

## ABOUT THE PRESENCE OF THE GENUS *BUTHUS* LEACH, 1815 IN MAURITANIA, WITH DESCRIPTION OF A NEW SPECIES (SCORPIONES, BUTHIDAE)

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**Abstract:** One more new species belonging to the genus *Buthus* Leach (Scorpiones, Buthidae) and to the “*Buthus occitanus*” complex of species is described from Mauritania. *Buthus occidentalis* sp. n. is the first species of the genus to be described from this country, confirming therefore the presence of the group in Mauritania. The new species of *Buthus* shows affinities with *Buthus draa* Lourenço & Slimani, 2004 from the Draa valley in southern Morocco and may belong to the isolated group of species defined as the Atlas group.

**Key words:** Scorpiones, Buthidae, *Buthus*, *Buthus occidentalis* sp. n., Mauritania.

### Sobre la presencia del género *Buthus* Leach, 1815 en Mauritania, y descripción de una especie nueva (Scorpiones, Buthidae)

**Abstract:** Se describe de Mauritania otra especie nueva, miembro del género *Buthus* Leach (Scorpiones, Buthidae) y del grupo de especies de *Buthus occitanus*. *Buthus occidentalis* sp. n. es la primera especie del género descrita de ese país, y confirma la presencia del grupo en Mauritania. La nueva especie de *Buthus* presenta rasgos afines a los de *Buthus draa* Lourenço & Slimani, 2004 del valle de Draa, en el sur de Marruecos, y es posible que pertenezca al aislado grupo de especies definido como el “grupo del Atlas”.

**Key words:** Scorpiones, Buthidae, *Buthus*, *Buthus occidentalis* sp. n., Mauritania.

**Taxonomy/Taxonomía:** *Buthus occidentalis* sp. n.

### Introduction

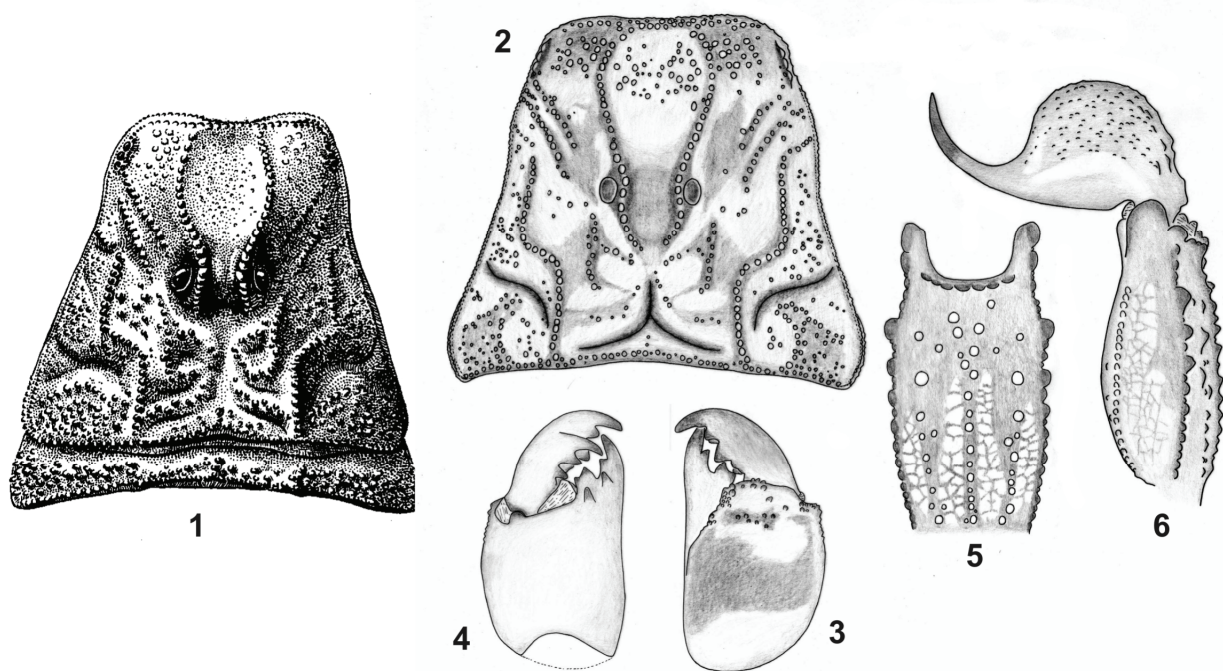
In previous publications by the senior author (Lourenço, 2002, 2003) the taxonomy of the genus *Buthus* Leach was discussed in detail. Only a complete and precise study of several species led to a clear definition of their status (Lourenço, 2003; Lourenço & Vachon, 2004). In despite of the efforts attempted 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 promotion of some subspecies to species rank and description of several new species (Lourenço, 2002, 2003, 2005a, 2008; Lourenço & Slimani, 2004; Lourenço & Qi, 2006; Kovařík, 2006). Other contributions by Lourenço (2005b,c; 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, still remain incomplete, and further studies on several species of these regions are yet necessary.

