

The genus *Broteochactas* Pocock, 1893
in Brazilian Amazonia, with a description
of a new species from the State of Amazonas
(Scorpiones: Chactidae)

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(with 12 figures)

Abstract

Scorpions belonging to the genus *Broteochactas* Pocock, 1893 are studied and a new species is described, *Broteochactas silves* sp. n., based on nine male specimens collected in the region of Silves in the State of Amazonas, Brazil. The new species is characterized by a small size, reddish-brown coloration, body and appendages with punctations and metasomal segment V and telson with conspicuous spinoid granulations.

K e y w o r d s: Scorpiones, Chactidae, *Broteochactas*, new species, State of Amazonas, Brazil.

Introduction

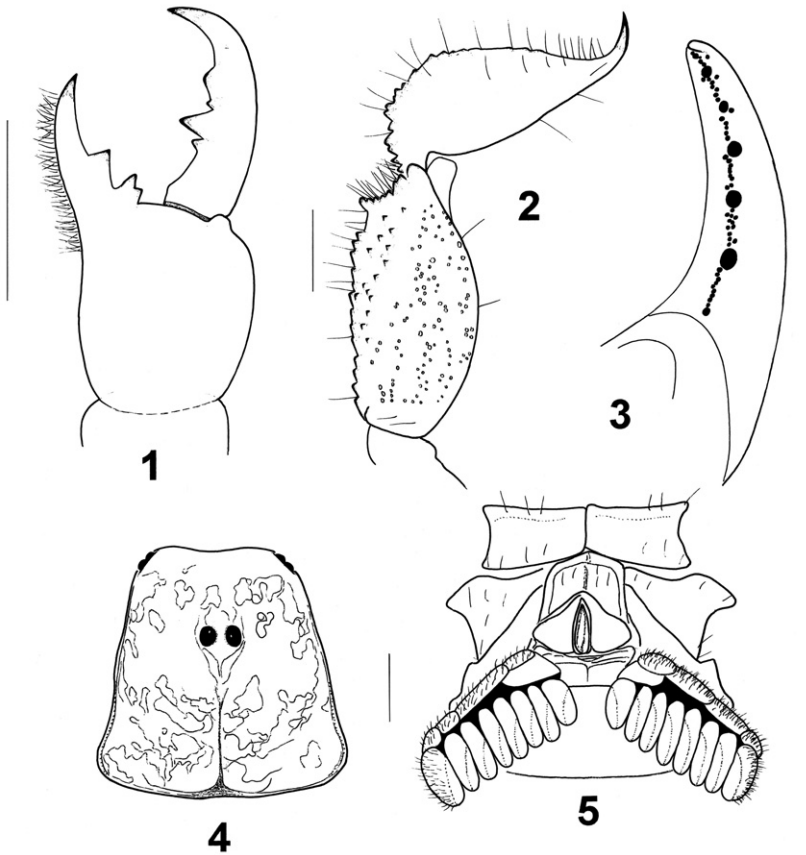
As noted in previous papers (Lourenço 2012, Lourenço *et al.* 2010, 2011), contributions to the knowledge of the Amazonian scorpion fauna and in particular of the elements belonging to the family Chactidae Pocock, 1893 have been the subject of several previous studies (e.g. Lourenço 2012, Lourenço & Duhem 2010, Lourenço *et al.* 2011). However, Amazon region remains one of the world's most diverse for its fauna of scorpions. Inventory on the Amazonian scorpion fauna began in the second half of the 19th century and was for the first time synthesised in a monograph by Mello-Leitão (1945). Since then other contributions have been published, noticeably González-Sponga (1996) and Lourenço (2002a,b). On account of the diversity and richness of the Amazonian scorpion fauna, the discovery and description of new species is by no means unusual (Lourenço 2002a,b, Lourenço *et al.*, 2011).

The genus *Broteochactas* Pocock, 1893 is one of the chactid scorpion groups best represented in the Neotropical scorpion fauna. Most South American species of this genus are concentrated in the Amazonian and Guayanian floristic provinces (Mori 1991, Prance & Lovejoy 1985, Adis 2002). By the time when Mello-Leitão (1945) published his monograph on South American scorpions, only three/four species were known from Brazil. In fact, most species today known for Brazilian Amazonia have been described only in

recent years (Lourenço 2002a,b, Lourenço *et al.* 2011). In this contribution, a new species belonging to the genus *Broteochactas* is described from the region of Silves in the State of Amazonas, Brazil.

