Revista Ibérica de Aracnología, nº **35** (31/12/2019): 9–13. ARTÍCULO
Grupo Ibérico de Aracnología (S.E.A.). ISSN: 1576 - 9518. http://www.sea-entomologia.org

THE GENUS *ANANTERIS* THORELL, 1891 (SCORPIONES: BUTHIDAE) IN CENTRAL BRAZIL, WITH DESCRIPTION OF ONE NEW SPECIES

Wilson R. Lourenço[1] & Paulo C. Motta[2]

[1] Muséum national d'Histoire naturelle, Sorbonne Universités, Institut de Systématique, Evolution, Biodiversité (ISYEB), UMR7205-CNRS, MNHN, UPMC, EPHE, CP 53, 57 rue Cuvier, 75005 Paris, France. wilson.lourenco@mnhn.fr
[2] Departamento de Zoologia, Universidade de Brasília. 70910-900 Brasília, DF, Brazil. mottapc@unb.br

Abstract: A new species of the genus *Ananteris* Thorell is described from the Cocos region, in the State of Bahia, in Brazil, based on two adult specimens, one male and one female. *Ananteris carrasco* **sp. n.** is the second species to be described from the Cocos region, constituting a new case of sympatry among species of the genus *Ananteris*: *Ananteris carrasco* **sp. n.** is sympatric with *Ananteris evellynae* Lourenço, 2004.
Key words: Scorpiones, Buthidae, *Ananteris*, new species, Brazil, Bahia, Cerrado / Caatinga.

El género *Ananteris* Thorell, 1891 (Scorpiones: Buthidae) en Brasil central y descripción de una nueva especie
Resumen: Se describe una especie nueva del género *Ananteris* Thorell de la región de Cocos, en el estado de Bahía, en Brasil, a partir de dos especímenes adultos, un macho y una hembra. *Ananteris carrasco* **sp. n.** es la segunda especie que se describe de la región de Cocos, lo que constituye un nuevo caso de simpatría entre las especies del género *Ananteris*: *Ananteris carrasco* **sp. n.** es simpátrica con *Ananteris evellynae* Lourenço, 2004.
Palabras clave: Scorpiones, Buthidae, *Ananteris*, especie nueva, Brasil, Bahía, Cerrado / Caatinga.

Taxonomy / Taxonomía: *Ananteris carrasco* **sp. n.**

Introduction

As already outlined in several previous publications (e. g. Lourenço, 1982, 2002; Giupponi *et al*., 2009; Lourenço *et al*., 2013) the genus *Ananteris* Thorell, 1891 was originally established for *Ananteris balzanii* Thorell, 1891, a species described from the state of Mato Grosso, Brazil (Thorell, 1891; Lourenço, 1982). In the following years only two other species *Ananteris festae* Borelli, 1899 and *Ananteris cussinii* Borelli, 1910 were described respectively from the forests of the Rio Peripá in Ecuador and from Cagua in Venezuela. The number of *Ananteris* species remained unchanged until the 1970s when a fourth new species *Ananteris venezuelensis* Gonzaléz-Sponga, 1972 was described from Venezuela. It was however, after the revision by Lourenço (1982) that the number of new species described began to increase continuously. The pace of description of new species was even accelerated in recent years, concerning the faunas of several South American countries, as for example Venezuela (González-Sponga, 2006), and even some totally new records were published, such as for Peru (Lourenço, 2015). Some synthetic aspects are also outlined in Lourenço (2011).

In respect to the Brazilian fauna, a number of new species was also described since the revision by Lourenço (1982). Although the geographical surface of Brazil is significantly larger than those of other South American countries, the pace of the new descriptions was less important. Nevertheless, for almost all new species described from Brazil, the precise types of habitat and even of microhabitat were equally described. These ecological precisions lead to a better understanding of the biogeographical patterns of distribution of the several species of *Ananteris* in Brazil (Lourenço, 1982; Giupponi *et al*., 2009; Lourenço *et al.*, 2013). However, only a limited number of *Ananteris* species have been recorded and described from Central Brazil (for details see Lourenço, 1982; Giupponi *et al*., 2009; Lourenço *et al*., 2013).

