© Zoologisches Museum Hamburg; www.zobodat.at

| Entomol. Mitt. zool. Mus. Hamburg | **14** (165): 11-16 | Hamburg, 15. Juni 2002<br>ISSN 0044-5223 |
|---|---|---|

# Notes on the taxonomy and geographical distribution of *Buthiscus bicalcaratus* Birula, 1905 (Scorpiones, Buthidae)

WILSON R. LOURENÇO

(With 9 figures)

## Abstract

The genus *Buthiscus,* created by Birula in 1905, with *Buthiscus bicalcaratus* Birula, 1905, as type species by original designation, was described on the basis of two male and two female specimens collected in the Sahara desert in the south of Tunisia. In this paper, a redescription is provided to clarify and illustrate certain morphological characters better: a new locality is also indicated in Libya. With the addition of this new locality the distribution of *B. bicalcaratus* is extended further to the south.

## Introduction

The genus *Buthiscus* created by Birula in 1905, with *Buthiscus bicalcaratus* Birula, 1905, as type species by original designation, was described on the basis of two male and two female specimens collected in the Sahara desert in the south of Tunisia.

In subsequent publications this genus and species have been redescribed or merely cited by a number of authors (see references heading the present redescription). The contributions by Vachon, in particular those of 1942, 1952, 1955, largely clarified the status of both the genus *Buthiscus* and of the species *B. bicalcaratus*. They extended the known geographical distribution of the species considerably. Some characters, however, remained unsufficiently clear or were poorly illustrated.

In this paper, a redescription is proposed to clarify and illustrate better certain morphological aspects of the species. Moreover, one new locality is reported from Libya. With the addition of this new locality, the range of *B. bicalcaratus* is extended further to the south of the Sahara.

## Diagnosis for the genus *Buthiscus*

Scorpions of median size, with an average total length of 50 mm. Four pairs of lateral eyes; the last pair being in some cases almost vestigial. Telson long and thin with a very long aculeus; subaculear tooth absent. Trichobothrial pattern: neobothriotaxic

© Zoologisches Museum Hamburg; www.zobodat.at



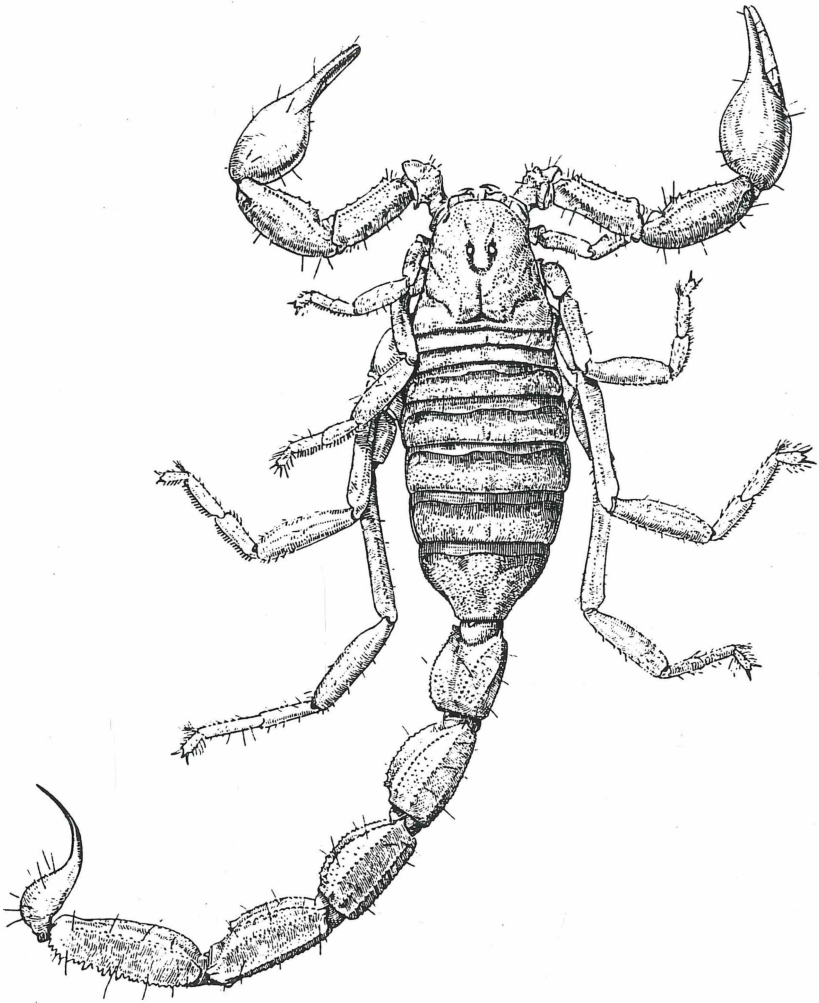


**Fig. 1.** Habitus of *Buthiscus bicalcaratus* Birula (♂, S of Ghadames, Libya).

© Zoologisches Museum Hamburg; www.zobodat.at



("majorante"); type *A-β*. femur (neobothriotaxic) with 13 trichobothria, including 3 on the external side. This particular pattern is the only known among buthids. Tibia (orthobothriotaxic) with 13 trichobothria. Chela (orthobothriotaxic) with 15 trichobothria, 7 on the finger and 8 on the hand. Movable fingers of chela with 9-10 partially oblique rows of granules, almost fused together. Tibial spurs strongly developed in legs IV and vestigial or absent in legs III.

