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A new species of *Androctonus* Ehrenberg, 1828 from the Sahelian wooded steppes of Burkina Faso (Scorpiones: Buthidae)

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Keywords:

Scorpion; description;
Androctonus; morphology;
burkinensis; Sahel;
 taxonomy; wooded steppes;
 new species; Burkina Faso.

Abstract. – A new species of *Androctonus* Ehrenberg, 1828 is described on the basis of one male specimen collected in the wooded steppes of Sahel in Northern Burkina Faso. The new species is characterized by a small size in relation to other species of the genus, a yellowish coloration without any darker spots, and metasomal segments narrow with a moderately deep dorsal depression. This new scorpion taxon represents the 30th known species of the genus *Androctonus*.

Ythier E., 2021. – A new species of *Androctonus* Ehrenberg, 1828 from the Sahelian wooded steppes of Burkina Faso (Scorpiones: Buthidae). *Faunitaxys*, 9(31): 1 – 7.

ZooBank: <http://zoobank.org/06FD0852-A88E-49E5-B8E6-E1494B86C4E1>

Introduction

As already outlined in several papers (Lourenço, 2005; Lourenço & Qi, 2006, 2007; Lourenço, 2008) the taxonomy of the genus *Androctonus* Ehrenberg has long remained confused. This is especially true for species showing a large range of distribution, like e.g. *Androctonus australis* (Linnaeus, 1758), *Androctonus crassicauda* (Olivier, 1807), *Androctonus bicolor* Ehrenberg, 1828 or *Androctonus amoreuxi* (Audouin, 1826).

In his work on scorpions from Northern Africa, Vachon (1948, 1952) considered *A. amoreuxi* to present a very large range of distribution, covering most of Northern Africa. Recent investigations showed that this range of distribution was inappropriate since several populations distributed in the peri-Saharan zone (i.e. around the core region of the Sahara, presenting less arid environments) or even present in less xeric refugia like the Saharan massifs, proved to be distinct from *A. amoreuxi* and led to the description of several new species (*Androctonus dekeyseri* Lourenço, 2005 from Senegal, *Androctonus aleksandrplotkini* Lourenço & Qi, 2007 from Mauritania, *Androctonus togolensis* Lourenço, 2008 from Togo, *Androctonus pallidus* Lourenço, Duhem & Cloudsley-Thompson, 2012 from Chad) or to the revalidation of species originally placed in the synonymy of *A. amoreuxi* (*Androctonus eburneus* (Pallary, 1928) from the Tassili N'Ajjer massif in Algeria).

Recent discovery in the collections of the Musée d'Histoire Naturelle de Lyon, France, of a specimen collected in the 80s in the wooded steppes of Sahel in Northern Burkina Faso, has led to the description of another new species of *Androctonus* from the peri-Saharan zone. The new species described here represents the 30th known species of the genus *Androctonus*.

Methods

Illustrations and measurements were made with the aid of a Motic SMZ-1713 stereo-microscope with an ocular micrometer, together with a digital camera Tucsen HD Lite, a Canon EOS 7D camera

and a Wacom Intuos drawing tablet. Map was made using Google Maps and Adobe Photoshop software. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Vachon (1952) and Hjelle (1990). Specimen studied herein is deposited in the MHNL (Musée d'Histoire Naturelle de Lyon (Musée des Confluences), CCEC, Lyon, France).

Composition of the genus *Androctonus* (in order of description)

- *Androctonus australis* (Linnaeus, 1758) (Algeria, Egypt, Libya, Tunisia)
- *Androctonus crassicauda* (Olivier, 1807) (Armenia, Azerbaijan, Bahrain, Egypt, Iraq, Iran, Israel, Jordan, Kuwait, Libya, Oman, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen)
- *Androctonus amoreuxi* (Audouin, 1826) (Algeria, Libya, Egypt, Mauritania, Morocco, Israel?)
- *Androctonus bicolor* Ehrenberg, 1828 (Egypt, Israel, Libya, Syria, Jordan?, Lebanon?)
- *Androctonus aeneas* C. L. Koch, 1839 (Algeria, Tunisia)
- *Androctonus finitimus* (Pocock, 1897) (Pakistan)
- *Androctonus baluchicus* (Pocock, 1900) (Afghanistan, Pakistan)
- *Androctonus mauritanicus* (Pocock, 1902) (Mauritania, Morocco)
- *Androctonus liouvillei* (Pallary, 1924) (Algeria, Morocco)
- *Androctonus eburneus* (Pallary, 1928) (Algeria)
- *Androctonus hoggarensis* (Pallary, 1929) (Algeria)
- *Androctonus barbouri* (Werner, 1932) (Morocco)
- *Androctonus gonneti* Vachon, 1948 (Mauritania, Morocco)
- *Androctonus sergenti* Vachon, 1948 (Morocco)
- *Androctonus dekeyseri* Lourenço, 2005 (Mauritania, Senegal)
- *Androctonus maelfaiti* Lourenço, 2005 (India)
- *Androctonus afghanus* Lourenço & Qi, 2006 (Afghanistan)
- *Androctonus aleksandrplotkini* Lourenço & Qi, 2007 (Mauritania)
- *Androctonus togolensis* Lourenço, 2008 (Togo)
- *Androctonus maroccanus* Lourenço, Ythier & Leguin, 2009 (Morocco)
- *Androctonus pallidus* Lourenço, Duhem & Cloudsley-Thompson, 2012 (Chad)