We described here a new species from the region of Cocos in the state of Bahia. Since another species *Ananteris evellynae* Lourenço, 2004 was also originally described from this same region (Lourenço, 2004), and having in account that both species are most certainly endemic elements to the western region of Bahia, this geographic situation represents a new case of sympatry with species of the genus *Ananteris*. Previous cases of *Ananteris* species living in sympatry have already been reported, as for *Ananteris dekeyseri* Lourenço, 1982 and *Ananteris pydanieli* Lourenço, 1982 both distributed in the region of Manaus, in Brazilian Amazonia. In general, one of the sympatric species is more abundant than the other (Lourenço, 1982).

Methods

Illustrations and measurements were produced using a Wild M5 stereo-microscope with a drawing tube and an ocular micrometer. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974), morphological terminology mostly follows Vachon (1952) and Hjelle (1990), and chelicerae dentition follows Vachon (1963).



Fig. 1-2. *Ananteris evellynae*, male holotype. Habitus, dorsal and ventral aspects.

Taxonomic treatment

Family **Buthidae** C. L. Koch, 1837

Genus ***Ananteris*** Thorell, 1891

***Ananteris carrasco* sp. n.**
Fig. 3-10.

TYPE MATERIAL: Male holotype and female paratype. Brazil, State of Bahia, Jaborandi county, Fazenda Trijunção (14º37'53" S, 45º48'41" W), alt. 879m, collected by pitfall, 18/XI/2018 (P. C. Motta *et al*. Coll. – DZUB-9246). Holotype and paratype respectively deposited in the arachnological collections of the Universidade de Brasilia, Brazil and Muséum national d'Histoire naturelle, Paris, France.

ETYMOLOGY: specific name is placed in apposition to the generic name and refers to the type of vegetation gradient named 'Carrasco' found in the zone of contact and transition between the Cerrado and Caatinga natural formations (Fig. 11-12).

DIAGNOSIS: Species of moderate size when compared with the average size of the other species of the genus; male and female with respectively 21.1 and 24.1 mm in total length; see Table I). General coloration yellow with intense variegated dark pigmentation. Pedipalps short and slender; fixed and movable fingers of pedipalps with 6 rows of granules; male and female pectines with respectively 17-16 and 16-15 teeth.

RELATIONSHIPS: The new species can be distinguished from other known Brazilian species of the genus, and in particular from *A. evellynae* Lourenço, also described from the region of Cocos in the State of Bahia by a number of features (i) a totally different pattern of pigmentation, with spots much more intensely marked in the new species, in particular on metasomal segments and chelicerae which is almost totally covered by reticular spots (ii) several distinct morphometric values; the male of *A. evellynae* being globally more slender than the male of the new species (see Table I, Fig. 1-2). The new species shows equally some affinities with *Ananteris chagasi* Giupponi *et al*., 2009 described from the state of Minas Gerais, but the patterns of pigmentation differ. This last species was only known from a pre-adult male holotype which was destroyed during the fire incident which took place in the Museu Nacional in Rio de Janeiro in 2018.

DESCRIPTION based on male holotype and female paratype (measurements in Table I).