## Redescription

### *Buthiscus bicalcaratus* Birula, 1905
(Figs 1 to 8)

*Buthiscus bicalcaratus* Birula, 1905: (pp. 623-624), 1910 (154, 156), 1917 (214, 224); Vachon 1942 (419-421), 1948 (176-188), 1952 (89-95), 1955 (101-105); Foley 1945a (64-66), 1945b (6-7); Stahnke 1972 (122); Pérez 1974 (20); El Hennawy 1992 (97, 115).
*Buthacus ducrosi* Pallary, 1937 (97-98); Sergent 1941 (355); Pérez 1974 (19).
*Trichobuthus grubleri* Vachon, 1941 (339-350).

TYPE MATERIAL: syntypes, 2♂,2♀ deposited in the Zoological Institute, St. Petersburg (Russia).

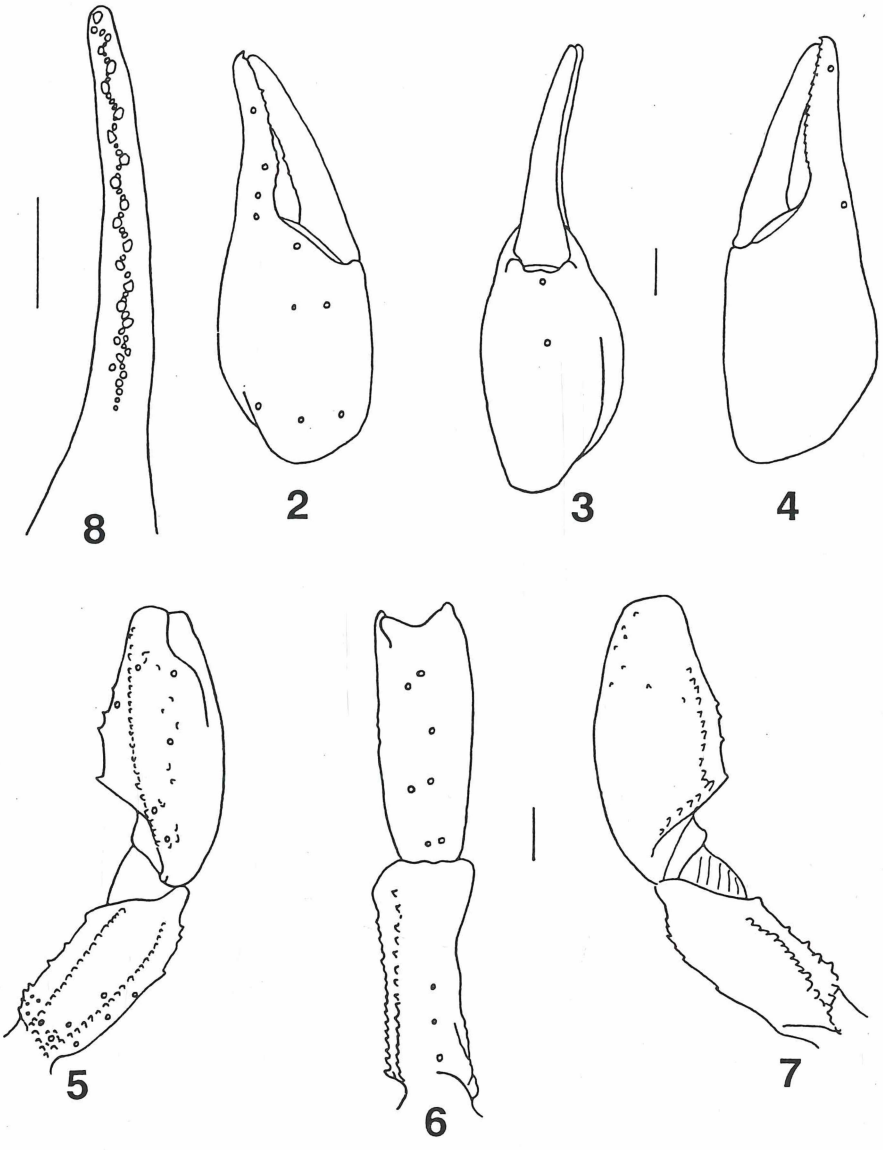
MATERIAL EXAMINED: The present redescription is based on a single male specimen collected on the south of Ghadames, Libya, 22 September, 1975, B. Lacroix leg. The specimen is deposited in the Zoologisches Museum Hamburg (ZMH Acc. No A 13/02).

