



New comments on the scorpions belonging to the ‘*Ananteris* group’ and description of a new genus and species from Ghana (Scorpiones: Buthidae)

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Abstract. A new genus and species of buthid scorpion, associated with the ‘*Ananteris* group’ are described from the region of Tamale in Ghana. The new genus shows affinities with the genus *Ananteroides* Borelli, 1911 but can be clearly diagnosed by a number of particular characters. This new scorpion taxon may represent an endemic element to the Western region of Africa.

Riassunto. Nuovi commenti sugli scorpioni appartenenti al ‘gruppo *Ananteris*’ e descrizione di un nuovo genere e di una nuova specie dal Ghana (Scorpiones: Buthidae). Un nuovo genere ed una nuova specie di scorpione Buthidae, associati con il ‘gruppo *Ananteris*’, vengono descritti dalla regione di Tamale, in Ghana. Il nuovo genere mostra affinità con il genere *Ananteroides* Borelli, 1911, ma può essere chiaramente diagnosticato da un certo numero di caratteri particolari. Questo nuovo taxon potrebbe rappresentare un elemento endemico della regione dell’Africa occidentale.

Key words. Scorpiones, ‘*Ananteris* group’, new genus, new species, Ghana, endemic element.

Introduction

As outlined in previous papers (GIUPPONI *et al.*, 2009; LOURENÇO, 2011), when the American genus *Ananteris* Thorell, 1891 was first revised by LOURENÇO (1982) the number of known species was limited to six. After its revision, the number of known species was raised to twelve (LOURENÇO, 1982). The total number of species in the genus *Ananteris* continued to be increased during the last 30 years (LOURENÇO *et al.*, 2013), and it now reaches about 70 known species (see ROJAS-RUNJAIC, 2005; GONZÁLEZ-SPONGA, 2006; ROJAS-RUNJAIC & SOUSA, 2007; GIUPPONI *et al.*, 2009; LOURENÇO & DUHEM, 2010; LOURENÇO *et al.*, 2013).

In the case of the African genera associated to the ‘*Ananteris* group’ the situation proved to be different since the number of new elements remains rather stable. The genus *Ananteroides* Borelli, 1911, was created based on the type species *Ananteroides feae* Borelli, 1911 which was collected in Portuguese Guinea (now Guinea Bissau). Since its creation in 1911 (BORELLI, 1911), it remained monotypic until the description of a second species by LOURENÇO (2013) from Mauritania. Another African genus associated to the ‘*Ananteris* group’ is *Lychasioides* Vachon, 1974. This genus was created based on the species *Lychasioides amieti* Vachon, 1974, collected in Cameroon (VACHON, 1974). It remained monotypic since its creation. Only the Malagasy genus *Tityobuthus* Pocock, 1893 proved to be an exception with a considerable increase in the number of species in the last 20 years (see LOURENÇO, 1995, 1996; LOURENÇO *et al.*, 2008).

Even if certain genera associated to the ‘*Ananteris* group’ appear as very speciose, the creation of new genera associated to this group remains rare. One exception was the description of the genus *Microananteris* Lourenço, 2003 for a very small species of soil-dwelling scorpion collected in French Guiana (LOURENÇO, 2003). The validity of the genus *Microananteris* was subsequently rejected by

BOTERO-TRUJILLO & NORIEGA (2011), based on fallacious justifications, and they placed *Microananteris* as a synonym of *Ananteris*. LOURENÇO (2011) exposed new arguments to support the validity of *Microananteris* and the genus was re-established.

In the present note a new genus and species belonging to the ‘*Ananteris* group’ is described from the region of Tamale in Ghana. This new scorpion taxon may be yet another endemic element in the fauna of Western Africa.

Material and 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) and morphological terminology mostly follows VACHON (1952b) and HJELLE (1990).

Taxonomic treatment

Family Buthidae C.L. Koch, 1837

Material examined. Female holotype: Ghana, Tamale, 7-I-1972, leg. Y. Endrődy (HNHM Scorp-26). Type material deposited in the Hungarian Natural History Museum, Budapest.

Microananteroides gen. n.

Etymology. The name of the new genus is composed by the word “*micro*” that means “very small” in ancient Greek and the word “*Ananteroides*” in reference to the affinities with this genus.