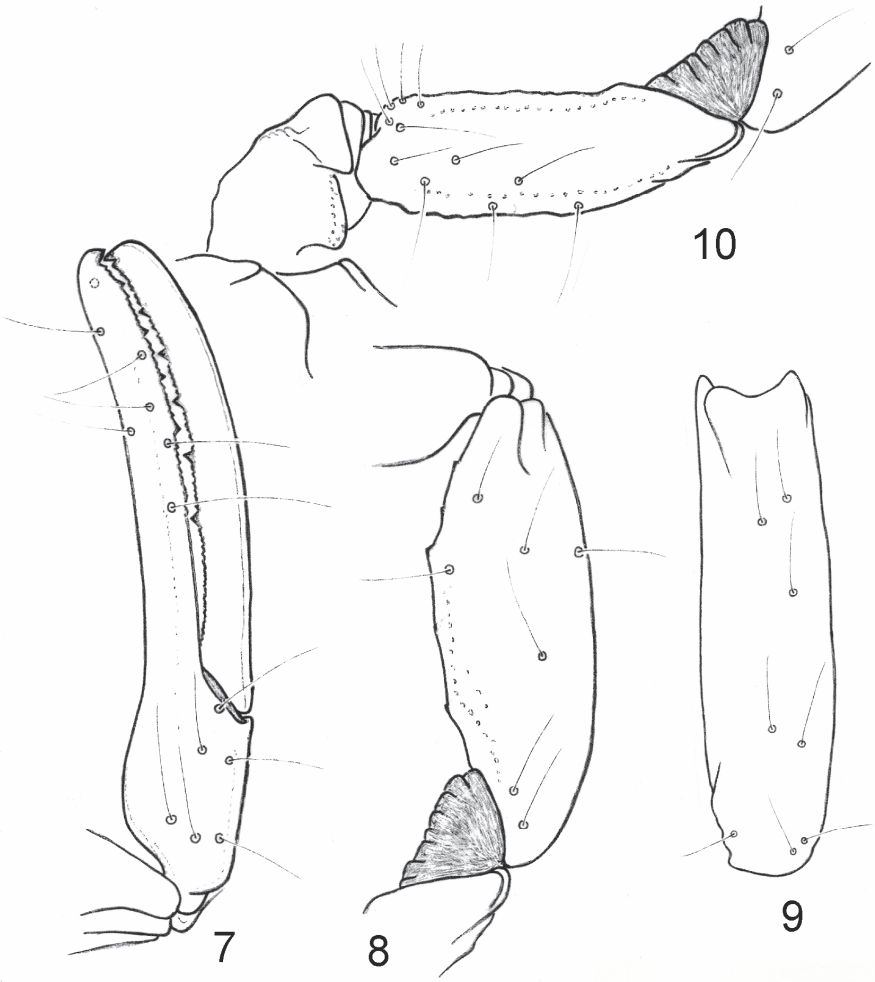
Coloration. Generally yellow with dark brown pigmented zones on the body and its appendages. Prosoma: carapace yellow with dark brown spots on its entire surface; eyes surrounded by black pigment. Mesosoma: yellow with three more or less longitudinal brownish strips which become confluent on the posterior edges of tergites. Metasomal segments I to V yellow; all segments intensely marked with dark brown spots. Vesicle reddish-yellow without spots; only carinae are slightly darker; base of the aculeus yellow with a reddish tip. Venter yellow to pale yellow; sternite VII with a few brownish spots. Chelicerae yellow with variegated dark spots over almost the totality of dorsal surface; fingers with some spots;



Fig. 3-6. *Ananteris carrasco* **sp. n.** Habitus, dorsal and ventral aspects. **3-4**. Male holotype. **5-6**. Female paratype.

teeth reddish. Pedipalps: yellow; femur and patella with densely marked brownish spots; chela hand almost entirely brownish; fingers yellow. Legs yellow, with brownish spots**.**

Morphology. Carapace with an intense granulation; anterior margin not emarginated, almost straight. Anterior median superciliary and posterior median carinae weak. All furrows moderate to weak. Median ocular tubercle distinctly anterior to the centre of the carapace; median eyes separated by approximately one ocular diameter. Three pairs of lateral eyes. Sternum subpentagonal. Mesosoma: tergites with an intense granulation. Median carina moderate in all tergites. Tergite VII pentacarinate and less granulate. Venter: genital operculum divided longitudinally, each plate more or less oval in shape. Pectines: pectinal tooth count 17-16 and 16-15 respectively in male and female; basal middle lamellae of the pectines not dilated; fulcra absent. Sternites smooth; spiracles weakly elongate; setation moderate to weak; sternite VII with very weakly marked carinae and some granulations. Metasomal segments I and II with 10 carinae, strongly crenulate.





