legs are very slender ( $merus\ width/length = 0.26$ ); the dactylia are very long and slender ( $length\ of\ dactylus/length\ of\ merus = 0.98$ ).

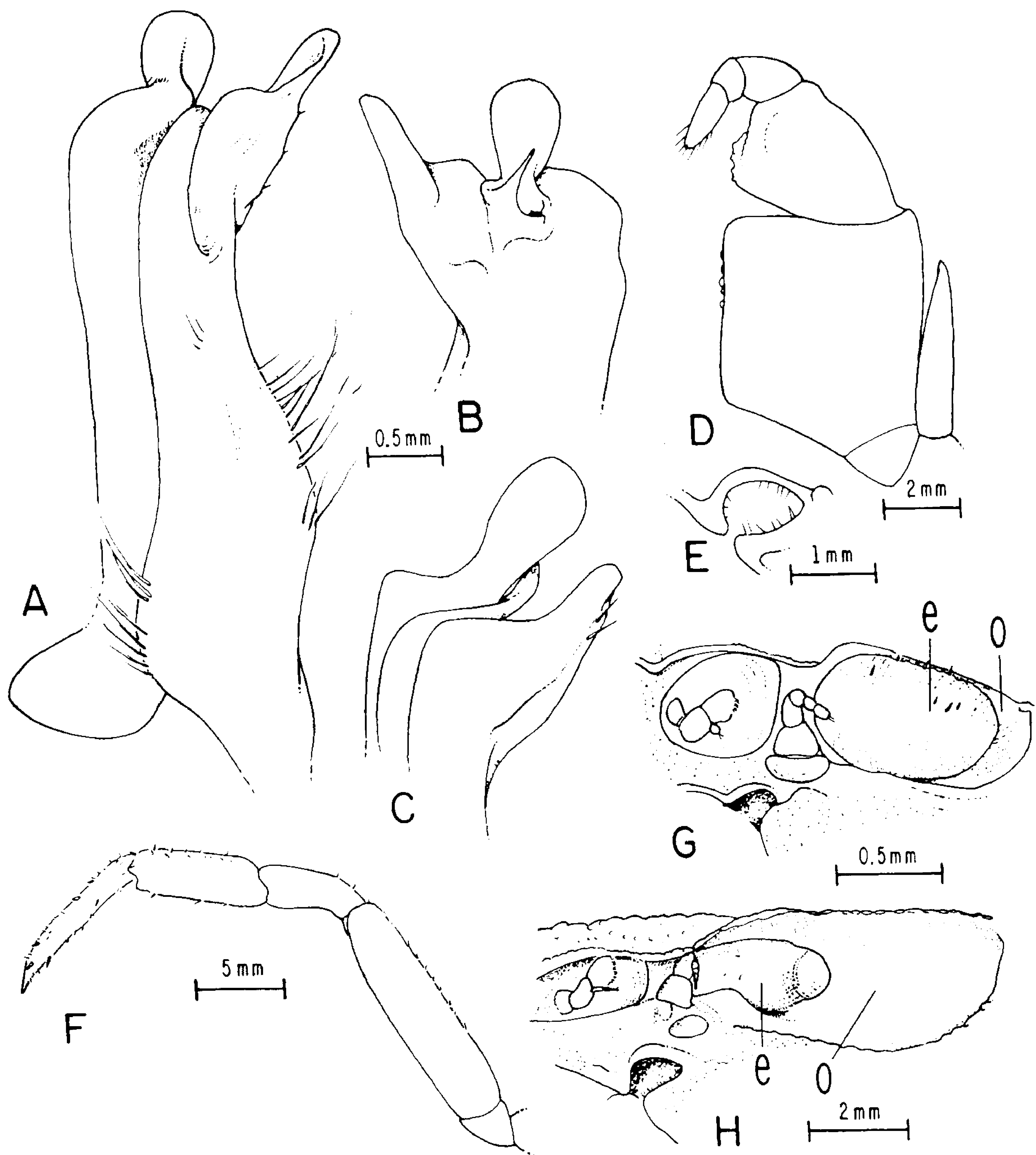


Fig. 2. A-E - *Chaceus turikensis*, n.sp., holotype: A = Left gonopod, caudal view; B = Same lateral view; C = Same cephalic view; D = Third maxilliped, left; E = Aperture of efferent channel. F-H - *Chaceus caecus* Rodriguez and Bosque 1990: F = Third left pereopod of juvenile from Cueva El Samán, cl. 3.67 mm; G = Same specimen, orbital area; H = female from Cueva El Samán, cl. 20.5 mm, orbital area. e = eye; o = orbite.