Diagnosis of the new genus. The new genus, clearly belongs to the ‘*Ananteris* group’, and has affinities with the genus *Ananteroides*. It can, however, be distinguished from this last one by a number of distinct features. Scorpion of small size, measuring 18.2 mm in total length for female holotype. General coloration yellow to reddish-yellow; carapace, tergites and pedipalps with some diffuse dark pigmentation. Carapace weakly emarginated. Median ocular tubercle markedly anterior to the centre of the carapace; median eyes of moderate size; two pairs of lateral eyes. Sternum sub-pentagonal. Pectines moderate to small in size; pectinal tooth count 9-9 for female; fulcra absent. Sternites with short and almost oval-shaped spiracles. Dentate margins of fixed and movable fingers of pedipalp chela with 6-7 slightly oblique rows of granules, and conspicuous accessory granules. Trichobothriotaxy, A-β (beta); trichobothrium d₃ of femur very near to the external face and at the same level of e₁ (VACHON, 1974, 1975). Tibial spurs absent from legs III and IV.

Type species. *Microananteroides* gen. n. *mariachiarae* sp. n.

Microananteroides gen. n. *mariachiarae* sp. n. (Figs 1-14)

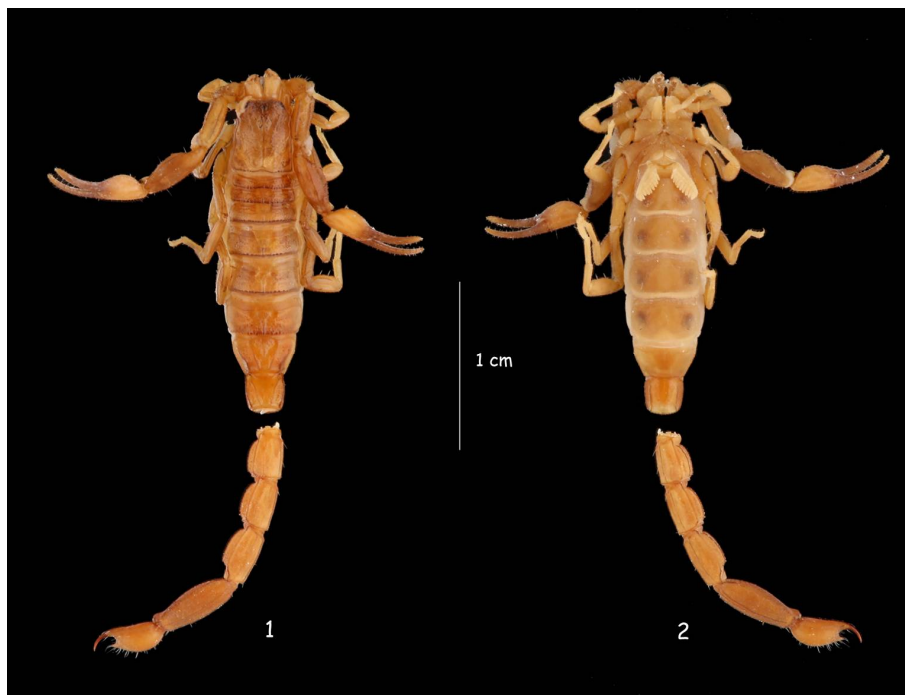
Etymology. Patronym in honour of Dr Maria Chiara Merendino.

Diagnosis. As for the new genus.

