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The *Compsobuthus* species from 'Tassili des Ajjer', Algeria (Scorpiones, Buthidae) and description of a new species

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(with 9 figures)

Abstract

The *Compsobuthus* species previously recorded from 'Tassili des Ajjer' in the South of Algeria by Vachon (as *Compsobuthus berlandi* Vachon, 1950), is now confirmed as a new species. The description is based on one adult male recently collected in the mountains of 'Tassili des Ajjer', and on one of the three specimens previously cited from this region by Vachon as *C. berlandi*. The new species is presumably endemic to 'Tassili des Ajjer'.

Key words: Scorpiones, Buthidae, *Compsobuthus*, new species, 'Tassili des Ajjer', Algeria.

Introduction

In a few recent notes on the African populations of *Compsobuthus* (Lourenço 2009a,b, Lourenço et al. 2009), a series of studies, with the aim of clarifying the status of several species of this complex genus of scorpions was began. Since historical aspects of the creation and composition of the genus have already been the subject of previous discussion (Lourenço 1999, 2001, 2004), they will not be discussed further here.

Compsobuthus werner (Birula, 1908), a 'key species' in the genus, was originally described from Nubia (now northern Sudan) and subsequently recorded from many regions both in Africa and the Middle East. In a recent publication, however, Lourenço et al. (2009) showed that the distribution of *C. werner* is limited to Sudan (Nubia), Egypt and parts of Sinai. The records of this species in Western Africa, and the Middle East, are clearly due to misidentification. In the same publication, the status of two other species, *Compsobuthus klaptoczi* (Birula, 1909) from Lybia and *Compsobuthus schmiedeknechti* Vachon, 1949 have been redefined. *C. schmiedeknechti* was classified as a distinct species, with a distribution range in Lebanon, Israel and parts of Sinai.



Fig. 1. *Compsobuthus tassili* sp. n., male holotype taken alive from the 'Tassili des Ajjer', in Algeria, and now preserved in the Zoologisches Museum Hamburg.

The *Compsobuthus* species distributed in Mali, was first recorded by Vachon (1940) as *C. acutecarinatus* Simon, 1882 and subsequently as *C. werneri* (Vachon 1950, 1952). Recent re-examination of part of the material studied by Vachon (1952) led to the description of a new species distributed in Mali (Lourenço 2009b). Re-examination of the single available specimen from Air in Niger did not lead to any final conclusion. This was on account of its very poor state of preservation and incompleteness (Vachon 1950). Consequently any decision concerning its taxonomic status is postponed.

Finally, the species from 'Tassili des Ajjer' in the South of Algeria was originally identified by Vachon (1958) as *Compsobuthus berlandi* Vachon, 1950. The study of an adult male of *Compsobuthus*, recently collected in the mountains of 'Tassili des Ajjer', led to the conclusion that this species is distinct from *C. berlandi* from Mauritania. The study by Vachon (1958) was based on three specimens, one adult female and two juveniles. One of these specimens was located within the collections of the Muséum in Paris and labelled: 'station 53, rive droite de l'oued Iherir, 28/V/1949, 1000 m, F. Bernard'. This specimen, defined by Vachon (1958) as a very young female, is apparently a very young male. It also corresponds with the new species described here.

Methods

Illustrations and measurements were produced with the aid of a Wild M5 stereo-microscope with a drawing tube (camera lucida) and an ocular micrometer. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Vachon (1952) and Hjelle (1990).

