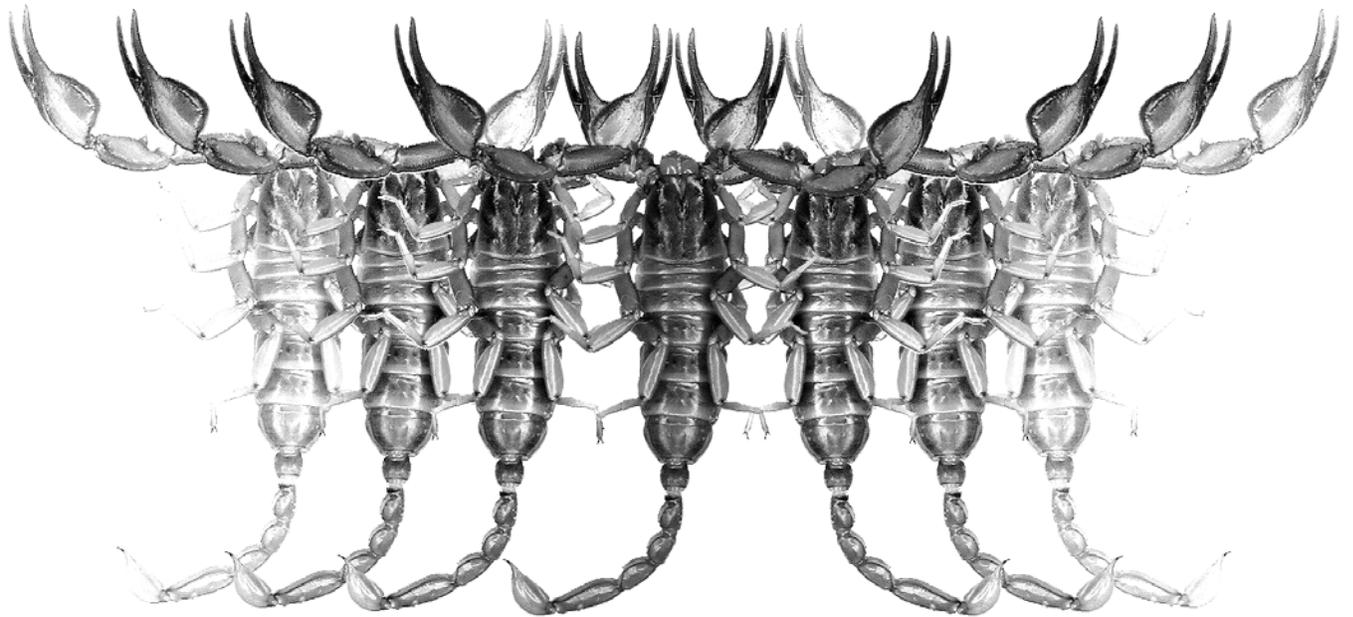


# *Euscorpilus*

Occasional Publications in Scorpiology



**A New Species of *Androctonus* Ehrenberg, 1828  
from Morocco (Scorpiones: Buthidae)**

**Wilson R. Lourenço, Eric Ythier & Elise-Anne Leguin**

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# *Euscorpius*

## Occasional Publications in Scorpiology

*EDITOR*: Victor Fet, Marshall University, ‘fet@marshall.edu’

*ASSOCIATE EDITOR*: Michael E. Soleglad, ‘soleglad@la.znet.com’

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- **ZISP**, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
- **WAM**, Western Australian Museum, Perth, Australia
- **NTNU**, Norwegian University of Science and Technology, Trondheim, Norway
- **OUNNH**, Oxford University Museum of Natural History, Oxford, UK

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## A new species of *Androctonus* Ehrenberg, 1828 from Morocco (Scorpiones: Buthidae)

Wilson R. Lourenço<sup>1</sup>, Eric Ythier<sup>2</sup> & Elise-Anne Leguin<sup>3</sup>

<sup>1</sup> Muséum national d'Histoire naturelle, Département de Systématique et Evolution, Section Arthropodes (Arachnologie), CP 053, 57 rue Cuvier 75005 Paris, France; e-mail: arachne@mnhn.fr

<sup>2</sup> SynTech Research, 613 route du Bois de Loyse, 71570 La Chapelle de Guinchay, France; e-mail: eythier@syntechresearch.com

<sup>3</sup> Muséum national d'Histoire naturelle, Direction des Collections, CP 053, 57 rue Cuvier 75005 Paris, France; e-mail: leguin@mnhn.fr

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### Summary

A new species of scorpion belonging to the genus *Androctonus* Ehrenberg, 1828 (family Buthidae C. L. Koch, 1837), is described on the basis of one male and one female specimens collected at Sidi Smail in the Atlantic Coast of Morocco. With the description of *Androctonus maroccanus* sp. n., the total number of *Androctonus* species known to Morocco is raised to seven.