- *Androctonus cholistanus* Kovarik & Ahmed, 2013 (India, Pakistan)
- *Androctonus robustus* Kovarik & Ahmed, 2013 (Pakistan)
- *Androctonus tenuissimus* Teruel, Kovarik & Turiel, 2013 (Egypt)
- *Androctonus donairei* Rossi, 2015 (Morocco)
- *Androctonus santi* Lourenço, 2015 (Niger)
- *Androctonus simonettai* Rossi, 2015 (Ethiopia)
- *Androctonus tigrari* Lourenço, Rossi & Sadine 2015 (Ethiopia)
- *Androctonus tropeai* Rossi, 2015 (Pakistan)
- *Androctonus burkinensis* sp. n. (Burkina Faso)

Taxonomic treatment

Family **Buthidae** C. L. Koch, 1837

Genus *Androctonus* Ehrenberg, 1828

Androctonus burkinensis sp. n.

(Fig. 1-10, Tab. I)

ZooBank: <http://zoobank.org/06FD0852-A88E-49E5-B8E6-E1494B86C4E1>

Androctonus amoreuxi: Prost, 1982: 5; Fet et al., 2000: 66; Dupré, 2019: 3.

Holotype, ♂, Burkina Faso (Haute-Volta according to the original label), Sahel region, Seno Province, Dori, P. Grivot coll., 25/XII/1982, deposited in the MHNL (47023139).

Etymology. – The specific epithet refers to the country where the new species was found.

Diagnosis. – Scorpion of small size for the genus, with a total length of 48.5 mm for the adult male holotype. General coloration yellowish without spots over the body and appendages; carinae not pigmented. Carinae and granulations moderately to strongly marked on carapace, tergites and metasomal segments. Metasomal segments I to V narrow and of approximately the same width; dorsal depression on segments I to IV moderately deep. Anal arc composed of 12 ventral teeth and with three sharp lateral lobes followed by 2-3 small latero-dorsal denticles. Fixed and movable fingers with 13 rows of granules. Pectines with 33 teeth in male holotype.

Description (based on male holotype. Measurements in Table I).

Coloration. – Basically yellowish without spots over the body and appendages. Prosoma: carapace yellowish; eyes marked with dark pigment. Mesosoma yellowish without spots; carinae not pigmented. Metasomal segments yellowish without spots; carinae not pigmented; telson vesicle yellowish, aculeus yellowish orange at its base and blackish at its extremity. Venter yellowish; genital operculum and pectines paler than the other zones. Chelicerae yellowish without any variegated spots; fingers yellowish orange with dark red teeth. Pedipalps yellowish without spots; fingers with the oblique rows of granules dark red. Legs yellowish without spots.

Morphology. – Carapace moderately granular; anterior margin straight, without a median concavity. Carinae moderately to strongly marked; anterior median, central median and posterior median carinae strongly granular, other carinae moderately granular. All furrows weak. Median ocular tubercle located slightly anterior to the centre of the carapace; eyes separated by about two and a half ocular diameters; five pairs of lateral eyes, the first three of moderate size, the last two reduced. Sternum triangular and narrow, longer than wide. Mesosoma: tergites moderately granular. Three longitudinal carinae moderately crenulate on tergites I to VI; tergite VII pentacarinata with carinae moderately to strongly crenulate. Venter: genital operculum divided longitudinally, each plate with an oval shape. Pectines: pectinal tooth count 33-33 in male holotype; middle basal lamella of the pectines not dilated. Sternites without granules, smooth with elongated spiracles; four moderate carinae on sternite VII; other sternites acarinated and with



