

DESCRIPTION OF A NEW SPECIES OF *BOTHRIURUS* PETERS (SCORPIONES, BOTHRIURIDAE) FROM THE STATE OF TOCANTINS, BRAZIL

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Abstract: *Bothriurus cerradoensis* sp. n. is described from Brazil. It is characterised by an unusual trichobothrial pattern of seven ventral trichobothria on the pedipalp chela. Some information is given on the habitat of the new taxon and about the area in which it originates, the Cerrados of the State of Tocantins in Brazil Central Plateau.

Key words: Scorpiones, Bothriuridae, *Bothriurus cerradoensis* sp. n., Brazil.

Descripción de una nueva especie de *Bothriurus* Peters (Scorpiones, Bothriuridae) del Estado de Tocantins, Brasil

Resumen: Se describe *Bothriurus cerradoensis* sp. n. de Brasil, caracterizada por un inusual diseño tricobotrial de siete tricobotrias ventrales en la quela del pedipalpo. Se presenta información sobre el hábitat de la nueva especie y sobre el área de origen, Cerrados en el Estado de Tocantins en Brazil Central Plateau.

Palabras clave: Scorpiones, Bothriuridae, *Bothriurus cerradoensis* sp. n., Brasil.

Introduction

Scorpions of the family Bothriuridae Simon, 1880 have always been considered to be difficult and complex taxa. This holds true for the genus *Bothriurus* Peters, 1861 in particular, a taxon that by the end of the 19th century contained six valid species. However, they were difficult to identify correctly, as defined by Kraepelin (1899), who did not recognise many species which are regarded as valid today (Maury, 1981). Better characterisation of species of the genus *Bothriurus*, as well as of species of other genera of the family Bothriuridae, became possible using new characters, such as those based on the structure of the hemispermatophores, trichobothrial patterns, and carinal morphology. This new approach was first attempted by San Martín (1963) and followed in the 1970s by Maury (1971) who described several additional bothriurid species and improved classification at the subfamily and genus level. In Brazil the genus *Bothriurus* is represented by 11 species, four of which still require further investigation to confirm their status (Lourenço, 2002). More recently, a new subspecies, *Bothriurus rochai occidentalis* representing the only Amazonian element known for the genus, was described from the State of Maranhão (Lourenço, 2003). Twenty-eight specimens of *Bothriurus* were collected in Dianópolis in the region of the Cerrados in the State of Tocantins, Brazil. These belong to an additional new species which is described below.

Bothriurus cerradoensis sp. n. (Figs. 1-7, 9)

Diagnosis: General morphology similar to that of *Bothriurus rochai* Mello-Leitão, 1932. *Bothriurus cerradoensis* sp. n. can, however, be readily distinguished from the other

Brazilian species of the genus *Bothriurus* by the following combination of characters: Pedipalp chelae with seven ventral trichobothria; very pale general coloration; larger global size (± 45 mm); tegument of carapace, tergites and metasoma segments smooth; almost all metasomal carinae absent, with only the dorsal and latero-dorsal vestigial, represented by 3-4 distal granules.

Type material: Brazil, State of Tocantins, Dianópolis, (F.S.P. Godoi), 25/IX/2003 (obtained from herpetological pitfall traps) 1 male holotype and 27 male paratypes. Male holotype and 18 paratypes are deposited in Laboratory of Zoology of the University of Brasília (N° 2630). Five paratypes in the Muséum National d'Histoire Naturelle, Paris. Four paratypes in the Museu Nacional, Rio de Janeiro.

Etymology: The specific name refers to the region of the Cerrados in Brazil in which the species occurs.

Description: Based on male holotype.

COLORATION: Body generally yellowish. Prosoma: carapace yellowish with some light brownish spots; eyes surrounded by black pigmentation. Mesosoma: tergites yellowish with confluent vestigial light brownish spots; venter and sternites yellowish without spots; pectines and genital operculum pale yellow. Metasoma: all segments reddish-yellow without spots; vesicle yellowish, paler than segment V. Chelicerae yellowish with vestigial variegated brown spots at the base of the fingers; fingers reddish. Pedipalps reddish, with some diffuse brownish spots on dorsal face of the femur and patella. Legs pale yellow with very diffuse brownish spots on the proximal segments.

