

THE GENUS *ANANTERIS* THORELL, 1891 (SCORPIONES, BUTHIDAE) IN THE NORTHEAST REGION OF BRAZIL AND DESCRIPTION OF A NEW SPECIES

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Abstract: A new species of the genus *Ananteris* Thorell has been discovered in Brazil. *Ananteris bonito* sp. n. is described from one single male collected in the region of the Parnaíba River delta in the state of Piauí, Brazil. This is the first record of an *Ananteris* species for this Brazilian state. The number of *Ananteris* species described from the Northeast region of Brazil is raised to seven. The number of *Ananteris* species known for the scorpion fauna of Brazil is now raised to 21.

Key words: Scorpiones, Buthidae, *Ananteris*, new species, Northeast, Brazil.

El género *Ananteris* Thorell, 1891 (Scorpiones, Buthidae) en el noreste de Brasil, y descripción de una especie nueva

Resumen: Se ha descubierto una especie nueva del género *Ananteris* Thorell en Brasil. Se describe *Ananteris bonito* sp. n. a partir de un macho colectado en la zona del delta del río Parnaíba, en el estado de Piauí, Brasil. Es la primera cita de una especie de *Ananteris* para este estado brasileño. El número de especies de *Ananteris* descritas del noreste de Brasil sube así a siete, y el de los *Ananteris* conocidos de la fauna de Brasil se eleva ahora a 21.

Palabras clave: Scorpiones, Buthidae, *Ananteris*, especie nueva, noreste, Brasil.

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

Introduction

The genus *Ananteris* Thorell, 1891 was originally created for *Ananteris balzanii* Thorell, 1891, a species described from the state of Mato Grosso, Brazil (Thorell, 1891). The number of new species described for this genus started to increase continuously since it was revised by Lourenço (1982). The pace of descriptions of new species was even more accelerated in recent years, mainly for the faunas of Venezuela and Colombia (e.g. Rojas-Runjaic, 2005; Gonzalez-Sponga, 2006; Rojas-Runjaic & Sousa, 2007; Botero-Trujillo & Flórez, 2011).

For the Brazilian fauna, a number of new species was also described in recent years. Although the geographical surface of Brazil is much larger than those of the nearby countries, the pace of these descriptions was much less intense. In contrast, each Brazilian species of *Ananteris* has been clearly associated with the precise gradients of vegetation present in the country. This leads to a better definition of biogeographical patterns of distribution for the *Ananteris* species in Brazil (Lourenço, 1982, 1984, 1987, 1997, 2004a, b, 2005; Lourenço *et al.*, 2006, 2009; Lourenço & Duhem, 2010; Giupponi *et al.*, 2009).

In the Northeast region of Brazil, only six species of *Ananteris* have been recorded. *Ananteris franckei* Lourenço, 1982 from the state of Pernambuco, *Ananteris maury* Lourenço, 1982 from the states of Paraíba and Rio Grande do Norte, *Ananteris maranhensis* Lourenço, 1987 from the state of Maranhão, *Ananteris evellynnae* Lourenço, 2004 from the state of Bahia, *Ananteris bianchinii* Lourenço, Aguiar-Neto & Limeira-de-Oliveira, 2009 from the state of Maranhão, and *Ananteris kuryi* Giupponi, Vasconcelos & Lourenço, 2009 from the state of Bahia (Lourenço, 1982, 1987, 2004b; Lourenço *et al.*, 2009; Giupponi *et al.*, 2009).

The new species described here, *Ananteris bonito* sp. n., is the first confirmed record of an *Ananteris* species in the

state of Piauí. With this new taxon, the number of known *Ananteris* species described from Brazil is raised to 21. Of these species, seven are clearly distributed in the Northeast Region of the country.

Methods

Illustrations and measurements were made with the aid of a Wild M5 stereo-microscope with an attached drawing tube (camera lucida) and an ocular micrometer. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Vachon (1952) and Hjelle (1990).

Checklist of the known *Ananteris* species in Brazil.

Asterisk indicates those distributed in the Northeast region.