Methods

Illustrations and measurements were made using a Wild M5 stereo-microscope with a drawing tube and an ocular micrometer. Measurements follow those of Stahnke (1970) and are given in mm. Trichobothrial notations are those developed by Vachon (1974) and the morphological terminology mostly follows Hjelle (1990).



Figs 1-5. *Broteochactas silves* sp. n. Male holotype. 1. Chelicera, dorsal aspect. 2. Metasomal segment V and telson, lateral aspect. 3. Disposition of the granulations over the dentate margins of pedipalp-chela movable finger. 4. Carapace. 5. Ventral aspect, showing coxopophysis, sternum, genital operculum and pectines (scale bars = 1 mm).

Taxonomic treatment

Family Chactidae Pocock, 1893
Genus *Broteochactas* Pocock, 1893

Broteochactas silves sp. n.
(Figs 1-11)

TYPE MATERIAL: Brazil, Amazonas State, Silves, 02°44'47.3" S – 58°11'43.2" W, 'Terra-Firme' (Grid II-Pitfall), 21 Nov. 2007 (V. T. Carvalho), Male holotype. Same locality of holotype, 26 Nov 2007, 1 male paratype. Idem, 02°44'18.7" S – 58°10'59.2" W, 'Terra-Firme' (Grid I-Pitfall), 19 Nov 2007, 1 male paratype. Idem, 24 Nov 2007, 6 male paratypes. Holotype and three paratypes deposited in the National Institute for Amazon Research (INPA), Manaus; two paratypes deposited in the Muséum national d'Histoire naturelle, Paris; three paratypes deposited in the Zoologisches Museum, Hamburg.

ETYMOLOGY: The specific name is placed in apposition to the generic name and refers to the locality, Silves, where the new species was collected.

DIAGNOSIS: Small scorpions, 24 to 26 mm in total length. Coloration reddish-yellow to reddish-brown. Body and appendages weakly granulated, smooth and lustrous with punctations. Metasomal carinae weakly to moderately marked; segment V shows several spinoid granules on ventral aspect. Pectines with 7 to 9 teeth (mode 8). Trichobothrial pattern of type C neobothriotaxic 'majorante'.

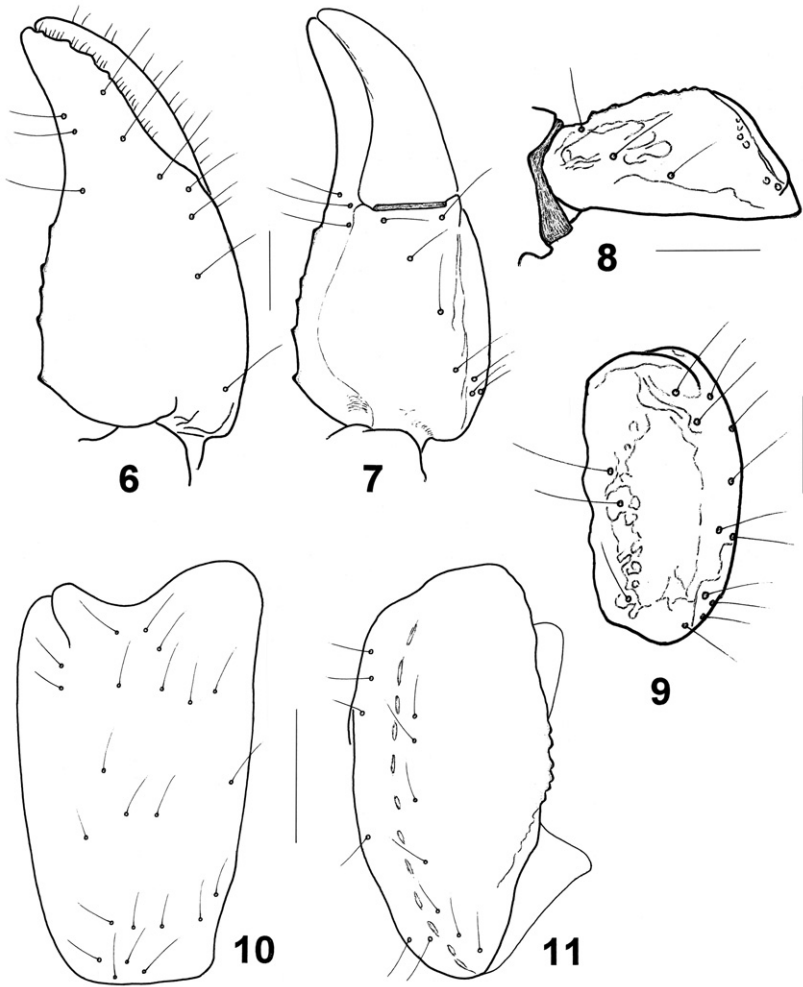
Broteochactas silves sp. n. can be included in the '*Broteochactas*' species group (Lourenço 2002a). The new species is distinguished from others *Broteochactas* and in particular from *B. fei* Pinto da Rocha, Gasnier, Brescovit & Apolinário, 2002, which occurs in the nearby region of Manaus, by the following features: (i) smaller size with quite distinct morphometric values (see measurements after the description) (ii) metasomal segment V and telson with conspicuous spinoid granulations (Pinto da Rocha *et al.* 2002).

