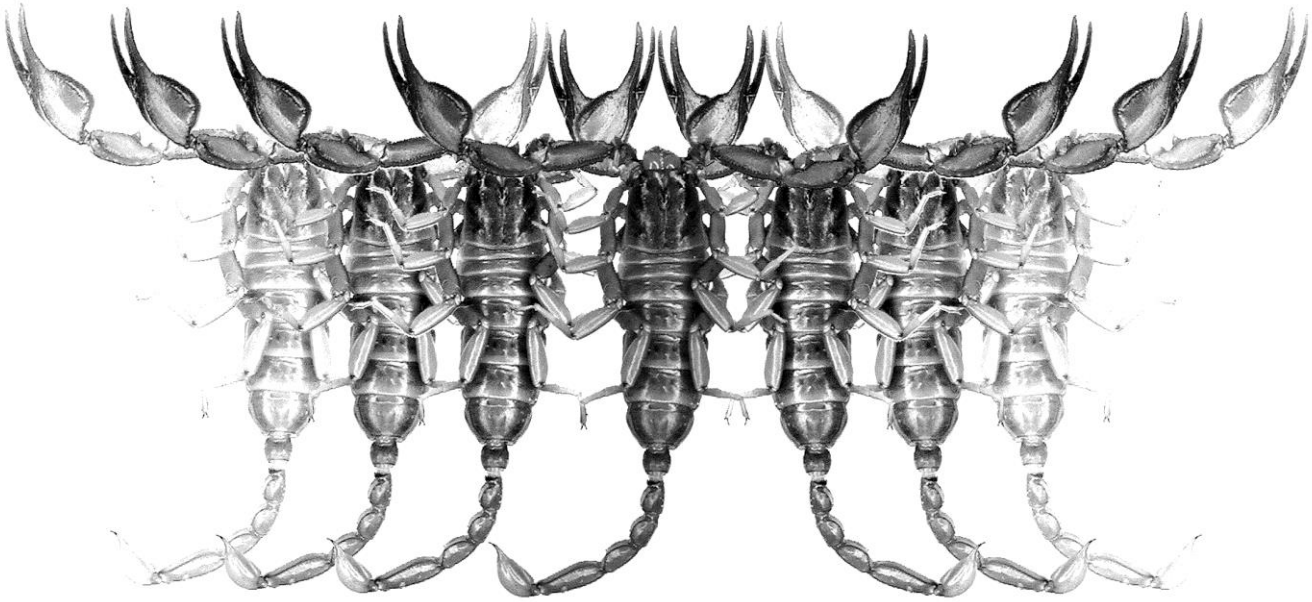
Euscorpius

Occasional Publications in Scorpiology



New Data on the Distribution of *Butheoloides littoralis* Lourenço, Touloun et Boumezzough, 2011 (Scorpiones: Buthidae)

Oulaid Touloun, Moulay Abdelmonaim El Hidan and Ali Boumezzough

March 2016 — No. 219

Euscorpius

Occasional Publications in Scorpiology

EDITOR: Victor Fet, Marshall University, 'fet@marshall.edu'
ASSOCIATE EDITOR: Michael E. Soleglad, 'soleglad@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 at: **http://www.science.marshall.edu/fet/Euscorpius**
(Marshall University, Huntington, West Virginia 25755-2510, USA)

ICZN COMPLIANCE OF ELECTRONIC PUBLICATIONS:

Electronic ("e-only") publications are fully compliant with ICZN (*International Code of Zoological Nomenclature*) (i.e. for the purposes of new names and new nomenclatural acts) when properly archived and registered. All ***Euscorpius*** issues starting from No. 156 (2013) are archived in two electronic archives:

- **Biotaxa,** http://biotaxa.org/Euscorpius (ICZN-approved and ZooBank-enabled)
- **Marshall Digital Scholar**, http://mds.marshall.edu/euscorpius/. (This website also archives all *Euscorpius* issues previously published on CD-ROMs.)

