A New Species of the Genus *Buthus* (Scorpiones: Buthidae) from Northern Cameroon

Wilson R. Lourenço & Elise-Anne Leguin

December 2012 – No. 152
Euscorpius

Occasional Publications in Scorpiology

EDITOR: Victor Fet, Marshall University, ‘fet@marshall.edu’

ASSOCIATE EDITOR: Michael E. Soleglad, ‘soleglad@la.znet.com’

Euscorpius is the first research publication completely devoted to scorpions (Arachnida: Scorpiones). Euscorpius takes advantage of the rapidly evolving medium of quick online publication, at the same time maintaining high research standards for the burgeoning field of scorpion science (scorpiology). Euscorpius is an expedient and viable medium for the publication of serious papers in scorpiology, including (but not limited to): systematics, evolution, ecology, biogeography, and general biology of scorpions. Review papers, descriptions of new taxa, faunistic surveys, lists of museum collections, and book reviews are welcome.

Derivatio Nominis

The name Euscorpius Thorell, 1876 refers to the most common genus of scorpions in the Mediterranean region and southern Europe (family Euscorpiidae).

Euscorpius is located on Website ‘http://www.science.marshall.edu/fet/euscorpius/’ at Marshall University, Huntington, WV 25755-2510, USA.

The International Code of Zoological Nomenclature (ICZN, 4th Edition, 1999) does not accept online texts as published work (Article 9.8); however, it accepts CD-ROM publications (Article 8). Euscorpius is produced in two identical versions: online (ISSN 1536-9307) and CD-ROM (ISSN 1536-9293). Only copies distributed on a CD-ROM from Euscorpius are considered published work in compliance with the ICZN, i.e. for the purposes of new names and new nomenclatural acts. All Euscorpius publications are distributed on a CD-ROM medium to the following museums/libraries:

- ZR, Zoological Record, York, UK
- LC, Library of Congress, Washington, DC, USA
- USNM, United States National Museum of Natural History (Smithsonian Institution), Washington, DC, USA
- AMNH, American Museum of Natural History, New York, USA
- CAS, California Academy of Sciences, San Francisco, USA
- FMNH, Field Museum of Natural History, Chicago, USA
- MCZ, Museum of Comparative Zoology, Cambridge, Massachusetts, USA
- MNHN, Museum National d’Histoire Naturelle, Paris, France
- NMW, Naturhistorisches Museum Wien, Vienna, Austria
- BMNH, British Museum of Natural History, London, England, UK
- MZUC, Museo Zoologico “La Specola” dell’Universita de Firenze, Florence, Italy
- ZISP, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
- WAM, Western Australian Museum, Perth, Australia
- NTNU, Norwegian University of Science and Technology, Trondheim, Norway
- OUMNH, Oxford University Museum of Natural History, Oxford, UK
- NEV, Library Netherlands Entomological Society, Amterdam, Netherlands

Publication date: 24 December 2012
A new species of the genus *Buthus* (Scorpiones: Buthidae) from northern Cameroon

Wilson R. Lourenço ¹ & Elise-Anne Leguin ²

¹ Muséum national d’Histoire naturelle, Département Systématique et Evolution, UMR7205, CP 053, 57 rue Cuvier, 75005 Paris, France: e-mail: arachne@mnhn.fr

² Muséum national d’Histoire naturelle, Direction des Collections, CP 053, 57 rue Cuvier 75005 Paris, France: e-mail: leguin@mnhn.fr

Summary

A new species belonging to the genus *Buthus* Leach (Scorpiones: Buthidae) is described from northern Cameroon in Central Western Africa. The new species can be included in the “*Buthus occitanus*” complex of species, and probably can be associated with the “*Buthus occitanus*” from the former French West Africa (AOF) previously reported by Vachon from this large region. This is the first record of a *Buthus* species from Cameroon, and with the description of *Buthus prudenti* sp. n., the status of one more population of *Buthus* spp. from the sub-Saharan region of Africa is clarified.

Introduction

In previous publications by the senior author (Lourenço, 2002, 2003) the taxonomy of the genus *Buthus* Leach, 1815 was discussed in detail. Only a complete and precise study of several species led to a clear definition of their status (Lourenço, 2003; Lourenço & Vachon, 2004). Despite of the efforts attempted by Vachon (1952) in his monograph about the North African scorpions, the composition of the genus *Buthus* remained complex and confused for several decades. Vachon (1952) tried to establish a better definition of the genus and proposed a classification for the species of *Buthus*, in particular for those belonging to the “*Buthus occitanus*” complex of species, but this classification remained unsatisfactory (Lourenço, 2003).