### The genus *Buthus* in Mauritania

In the lists of material, and maps of distribution proposed by Vachon (1952) reference was made to the genus *Buthus* in Mauritania. The material was associated with *Buthus occitanus* without any further justification. Again, in his study about the scorpions of Mauritania, Vachon (1953) listed *Buthus occitanus* among the species distributed in the country. He limited, however, his observations to two specimens: one male collected in Boutilimit, accordingly to his statement, very badly preserved (Vachon, 1953), and one female juvenile collected in Nouakchott. He associated again these specimens to *Buthus occitanus*, remarking, however, that some differences could be observed in relation to the *B. occitanus* typicus, and that more material would be necessary for a precise diagnosis of this form. The senior author was unable to locate these two specimens in the collections of the Natural History Museum in Paris, and only figure 12 (see Fig. 1) presented by Vachon (1953) can give us some information about the morphology of the carapace of the male from Boutilimit.

Recently, the senior author received five specimens of *Buthus* collected in the region of Nouâdhibou, in the coastal zone of the North of Mauritania. This form of *Buthus*, belongs to the “*Buthus occitanus*” complex and is described here as a new species. We are not, however, totally convinced that the new species does correspond to the *Buthus* population recorded by Vachon (1953) from the South of Maritania. Accordingly to figure 12 in Vachon (1953) – reproduced here as Fig. 1 – carapace carinae of the *Buthus*



**Fig. 1.** Carapace of *Buthus occitanus*, male from Boutilimit, Mauritania (from Vachon, 1953). **Fig. 2-6.** *Buthus draa*, female from the Valley of the Draa, Morocco. **2.** Carapace. **3-4.** Chelicera, dorsal and ventral aspects. **5.** Metasomal segment V, ventral aspect. **6.** Metasomal segment V and telson, lateral aspect.

from Boutilimit are less marked than those of the new species described here from the North of Mauritania. It is quite possible, however, that the *Buthus* material from the South of Mauritania may have some affinities with some recently described species from Western Africa such as *Buthus elizabethae* Lourenço, 2005 and *Buthus elhennawy* Lourenço, 2005. Only further *Buthus* material from the South of Mauritania will clarify the status of this population.

The new species of *Buthus* shows affinities with *Buthus draa* Lourenço & Slimani, 2004 described from the Valley of the Draa in the South of Morocco (Fig. 2-6). It belongs to the "*Buthus occitanus*" complex, are most certainly is also a member of the isolated group of species, "the Atlas group", as defined by Gantenbein and Largiadèr (2003).

### Material and Methods

Specimens were examined and measured under a Wild M5 stereomicroscope with an ocular micrometer. Illustrations were produced using a Leica M165c stereomicroscope with a drawing tube (camara lucida). All measurements follow Stahnke (1970) and are given in millimetres (mm). Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Hjelle (1990). Specimens used in this taxonomic are deposited in the Muséum national d'Histoire naturelle, Paris (MNHN), and Museum of Hebei University, Baoding (MHBHU).