Between 2000 and 2013, ICZN did not accept online texts as "published work" (Article 9.8). At this time, *Euscorpius* was produced in two identical versions: online (*ISSN 1536-9307*) and CD-ROM (*ISSN 1536-9293*) (laser disk) in archive-quality, read-only format. Both versions had the identical date of publication, as well as identical page and figure numbers. Only copies distributed on a CD-ROM from ***Euscorpius*** in 2001-2012 represent published work in compliance with the ICZN, i.e. for the purposes of new names and new nomenclatural acts.

In September 2012, ICZN Article 8. *What constitutes published work*, has been amended and allowed for electronic publications, disallowing publication on optical discs. From January 2013, ***Euscorpius*** discontinued CD-ROM production; only online electronic version (*ISSN 1536-9307*) is published. For further details on the new ICZN amendment, see http://www.pensoft.net/journals/zookeys/article/3944/.

Publication date: 1 March 2016
http://www.zoobank.org/urn:lsid:zoobank.org:pub:96E7C71E-C0C8-451B-9668-D3C3B33ED880

Euscorpius — Occasional Publications in Scorpiology. 2016, No. 219

New data on the distribution of *Butheoloides littoralis* Lourenço, Touloun et Boumezzough, 2011 (Scorpiones: Buthidae)

Oulaid Touloun [1, 2], Moulay Abdelmonaim El Hidan [2] and Ali Boumezzough [2]

[1] Polyvalent Laboratory of Research & Development LPVRD, Department of Biology, Polydisciplinary Faculty, University Sultan Moulay Slimane, Beni Mellal, Morocco

[2] Laboratory of Ecology and Environment, Department of Biology, PO Box 2390, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakesh 40000, Morocco

http://www.zoobank.org/urn:lsid:zoobank.org:pub:96E7C71E-C0C8-451B-9668-D3C3B33ED880

Summary

Morocco is the region in Africa with the highest diversity of *Butheloides* Hirst, 1925 species. Until now, the total number of species of this genus known from Morocco is raised to five. A field study conducted in southern Morocco discovered a new specimen of *Butheloides littoralis* in the Tighmi region (southeast of Tiznit), the most continental site of this species in Morocco. This specimen is the third of this endemic species of Morocco but it is the first male discovered.

Introduction

The genus *Butheoloides* was proposed by Hirst (1925) for the species *Butheoloides maroccanus*, distributed in the Atlas Mountains of Amizmiz in the south of Marrakesh in Morocco, as well as in the plain of Haouz north of Marrakesh (Touloun, 2004). Subsequently, several other species were described from different African countries (Lourenço, 2000)

The discovery and description of different species of *Butheoloides* confirmed a peri-Saharian pattern of distribution for this endemic African genus, which forms a circle around the most arid core region of the Sahara. This region stretches from the north of Algeria and through Morocco, south to Senegal, and east through Mali, Côte d'Ivoire, Nigeria, Sudan and Ethiopia (Lourenço, 2002; Lourenço et al., 2003).

Morocco has the highest diversity of *Butheoloides* species. The description of *B. littoralis* from the north of Sidi Ifni in Morocco elevated to five the total number of species known for this country (Fig. 1) (Lourenço, 2010; Lourenço et al., 2011; Touloun & Boumezzough, 2011).

In the present report, we present a new data about the geographical distribution of *B. littoralis* in Morocco by a field survey made in 2014.