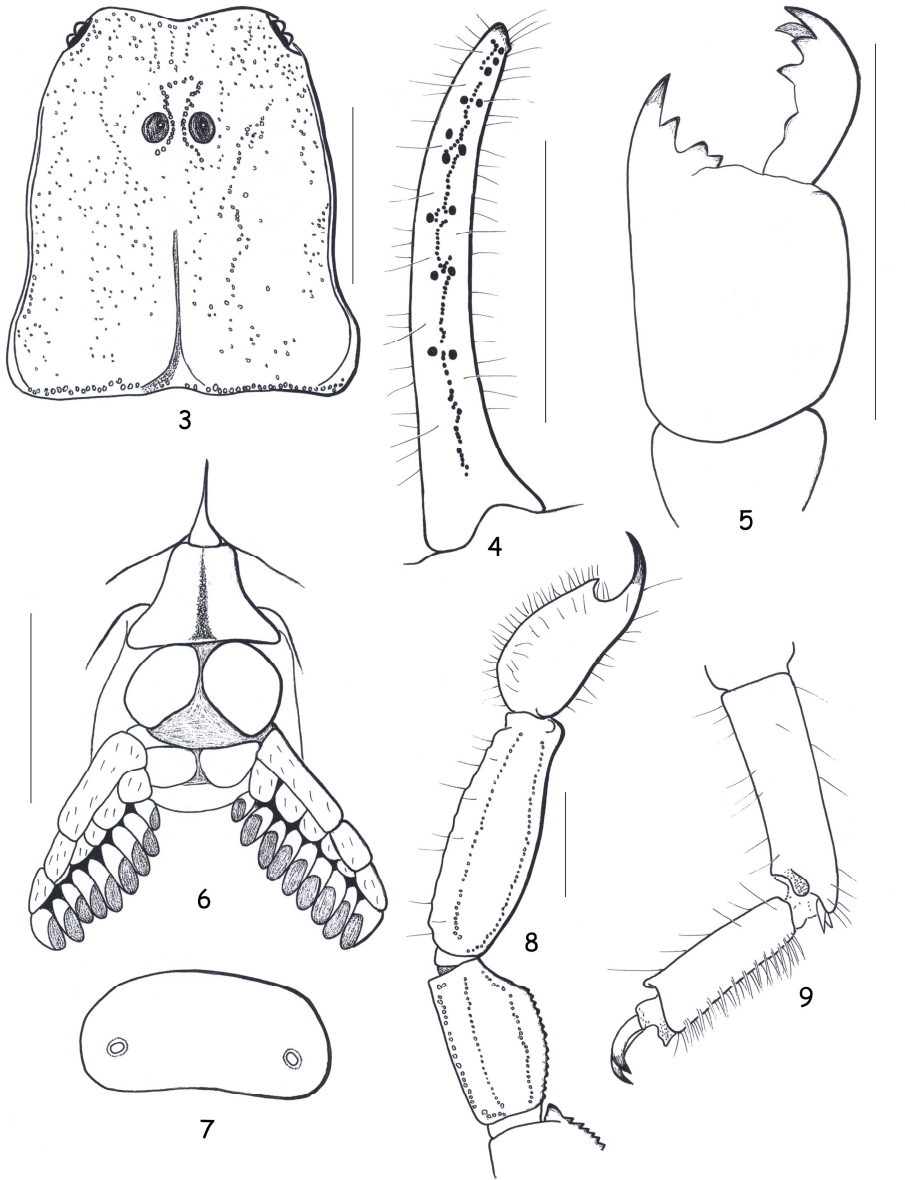
Description (based on female holotype; morphometric measurements after the description).

Coloration. Generally yellow to reddish-yellow marbled with some dark pigmentation. Carapace reddish-yellow with some marbled zones on anterior and lateral edges; eyes surrounded by black pigment. Mesosoma: tergites yellow to reddish-yellow with some marbled zones forming approximately confluent spots; posterior edge of each tergite dark. Venter yellow to pale yellow; genital operculum and pectines globally paler. Metasomal segments yellow to reddish-yellow; carinae slightly darker. Vesicle yellow without spots; aculeus yellow at the base and reddish at its extremity. Chelicerae yellow, without spots; teeth reddish. Pedipalps yellow to reddish-yellow; femur, patella and chela hand without spots; chela fingers with diffused dark spots; rows of granules on dentate margins of the fingers reddish. Legs yellowish marked with diffused dark spots.