Taxonomic account

Family Buthidae C. L. Koch, 1837
Genus *Compsobuthus* Vachon, 1949

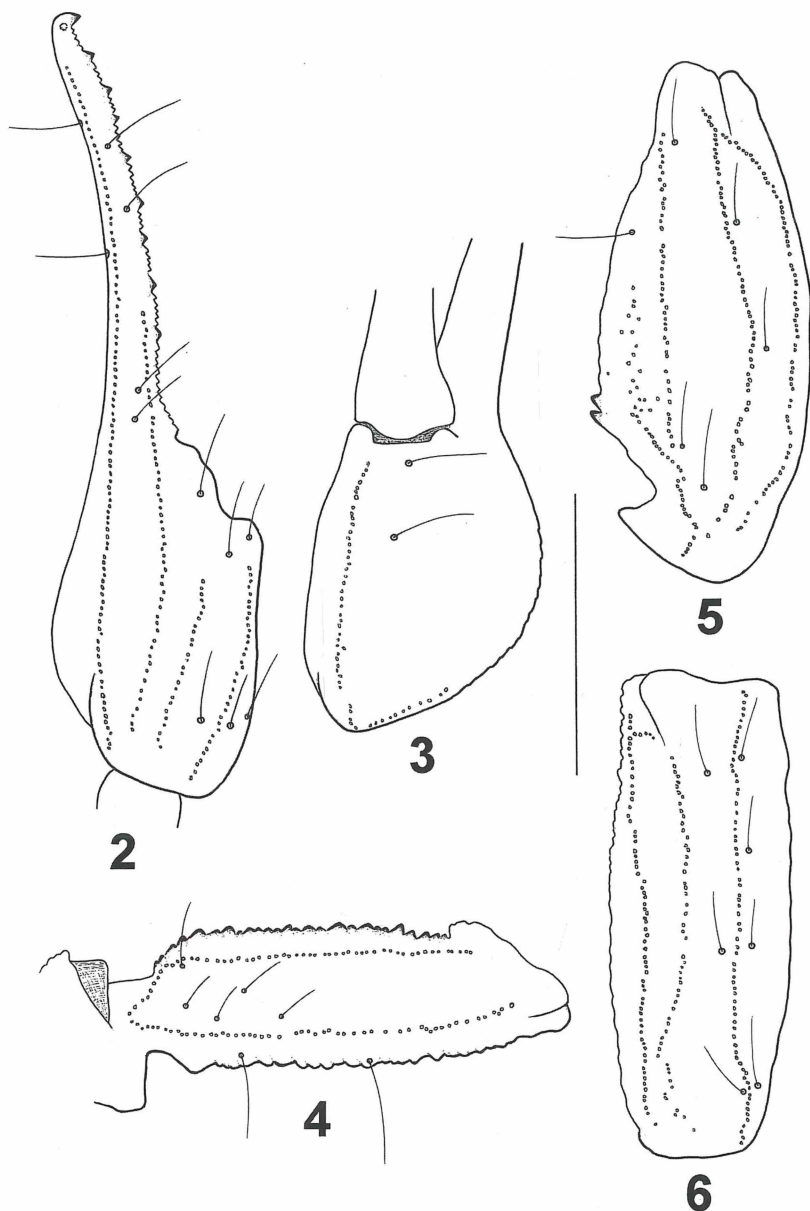
Compsobuthus tassili sp. n.
(Figs 1-9)

Compsobuthus berlandi; Vachon 1958: 186.

TYPE MATERIAL Holotype ♂: Algeria, 'Tassili des Ajjer', Guelta de Tin AR, Pléide Torset (25,349°N – 8,755°E); 1315 m, 22 April 2009, coll. P. A. Crochet & Ph. Geniez. Paratype, juvenile ♂, 'Station 53, rive droite de l'oued Iherir', 28 May 1949, 1000 m, coll. F. Bernard. Holotype deposited in the Zoologisches Museum Hamburg (ZMH Acc. No. 23/10), paratype in the Muséum national d'Histoire naturelle, Paris (MNHN-RS-3062).

ETYMOLOGY: The specific name is placed in apposition to the generic name and refers to 'Tassili des Ajjer', the location in which the new species was collected.

DIAGNOSIS: Scorpions of small size; male 20.9 mm in total length. Coloration yellowish with carapace, tergites, pedipalps, and legs infuscated.



Figs 2-6. *Compsobuthus tassili* sp. n., male holotype. Trichobothrial pattern. 2-3. chela, dorso-external and ventral aspects; 4. femur, dorsal aspect; 5-6. patella, dorsal and external aspects. (Scale bar: 1.5 mm)

infuscated. Pedipalps short; chela fingers with 9-10 rows of granules; internal accessory granules present, conspicuous. Aculeus weakly curved and shorter than vesicle. Pectinal tooth count 16 to 17 in males. Trichobothrial pattern $A-\beta$ (beta); trichobothrium d_1 of femur at the same level as d_2 .

DESCRIPTION (measurements in Table 1).

