

Description of a new scorpion species of the genus *Buthus* Leach, 1815 (Scorpiones, Buthidae) from Morocco

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(With 8 figures)

Abstract

A new species belonging to the genus *Buthus* Leach (Scorpiones, Buthidae) is described from Morocco. With the description of *Buthus draa* sp. n., the total number of *Buthus* species confirmed as present in Morocco is raised to ten. The Moroccan species of *Buthus* are confirmed as composing an isolated group of species, the Atlas-group.

Key words: Scorpiones, taxonomy, *Buthus draa* sp. n., Morocco

Introduction

As already explained (Lourenço 2002, 2003) the taxonomy of the genus *Buthus* Leach, 1815 has remained complex and confused for a long while. In his monograph about North African scorpions, Vachon (1952) attempted to establish a better definition of the genus and transferred its several species to other genera (see Lourenço 2003 for details). The classification proposed by Vachon (1952) for the species of *Buthus*, and in particular for *Buthus occitanus* (Amoreux, 1789), remained unsatisfactory, mainly because of the existence of several poorly defined subspecies and even varieties (although this category is not accepted by the International Code of Zoological Nomenclature - Article 45).

Only recently, a more precise definition of the *Buthus* species has been attempted by Lourenço (2002, 2003), with the description of several new species and the promotion of some subspecies to the species rank.

In the present paper another new *Buthus*-species is described from the Valley of the Draa River in the South of Morocco. The population on which the description is based was previously identified as *Buthus occitanus tunetanus* var. *neeli* Gysin 1969, by Touloun *et al.* (1999), the taxon which was originally recorded from the South of Algeria. Further analysis of the material from the Valley of the Draa, showed that the conclusion of Touloun *et al.* (1999) was based on misidentification.

The Moroccan species of *Buthus* are confirmed as composing an isolated group of species, the Atlas-group, as defined by Gantenbein and Largiadèr (2003).

Description of the new species

Buthus draa sp. n.

(Figs 1-7)

TYPE MATERIAL: Morocco, 19 km from Taznakht towards Foug Zguid (30° 31' 112 N - 007° 01' 557 W), 1240 m a.s.l., holotype ♂, deposited in UCAM.

Paratypes: Same locality, ♂, 2 ♀ in UCAM, ♂, ♀ in ZMH, 2 ♂, ♀ in MNHNP; Aït Bassou, 10 km from Tansikht towards N'qob (30° 44' 284 N - 06° 07' 456 W), 1015 m, paratypic ♂ (ZMH); Aït Ounzar Oulad Aïssa (30° 06' 768 N - 06° 23' 139 W), 56 km from Foug Zguid towards Zagora, 975 m, 2 juv. ♀ (ZMH); near Agdez, 64 km SE of Ouarzazate, 1600 m, paratypic ♂ (ZMH); Oulad Hlal (30° 04' 419 N - 06° 40' 857 W), 22 km from Foug Zguid towards Zagora, 810 m, paratypic ♂ (ZMH). The whole material was collected by T. Slimani and R. Stockmann on 20-21 April 2003. The climate in the region is very dry, as is typical of the Sahara region. The scarce vegetation is dominated by *Acacia raddiana* and *Zizyphus lotus*. The ZMH Acc. No. for all paratypes: A7/03.