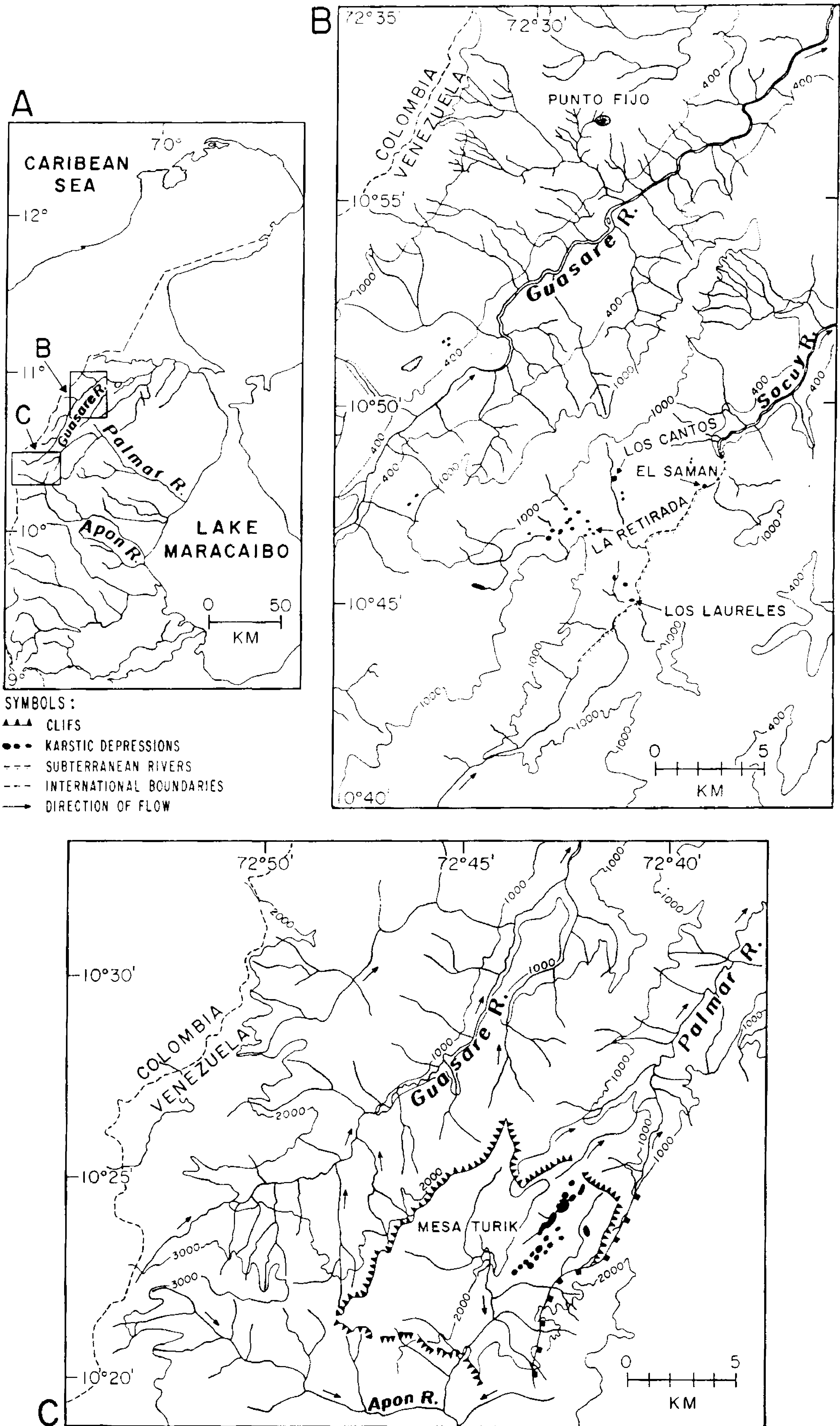


Fig. 3 - A = Map of western Venezuela; B = Caves in the valleys of the Guasare and Socuy rivers; C = Area of Mesa Turik.

The first male gonopod is stocky, its distal end is curved and directed mesially and, consequently, its terminal orifice opens in a plane perpendicular to the main axis of the appendage. The lateral process is well developed, foliose, implanted transversely to the main axis of the appendage, with a conspicuous row of stout spines on the lateral side; it reaches the apex of the gonopod. The apical portion consists of an elipsoidal mesial process and a long, triangular, marginal process, the finger-like process present in this area in other species is absent in this species. The terminal orifice of the gonopod is surrounded by a few minute spines. There is a row of long plumose setae over the lateral expanded side of the gonopod and shorter setae on the caudal basal surface.

**Etymology.** The specific name refers to the type locality, Mesa Turik, Sierra de Perijá, in Eastern Venezuela.

**Color.** The carapace and appendages are uniformly cream-colored or light brown; the carapace has a transverse reddish blotch over the postfrontal and postorbital areas.

**Remarks.** The only obvious stygophile character in this species is the relative slenderness of the pereiopods, including the chelipeds. The species is not restricted to caves since the crabs collected in the Cañon del Rio Apón were epigeous, but even in this locality daylight was considerably reduced. The species can be distinguished from all other in the genus (see key to the species in RODRIGUEZ and VILORIA, 1992), by the absence of a finger-like process which is replaced by an elipsoidal mesial process in this area.