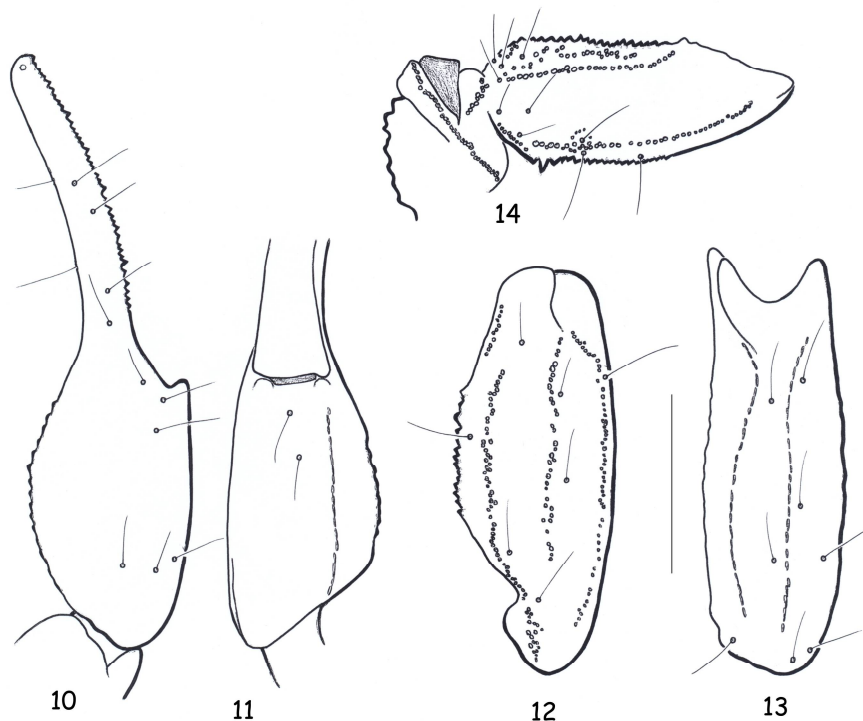
Morphology. Prosoma: anterior margin of carapace weakly emarginate. Carapace carinae weak; anterior median and posterior median carinae weak; other carinae obsolete. Intercarinal spaces moderately to strongly granular. Median ocular tubercle markedly anterior to the centre of the carapace; median eyes of moderate size, separated by less than one ocular diameter. Two pairs of lateral eyes. Mesosoma: tergites I-VI with a median carina; weak to obsolete on I, moderate on II-VI. Tergite VII pentacarinata, with lateral pairs of carinae moderate to strong; median carinae present in proximal half, moderately developed. Intercarinal spaces with a moderately to strongly marked granulation, similar to that of carapace. Sternites with weakly marked granulations, almost smooth; spiracles short and almost oval-shaped; sternite VII with four carinae. Genital operculum formed by two oval plates strongly separated at their base. Pectines moderate to small in size; pectinal teeth count 9-9; fulcra absent. Metasomal segment I to III with 10 carinae, strongly crenulate; IV with 8 carinae, strongly crenulate. Segment V with five carinae, and slightly rounded; dorsal carinae of segments II-IV with spinoid granules forming a minute serrula. Dorsal furrows of all segments weakly developed and without granulations; intercarinal spaces moderately to weakly granular. Telson moderately elongated and weakly granular, with one ventral carina; presence of a conspicuous chetotaxy; aculeus moderately curved, shorter than vesicle; subaculear tubercle strong, more to spinoid in shape; ventral granules inconspicuous. Chelicerae with the dentition characteristic of the buthids (VACHON, 1963); teeth sharp; basal teeth on movable finger fused and almost obsolete. Pedipalps: femur pentacarinata; all carinae strongly crenulate. Patella with seven carinae, strongly crenulate; dorsointernal carinae of both femur and patella with a series of spinoid granules. Chela with vestigial internal granules. Intercarinal spaces weakly granular on femur and patella; almost smooth on chela. Dentate margins on movable and fixed fingers composed of 6-7 slightly oblique rows of granules. Trichobothrial pattern type A, orthobothriotaxic (VACHON, 1974); dorsal trichobothria of femur in β (beta) configuration (VACHON, 1975). Legs: ventral aspect of tarsi with a brush-like group of setae. Tibial spurs absent from legs III-IV; pedal spurs present but reduced on all legs.



Figs 1-2. *Microananteroides* gen. n. *mariachiarae* sp. n., female holotype. Habitus, dorsal and ventral aspects.



Figs 3-9. *Microananteroides* gen. n. *mariachiarae* sp. n., female holotype. 3. Carapace, dorsal aspect. 4. Cutting edge of movable chelal finger. 5. Chelicera, dorsal aspect. 6. Ventral aspect, showing sternum, the shape of the genital operculum plates and pectines. 7. Sternite showing spiracles. 8. Metasomal segments IV-V and telson, lateral aspect. 9. Leg IV, showing absence of tibial spurs (scale bars = 1 mm).



Figs 10-14. *Microananteroides* gen. n. *mariachiarae* sp. n., female holotype. Trichobothrial pattern. 10-11. Chela, dorso-external and ventral aspects. 12-13. Patella, dorsal and external aspects. 14. Femur, dorsal aspect (scale bar = 1 mm).