MORPHOLOGY: Carapace punctate to smooth, weakly granular on the posterior edge; anterior margin broadly rounded; carinae absent; all furrows weakly pronounced. Median ocular tubercle distinctly in the centre of the carapace. Three pairs of small lateral eyes, the posterior being reduced. Sternum slit-like. Mesosoma: tergites I-VI punctate without granules. Tergite VII with four indistinct carinae and thin granulation. Venter: genital operculum divided longitudinally, each half with a roughly triangular shape. Pectines: pectinal tooth count 26-26 teeth (see variability). Sternites smooth, with moderately elongated stigmata; VII without carinae. Metasoma: segments I to IV with almost all the carinae absent; only the dorsal and latero-dorsal are represented by 3-4 distal granules; ventral carinae present and shaped like an arc on segment V; intercarinal spaces smooth, with scattered granules on the lateral and ventral faces of segment V. Telson with a few small granules on the ventral surface; aculeus short and moderately curved. Cheliceral dentition characteristic of the family Bothriuridae (Vachon, 1963). Pedipalps weakly granular, almost smooth; femur pentacarinata with moderate carinae and a few granules on the dorsal face; patella and chela smooth and punctate; fixed and movable fingers with a line of granules not clearly divided into rows. A moderately large apophysis is present on inner aspect of chela at the base of the movable finger. Trichobothriotaxy of type C: neobothriotaxy (Vachon, 1974). Chela with seven trichobothria on the ventral aspect. Legs: tarsi of legs III and IV with two rows of three spines and several very thin setae on the ventral surface. Hemispermaphore as shown in Figs. 6 and 7. The distal lamina is enlarged whereas the basal lamina narrowed. A similar type of hemispermaphore is also found in *B. rochai* (Maury, 1982; Lourenço, 2003) (Fig. 8).

VARIABILITY OF CHARACTERS IN PARATYPES. There is no obvious variability of characters in paratypes, except in pectinal tooth count. The number of pectinal teeth varies between 23 and 27 (mostly 24-25) in males (n=35). Females are unknown.

Some ecological considerations concerning the Cerrados of the State of Tocantins in Central Brazilian Plateau

The area from which the scorpions were collected is near the town of Dianópolis (46.8 W - 11.5 S). The local vegetation is represented by very open 'Cerrado' formations (Fig. 9), well preserved (not threatened) and with sandy soils. This area is part of the region defined as 'Jalapão'. It receives faunistic and floristic influences from the more arid 'Caatinga' formations. The region is, however, classified among the 'Cerrado' domains of Central Brazilian Plateau. The average annual precipitation is about 1500 mm and average annual temperatures are around 26° C (Lourenço, 1986, 1990; Lourenço & Sastre, 1988).