1. *A. balzanii* Thorell, 1891
2. *A. bernabei* Giupponi, Vasconcelos & Lourenço, 2009
3. *A. bianchinii* Lourenço, Aguiar-Neto & Limeira-de-Oliveira, 2009*
4. *A. bonito* sp. n. *
5. *A. chagasi* Giupponi, Vasconcelos & Lourenço, 2009
6. *A. cachimboensis* Lourenço, Motta & Silva, 2006
7. *A. cryptozoicus* Lourenço, 2005
8. *A. dekeyseri* Lourenço, 1982
9. *A. deniseae* Lourenço, 1997
10. *A. evellynnae* Lourenço, 2004*
11. *A. franckei* Lourenço, 1982*
12. *A. kuryi* Giupponi, Vasconcelos & Lourenço, 2009*
13. *A. luciae* Lourenço, 1984
14. *A. madeirensis* Lourenço & Duhem, 2010
15. *A. maranhensis* Lourenço, 1987*
16. *A. mariaterezae* Lourenço, 1982

17. *A. mauryi* Lourenço, 1982*
18. *A. nairae* Lourenço, 2004
19. *A. palmari* Botero-Trujillo & Noriega, 2011
20. *A. pydanieli* Lourenço, 1982
21. *A. roraima* Lourenço & Duhem, 2010

Biogeographical comments

Although the major surface of the Northeast Region of Brazil is covered by dry and arid vegetation formations such as the Caatingas and the Cerrados, other more humid formations are also present. These are represented mainly by the Coastal Atlantic forest, the transition zone of the Agreste, transition zones between Cerrados and the Amazon forest and the Brejos. This last formation being outlying forest islands, surrounded by xerophytic formations such as the Caatingas. These hills are covered by forest, because their elevation causes humid air to cool so that condensation and consequent precipitation take place (Andrade-Lima, 1982).

The known species of *Ananteris* in the Northeast region of Brazil are found in several of these formations. *A. franckei* is known from a Brejo in Exu; *A. maury* and *A. kuryi* are typical elements of the Atlantic forest; *A. maranhensis* is from a transition zone between Cerrados and the Amazon forest; *A. evellynae* and *A. bianchinii* are elements of the dryer and arid Caatingas and Cerrados (Lourenço, 1982, Lourenço, 1987, Lourenço, 2004b; Lourenço *et al.*, 2009; Giupponi *et al.*, 2009). Finally, *Ananteris bonito* sp. n. is an element of the wet coastal Restinga forests in the delta of Parnaíba River. This ecoregion of the eastern coast of Brazil is characterized by sandy dunes with shrubs and low forests further inland. This ecoregion's isolation and unique characteristics help to support a relatively high diversity of plants and invertebrates with a moderate level of endemism.

Taxonomic treatment

Family Buthidae C. L. Koch, 1837

Genus *Ananteris* Thorell, 1891

Ananteris bonito sp. n.

Fig. 1-7.

TYPE MATERIAL: Brazil, State of Piauí, Parnaíba River's delta, NW of Parnaíba, Restinga low-forests formation, XI/1989 (P. R. Nonato leg.), Male holotype. Holotype will be deposited in the Museu Nacional, Rio de Janeiro.

ETYMOLOGY: The specific name 'bonito' (beautiful in Portuguese) is placed in apposition to the generic name and refers to the beautiful colour pattern of the new species.

DIAGNOSIS: Species of moderate to small size compared to the average size of the other species of the genus (20.1 mm in total length for male; see Table I). General coloration reddish-yellow, intensely marked with brownish variegated spots. Pedipalps rather short; fingers with 6 rows of granules; male pectines with 16-15 teeth. Carinae and granulation weakly to moderately marked. Trichobothria **db** and **est** of fixed finger situated at the same level.

RELATIONSHIPS: Mainly by its pigmentation pattern, the new species shows affinities with *Ananteris balzanii* and *Ananteris franckei*. These two species are respectively distributed in the

Table I. Morphometric values (in mm) of male holotype of *Ananteris bonito* sp. n., male of *Ananteris balzanii* and the female holotype of *Ananteris franckei*.

	<i>A. bonito</i> sp. n. ♂	<i>A. balzanii</i> ♂	<i>A. franckei</i> ♀
Total length (including telson)	20.1*	22.1	28.1
Carapace:			
- length	2.3	2.6	3.1
- anterior width	1.5	1.6	2.1
- posterior width	2.2	2.5	3.3
Mesosoma length	5.1	5.2	8.3
Metasomal segment I:			
- length	1.2	1.4	1.6
- width	1.4	1.4	2.0
Metasomal segment V:			
- length	3.2	3.6	3.9
- width	1.2	1.3	1.7
- depth	1.2	1.3	1.7
Telson			
- length	2.9	3.5	3.9
- width	0.7	0.8	1.0
- depth	0.7	0.8	0.9
Pedipalp:			
- Femur length	2.0	2.2	2.8
- Femur width	0.6	0.6	0.8
- Patella length	2.4	2.7	3.3
- Patella width	0.8	0.8	1.1
- Chela length	3.2	3.4	4.1
- Chela width	0.5	0.6	0.8
- Chela depth	0.4	0.6	0.8
Movable finger:			
- length	2.2	2.6	3.1

central savannahs of Brazil and in a Brejo formation in Pernambuco. The new species shows, however, a combination of distinct characters: (i) dark pedipalps with chela hand and fingers dark brown to blackish; chelicerae with variegated blackish spots over the entire surface, (ii) carapace narrowed and elongated; carapace and tergites weakly to moderately granular, (iii) chela fingers with 6 rows of granules, (iv) pectines elongated with only 16-15 teeth in male, (v) chelicerae fixed finger with two strong basal teeth, (vi) trichobothria **db** and **est** of fixed finger situated at the same level. The new species is a possible endemic element of the Parnaíba River delta region.