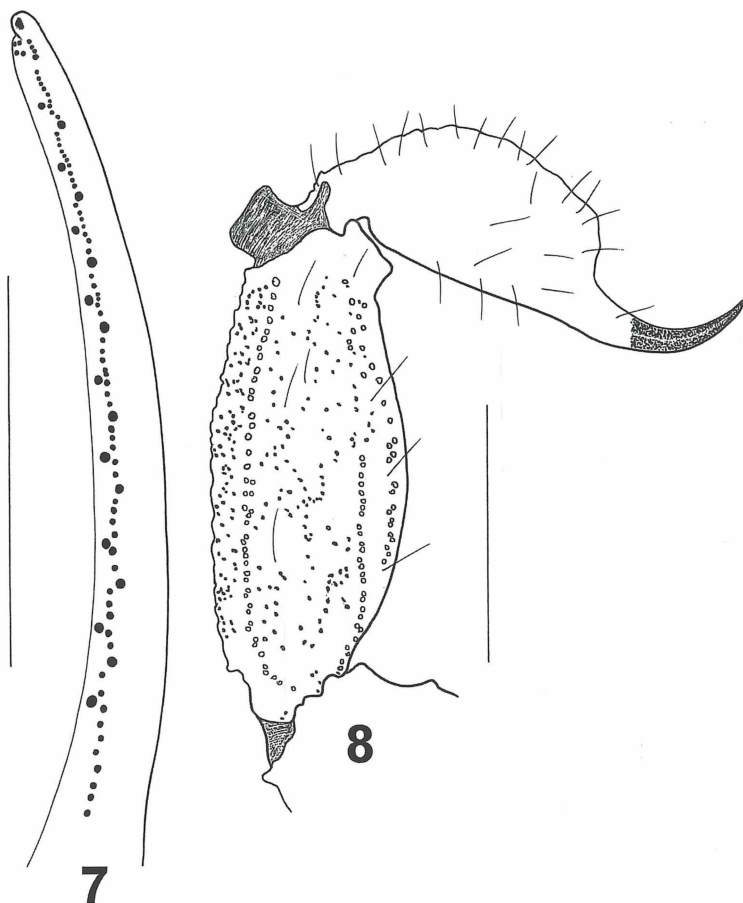
Coloration. Generally yellowish to pale yellow with carapace, tergites, pedipalps and legs infuscated; eyes surrounded by black pigment. Vesicle yellowish; aculeus yellowish at the base and dark reddish at the tip. Chelicerae pale yellow, with dark reddish teeth. Pedipalps yellowish; femur and patella more strongly infuscated than chela; rows of granules on the dentate margins of the fingers reddish. Legs yellowish, slightly infuscated.

MORPHOLOGY. *Prosome*. Anterior margin of carapace weakly emarginate. Carapace carinae moderately developed; anterior median, central median, posterior median and central lateral moderately marked;

Table 1. Morphometric values (in mm) of the lectotype ♀ of *Compsobuthus berlandi* Vachon and the holotype ♂ of *C. tassili* sp. n.

	<i>C. berlandi</i> ♀	<i>C. tassili</i> sp. n. ♂
Total length*	37.0	20.9
Carapace:		
- length	5.1	2.7
- anterior width	3.1	1.6
- posterior width	4.9	2.7
Metasomal segment I:		
- length	3.3	1.8
- width	2.4	1.7
Metasomal segment V:		
- length	5.5	2.8
- width	1.9	1.2
- depth	1.8	1.1
Vesicle:		
- width	1.7	1.0
- depth	1.6	0.9
Pedipalp:		
- femur length	4.7	2.3
- femur width	1.3	0.8
- patella length	5.7	2.7
- patella width	2.1	1.2
- chela length	9.9	4.7
- chela width	1.9	1.2
- chela depth	1.8	1.1
Movable finger:		
- length	7.2	3.3

* excluding telson length.



Figs 7-8. *Compsobuthus tassili* sp. n., male holotype. 7. disposition of the granulations over the dentate margins of the pedipalp-chela movable finger; 8. metasomal segment V and telson, lateral aspect. (Scale bars: 1.5 mm).

that extends beyond the posterior margin of the carapace. Intercarinal spaces moderately granular. Median ocular tubercle anterior to the centre of the carapace; median eyes separated by a little more than one ocular diameter. Three pairs of lateral eyes. *Mesosoma*. Tergites I-VI tricarinate. Lateral carinae on I-VI strongly marked; each carina terminating distally with a spinoid process that extends clearly beyond the posterior margin of the tergite. Median carinae on I weak; on II-VI moderate to strong, crenulate; terminating distally on each segment with a spinoid process that extends slightly beyond the posterior margin of the tergite. Tergite VII pentacarinate, with lateral pairs of carinae moderate to strong; median carinae present on proximal one-half, moderate. Intercarinal