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### Introduction

As already pointed out in recent papers (Lourenço, 2005, 2008; Lourenço & Qi, 2006a, 2007), the taxonomy of the genus *Androctonus* Ehrenberg has long remained complex and confused. In his contributions to the study of North African scorpions, Vachon (1948, 1952) attempted to establish a better definition of the genus *Androctonus* and its species. His results, however, remained unsatisfactory. Only more than half century later, Lourenço (2005) attempted again to characterize the distinct populations of *Androctonus*. A few species have been synonymized, some subspecies raised to the rank of species and two new species described. Subsequently to this preliminary clarification on the taxonomy of *Androctonus*, more new species have been added to the genus, from both Africa and Middle East (Lourenço, 2008; Lourenço & Qi, 2006a, 2007).

The discovery and description of a new species of *Androctonus* from Morocco may appear as surprising. In fact, although Morocco has been extensively surveyed for almost a century, many regions in the country remain poorly prospected. Evidence to this are the recent descriptions of several new species and even new genera of buthids (e. g. Lourenço, 2002, 2004; Lourenço & Slimani, 2004; Lourenço & Geniez, 2005; Lourenço & Qi, 2006b; Lourenço et al, 2003; Teruel, 2007). Concerning the genus *Androctonus* in particular, several species have been originally described from Morocco, namely *Androctonus mauritanicus* (Pocock, 1902), *Androctonus liouvillei* (Pallary, 1924), *Androctonus gonneti* Vachon, 1948, and *Androctonus sergenti* Va-

chon, 1948. Some of these species remain up to now endemic to the country. Other species originally described from different regions have successively been reported from Morocco, the last report (Geniez, 2009) being that of *Androctonus australis* (Linnaeus, 1758).

The description of one new species of *Androctonus*, raises to seven the number of species belonging to this genus distributed in Morocco. This attests for the high diversity of this group in this country. These are *Androctonus australis*, *A. amoreuxi* (Audouin, 1826), *A. mauritanicus*, *A. liouvillei*, *A. gonneti*, *A. sergenti*, and *A. maroccanus* sp. n.

### Material and Methods

Illustrations and measurements were made 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 are after Vachon (1974) and morphological terminology mostly follows Vachon (1952) and Hjelle (1990).

### Taxonomy

Family Buthidae C. L. Koch, 1837  
Genus *Androctonus* Ehrenberg, 1828

#### *Description of the new species*

##### *Androctonus maroccanus* sp. n. (Figs. 1–16)

Morocco, Atlantic Coast, Sidi Smail, September 2009 (F. Principaud leg.), 1 male holotype (MNHN-RS-8750),



Figures 1–2: *Androctonus maroccanus* sp. n. Male holotype, dorsal and ventral aspects.