### III - BIOSPEOLOGICAL REMARKS

The crabs reported in this contribution come from two widely separated localities in the karstic formations of the Sierra de Perijá, Eastern Venezuela (Fig. 3A). The first area is located between the middle courses of the rivers Guasare and Socuy, which drains in the northern portion of Lake Maracaibo (Fig. 3B). The holotype of *Chaceus caecus* comes from Cueva Punto Fijo, a cave to the north of this area, in the northern escarpment of the Guasare Valley. New records for this species were found in an extensive karstic area in the Socuy River, where the river goes underground in many places, to reappear further down in its course. The sinks and cavities where these crabs were found comprises the Cueva del Samán (Code ZU-30, Venezuelan Society of Speleology), considered at present the largest cave in Venezuela, with a total length of 11.8 km (SOCIEDAD VENEZOLANA DE ESPELEOLOGIA, 1993; SOCIEDAD VENEZOLANA DE ESPELEOLOGIA, 1991; GALAN, 1991); the Cueva Los Laureles (ZU-31), with a development of 1617 m (SOCIEDAD VENEZOLANA DE ESPELEOLOGIA, 1991); the Cueva La Retirada (ZU-28), with 520 m development, with the nearby El Sumidero (sink) de La Retirada and El Veladero de La Retirada (SOCIEDAD VENEZOLANA DE ESPELEOLOGIA, 1991); and the Cueva de los Cantos.

The second area is located 60 km SW from the first area (Fig. 3C), and comprises the Mesa Turik, a rectangular table mountain of irregular topography, with its main axis oriented NE-SW (ANONYMOUS, 1991). The lands to the west are more elevated, between 2000 and 2600 m above sea level. A deep karstic depression runs across the eastward section, with a series of five small caves located on its northern-most portion. Three large rivers have their headwaters in this mesa, the Rio Guasare and Rio Palmar in the lands to the north, and the Rio Apón on the southern slopes. The last two rivers drain into Lake Maracaibo, located to the east of Mount Turik (Fig. 3A). Details of the caves and collecting localities are as follows (Codes ZU refers to the nomenclature in use by the Venezuelan Society of Speleology).

1 - Cueva de Las Lianas, code ZU.51, 10° 24' 44" N - 72° 42' 08" W, 1750 m. alt. Total length 200 m, no water course, but water dripping from the roof, aphotic. Crabs collected 40 m from the entrance.

2, 3, 4 - Cueva de la pared Norte, code ZU.52, 10° 24' 44" N - 72° 42' 06" W, 1700 m. alt. A cavity located on the northern escarpment of the mesa, below Cueva de Las Lianas. The collecting localities were a tunnel which communicates an internal doline with the external wall with course of water, open, with vegetation and light (Locality 2), and Tunnel 5, a lateral gallery, aphotic, where the crabs were collected 50 m from the entrance.

5 - Cueva del Rio, code ZU.49, 10° 24' 23" N - 72° 42' 32" W, 1800 m. alt. With a water course, headstream of Rio Palmar, aphotic.

6 - Cueva del Laberinto, ZU.55, 10° 23' 46" N - 72° 42' 00" W, 1700 m alt. In the headwaters of Rio Palmar, outside the main depression of Mesa Turik. Aphotic.

7 - Cañon del Rio Apón, Mesa Turik, 1800 m. alt. A large canyon, on the southern portion of the mesa, through which run the headstreams of the Rio Apón, which drains into the Maracaibo lake. This is the only collecting locality situated outside the Rio Palmar headwaters. Crabs in this locality were epigeous.

### SUMMARY

*Chaceus turikensis*, new species, is described from a system of caves in Mesa Turik, a flat top mountain in the Cordillera de Perijá, in eastern Venezuela, where three large rivers have their headstreams. The species is not restricted to caves, and the only obvious stygobiont character is the relative slenderness of the appendages. A species previously described, *Chaceus caecus* Rodriguez and Bosque 1990, is recorded from several caves near the type locality. Examination of the brood in

this species reveals that the number of juveniles per clutch is very low in relation to other species in the family. The stygobiont characters in this species are fully developed only in the adults, since the eyes in the juveniles are of normal size, although depigmented, and the pereopods are not particularly slender.

### RESUME

*Chaceus turikensis*, n. sp., est décrite de plusieurs grottes du plateau karstique rectangulaire "Mesa Turik", atteignant à l'ouest de 2000 à 2600 m au-dessus du niveau de la mer et situé dans la Cordillère de Perijá, près de la frontière avec la Colombie. L'espèce n'est pas limitée aux grottes et son seul caractère stygobiomorphe est la relative minceur des appendices. Une espèce précédemment décrite, *Chaceus caecus* Rodriguez et Bosque 1990, a été récoltée dans plusieurs grottes proches de la localité-type ; une femelle de cette espèce portait sous son abdomen 8 jeunes, ce qui est peu comparé aux espèces épigées qui en portent de 25 à 125 ; les caractères stygobiomorphes de cette espèce ne sont bien développés que chez l'adulte ; en effet, les jeunes ont des yeux de taille normale, cependant dépigmentés.

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