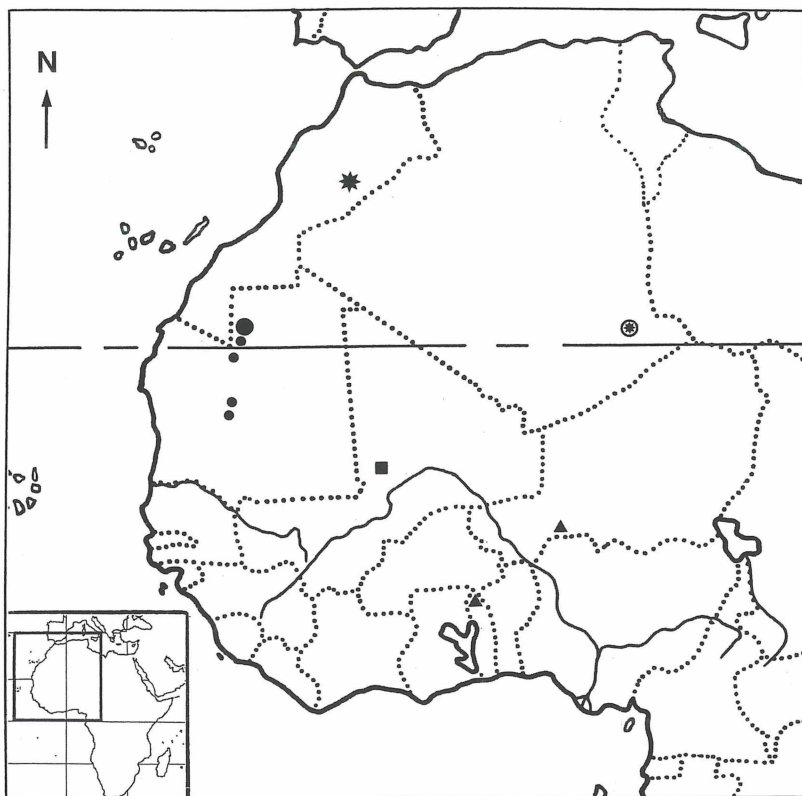


Fig. 9. Records of *Compsobuthus berlandi* Vachon (black circle), *C. simoni* Lourenço (black triangle), *C. williamsi* Lourenço (black star), *C. tombouctou* Lourenço (black square) and *C. tassili* sp. n. (circle with black star) in Western Africa.

median carinae present on proximal one-half, moderate. Intercarinal spaces weakly to moderately granular. Sternites: lateral carinae absent from sternites III-VI; weakly crenulate on VII. Submedian carinae absent from all sternites. Pectines moderately long; pectinal tooth count 16-16 in male holotype (17-16 in male paratype). *Meta*soma. Segments I-III with ten carinae, crenulate; IV with eight carinae. Segment V with five carinae; ventromedian carinae moderate. Dorsal furrows of all segments weakly developed, moderately granular; intercarinal spaces moderately granular. Telson weakly granular to smooth; aculeus weakly curved and shorter than vesicle; subaculear tubercle absent. Chelicerae with two denticles at the base of the movable finger (Vachon 1963). *Pedipalps*. Trichobothrial pattern orthobothriotaxic, type A (Vachon 1974); dorsal trichobothria of femur in β (beta) configuration (Vachon 1975). Femur pentacarinat; all carinae strongly crenulate. Patella with

carinae with two spinoid granules. Chela short, with weakly elongated fingers; all carinae moderately marked; tegument moderately to strongly granular. Dentate margins on fixed and movable fingers composed of 9-10 almost linear rows of granules; inner accessory granules conspicuous; no external accessory granules. Ventral aspect of leg's tarsi with two rows of setae. Tibial spurs strongly reduced on legs III-IV; pedal spurs present, weak to moderate on all legs.

REMARKS: The 'Tassili des Ajjer' population of *Compsobuthus* was previously identified by Vachon (1958) as *C. berlandi* Vachon. This last species, however, has been described and shown to be restricted to Mauritania (Lourenço 2009a). The new species described here from 'Tassili des Ajjer' can be distinguished from *C. berlandi* by the following features: (i) much smaller in size - see Table I; (ii) carapace, tergites, pedipalps and legs intensely infuscated; (iii) aculeus weakly curved and much shorter than the vesicle; (iv) pectines with only 16-17 teeth in males, versus 19-20 in *C. berlandi*; (v) trichobothrium d_1 of femur at the same level as d_2 .

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