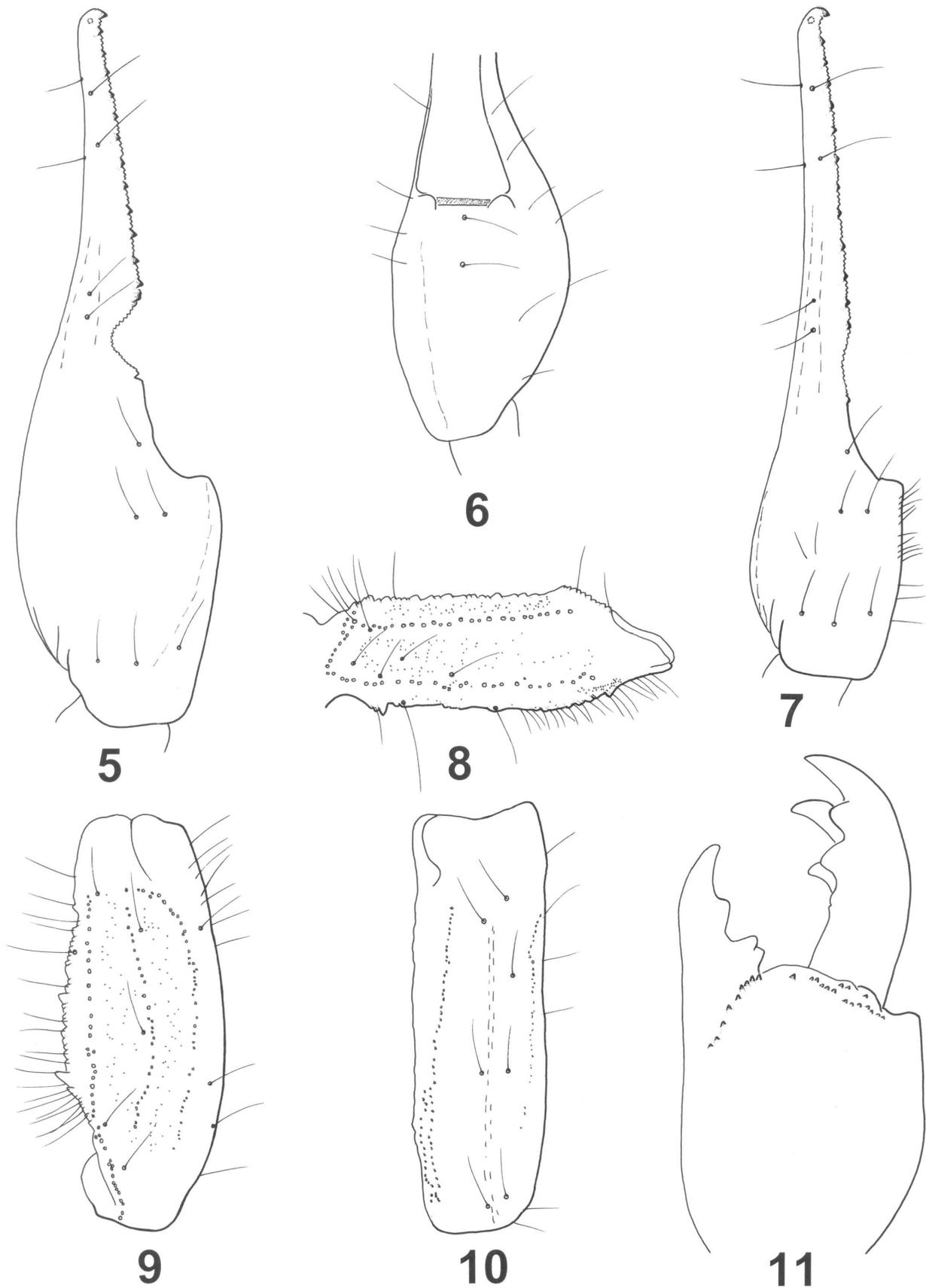
**Figures 3–4:** *Androctonus maroccanus* sp. n. Female paratype, dorsal and ventral aspects.

1 female paratype (MNHN-RS-8751). Deposited in the collections of the Muséum national d’Histoire naturelle, Paris.