DESCRIPTION BASED ON MALE HOLOTYPE. (Morphometric measurements in Table I).

Coloration. Generally yellow to reddish-yellow with brown to dark brown variegated pigmented zones on the body and its appendages. Prosoma: carapace reddish-yellow with dark brown spots on lateral and posterior edges; eyes surrounded by black pigment. Mesosoma: yellowish with three longitudinal blackish-brown stripes on tergites. Metasoma: segments I to IV reddish-yellow; V reddish; all segments moderately marked with dark brown spots. Vesicle reddish-yellow without spots; base of aculeus yellowish, tip reddish. Venter yellow to pale yellow without any infuscations. Chelicerae yellowish with variegated blackish spots over the entire surface; fingers with blackish spots; teeth pale red. Pedipalps: yellow; femur and patella strongly marked with dark brown spots; chela hand and fingers dark brown. Legs yellow, with several dark brown spots.

Morphology. Carapace with weakly to moderately marked granulation; anterior margin very slightly emarginate. All carinae weak or absent: furrows moderate to weak. Median ocular tubercle distinctly anterior to centre of carapace;

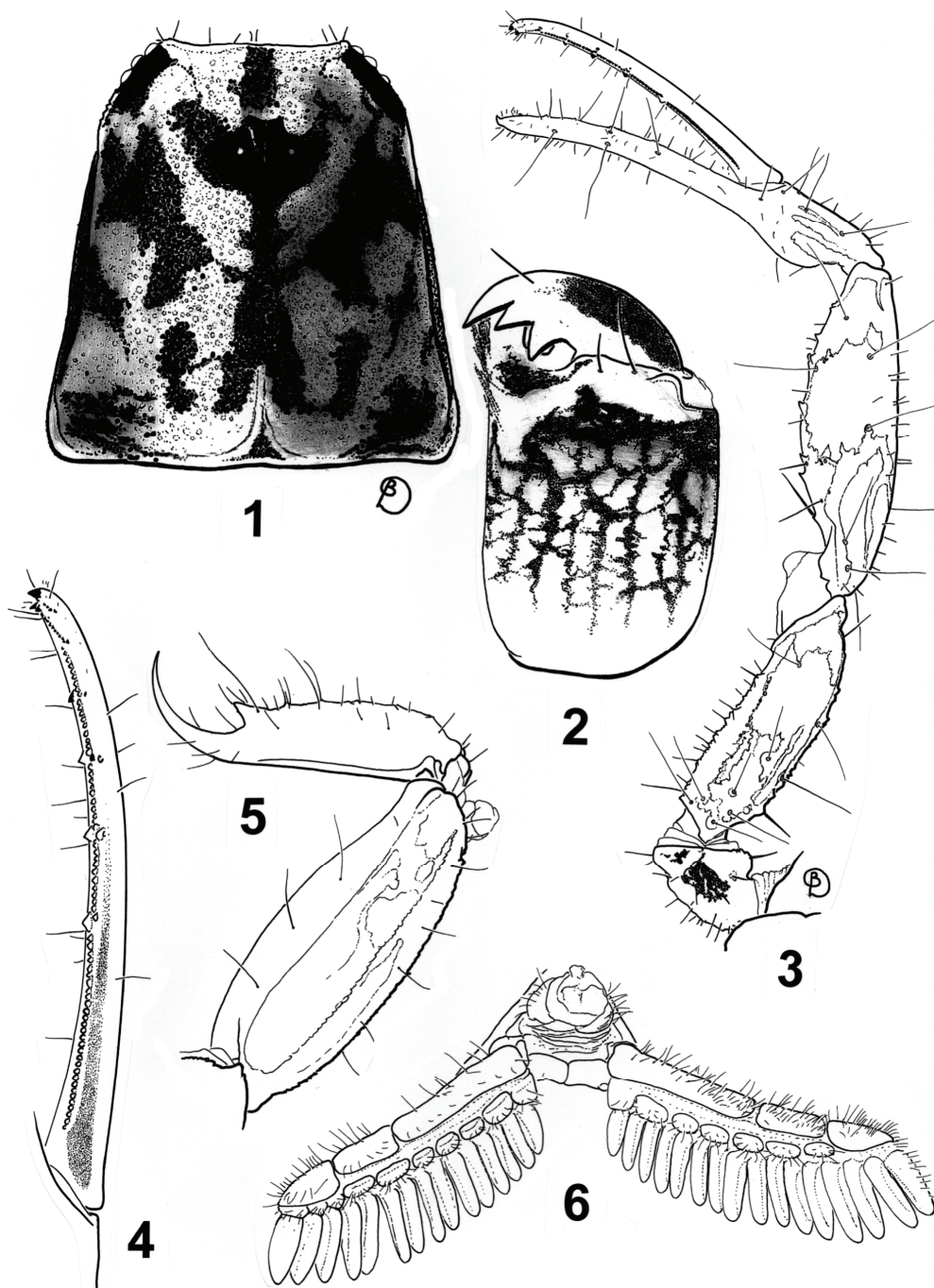


Fig. 1-6. *Ananteris bonito* sp. n., male holotype. 1-2. Carapace and chelicera, dorsal aspect, showing pigmentation pattern. 3. Right pedipalp, dorsal aspect, showing trichobothrial pattern. 4. Movable finger of pedipalp chela with rows of granules. 5. Metasomal segment V and telson, lateral aspect. 6. Genital operculum and pectines.

median eyes big in size separated by approximately 0.7-0.8 of the ocular diameter. Three pairs of lateral eyes. Sternum sub-pentagonal. Mesosoma: Tergites with weakly to moderately marked granulations, less intense than those of carapace. Median carina moderately to weakly marked on all tergites. Tergite VII pentacarinat. Venter: genital operculum divided longitudinally, each plate more or less