### Description of the new species

#### *Buthus occidentalis* sp. n.

Fig. 8-19.

**MATERIAL EXAMINED:** Mauritania, Region of Nouâdhibou, in coastal zone, 3/III/1994 (Biodiv. Litt. Maurit. group);

female holotype, 1 male and 1 female (juvenile), paratypes (MNHN). 1 female and 1 male (juvenile) (MHBHU).

**ETYMOLOGY:** The specific name refers to the western zone of distribution of the new species.

**DIAGNOSIS:** Scorpion of medium to large size, reaching a total length of 63 mm in males and 74 mm in females. General coloration yellow to pale yellow in adults; juveniles with tergites and carinae marked with dark spots; telson always yellowish to pale yellow with the tip of the aculeus dark. Venter yellowish. Pedipalps yellowish; legs pale yellow. Chelicerae yellowish with reddish teeth. Carinae and granulations moderately to strongly marked. Fixed and movable fingers with 11 rows of granules. Pectines with 31 to 33 teeth in males and 24 to 27 teeth in females.

**RELATIONSHIPS:** *Buthus occidentalis* sp. n., belongs to the "*Buthus occitanus*" complex of species. It can be distinguished from the other species of *Buthus* and in particular from *B. draa* Lourenço & Slimani, 2004, distributed in the Valley of Draa region in Morocco, by the following characters: (i) a much paler coloration overall, yellowish to pale yellow, (ii) the posterior lateral carinae of carapace more strongly marked, (iii) lobes and carinae on metasomal segment V and telson, less strongly marked than in *B. draa*.

**DESCRIPTION** based on female holotype and paratypes. Measurements in Table I.

**Coloration.** Mainly yellowish in adults; juveniles with dark spots over tergites and carinae of carapace and metasomal segments. Prosoma: carapace yellowish; eyes marked by dark pigment. Mesosoma: yellowish with dark spots over tergites in juveniles. Metasoma: segments I to V yellowish; carinae with dark spots in juveniles; vesicle yellowish; aculeus yellowish at its base and dark at its extremity.