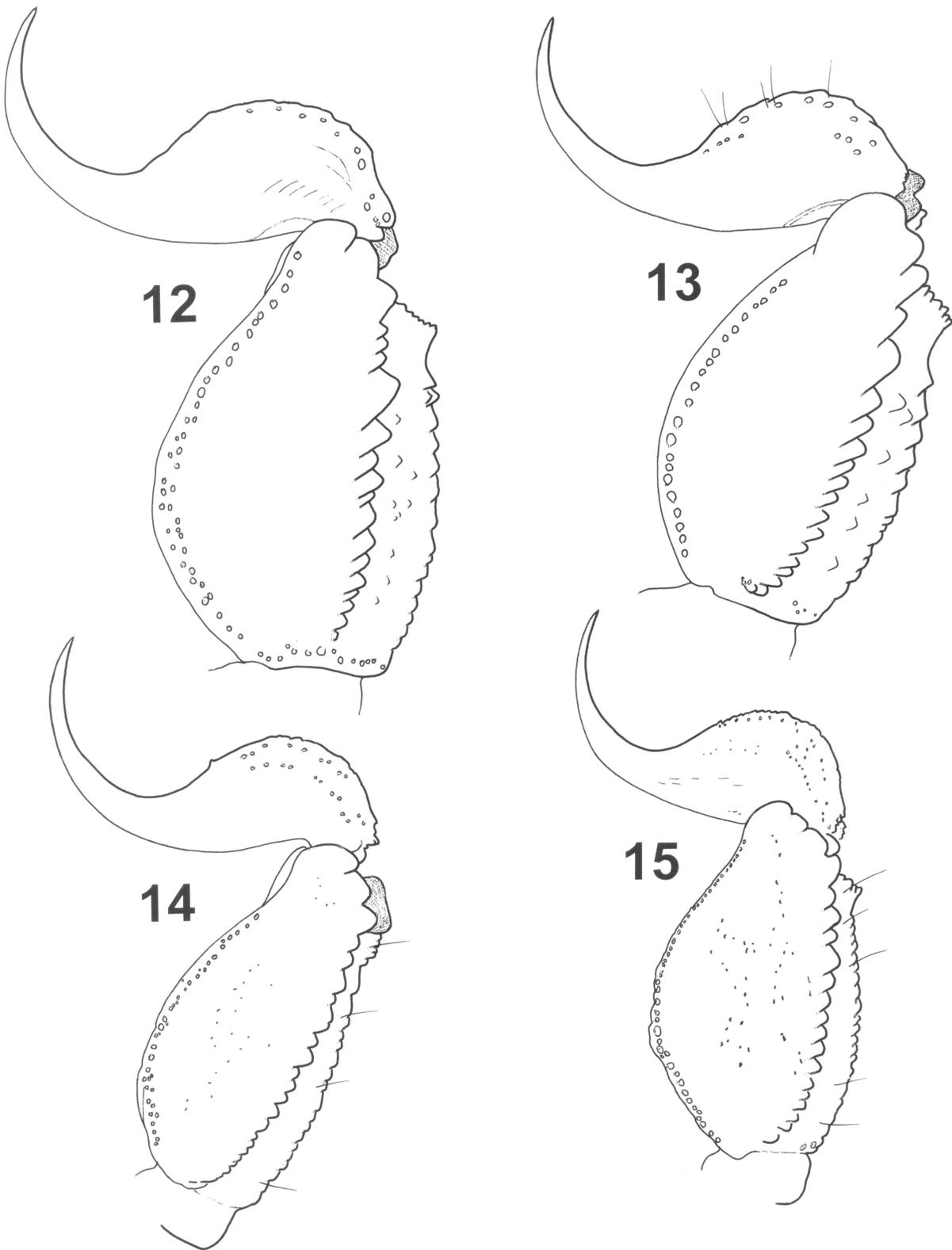
*Etymology:* The specific name refers to the country in which the new species was found.

**Diagnosis**

A scorpion of medium to large size, reaching a total length of 69–70 mm. General coloration yellow to reddish-yellow, without spots; only metasomal carinae are darker, almost blackish. Carinae and granulations on



**Figures 5–11:** *Androctonus maroccanus* sp. n., male holotype unless stated otherwise. 5–10. Trichobothrial pattern. Chela, dorso-external and ventral aspects. 7. *Idem*, for female paratype. 8. Femur, dorsal aspect. 9–10. Patella, dorsal and external aspects. 11. Chelicera, dorsal aspect.



**Figures 12–15:** Metasomal segment V and telson, lateral aspect. 12–13. *Androctonus maroccanus* sp. n., male holotype and female paratype. 14–15. *Idem*, for male and female of *A. gonneti* from Mauritania.