Fig. 1-2. *Androctonus burkinensis* sp. n., ♂ holotype, habitus (dried specimen) (Scale bar = 1 cm). 1. Dorsal aspect. 2. Ventral aspect.

two vestigial furrows. Metasomal segments with a weak setation; segment I with ten complete carinae, crenulated; segments II to IV with eight carinae, strongly crenulated; lateral inframedian carinae represented by 8-9 granules on distal two thirds of segment II, by 2-3 granules on III, absent on IV; dorsal carinae of segments III-IV with one bigger posterior spinoid granule; segment V with five carinae; the latero-ventral carinae strongly crenulate with several lobate denticles; ventral median carinae not divided posteriorly; anal arc composed of 12 ventral teeth and with three sharp lateral lobes followed by 2-3 small latero-dorsal denticles; all metasomal segments with intercarinal spaces slightly granular to smooth; the first four segments with a smooth and moderately deep dorsal depression. Telson with some moderate granulations ventrally; aculeus moderately curved and slightly shorter than the vesicle, without a subaculear tubercle. 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 very small but not fused; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps with a weak setation; femur pentacarinata; patella with 7 carinae but only dorso-internal and internal are well marked; other carinae are weak to vestigial; chela with vestigial carinae; all faces very weakly granular to smooth; fixed and movable fingers with 13 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 several thin setae ventrally, arranged in more or less two rows; tibial spur moderate 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 β (beta) configuration (Vachon, 1975).

Relationships. – By its general morphology, small size and yellowish coloration without spots, *Androctonus burkinensis* sp. n. shows similarities with *A. togolensis* described from Northern Togo, and *A. eburneus* described from the Tassili N'Ajjer massif in Southern Algeria.

