

A new species of *Grosphus* Simon (Scorpiones, Buthidae), the first record of an intertidal scorpion from Madagascar

WILSON R. LOURENÇO

(With 8 figures)

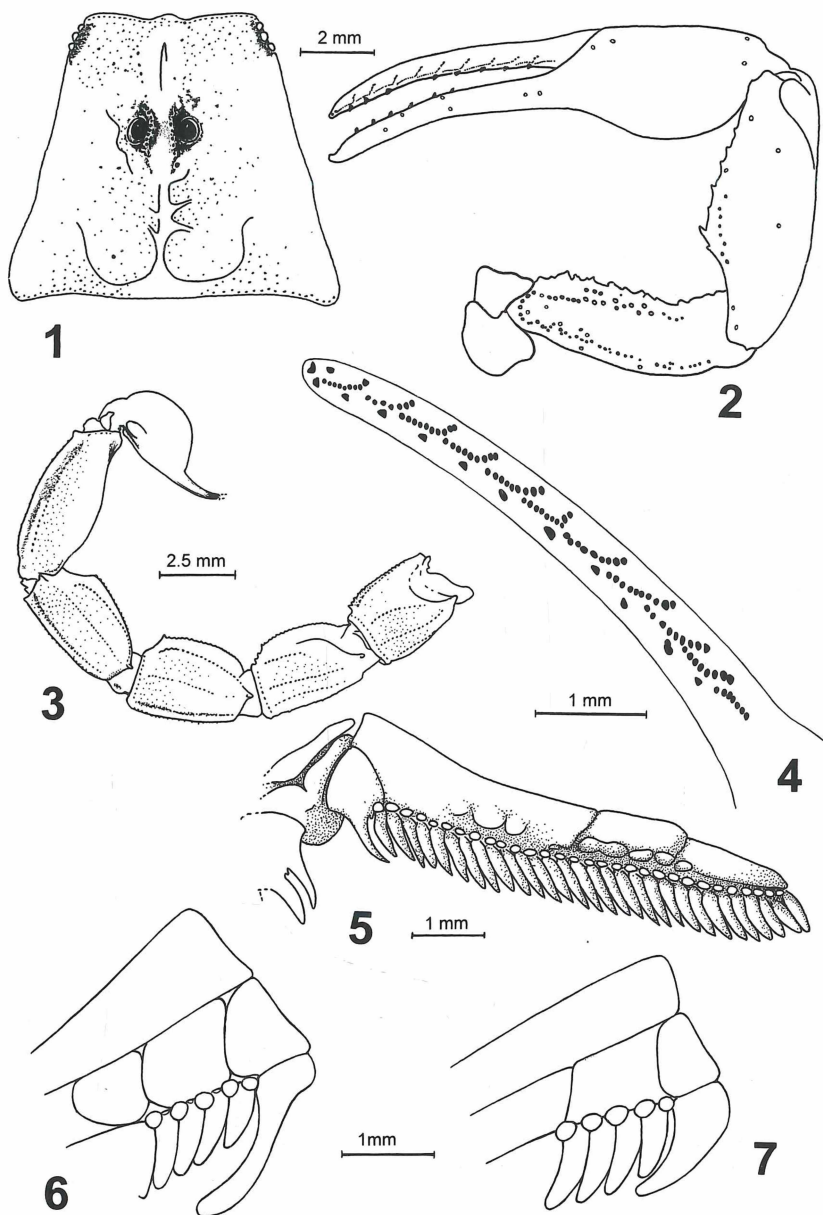
Abstract

A new species, belonging to the genus *Grosphus* Simon, is described from the Province of Toliara, Madagascar. The species, *Grosphus intertidalis* sp. n., was found in the coastal zone on the beach sand, and represents the first intertidal scorpion to be found in Madagascar. A key is proposed for the genus *Grosphus*.