	<i>A. maroccanus</i> sp. n.		<i>A. gonneti</i>
	♂	♀	♀*
Total length**	70.8	68.9	106.3
Carapace:			
- length	8.7	8.5	12.2
- anterior width	5.5	5.3	8.0
- posterior width	8.8	9.2	15.2
Metasomal segment I:			
- length	6.1	5.8	8.0
- width	7.1	6.6	9.5
Metasomal segment V:			
- length	8.8	8.3	12.6
- width	6.8	6.2	8.2
- depth	5.4	4.6	7.1
Telson length	7.2	6.8	11.6
Vesicle:			
- width	3.4	3.0	4.9
- depth	2.7	2.6	4.1
Pedipalp:			
- Femur length	7.3	7.6	9.9
- Femur width	2.6	2.0	3.6
- Patella length	8.8	9.1	11.7
- Patella width	3.5	2.9	5.1
- Chela length	14.7	14.3	20.4
- Chela width	3.6	2.6	4.9
- Chela depth	4.1	2.8	5.4
Movable finger: length	10.1	10.4	13.8

**Table 1:** Morphometric values (in mm) of the male holotype and female paratype of *Androctonus maroccanus* sp. n., and of a female *Androctonus gonneti* from Mauritania.

\* Values are not provided for the male because we have only been able to examine pre-adult specimens.

\*\* Including telson.

carapace and tergites moderately developed. Metasomal segments I to V only moderately enlarged distally; dorsal depression on segments I to IV moderately to strongly marked. Anal arc with three rounded lobes. Pedipalps with a conspicuous setation on femur and patella; fixed and movable fingers with 13–14 (14–14) rows of granules. Pectines with 26–27 teeth in the male, 25–23 in female.