Only recently, a more precise definition of the *Buthus* species belonging to the “*Buthus occitanus*” complex, was again attempted (Lourenço 2002, 2003), followed by the elevation of some subspecies to species rank and description of several new species (Lourenço, 2002, 2003, 2005a, 2008; Lourenço & Slimani, 2004; Lourenço & Qi, 2006; Kovaljík, 2006; Lourenço et al., 2009; Lourenço & Cloudsley-Thompson, 2012; Lourenço & Simon, 2012). Other contributions (Lourenço, 2005b, 2005c; Lourenço & Geniez, 2005) have also attempted to clarify the taxonomic status of species of *Buthus* associated with *Buthus atlantis* Pocock, or belonging to the “*Buthus occitanus*” complex, but distributed in the more southern region of the Sahara. These contributions, however, are far from being complete, and further studies on several species of these regions are yet necessary.

This is the case with certain *Buthus* populations from Western and sub-Saharan Africa which are distributed mainly over the area between Senegal, Niger and now Cameroon. Vachon (1949, 1952) referred to these populations as “*Buthus occitanus*” without any reference to subspecies. The material which was studied by Vachon is still in part available in the Muséum national d’Histoire naturelle, Paris, but it is limited and poorly preserved. For this reason, no conclusion was reached concerning these populations in preliminary publications (Lourenço, 2002, 2003). More recently, however (Lourenço, 2005b, 2005c), the study of some well preserved specimens of *Buthus* from Guinea, Senegal, and Niger have justified the description of two new species, *Buthus elizabethae* Lourenço, 2005 and *Buthus elhennawy* Lourenço, 2005. The first of these new species was not, however, associated with *Buthus occitanus* as it was suggested by Vachon (1949, 1952), but rather with *Buthus atlantis* Pocock, a species known only from the south of Morocco. The description of *Buthus bonito* (Lourenço & Geniez, 2005) from the extreme south of Morocco, a species possibly also present in Mauritania brought further evidence for the pattern of distribution of these species. With the description of *Buthus elizabethae* which is distributed in the savannas of Guinea and Senegal, the status of this population from Western Africa was in part clarified. However, as stated by Lourenço (2005b, 2005c), the taxonomic position of other *Buthus* populations dis-

tributed further to the East, mainly in Niger, Cameroon, and Côte d’Ivoire required yet clarification. The study of two specimens of Buthus, from Senegal and Niger, have led to the description of a new species, Buthus elhen nawyi. This species was, however, associated with the “Buthus occitanus” complex of species, and certainly corresponds with one of the forms previously defined by Vachon (1949, 1952) from the former French West Africa. By the same time B. elhenawyi was described (Lourenço, 2005c), we located in the collections of the Muséum in Paris a small series of Buthus sp. composed of two males and five females, collected in the region of Garoua in the northern Cameroon. This material, collected by P. Malzy in 1951, is, however, in a very poor state of preservation and was disregarded during the 2005 study. Incidentally, there is no reference to any Buthus species from Cameroon in Vachon’s (1952) monograph.

Very recently, we received a large series of Buthus sp. from the region of Sanguéré in Cameroon. A detailed study of the new material allows us to confirm this population as yet another new species of Buthus. This is the first record of a Buthus species from Cameroon, and with the description of Buthus prudenti sp. n., the status
Table 1: Morphometric values (in mm) of the male holotype and female paratype of *Buthus prudenti* sp. * including telson.
blackish teeth. Pedipalps: yellowish with some carinæ slightly reddish; chela fingers with the oblique rows of granules blackish. Legs yellowish with some vestigial infuscate spots.