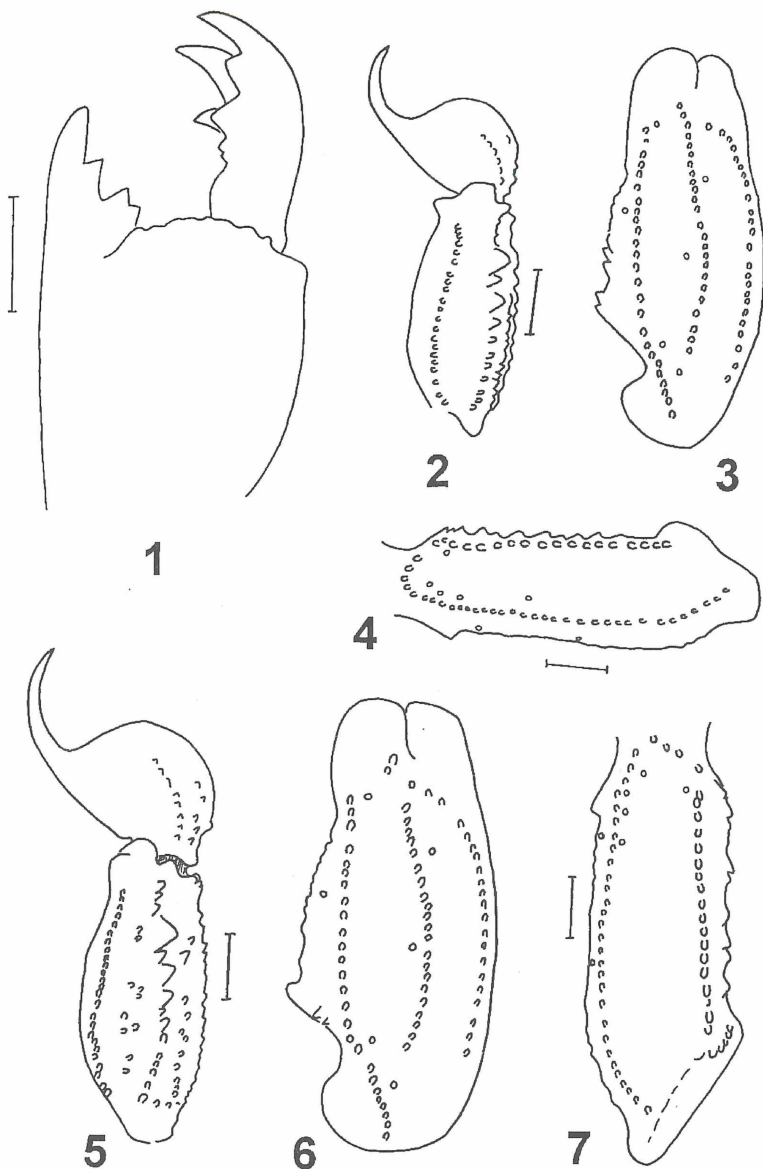
Abbreviations: UCAM = Université Cadi Ayyad, Faculté des Sciences, Semlalia, Départ. Biol., Lab. Ecol. Anim. Terrestre, Marrakech, Morocco; ZMH = Zoologisches Museum Hamburg, Germany; MNHNP = Muséum National d'Histoire Naturelle, Paris, France.

ETYMOLOGY: The specific name makes reference to the Valley of the Draa River, the region in which the new species was found.

DIAGNOSIS: Scorpions of medium to large size, reaching a total length of 68 to 70 mm. General coloration dark yellow, with the tergites, metasomal segments IV-V and telson blackish. Sternites yellowish. Pedipalps and legs yellowish. Carinae and granulations strongly marked. Fixed and movable fingers with 11-12 rows of granules. Pectines with 27/32 teeth in males and 25/28 in females.

Description (based on holotype ♂ and paratype ♀; measurements in Table I).

Coloration. Basically yellowish, with dark zones better marked in females than in males. Prosoma: carapace reddish yellow; carinae and eyes surrounded by black pigment. Mesosoma: yellowish with dark grey to blackish confluent spots over tergites. Metasoma: segments I to IV yellowish; segment V and vesicle much darker, almost blackish; aculeus yellowish at its base and blackish at its extremity. Venter yellowish in males and reddish in females. Chelicerae yellowish with variegated spots; fingers reddish with blackish teeth. Pedipalps: yellowish; fingers with the oblique rows of granules dark reddish. Legs yellowish without any diffuse fuscous spots.



Figs 1-7. *Buthus draa* sp. n. (1-4: holotype ♂, 5-7: paratype ♀): 1 - chelicera. 2 - metasomal segment V and telson, lateral aspect; 3-4, pedipalp patella and femur, dorsal aspect, showing trichobothria; 5 - metasomal segment V and telson, lateral aspect; 6-7, pedipalp patella and femur with trichobothria, dorsal aspect (Figs 1, 3, 4, 6, 7: scale bar = 1 mm; Figs 2, 5: scale bar = 2 mm).