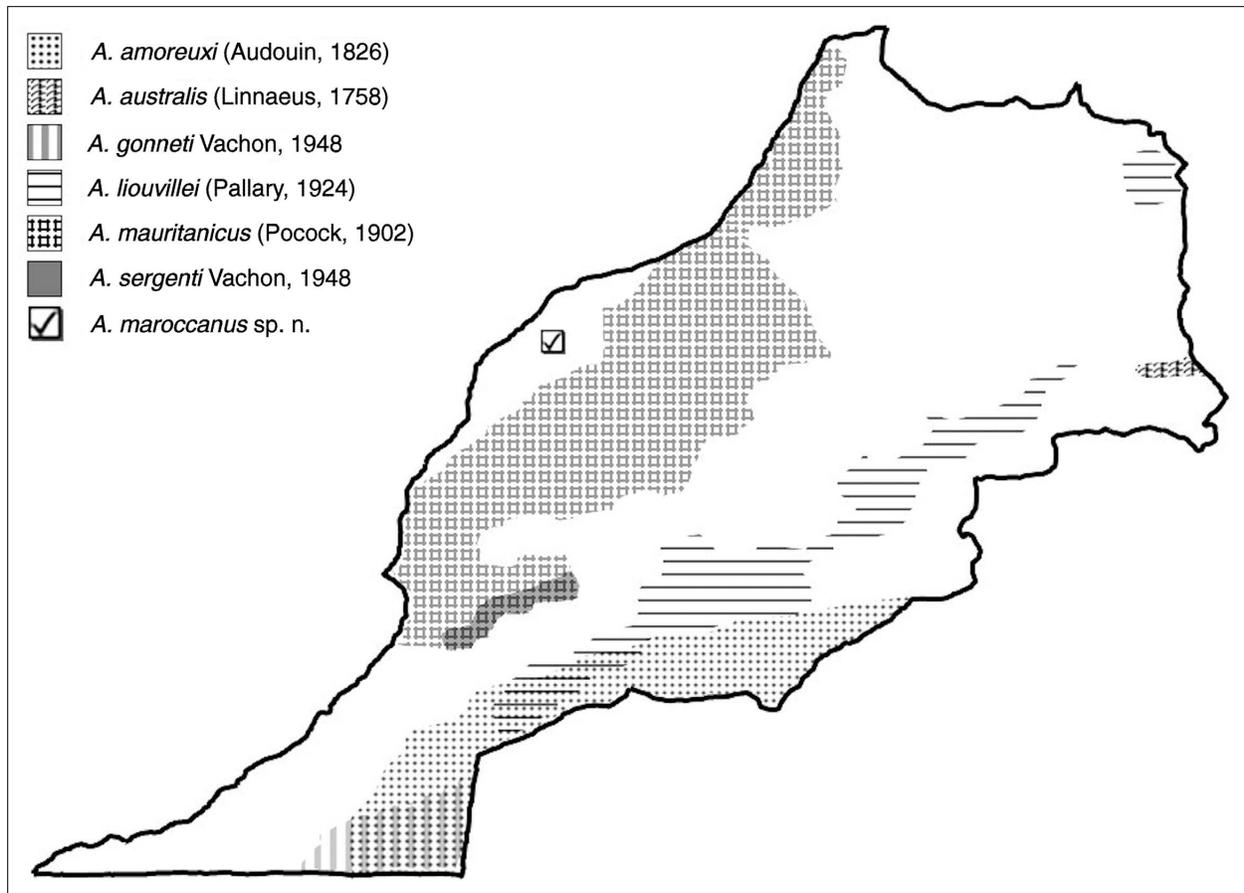
### Relationships

*Androctonus maroccanus* sp. n., can be distinguished from the other species of *Androctonus*, which are also distributed in Morocco and Mauritania, and in particular from *Androctonus gonneti* Vachon, 1948, by the following characters: (i) its overall yellow to reddish-yellow coloration; the other species are dark to blackish; (ii) a smaller overall size, see Table 1; (iii) aculeus with the same length as vesicle; aculeus is longer than vesicle in *A. gonneti*; (iv) presence of a

conspicuous setation on femur and patella of pedipalps; setation absent on *A. gonneti*; (v) granulation on carapace and tergites is better marked in males of the new species.

### Description based on male holotype and female paratype (measurements in Table 1)

Coloration. Mainly yellowish to reddish-yellow. Prosoma: carapace reddish-yellow; carinae and eyes marked by dark pigment. Mesosoma: reddish-yellow slightly darker than carapace. Metasoma: segments I to V with dorsal and lateral surfaces yellowish; carinae dark to blackish; vesicle reddish-yellow; aculeus reddish at its base and blackish at its extremity. Venter yellowish to reddish-yellow; pectines pale yellow. Tergites III to V, in male with large white spots; absent in the female. Chelicerae yellowish without any variegated spots in male; with diffused variegated spots in female; fingers yellowish with dark teeth. Pedipalps yellowish with



**Figure 16:** Map of Morocco showing the known distribution of *Androctonus* species in the country and the type locality of *A. maroccanus* sp. n.

carinae slightly dark; fingers with the oblique rows of granules dark. Legs pale yellow without any spots in male; with diffused spots in female.

**Morphology.** Carapace moderately granular; anterior margin almost straight and without a median concavity. Carinae moderately marked; anterior median, central median and posterior median carinae moderately granular. All furrows moderate to weak. Median ocular tubercle slightly anterior to the centre of carapace. Eyes separated by two ocular diameters. Four pairs of lateral eyes: the first three of moderate size, the last only vestigial. Sternum triangular and narrow; slightly longer than wide. Mesosoma: tergites moderately granular, better marked in male. Three longitudinal carinae moderately crenulate in all tergites; lateral carinae reduced in tergites I and II. Tergite VII pentacarinat. Venter: genital operculum divided longitudinally, forming two semi-oval plates. Pectines: pectinal tooth count 26–27 in male holotype, 25–23 in female paratype; middle basal lamella of the pectines not dilated. Sternites without granules, smooth with elongated spiracles; four moderately to weakly marked carinae on sternite VII; other sternites acarinate and with two vestigial furrows.

Metasoma: segments I to III with 10 carinae, strongly crenulated; ventral strongly marked; segment IV with 8 carinae, crenulated; the first four segments with a smooth and moderately to strongly marked dorsal depression; segment V with five carinae; the latero-ventral carinae crenulate with several lobate denticles; ventral median carina not divided posteriorly; anal arc composed of 10–12 inconspicuous ventral teeth, and three rounded lateral lobes. Intercarinal spaces weakly granular to smooth. Telson with some weak granulations on ventral surface; other surfaces smooth; aculeus moderately curved and with the same length as the vesicle; subaculear tooth absent. 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 but not fused; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps: femur pentacarinat; patella with eight carinae; chela with only vestigial carinae; all faces weakly granular to smooth; femur and patella with a conspicuous setation. Fixed and movable fingers with 13–14 (14–14) 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. Legs: tarsus with numerous thin setae ventrally; tibial spur strong on legs III and IV; pedal 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  $\beta$ -configuration (Vachon, 1975).

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