DESCRIPTION (based on male holotype and paratypes).

C o l o r a t i o n. Basically reddish-yellow to reddish-brown. P r o s o m a: carapace reddish-brown. Tergites reddish-brown, slightly darker than carapace. M e t a s o m a l segments reddish-brown, paler than tergites; vesicle reddish-yellow; aculeus dark red. C h e l i c e r a e yellowish only slightly marked with dark spots at the base of fingers; fingers yellow with reddish teeth. P e d i p a l p s reddish-brown; femur and patella with blackish zones over the carinae; c h e l a e reddish-brown; granulations over the dentate margins of fingers blackish. L e g s yellowish with diffused brownish spots. V e n t e r yellowish; sternites III to VII with diffused brownish spots; pectines and genital operculum yellow, slightly paler than coxapophysis.

MORPHOLOGY. C a r a p a c e lustrous and acarinate, with punctations; furrows shallow. Sternum pentagonal, wider than long. Tergites acarinate, smooth and shiny, with some granulations on the posterior edge. Pectinal tooth count 8-8 for male holotype (see diagnose), fulcra absent. Sternites

smooth and shiny, VII acarinate; spiracles with a round-shape. Only metasomal segments IV and V longer than wide; metasomal tegument lustrous with some minute granulations; segment V with conspicuous spinoid granulations ventrally. Dorsal and latero-dorsal carinae moderate on segments I-V; other carinae vestigial or absent; ventral carina absent from segments I to IV. Pedipalps: femur with dorsal internal, dorsal external



Figs 6-11. *Brteochactas silves* sp. n. Male holotype. Trichobothrial pattern. **6-7.** Chela, dorso-external and ventral aspects. **8.** Femur, dorsal aspect. **9-11.** Patella, dorsal, external and ventral aspects (scale bars = 1 mm).

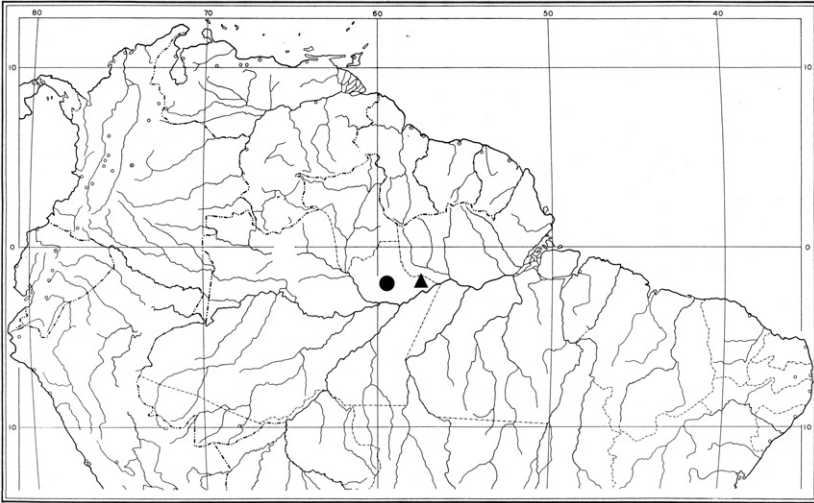


Fig. 12. The Amazon region, with the type localities of *Broteochactas fei* Pinto da Rocha *et al.* (black circle) and of *B. silves* sp. n., (black triangle).

and ventral internal carinae moderately to weakly marked; ventral external carina vestigial; tegument with a few granulations, almost smooth; internal aspect very weakly granular. *P a t e l l a* almost smooth; all carinae weak to vestigial. *C h e l a* with minute granulations; ventral and dorsal median carina weakly to moderately develop; internal aspect with a few weak granules, almost smooth. Dentate margins on movable and fixed fingers with six rows of granules separated by larger accessory granules. *C h e l i c e r a e* with a dentition typical of Chactidae (Vachon 1963), and with dense setation ventrally and internally. Trichobothrial pattern of type C, neobothriotaxic (majorante) 'major neobothriotaxy' (Vachon 1974).