Acknowledgement

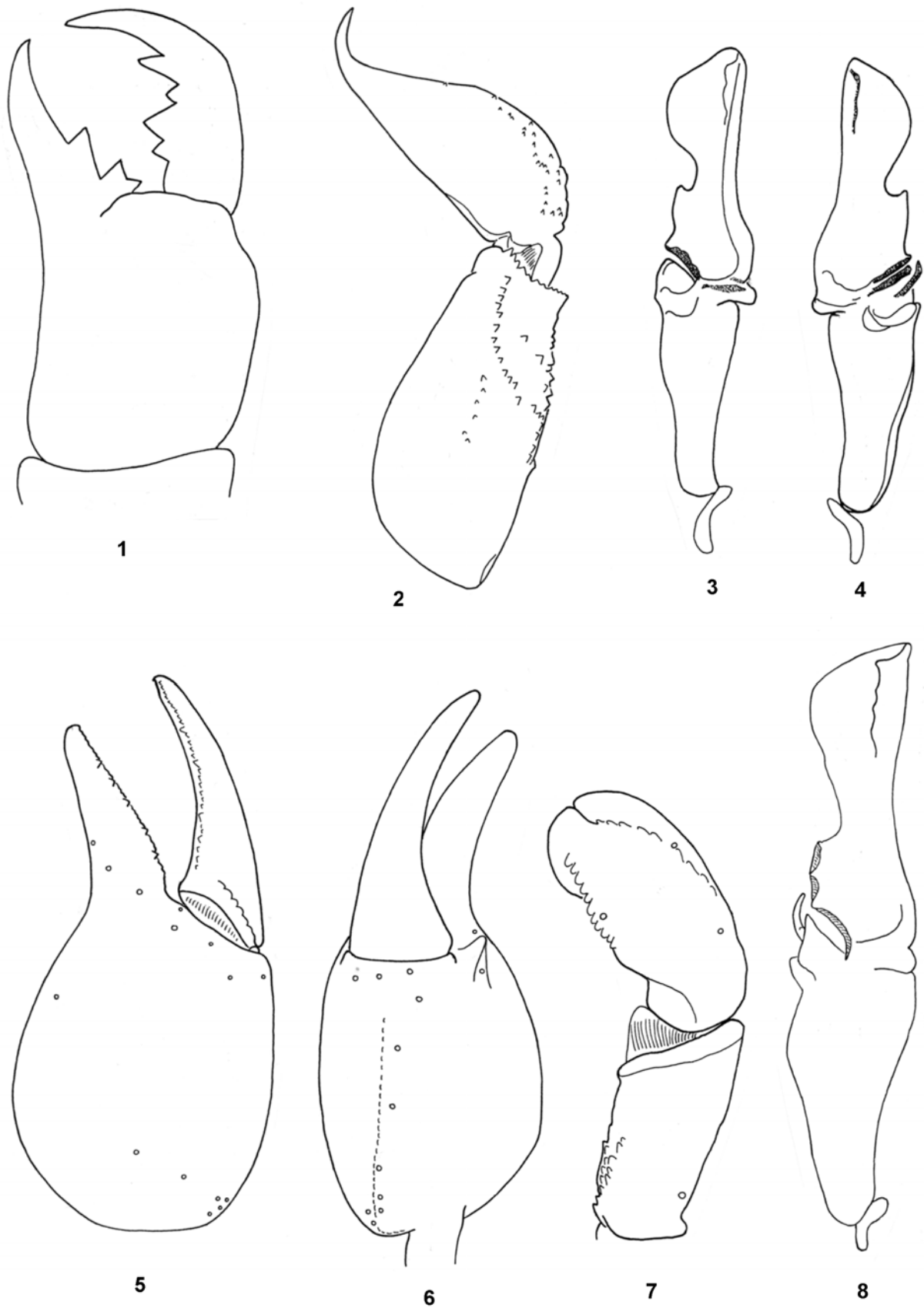
We are very grateful to Prof. John L. Cloudsley- Thompson, London for reviewing the manuscript.

Table I. Morphometric values (in mm) of male holotype of *Bothriurus cerradoensis* sp. n.

| | | |
|----------------------|-------------------|------|
| Total length | | 44.8 |
| Carapace: | - length | 5.7 |
| | - anterior width | 4.1 |
| | - posterior width | 6.7 |
| Metasomal segment I: | - length | 3.8 |
| | - width | 4.1 |
| Metasomal segment V: | - length | 7.1 |
| | - width | 3.9 |
| | - depth | 3.1 |
| Vesicle: | - width | 3.2 |
| | - depth | 2.4 |
| Pedipalp: | - Femur length | 3.8 |
| | - Femur width | 1.7 |
| | - Patella length | 4.1 |
| | - Patella width | 1.9 |
| | - Chela length | 8.8 |
| | - Chela width | 3.1 |
| Movable finger: | - length | 4.3 |



Fig. 9. Vegetation map of South America showing the known distributions of *Bothriurus rochai rochai* (asterisks), *Bothriurus rochai occidentalis* (black star) and *Bothriurus cerradoensis* sp. n. (white star on black circle). Most Brazilian bothriurid species are distributed over corridor B, corresponding to open vegetation formations.



Figs. 1-7. *Bothriurus cerradoensis* sp. n. (Male holotype). **1.** Chelicera. **2.** Metasomal segment V and telson, lateral aspect. **3-5.** Trichobothriotaxy. **3-4.** Chela, dorso-external and ventral aspects. **5.** Femur and patella, dorsal aspect. **6-7.** Hemispermatophore, external and internal aspects (Male paratype). **Fig. 8.** Idem for *Bothriurus rochai occidentalis* (after Lourenço, 2003).

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