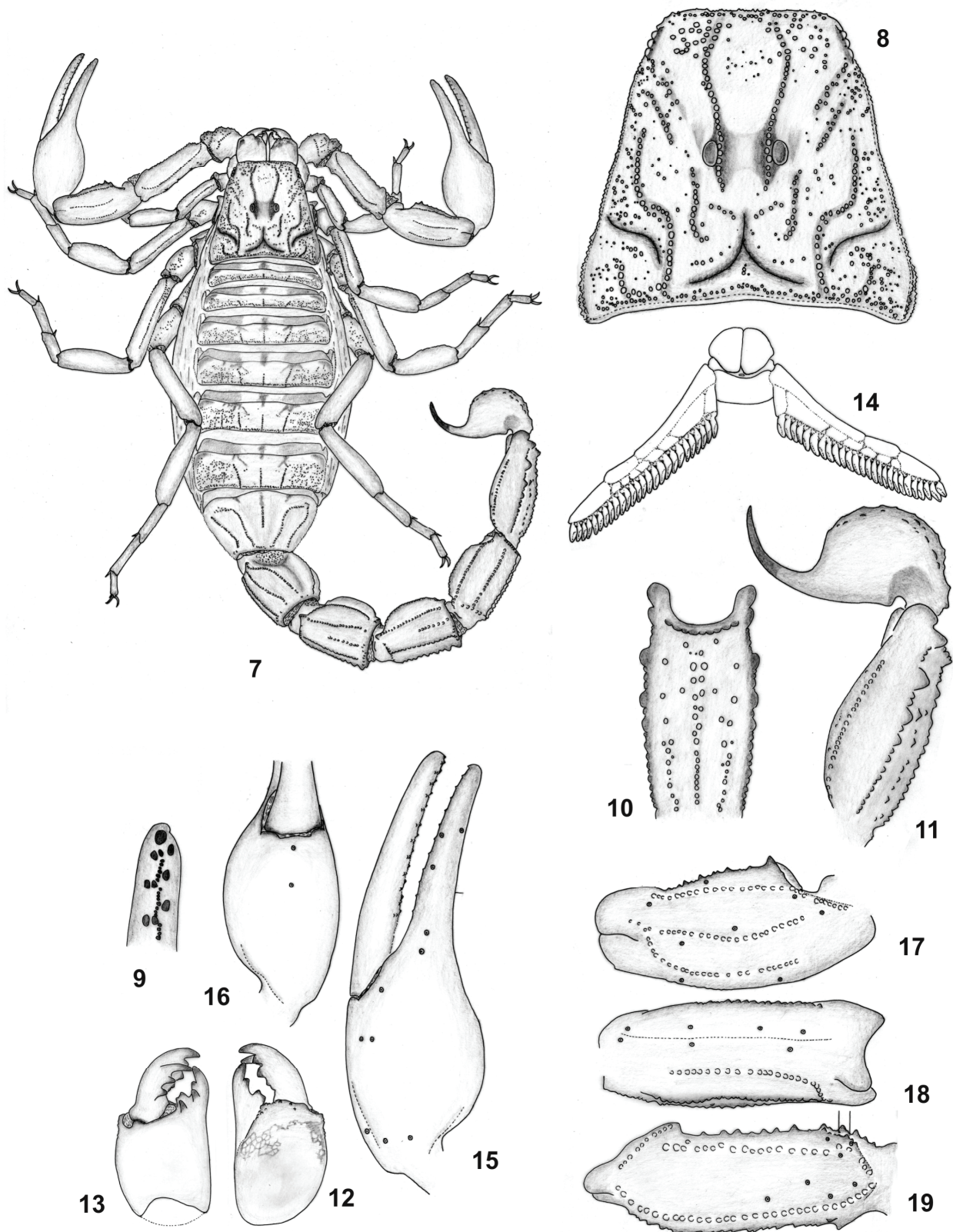


Fig. 7-19. *Buthus occidentalis* sp. n. Female holotype. 7. Habitus. 8. Carapace. 9. Extremity of chela movable finger. 10. Metasomal segment V, ventral aspect. 11. Metasomal segment V and telson, lateral aspect. 12-13. Chelicera, dorsal and ventral aspects. 14. Pectines. 15-19. Trichobothrial pattern. 15-16. Chela, dorso-external and ventral aspects. 17-18. Patella, dorsal and external aspects. 19. Femur, dorsal aspect.

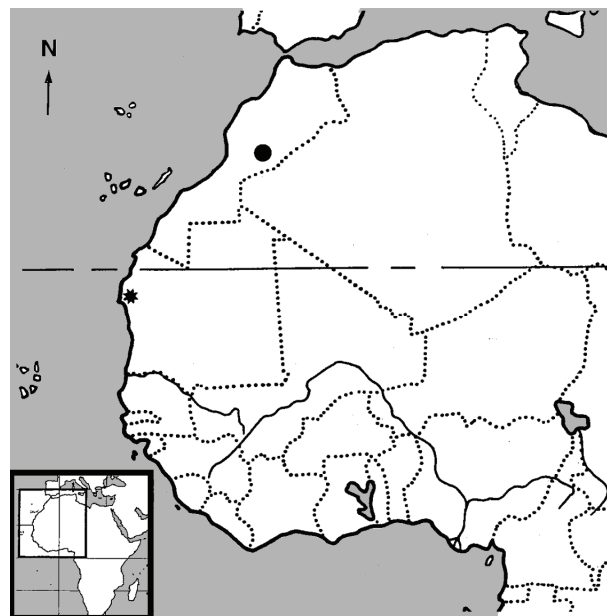
Venter yellowish; pectines pale yellow. Chelicerae yellowish with vestigial variegated spots on the antero-internal edge; fingers yellowish with reddish teeth. Pedipalps: yel-

lowish; fingers with the oblique rows of granules dark reddish. Legs pale yellow without any diffuse or fuscous spots.