C o l o r a t i o n. Basically pale yellowish. Prosoma: carapace yellowish with the median eyes surrounded by black pigment. Mesosoma and metasoma yellowish; vesicle reddish-yellow; chelicerae yellowish with reddish fingers, pedipalps and legs yellowish, with very pale reddish zones.

M o r p h o l o g y. Carapace moderately granular; anterior margin straight without any concavity. Anterior and posterior ocular keels moderate to feeble; all furrows moderate to feeble. Median ocular tubercle slightly anterior to the centre; median eyes separated by almost two ocular diameters. Four pairs of lateral eyes (in other specimens the forth pair may be vestigial). Sternum triangular. Mesosoma: tergites with feeble granulation. Median keel feeble in all tergites. Two latero-longitudinal keels also present in all tergites but vestigial. Tergite VII pentacarinate; all keels feeble. Venter: genital operculum large, divided longitudinally. Pectines: pectinal tooth count 21-20; basal middle lamellae of each pecten not dilated. Sternites smooth with elongated stigmata; two feeble longitudinal furrows on each sternite; VII without furrows and with four keels. Metasoma: segments I to III with 10 keels; segment IV with 8 keels; segment V with 5 keels, the ventral keel being vestigial. Tegument feebly granular, almost smooth. Telson elongated and thin, almost smooth and with a long and curved aculeus. Subaculear tooth absent. Cheliceral dentition, as in the family Buthidae (Vachon 1963); ventral aspect of both finger and manus with long but not very dense setae. Pedipalps: femur pentacarinate feebly crenulate; tibia and chelae with only vestigial keels; all faces feebly granular. Movable fingers with 9-10 partially oblique rows of granules somewhat fused together. Trichobothriotaxy; *A-β*, majorante neobothriotaxy with 3 external trichobothria present in the femur. This character is diagnostic for the genus (Vachon 1973, 1975). Legs: tarsi with very few fine setae ventrally. Tibial and pedal spurs present on legs IV; tibial spur vestigial or absent on legs III.

© Zoologisches Museum Hamburg; www.zobodat.at






**Figs 2-8.** *Buthiscus bicalcaratus* Birula (♂, S of Ghadames, Libya); **2-4:** trichobothrial pattern, chela (dorso-external, ventral and internal aspects, respectively); **5-7:** femur and tibia (dorsal, external and internal aspects, respectively); **8:** movable finger with partially oblique rows of granules, almost fused together (scale bars = 1 mm).

© Zoologisches Museum Hamburg; www.zobodat.at



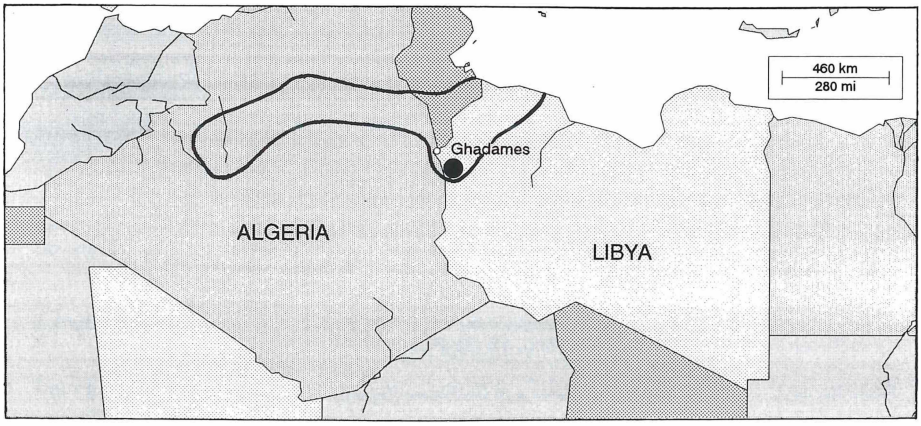



**Fig. 9.** Distribution of *Buthiscus bicalcaratus* Birula and its new locality in Libya.

M e a s u r e m e n t s (in mm, ♂): Carapace: length 5.3, anterior width 3.4, posterior width 6.3; Metasomal segment I: length 3.7, width 3.3; Metasomal segment V: length 5.7, width 2.4, depth 2.3; Vesicle: width 1.8, depth 1.7; Pedipalp: femur length 4.2, femur width 1.7, tibia length 5.5, tibia width 2.3, chela length 8.3, chela width 2.7, chela depth 3.0; Movable finger: length 4.7.