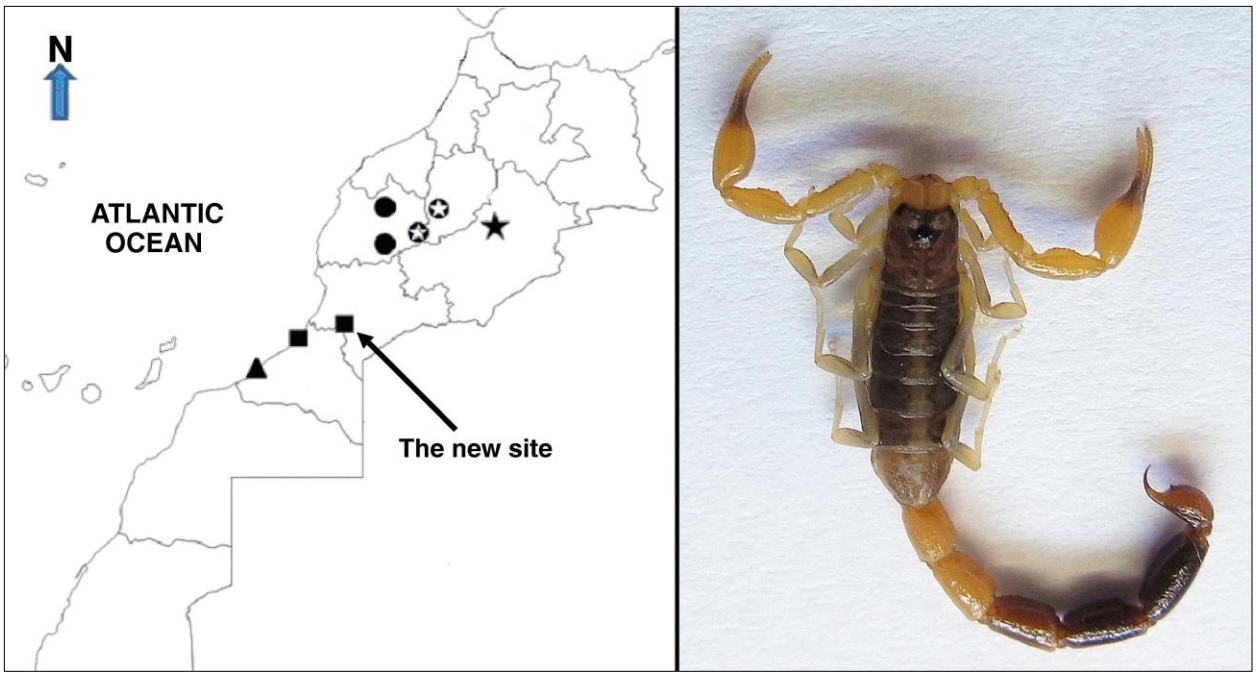
Taxonomy

Holotype (female). *Morocco*: Lagzira Beach, 10 km N of Sidi Ifni, road between Mirleft and Sidi Ifni, 5-10 m a.s.l., 17 December 2010 (leg. O. Touloun & A. Boumezzough), deposited in the National Museum of National History, Paris. **Paratype** (female). *Morocco*: Sidi Moussa, 10 km W of Tiznit, 06 April 2002 (leg. O. Touloun) is deposited in the Laboratory of Ecology & Environment, Department of Biology, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakesh, Morocco (Lourenço et al., 2011).

The new specimen (Fig. 2) (male). *Morocco*: 5 km S of Tighmi Village, road between Tiznit and Tafraout (29.607267 N, 9.469352 W), 427 m a.s.l., 24 June 2014 (leg. O. Touloun & A. Boumezzough); deposited in the Laboratory of Ecology & Environment, Department of Biology, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakesh, Morocco.

The morphological determination of the specimen found was made by reference to the description of Lourenço et al (2011). It is the first and only male specimen of this species because the holotype and paratype are both females.

The measurements follow Stahnke (1971) (Table I). It is a specimen of small size (23.1 mm in total length) with the body color globally reddish-yellow with brownish pigmentation on body and appendages. Pectinal tooth count 15/15 (Holotype: 14/14 and paratype: 12/12). Fixed and movable fingers of pedipalps with 9-10 oblique rows of granules, and accessory granules; three granules on the tip of the movable finger. Trichobothriotaxy; A-α (alpha) orthobothriotaxy (Vachon 1974, 1975).



Figures 1–2: Fig. 1. Map of Morocco showing the type localities of *Butheloides maroccanus* (black circle). *B. occidentalis* (black triangle). *B. slimanii* (black circle with white star), *B. aymerichi* (black star) and *B. littoralis* (black square). **Fig. 2.** *Butheloides littoralis*, male from Tighmi (Morocco).