Introduction

Contributions to knowledge of the Madagascan scorpion fauna began with the publication of Gervais (1844). This was followed, by isolated descriptions of species and genera, in papers by Pocock (1889, 1890, 1893) and Kraepelin (1894, 1896). A most important contribution was that of Kraepelin (1901) in which several species of *Grosphus* were described. The first comprehensive account of the scorpions of Madagascar was the monographic work of Fage (1929), which dealt with all the species known up to that date. Since this publication, only isolated contributions have been published, including those of Fage (1946) and Vachon (1969). With the studies by Lourenço (1995) and especially that of 1996, several new taxa (families, genera and species) were added to the Madagascan fauna. The number of known species has increased from 12 to 37 since 1995. The genus *Grosphus*, however, seems to be relatively stable in its composition, and since publication of the monograph of Fage (1929) only one new species has been described (Lourenço 1996). In the present paper another new species of *Grosphus* is added to the Madagascan fauna list. This also represents the first instance of an intertidal scorpion to be recorded in Madagascar.*

* According to Polis (1990), about ten species representing four families have been described as intertidal scorpions. These species have been reported from Africa, Middle East, Europe and North America. For details see Polis (1990).



Figs 1 - 7. *Grosphus intertidalis* sp. n. (1-5: holotype ♀): 1 - carapace; 2 - right pedipalp, dorsal aspect showing part of the trichobothrial pattern; 3 - metasomal segments I to V and telson, lateral; 4 - movable finger; 5 - left pecten; (6-7): anterior region of the female pecten, 6 - *Grosphus limbatus* (Pocock), 7 - *G. bistriatus* Kraepelin.

Description of the new species

Grosphus intertidalis sp n.

(Figs 1 - 6)

TYPE MATERIAL. Holotype ♀: Madagascar, Province of Toliara, 3.5 km north of Tulear (coastal zone, on the beach sands), April 1998, coll. N. Lutzmann. Deposited in the Zoologisches Museum Hamburg.

ETYMOLOGY: The specific name makes reference to the habitat where the scorpion was found.

D i a g n o s i s: The general morphology of the new species places it near to *Grosphus limbatus* (Pocock, 1889), and *G. bistriatus* Kraepelin, 1901 but it can readily be distinguished from these two species by the following characters: (i) a very pale and uniform yellow coloration, (ii) basal middle lamellae of the pectines female narrow at their base, and widening only partially after the first internal tooth (see also the key).

D e s c r i p t i o n (based on female holotype). Morphometric measurements are given below.

C o l o r a t i o n. Very pale yellow with slightly darker zones on the tergites. Prosoma: carapace yellow; eyes surrounded with black pigment. Mesosoma: yellow with confluent slightly darker zones. Metasoma: segments I to V yellow, with some light brown spots on the ventral keels. Vesicle yellow but lighter than segment V; aculeus yellow with the extremity reddish. Venter yellow with some slightly darker zones on the sternites. Chelicerae yellow; fingers reddish. Pedipalps: globally yellow. Legs yellow.

M o r p h o l o g y. Carapace moderately to feebly granular; anterior margin with a feeble median concavity. All keels and furrows moderate to feeble. Median ocular tubercle slightly anterior to the center; median eyes separated by little more than one ocular diameter. Three pairs of lateral eyes. Sternum triangular. Mesosoma: tergites with very numerous small granules. Median keel moderate to feeble in all tergites. Tergite VII pentacarinat. Venter: genital operculum formed by two plates and with a subtriangular shape. Pectines: pectinal tooth count 30-30; basal middle lamellae of each pecten elongated and curved, widening only partially after the first internal tooth (this character is diagnostic of the species). Sternites smooth with moderately elongate stigmata; VII with four vestigial keels. Metasoma: segments I and II with 10 keels, moderately crenulate. Segments III and IV with 8 keels, feebly crenulate. Segment V with 5 keels; the dorsal being only vestigial. Intercarinal spaces moderate to feebly granular. Telson smooth with a moderately curved and rather short aculeus; subaculear tooth absent. Cheliceral dentition characteristic of the family Buthidae; two distinct basal teeth present on the movable finger (Vachon 1963); ventral aspect of both finger and manus with dense, long setae. Pedipalps: femur pentacarinat; tibia with keels only on the internal face; chelae smooth without keels; all faces feebly granular. Movable fingers with 10 oblique rows of granules. Trichobothriotaxy: orthobothriotaxy A- α (Vachon, 1973, 1975). Legs: tarsus with very numerous thin setae ventrally. Tibial spurs present on legs III and IV; pedal spurs present in legs I to IV; all spurs strong.