## A c k n o w l e d g e m e n t s

I am very grateful to Maurice Gaillard, Laboratoire de Zoologie, Arthropodes (M.N.H.N. Paris), for preparing several of the illustrations, and especially to Prof. John L. Cloudsley-Thompson, formerly of University College (London), for reviewing the manuscript.

## R e f e r e n c e s

Birula, A., 1905: Skorpiologische Beiträge. 4-5 (4. *Buthiscus* gen. nov. - 5. *Buthiscus bicalcaratus* sp. nov.). - Zoologischer Anzeiger, **29** (19): 621-624. Leipzig.

Birula, A., 1910: Ueber *Scorpio maurus* Linné und seine Unterarten. - Horae Societatis Entomologicae Rossicae, **35**: 115-192. St. Petersburg.

Birula, A., 1917: Arachnoidea Arthrogastra Caucasica. Pars I. Scorpiones. Zapiski Kavkazskogo Muzeya (Mémoires du Musée du Caucase), Tiflis Imprimerie de la Chancellerie du Comité pour la Transcaucasie. sér. A, 5 : 253 pp. (in Russian). English translation : Birula A., 1964. Anthrogastric Arachnids of Caucasia. 1. Scorpions. - Israel Program for Scientific Translations, Jerusalem, 170 pp.

El-Hennawy, H. K., 1992: A catalogue of the scorpions described from the Arab countries (1758-1990) (Arachnida : Scorpionida). - Serket, **2** (4): 95-153. Cairo.

© Zoologisches Museum Hamburg; www.zobodat.at



Foley, H., 1945a: Sur la synonymie d'un scorpion saharien *Buthacus ducrosi* Pallary. - Archives de l'Institut Pasteur d'Algérie, **23** (1): 64-66. Alger.

Foley, H., 1945b: Au sujet d'un scorpion de la région de Beni-Abbès (Sahara Oranais) *Buthacus ducrosi* Pallary, 1937. - Bull. Soc. Hist. Nat. de l'Afrique du Nord, **36** (1): 6-7. Alger.

Pallary, P., 1937: Notes sur divers scorpions de l'Afrique du Nord. - Archives de l'Institut Pasteur d'Algérie, **15** (1): 97-101. Alger.

Pérez, S. M., 1974 : Un inventario preliminar de los escorpiones de la region paleártica y claves para la identificatión de los géneros de la region paleártica occidental. - Universidad complutense de Madrid, Faculdad de ciencias, Departamento de Zoologia, Catédra de Artrópodos, **7**: 1-45. Madrid.

Sergent, E., 1941: Sur le postabdomen (queue) de quelques scorpions de l'Afrique du Nord. - Archives de l'Institut Pasteur d'Algérie, **19** (3): 353-357. Alger.

Stahnke, H. L., 1972: A key to the genera of Buthidae (Scorpionida). – Entomol. News, **83** (5): 121-133. Philadelphia.

Vachon, M. 1941: Sur un Scorpion présaharien, type d'un nouveau genre *Trichobuthus grubleri* n. sp. – Bull. Soc. zool. France, **66**: 339-350. Paris.

Vachon, M., 1942: Remarques sur un scorpion prédésertique peu connu *Buthiscus bicalcaratus* Birula. - Bull. Mus. natn. Hist. nat., Paris, sér. 2, **14** (6): 419-421. Paris.

Vachon, M., 1948: Etudes sur les scorpions. III. Description des scorpions du nord de l'Afrique. - Archives de l'Institut Pasteur d'Algérie, **26** (2): 162-208. Alger.

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

Vachon, M., 1955: Sur la présence en Tripolitaine d'un scorpion du sud algéro-tunisien, *Buthiscus bicalcaratus* Birula, et sur la morphologie des appendices de la protonymphe. - Archives de l'Institut Pasteur d'Algérie, **33** (2): 101-105. Alger.

Vachon, M., 1963: De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les Scorpions. - Bull. Mus. natn. Hist. nat., Paris 2è sér., **35** (2): 161-166. Paris.

Vachon, M., 1973: 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. - Bull. Mus. natn. Hist. nat., Paris, 3è sér., n° 140, Zool., **104**: 857-958. Paris.

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. - C. R. séan. Acad. sci., Paris, sér. D, **281**: 1597-1599. Paris.

Author´s address:

Dr. W. R. LOURENÇO, Laboratoire de Zoologie (Arthropodes), Muséum National d'Histoire Naturelle, 61 rue de Buffon, 75005 Paris, France (e-mail: arachne@mnhn.fr).

# ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg

Jahr/Year: 2007

Band/Volume: 14

Autor(en)/Author(s): Lourenco Wilson R.

Artikel/Article: Notes on the taxonomy and geographical distribution of Buthiscus bicalcaratus Birula, 1905 (Scorpiones, Buthidae) 11-16