	***B.* (*B.*). *littoralis* holotype**	**New Specimen**
Total length	17.0	23.1
Carapace		
-length	2.2	2.4
-anterior width	1.7	1.8
-posterior width	2.2	2.4
Metasomal Seg I		
-length	1.3	1.3
-width	1.3	1.3
Metasomal Seg V		
-length	2.2	2.5
-width	1.2	1.3
-depth	1.1	1.3
Vesicle		
-width	1.0	1.2
-depth	0.9	1.0
Pedipalp		
-femur length	1.8	2.0
-femur width	0.7	0.8
-patella length	2.2	2.4
-patella width	0.9	1.1
-chela length	3.5	3.6
-chela width	0.9	1.1
-chela depth	0.7	1.0
Movable finger		
-length	2.0	2.1

Table 1: Morphometry (in mm) of the female holotype of *Butheloides littoralis* and of a male from Tighmi.

Ecology

The holotype and the new specimen are found in distinctly different environments. The *B. littoralis* holotype was collected in the coastal region of southern Morocco, near the Atlantic Ocean (Lagzira Beach, 10 km N Sidi Ifni, road between Mirleft and Sidi Ifni), at altitudes of 5 to 10 m (Lourenço et al., 2011). The paratype was found in Sidi Moussa Village in the west of Tiznit, located at a higher altitude (550 m a.s.l.), but only about 20 km from the coastline. In contrast, the new specimen was found on the regional road n°104 connecting Tiznit to Tafraout. The main vegetation in this area is composed by argan trees (*Argania spinosa*) with some presence of jujube (*Zizyphus lotus*) **(Fig. 3)**. The new discovery showed that this species is not limited exclusively to humid environment but can also be found in continental and dry areas about 100 km away from coast, on rocky substrates.

Conclusions

This study showed that *B. littoralis* has a fairly wide ecological niche since it occupies habitats with different environmental features, as does *B. maroccanus* which is found in the Haouz plain (altitude: 450 m) as well as in the High Atlas at 2600 m.

The studies of *B. littoralis*, as indeed of all species of the genus *Butheloides* are difficult, because of its

Figure 3: The natural habitat of *Butheoloides littoralis* in Tighmi region.

small size and also because it often occupies rugged habitats. It is likely that future surveys might reveal other localities for this species as well as other species of the genus whose distribution remains unclear.

References

HIRST, S. 1925. On some scorpions from Morocco, with the description of a new genus and species. *Annals and Magazine of Natural History*, ser. 9, 15: 414-416.

LOURENÇO, W. R. 2000. Confirmation d'une espèce nouvelle appartenant au genre *Butheoloides* Hirst, du Nigeria (Scorpiones, Buthidae). *Revue Arachnologique*, 13(9): 129–133.

LOURENÇO, W. R. 2002. Nouvelles considérations sur la systématique et la biogéographie du genre *Butheoloides* Hirst (Scorpiones, Buthidae) avec description d'un nouveau sous-genre et de deux nouvelles espèces. *Revue suisse de Zoologie*, 109 (4): 725–733.

LOURENÇO, W. R. 2010. A new species of Butheoloides Hirst, 1925 from Morocco (Scorpiones, Buthidae). *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg*, 15 (183): 183–189.

LOURENÇO, W. R., T. SLIMANI, T. & A. BERAHOU. 2003. Le genre *Butheoloides* Hirst (Scorpiones, Buthidae); description d'une nouvelle espèce pour le Maroc avec des considérations écologiques et biogéographiques. *Biogeographica*, 79(1): 19–30.

LOURENÇO W. R., O. TOULOUN & A. BOUMEZZOUGH A. 2011. The genus *Butheoloides* Hirst, 1925 (Scorpiones, Buthidae) in Morocco, with a description of a new species. *Euscorpius*, 113: 1–7.

STAHNKE, H. L. 1971. Scorpion nomenclature and mensuration. *Entomological News*, 81: 297–316.

TOULOUN, O. 2004. Les peuplements de scorpions du sud ouest marocain: Ecologie, biogéographie et epi-

démiologie des envenimations. *Thèse Doctorat*, Fac. Sc. Semlalia, Univ. Cadi Ayyad Marrakech, 159 pp.

TOULOUN, O. & A. BOUMEZZOUGH. 2011. Contribution à l'inventaire et à la répartition des scorpions de la province de Sidi Ifni (Maroc). *Poiretia*, 3: 15–19.

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 de l'Académie des Sciences*, Paris, sér. D, 281: 1597–1599.