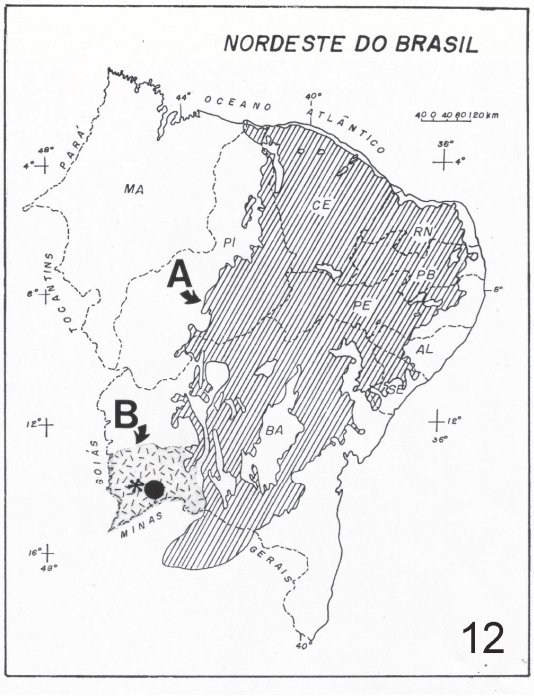


Fig. 7-10. *Ananteris carrasco* **sp. n.** Trichobothrial pattern. **7**. Chela, dorso-external aspect. **8-9**. Patella, dorsal and external aspects. **10**. Femur, dorsal aspect. **Fig. 11.** The typical Carrasco gradient of vegetation habitat of the new species (photo by R. A. Brandão). **Fig. 12.** Map of northeast of Brazil, showing the Caatinga (A) and Carrasco (B) vegetation formations and the type localities of *Ananteris evellynae* (black circle) and *Ananteris carrasco* sp. n. (black flower).

Table I. Morphometric values (in mm) of the new *Ananteris* species described, compared with the male holotype of *Ananteris evellynae*.

	Ananteris evellynae	***Ananteris carrasco* sp. n.**	
	♂	♂	♀
Total length*	23.4	21.1	24.1
Carapace:			
-length	2.6	2.4	2.9
anterior width	1.7	1.5	1.7
-posterior width	2.5	2.3	2.9
Mesosoma length	6.0	5.5	7.1
Metasomal segment I:			
-length	1.4	1.1	1.5
-width	1.6	1.6	2.0
Metasomal segment II:			
-length	1.7	1.5	1.6
-width	1.4	1.5	1.8
Metasomal segment III:			
-length	2.0	1.6	2.0
-width	1.3	1.5	1.7
Metasomal segment IV:			
-length	2.5	2.3	2.5
-width	1.2	1.5	1.7
Metasomal segment V:			
-length	3.8	3.5	2.8
-width	1.4	1.4	1.6
-depth	1.3	1.5	1.6
Telson length	3.4	3.2	3.7
Vesicle:			
-width	0.7	0.9	1.2
-depth	0.6	0.8	1.1
Pedipalp:			
-Femur length	2.4	2.1	2.4
-Femur width	0.7	0.7	0.8
-Patella length	2.9	2.4	3.2
-Patella width	0.8	0.8	1.1
-Chela length	3.6	3.4	4.5
-Chela width	0.5	0.7	0.8
-Chela depth	0.5	0.6	0.7
Movable finger:			
-length	2.8	2.4	3.1

*Including telson

Segments III and IV with 8 carinae, strongly crenulate. Intercarinal spaces moderately granular. Segment V slightly rounded with 5 carinae. Telson strongly elongated in male and moderately in female; without granulations; with one ventral carina moderately marked; aculeus short and weakly curved; subaculear tooth strong and spinoid. Cheliceral dentition characteristic of the family Buthidae (Vachon 1963); fixed finger with two moderate basal teeth; movable finger with two weak basal teeth; ventral aspect of both finger and manus with dense, long setae. Pedipalps: femur pentacarinate; patella and chela with weak to vestigial carinae; internal face of patella with 6-7 minute spinoid granules; all faces weakly granular, almost smooth. Fixed and movable fingers with 6 almost linear rows of granules; two small external and one internal accessory granule present at the base of each row; three granules in the extremity of the fingers; Trichobothriotaxy; orthobothriotaxy A-β-beta (Vachon 1974, 1975). Legs: tarsus with very numerous fine median setae ventrally. Tibial spurs strongly developed on leg IV; moderate on leg III.