Comparative morphometric values of the male holotype of *Broteochactas silves* sp. n. and the male holotype of *Broteochactas fei*. Total length (including the telson), 25.8/30.9. Carapace: length, 4.0/4.9; anterior width, 2.4/3.0; posterior width, 3.9/5.1. Mesosoma length, 6.2/7.6. Metasomal segments. I: length, 1.6/2.0; width, 2.5/3.0; II: length, 2.0/2.1; width, 2.3/2.8; III: length, 2.2/2.7; width, 2.2/2.6; IV: length, 2.7/3.3; width, 2.0/2.4; V: length, 3.7/4.4; width, 1.8/2.2; depth, 1.8/2.0. Telson length, 3.4/3.9. Vesicle: width, 1.7/2.0; depth, 1.3/1.4. Pedipalp: femur length, 2.5/2.8, width, 1.2/1.4; patella length, 3.1/3.6, width, 1.3/1.6; chela length, 5.5/6.6, width, 2.0/2.8, depth, 2.1/3.0; movable finger length, 2.6/3.1.

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References

- Adis, J. 2002: Editor, Amazonian Arachnida and Myriapoda. – Pensoft Publishers, Series Faunistica N° 24, 590 pp. Sofia-Moscow.
- González-Sponga, M. A. 1996: Guía para identificar escorpiones de Venezuela. – Cuadernos Lagoven, 204 pp. Caracas.
- Hjelle, J. T. 1990: Anatomy and morphology. – Pp. 9-63. In: Polis, G. A. (ed.). The Biology of Scorpions. Stanford University Press, 587 pp. Stanford.
- Lourenço, W. R. 2002a: Scorpions of Brazil. – Les Editions de L'IF, 320 p. Paris.
- Lourenço, W. R. 2002b: Scorpions. – Pp. 399-438, In: Adis, J. (ed.), Amazonian Arachnida and Myriapoda. Pensoft Publishers, Series Faunistica N° 24, 590 pp. Sofia-Moscow.
- Lourenço, W. R. 2012: The genus *Brotheas* C. L. Koch, 1837 in Brazilian Amazonia, with a description of a new species from the State of Pará (Scorpiones: Chactidae). – Entomol. Mitt. Zool. Mus. Hamburg, **16** (187): 1-10. Hamburg.
- Lourenço, W. R., Araujo, J. & Franklin, E. 2010: Further additions to the chactid scorpions of Brazilian Amazonia (Arachnida: Scorpiones: Chactidae). – Bol. Soc. Entomol. Aragonesa, **47**: 135-138. Zaragoza.
- Lourenço, W. R. & Duhem, B. 2010: The geographical pattern of distribution of the genus *Teuthraustes* Simon (Scorpiones, Chactidae) in South America and description of a new species. – C. R. Biologies, **333**: 858-863. Paris.
- Lourenço, W. R., Giupponi, A. P. L. & Pedroso, D. R. 2011. New species of Chactidae (Scorpiones) from the upper Rio Negro in Brazilian Amazonia. – Bol. Soc. Entomol. Aragonesa, **49**: 65-73. Zaragoza.
- Mello-Leitão, C. 1945: Escorpiões sul-americanos. – Arq. Mus. Nac., **40**: 7-468. Rio de Janeiro.
- Mori, S. A. 1991: The Guayana lowland floristic Province. – C. R. Séanc. Soc. Biogéogr., **67** (2): 67-75. Paris.
- Pinto da Rocha, R., Gasnier, T. R., Brescovit, A. D. & Apolinário, F. B. 2002: *Broteochactas fei*, a new scorpion species (Scorpiones, Chactidae) from Brazilian Amazonia, with notes on its abundance and association with termites. – Rev. Ibérica Aracnol., **6**: 195-202. Zaragoza.
- Prance, G. T. & Lovejoy, T. E. 1985: Editor, Amazonia. Pergamon Press, 442 pp. Oxford.
- Stahnke, H. L. 1970: Scorpion nomenclature and mensuration. – Entom. News, **81**: 297-316. Philadelphia.
- Vachon, M. 1963: De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les Scorpions. – Bull. Mus. natl. Hist. nat., Paris 2è sér., **35** (2): 161-166. Paris.

Vachon, M. 1974: Etude des caractères utilisés pour classer les familles et les genres de Scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriaux et types de trichobothriotaxie chez les Scorpions. – Bull. Mus. Natl. Hist. nat., Paris, 3è sér., n° **140**, Zool. 104: 857-958. Paris.

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