M e a s u r e m e n t s (in mm): total length 57.2. Carapace: length 5.5, anterior width 4.3, posterior width 6.7; Metasomal segment I: length 4.0, width 3.2; Metasomal segment V: length 6.2, width 3.2, depth 2.7; Vesicle: width 2.4, depth 2.5; Pedipalp: femur length 4.8, width 1.4, tibia length 5.7, width 2.3, chela length 9.1, width 2.4, depth 2.2; movable finger: length 5.8.

Key to the known species of the genus *Grosphus*

1. Pectines with a maximum of 21 teeth 2
 - Pectines with more than 22 teeth 3
2. Coloration reddish-brown; metasomal segment I longer than wide; basal middle lamellae of female pectines with an oval shape
 - *G. madagascariensis* (Fervais, 1843)
 - Coloration reddish-brown with some lighter spots; metasomal segment I wider than long; basal middle lamellae of female pectines with a subquadrangular shape
 - *G. hirtus* Kraepelin, 1901
3. Coloration blackish throughout; pectines with 30 to 40 teeth; total length superior to 90 mm *G. grandidieri* Kraepelin, 1901
 - Coloration from reddish-brown to yellowish, never blackish; total length less than 90 mm 4
4. Mesosoma with homogenous coloration, reddish-brown or yellowish 5
 - Mesosoma yellowish marked with a median longitudinal blackish strip, or with two lateral longitudinal narrow blackish strips 8
5. Total length more than 70 mm; mesosoma reddish-brown; basal middle lamellae of female pectines twice as long as wide at their base
 - *G. flavopiceus* Kraepelin, 1901
 - Total length inferior to 60 mm; mesosoma yellowish; basal middle lamellae of female pectines three times longer than wide at their base 6
6. Metasomal segment V and telson pale yellow *G. intertidalis* sp. n.
 - Metasomal segment V and telson with blackish spots or totally black 7
7. Metasomal segment V and telson with blackish spots *G. annulatus* Fage, 1929
 - Metasomal segment V and telson black *G. feti* Lourenço, 1996
8. Mesosoma marked with a wide median longitudinal dark strip; basal middle lamellae of female pectines three times longer than wide at their base, covering the 4 most internal teeth *G. limbatus* Pocock, 1889

Mesosoma marked with two lateral longitudinal narrow dark strips; basal middle lamellae of female pectines twice as long as wide at their base, covering the first internal tooth *G. bistratus* Kraepelin, 1901