**Table 1.** Morphometric values (in mm) of the female holotype and male paratype of *Buthus occidentalis* sp. n., and male holotype and female paratype of *Buthus draa*.

	<i>B. occidentalis</i> sp. n.		<i>B. draa</i>	
	♂	♀	♂	♀
Total length	73.2	62.9	69.8	69.1
Carapace:				
- length	8.5	8.1	7.9	9.9
- anterior width	6.3	5.5	5.8	7.2
- posterior width	10.3	8.5	9.2	12.2
Metasomal segment I:				
- length	6.1	6.0	5.6	6.1
- width	6.3	6.2	5.7	6.4
Metasomal segment V:				
- length	9.5	9.5	8.9	10.4
- width	4.8	4.5	4.6	5.3
- depth	4.2	3.9	3.8	4.6
Vesicle:				
- width	4.7	3.9	3.8	4.7
- depth	4.2	3.9	3.4	4.2
Pedipalp:				
- Femur length	7.2	6.9	6.9	7.8
- Femur width	2.4	2.1	2.4	2.8
- Patella length	7.9	7.2	7.3	8.8
- Patella width	3.5	2.8	3.1	3.7
- Chela length	13.6	12.3	12.2	15.3
- Chela width	3.8	2.8	2.6	4.4
- Chela depth	4.5	2.9	2.9	4.7
Movable finger:				
- length	8.6	8.0	7.9	9.8

**Morphology.** Carapace moderately to strongly granular; anterior margin straight without any concavity. Carinae strong; anterior median, central median and posterior median carinae strongly granular, with 'lyre' configuration; posterior lateral carinae strongly marked. All furrows moderate to strong. Median ocular tubercle at the centre of carapace. Eyes separated by almost three ocular diameters. Four pairs of lateral eyes: the first three of moderate size, the last only vestigial. Sternum triangular and narrow; wider than long. Mesosoma: tergites moderately granular. Three longitudinal carinae strongly crenulate in all tergites; lateral carinae reduced in tergites I and II. Tergite VII pentacarinat. Venter: genital operculum divided longitudinally. Pectines: pectinal tooth count 26-26 in female holotype (see diagnosis for variation); middle basal lamella of the pectines not dilated. Sternites without granules, smooth with elongated spiracles; four carinae on sternite VII; other sternites acarinated and with two vestigial furrows. Metasoma: segments I to III with 10 crenulated carinae, ventral strongly marked on II and III; segment IV with eight carinae, crenulated; the first four segments with a smooth dorsal depression; segment V with five carinae; the latero-ventral carinae crenulate with 2 or 3 lobate denticles posteriorly; ventral median carina slightly divided posteriorly; anal arc composed of 8-9 ventral teeth, and two lateral lobes. Intercarinal spaces weak-



**Fig. 20.** Map of Western Africa, showing the type localities of *Buthus draa* (black circle) and *Buthus occidentalis* sp. n. (black star).

ly granular. Telson with some granulations on the ventral surface; 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 approximately the same length; basal teeth on movable finger small and almost fused; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps: femur pentacarinat; patella with 7-8 carinae; chela with only a few vestigial carinae; all faces weakly granular to smooth. Fixed and movable fingers with 11 oblique rows of granules. Internal and external accessory granules present, strong; three accessory granules on the distal end of the movable finger next to the terminal denticle. Trichobothriotaxy: trichobothrial pattern of Type A, orthobothriotaxic as defined by Vachon (1974). Dorsal trichobothria of femur arranged in  $\beta$  configuration (Vachon, 1975). Legs: tarsus with two longitudinal rows of 7-8 spinoid setae ventrally; tibial spurs strong on legs III and IV; pedal spurs moderate to strong on legs I to IV.

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