suboval in shape. Pectines: pectinal tooth count 16-15; basal middle lamellae of pectines not dilated; fulcra absent. Sternites smooth; only VII with some vestigial granulations; spiracles moderately elongate; setation moderate to weak; sternite VII with very obsolete carinae. Metasomal segments I and II with 10 carinae, crenulate; segments III and IV with eight carinae, crenulate;

segment V slightly rounded, with five carinae; intercarinal spaces weakly granular to smooth. Telson moderately elongate and almost smooth; aculeus short and weakly curved; subaculear tooth moderately marked and spinoid. Cheliceral dentition characteristic of family Buthidae (Vachon 1963); fixed finger with two strong basal teeth; movable finger with two weak basal teeth; ventral surface of both finger and manus with long, dense setae. Pedipalps: Femur pentacarinat; patella and chela with weak to vestigial carinae; internal face of patella with 7-8 spinoid granules; all faces weakly granular, almost smooth. Fixed and movable fingers with six, almost linear, rows of granules; two small external and one internal accessory granule present at base of each row; three granules

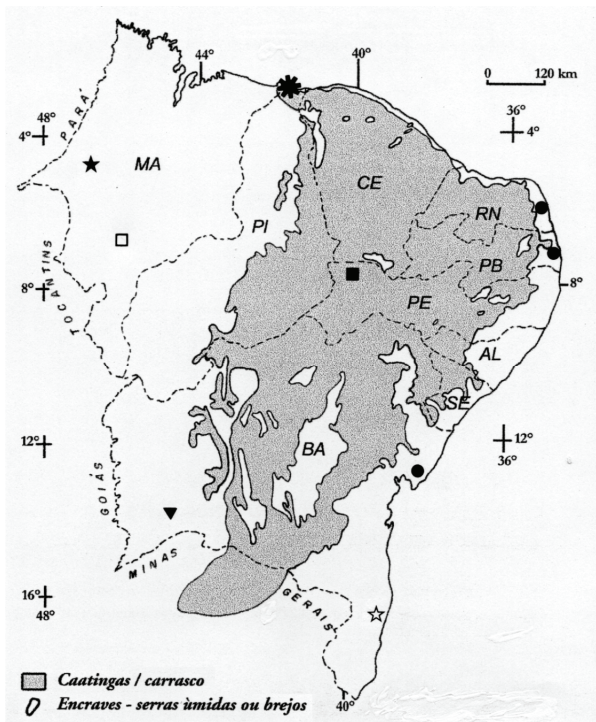


Fig. 7. Map showing the known distribution of *Ananteris* species in Northeast region of Brazil. *Ananteris franckei* (black square). *Ananteris maury* (black circle). *Ananteris maranhensis* (black star). *Ananteris evellynæ* (inverted black triangle). *Ananteris bianchinii* (white square). *Ananteris kuryi* (white star). *Ananteris bonito* sp. n. (black asterisk).

at extremity of the fingers. Trichobothriotaxy; orthobothriotaxy A- β -beta (Vachon 1974, 1975); trichobothria **db** and **est** of fixed finger situated at same level. Legs: Tarsus with very numerous, fine, median setae ventrally. Tibial spurs strongly developed on leg IV, moderate on leg III.

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