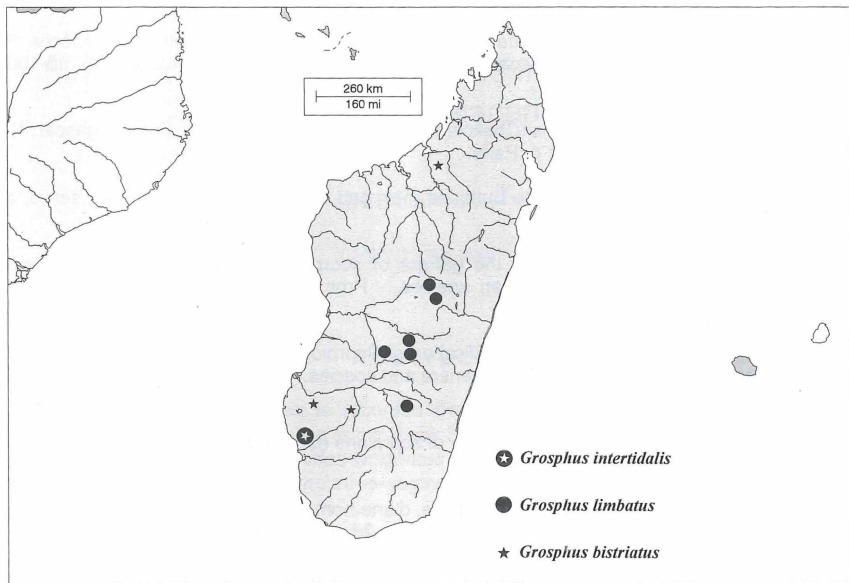


Fig. 8. Type locality of *Grosphus intertidalis* sp. n., and records of *G. limbatus* (Pocock) and *G. bistratus* Kraepelin.

Acknowledgements

I am very grateful to Jacques Rebière and Philippe Bouchard, Laboratoire de Zoologie (Arthropodes), Paris, for preparing several illustrations, to Nicola Lutzmann, University of Heidelberg for the donation of the type specimen and especially to Prof. John L. Cloudsley-Thompson, London, for reviewing the manuscript.

References

- Fage, L., 1929: Les Scorpions de Madagascar. - Faune des Colonies françaises 3. Société d'Éditions Géographiques, Maritimes et Coloniales, p. 637-694. Paris.
- Fage, L., 1946: Complément à la faune des Arachnides de Madagascar. - Bull. Mus. natn. Hist. nat., 2è sér., 18 (3): 256-267. Paris.
- Gervais, P., 1844: Remarques sur la famille des Scorpions. - Arch. Mus. Hist. nat., 4: 201-240. Paris.
- Kraepelin, K., 1894: Revision der Scorpione. II. Scorpionidae und Bothriuridae. - Jahrb. Hamb. Wiss. Anst., 11: 1-248. Hamburg.

- Kraepelin, K., 1896: Neue und weniger bekannte Scorpione. - Jahrb. Hamb. Wiss. Anst., **13**: 121-146. Hamburg.
- Kraepelin, K., 1901: Über einige neue Gliederspinnen. - Abh. aus dem Gebiete der Naturwiss., **16**: 3-17. Hamburg.
- Lourenço, W. R., 1995: Description de trois nouveaux genres et quatre nouvelles espèces de Scorpions Buthidae de Madagascar. - Bull. Mus. natn. Hist. nat., 4e sér., **17** (1-2): 95-106. Paris.
- Lourenço, W. R., 1996: Scorpions (Chelicerata, Scorpiones). - In: Faune de Madagascar, N° 87. Mus. natn. Hist. nat., 102 p. Paris.
- Pocock, R. I., 1889: Notes on some Buthidae, new and old. - Ann. Mag. Nat. Hist., ser. 6, **3**: 334-351. London.
- Pocock, R. I., 1890: A revision of the genera of scorpions of the family Buthidae, with descriptions of some South-African species. - Proc. Zool. Soc. London, **11**: 114-141. London.
- Pocock, R. I., 1893: Notes on the classification of Scorpions followed by some observations upon synonymy, with descriptions of genera and species. - Ann. Mag. Nat. Hist., ser. 6, **12**: 303-330. London.
- Polis, G. A., 1990: Ecology. - In: The biology of scorpions (G. A. Polis ed.). Stanford University Press, pp. 247-293. Stanford.
- Vachon, M., 1963: De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les Scorpions. - Bull. Mus. natn. Hist. nat., 2e sér., **35** (2): 161-166. Paris.
- Vachon, M., 1969: *Grosphus griveaudi*, nouvelle espèce de Scorpion Buthidae Malgache. - Bull. Mus. natn. Hist. nat., 2e sér. **4** (2): 476-483. 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., 3e 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., 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, F-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: 1999

Band/Volume: [13](#)

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

Artikel/Article: [A new species of Grosphus Simon \(Scorpiones, Buthidae\), the first record of an intertidal scorpion from Madagascar 133-138](#)