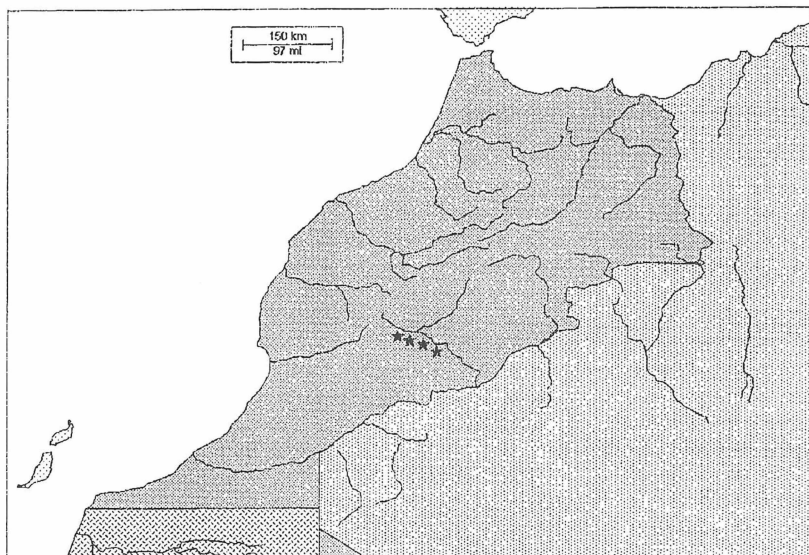


Fig. 8. The collection sites of *Buthus draa* sp. n. in Morocco.

MORPHOLOGY. *P r o s o m a*: Carapace strongly granular; anterior margin almost straight and without a median concavity. Carinae strong; anterior median, central median and posterior median carinae strongly granular, with 'lyre' configuration. All furrows moderate. Median ocular tubercle at the centre of carapace. Eyes separated by three ocular diameters. Four pairs of lateral eyes: the first three of moderate size, the last one only vestigial. Sternum triangular and narrow; longer than wide. *M e s o s o m a*: tergites strongly granular. Three longitudinal carinae strongly crenulated in all tergites; lateral carinae reduced in tergites I and II. Tergite VII pentacarinata. *V e n t e r*: genital operculum divided longitudinally. Pectines: pectinal tooth count 29-30 in male holotype, and 28-27 in female paratype; middle basal lamella of the pectines not dilated. Sternites weakly granular, with elongated spiracles; four carinae on sternite VII; other sternites with vestigial carinae and two weak furrows. *M e t a s o m a*: segments I to III with 10 crenulated carinae, ventral strongly marked; segment IV with 8 carinae, crenulated; the first four segments with a smooth dorsal depression; segment V with seven carinae; the latero-ventral carinae crenulated with three lobate denticles posteriorly; ventral median carina divided posteriorly; anal arc composed of 7/8 ventral teeth, and two lateral lobes. Intercarinal spaces weakly granular. Telson with some granulations on the lateral and ventral surfaces; aculeus curved and shorter than the vesicle, without a subaculear tooth. Cheliceral dentition as defined by Vachon (1963) for the family Buthidae; external distal and internal distal teeth of approximately the same length; basal teeth small and almost fused; ventral aspect of both fingers and manus covered with long dense setae.

P e d i p a l p s: femur pentacarinat; patella with eight carinae; chela with only a few vestigial carinae; all faces weakly granular. Fixed and movable fingers with 11/12 oblique rows of granules. Internal and external accessory granules present but moderate to weak; three accessory granules on the distal end of the fingers next to the terminal denticle. Legs: tarsus with two longitudinal rows of 6/7 spines 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 \hat{a} -configuration (Vachon 1975).

Table I. Morphometric values (in mm) of the holotype and paratype of *Buthus draa* sp. n.

	holotype ♂	paratype ♀
Total length	69.8	69.1
Carapace:		
- length	7.9	9.9
- anterior width	5.8	7.2
- posterior width	9.2	12.2
Metasomal segment I:		
- length	5.6	6.1
- width	5.7	6.4
Metasomal segment V:		
- length	8.9	10.4
- width	4.6	5.3
- depth	3.8	4.6
Vesicle:		
- width	3.8	4.7
- depth	3.4	4.2
Pedipalp:		
- femur length	6.9	7.8
- femur width	2.4	2.8
- patella length	7.3	8.8
- patella width	3.1	3.7
- chela length	12.2	15.3
- chela width	2.6	4.4
- chela depth	2.9	4.7
Movable finger: length	7.9	9.8

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