Morphometric values (in mm) of the female holotype. Total length 18.2 (including telson). Carapace: length 2.1; anterior width 1.3; posterior width 2.0. Mesosoma length 5.8. Metasomal segments: I length 1.1, width 1.3; II length 1.3, width 1.2; III length 1.4, width 1.2; IV length 1.7, width 1.0; V length 2.5, width 1.0, depth 1.0. Telson length 2.3, width 0.9, depth 0.9. Pedipalp: femur length 1.8, width 0.7; patella length 2.2, width 0.8; chela length 3.1, width 0.8, depth 0.7; movable finger length 1.8.

Ecology and zoogeography of the scorpions associated with the ‘*Ananteris* group’ in Western Africa. *Ananteroides feae* Borelli, 1911 (the type species of the genus *Ananteroides*) was described from Cacondo (Rio Cassine) in the present Guinea-Bissau. Later it was recorded also from Guinea (VACHON, 1952a) and Ivory Coast (LOURENÇO, 1985). The first record of the genus *Ananteroides* from Sierra Leone is hereby presented, based on a female specimen deposited in the collection of Museo Civico di Storia Naturale di Verona (MCVR 307), and collected between Yfin and Kanderena, in the Northern Province, by W. Rossi on 25 January 1983 (Fig. 15). All records of this species come from the savanna ecoregion (LOURENÇO, 1985). The second species of the genus, *Ananteroides inexpectatus* Lourenço, 2013, was described from a very different habitat in southern Mauritania represented by the Sahel formation (LOURENÇO, 2013).

Lychasioides amieti Vachon, 1974, the only known species of this monotypic genus, was collected in the Otomoto Forest, in Cameroon, in a very moist habitat, represented by the rain forest around Yaoundé (VACHON, 1974).

The holotype of *Microananteroides* gen. n. *mariachiarae* sp. n. was collected in Tamale, the capital town of the Northern Region in Ghana (Fig. 15). The type locality is located in the savanna ecoregion with a single rainy season from April to October, characterized by a mean annual rainfall of 1100 mm. The only known specimen was found during the dry season in January, which is the month, together December, with the lowest precipitation. The northeasterly hot and dusty wind called Harmattan blows from the Sahara Desert into the Gulf of Guinea during the dry season, and brings dryness also in the Northern Region in Ghana.

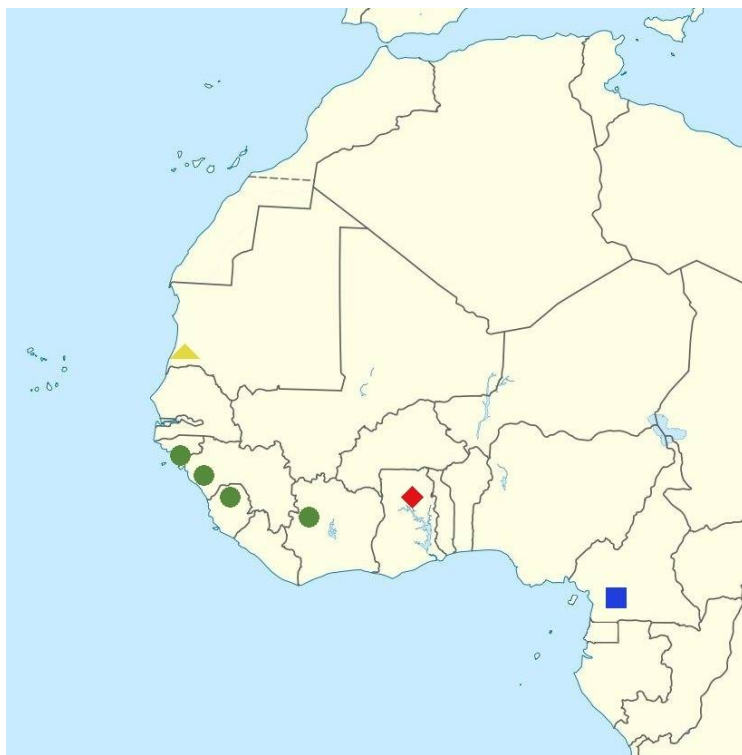


Fig. 15. Map of Western Africa with the known distribution of the species of the genera *Ananteroides* Borelli, 1911, *Lychasioides* Vachon, 1974 and *Microananteroides* gen. n.: *A. feae* Borelli, 1911 = green circle; *A. inexpectatus* Lourenço, 2013 = yellow triangle; *L. amieti* Vachon, 1974 = blue square; *Microananteroides* gen. n. *mariachiarae* sp. n. = red rhombus.

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