ECOLOGY. The Trijunção Farm is located near the borders of three Brazilian states, Bahia, Goiás and Minas Gerais in a zone of Cerrado vegetation, typical of Central Brazil. The Trijunção Farm's area is distributed over two neighboring municipalities of Bahia State, Jaborandi and Cocos. This region can be considered as a transitional area between the two main dry and open types of Brazilian vegetation formations, the Cerrado and the Caatinga. The scorpions were collected in a more woodland type of habitat, in sandy soil partially shaded and covered by little amount of litter.

Acknowledgements

We are most grateful to Elise-Anne Leguin (Muséum, Paris) for her assistance in the preparation of photos and figure plates.

References

GIUPPONI A. P. L., E. G. VASCONCELOS & W. R. LOURENÇO 2009. The genus *Ananteris* Thorell, 1891 (Scorpiones, Buthidae) in southeast Brazil, with the description of three new species. *ZooKeys*, **13**: 29-41.

GONZÁLEZ-SPONGA, M. A. 2006. Arácnidos de Venezuela. El género Ananteris Thorell 1891, en Venezuela (Scorpionidae: Buthidae). Universidad Pedagógica Experimental Libertador: 223 pp.

HJELLE, J. T. 1990. Anatomy and morphology. Pp. 9-63, *In*: Polis, G. A. (ed.). The Biology of Scorpions. Stanford Univ. Press, Stanford: 587 pp.

LOURENÇO, W. R. 1982. Révision du genre *Ananteris* Thorell, 1891 (Scorpiones, Buthidae) et description de six espèces nouvelles. *Bulletin du Muséum national d'Histoire naturelle*, Paris, 4e sér. **4** (A1/2): 119-151.

LOURENÇO, W. R. 2002. Scorpions of Brazil. Les Editions de l'If, Paris: 307p.

LOURENÇO, W. R. 2004. List of the species of *Ananteris* Thorell, 1891 (Scorpiones, Buthidae) with the description of a new species from the State of Bahia, Brazil. *Revista Ibérica de Aracnología*, **10**: 163-166.*

LOURENÇO, W. R. 2011. The "Ananteris group" (Scorpiones: Buthidae); suggested composition and possible links with other buthids. *Boletin de la Sociedad Entomológica Aragonesa* (S.E.A.), **48**: 105-113.*

LOURENÇO, W. R. 2015. Comments on the Ananterinae Pocock, 1900 (Scorpiones: Buthidae) and description of a new remarkable species of *Ananteris* from Peru. *Comptes Rendus Biologies*, **338**: 134-139.

LOURENÇO, W. R., A. P. L. GIUPPONI & E.-A. LEGUIN 2013. Description of three more new species of the genus *Ananteris* Thorell, 1891 (Scorpiones, Buthidae) from Brazil. *Anais da Academia Brasileira de Ciencias*, **85**(2): 371-387.

STAHNKE, H. L. 1970. Scorpion nomenclature and mensuration. *Entomological News*, **81**: 297-316.

THORELL, T. 1891. Nova species Brasiliana ordinis Scorpionum. *Entomologisk tidskrift*, **12**(2): 65-70.

VACHON, M. 1952. Etudes sur les scorpions. Publications de l'Institut Pasteur d'Algérie, 482pp. Alger.

VACHON, M. 1963. De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les Scorpions. *Bulletin du Muséum national d'Histoire naturelle*, Paris 2è sér., **35**(2): 161-166.

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. *Bulletin du Muséum national d'Histoire naturelle*, Paris, 3è sér., n° **140**, Zool., 104: 857-958.

VACHON, M. 1975. Sur l'utilisation de la trichobothriotaxie du bras des pédipalpes des Scorpions (Arachnides) dans le classement des genres de la famille des Buthidae Simon. *Comptes Rendus des séances de l'Académie des Sciences*, Paris, sér. D, **281**: 1597-1599.

* References available at www.sea-entomologia.org