Morphology. Carapace strongly granular; anterior margin slightly convex on male and almost straight on female. Carinæ strongly marked; anterior median, central median and posterior median carinæ strongly granular; ‘lyre’ configuration well marked. All furrows strong and deep. Median ocular tubercle almost in the centre of carapace. Eyes separated by almost three ocular diameters. Four pairs of lateral eyes: the first three of moderate size, the last one only vestigial. Sternum triangular, wider than long. Mesosoma: tergites with strong and intense granulation. Three longitudinal carinæ strongly crenulate in all tergites; lateral carinæ reduced in tergite I. Tergite VII pentacarinate. Venter: genital operculum divided longitudinally and formed by two semi triangular plates. Pectines: pectinal tooth count 27-28 in male holotype and 28-28 in female paratype; middle basal lamella of the pectines not dilated; male pectines just touching but not overlapping in their prox-
Figures 16–17: Aerial view of the Sanguéré-Djoi region, showing the typical Savannah/Sahel vegetation. In Figure 17 (bottom) one can also observe some agricultural fields (photos by François-Régis Delobal).
imal region. Sternites smooth, with elongated spiracles; four carinae on sternite VII; sternite VI with two weak carinae next to the spiracles; other sternites without carinae and with two moderately marked furrows. Metasomal segments I to III with 10 moderate carinae; segment IV with 8 moderate carinae; intermediate carinae incomplete on segments II and III; ventral carinae more strongly marked on segments II to IV, particularly in female; segment V with five carinae; the ventrolateral carinae crenulate with 2–3 lobate denticles posteriorly; ventral median carina only slightly divided posteriorly; anal arc composed of 8–9 ventral teeth, and two lateral lobes. All segments with a smooth dorsal depression; intercarinal spaces weakly granular, except for the ventral aspect of segment V which presents a thin intense granulation and some larger granules. Telson almost smooth on male and with some granulations on female; aculeus strongly curved, slightly shorter than the vesicle; subacicular tooth absent. Cheliceral dentition as defined by Vachon (1963) for the family Buthidae; external distal and internal distal denticles of approximately the same length; basal denticles of movable finger small but well distinct; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps: femur pentacarinate; patella with eight carinae; chela smooth with only vestigial carinae; all faces weakly granular to smooth. Fixed and movable fingers with 12-12 oblique rows of granules in most males, 11-11 in females; some males may present also 11-11 rows. Internal and external accessory granules present and moderate; three accessory granules on the distal end of movable finger next to the terminal denticle. Legs: tarsus with two longitudinal rows of 8-10 long setae ventrally; tibial spur strong on legs III and IV; prolateral spurs moderate to strong on legs I to IV. Trichobothriotaxy: trichobothrial pattern of Type A, orthobothriotaxic as defined by Vachon (1974). Dorsal trichobothria of femur arranged in β-configuration (Vachon, 1975).

Relationships

_Buthus prudenti_ **sp. n.** can be associated with the “Buthus occitanus” complex of species. It can be distinguished from other _Buthus_ species and in particular from _Buthus elhennawyi_, the most geographically close species, by the following characters: (i) Much bigger total size and different morphometric values; see Table 1 and Lourenço (2005c); (ii) male pectines in _B. prudenti_ **sp. n.**, do not overlap in their proximal region, whereas they overlap strongly in males of _B. elhennawyi_; the number of pectinal teeth in _B. prudenti_ **sp. n.** is also lower than in _B. elhennawyi_; (iii) furrows in carapace are more strongly marked in the new species; (iv) male telson of _B. prudenti_ **sp. n.**, is almost smooth without any subacicular tooth.

**Habitat of the New Species**

The area in which _Buthus prudenti_ **sp. n.** was collected is the transitional zone between the Sahel and savannah formations (Fig. 15–17). Most of these natural formations have been replaced in recent years by agriculture activities. The new species was collected in cotton fields, with the help of Barber traps used to test the efficacy of seed treatment. In present days, most of the area of the Senguéré-Djoi is used for agriculture, but some parcels can also be replaced by others composed of bushes (Figs. 16–17).

Two other scorpion species have also been collected in the northern Cameroon, but in older times when large parcels of the natural environment were yet present: _Leirus savanicola_ Lourenço, Qi et Cloudsley-Thompson, 2006 and _Scorpio savanicola_ Lourenço, 2009 (Lourenço et al., 2006; Lourenço, 2009). It is quite possible, however, that with increasing anthropic action on the environment, most scorpion species will know an important regression of their populations. Only more opportunistic species, what seems to be the case of _Buthus prudenti_ **sp. n.**, will see their populations expand and colonize most of the area (Lourenço, 1991).

**Acknowledgments**

We are most grateful to Dr. Patrick Prudent, CIRAD/IRAD, Garoua, Cameroon, for sending the studied material and information about the ecology and habitat of the new species, and to Victor Fet, Marshall University for the revision and comments on the manuscript.

**References**


LOURENÇO, W. R. 2002. Considérations sur les modèles de distribution et différentiation du genre _Buthus_ Leach, 1815, avec la description d’une nouvelle espèce des montagnes du Tassili des Ajjer,