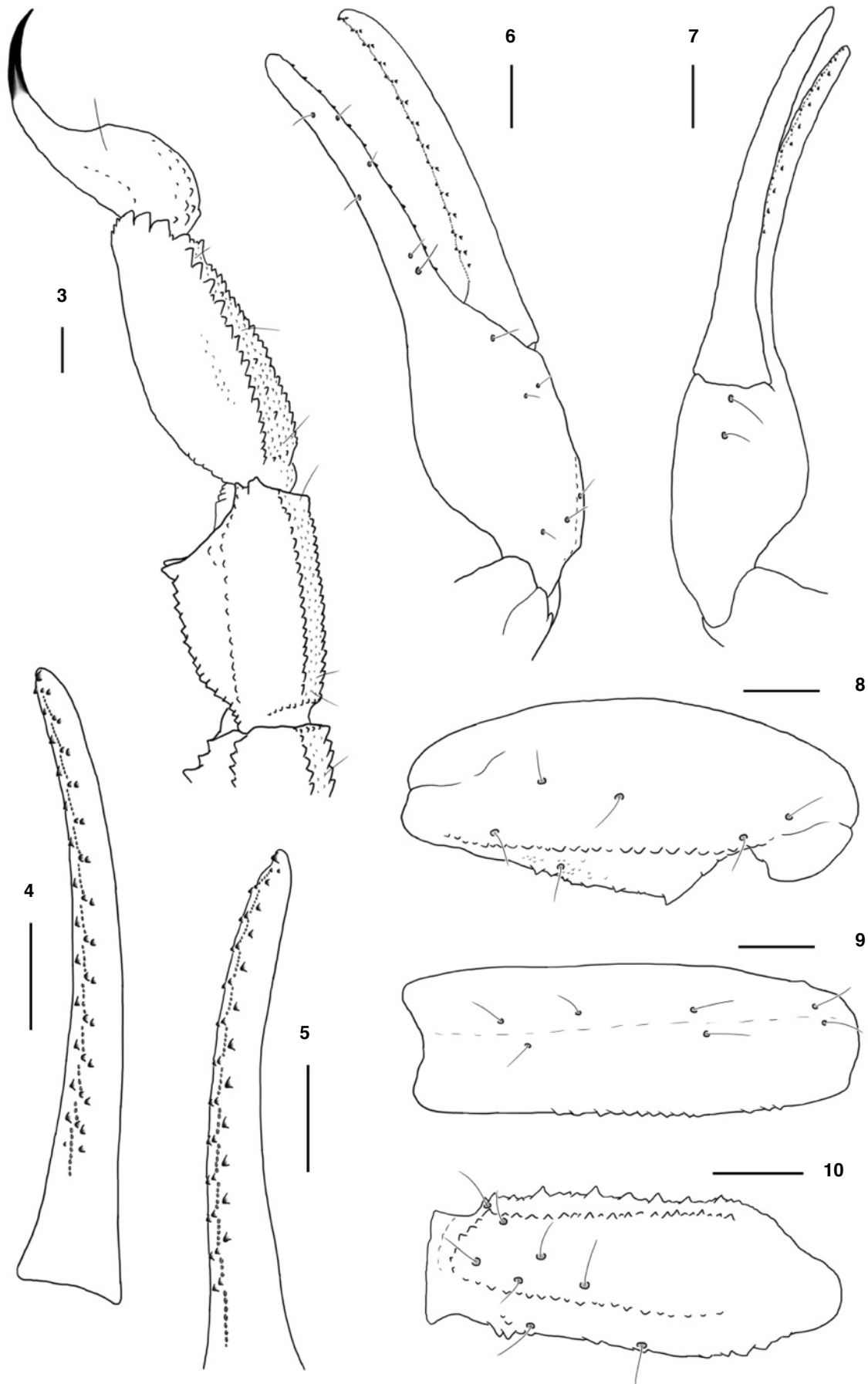


Fig. 3-10. *Androctonus burkinensis* sp. n., ♂ holotype (Scale bars = 1 mm).

3. Metasomal segment IV, V and telson, lateral aspect. 4-5. Cutting edge of pedipalp chela fingers with longitudinal series of granules. 4. Movable finger. 5. Fixed finger. 6-10. Trichobotrial pattern. 6. Chela, dorso-external aspect. 7. Chela, ventral aspect. 8. Patella, dorsal aspect. 9. Patella, external aspect. 10. Femur, dorsal aspect.

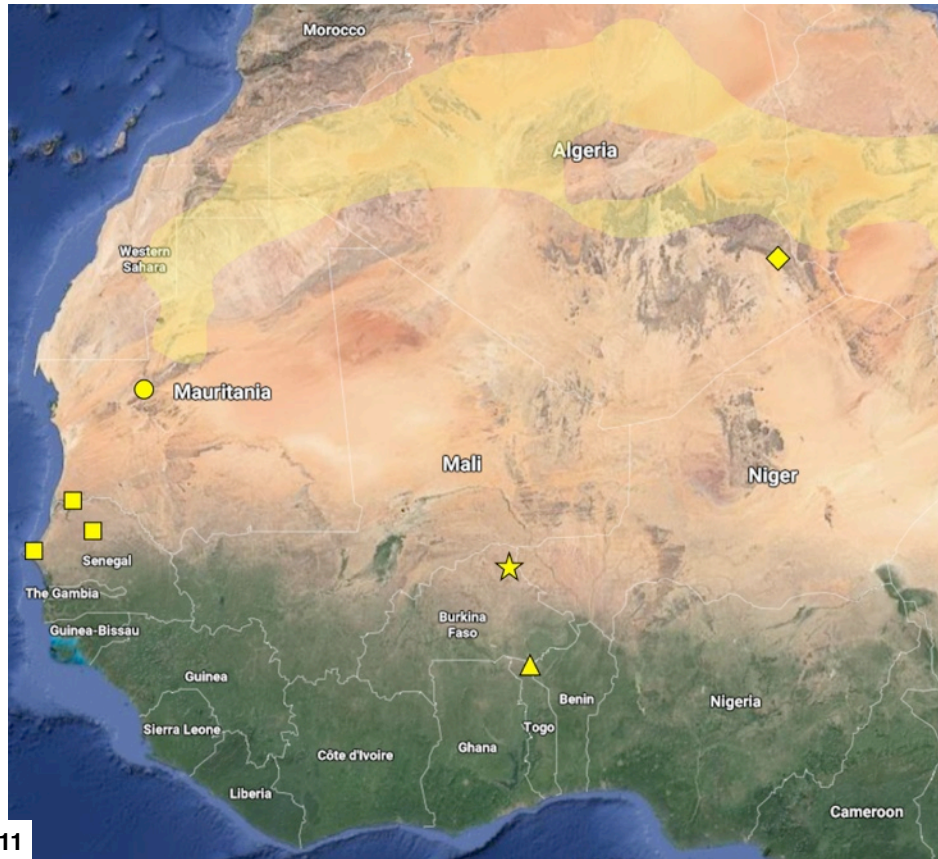


Fig. 11. Map of Northwestern Africa showing the possible zone of distribution of *A. amoreuxi* (yellow area; from Lourenço, 2008) and the type localities of *A. aleksandrplotkini* (circle), *A. dekeyseri* (square), *A. eburneus* (rhombus), *A. togolensis* (triangle) and *A. burkinensis* sp. n. (star).

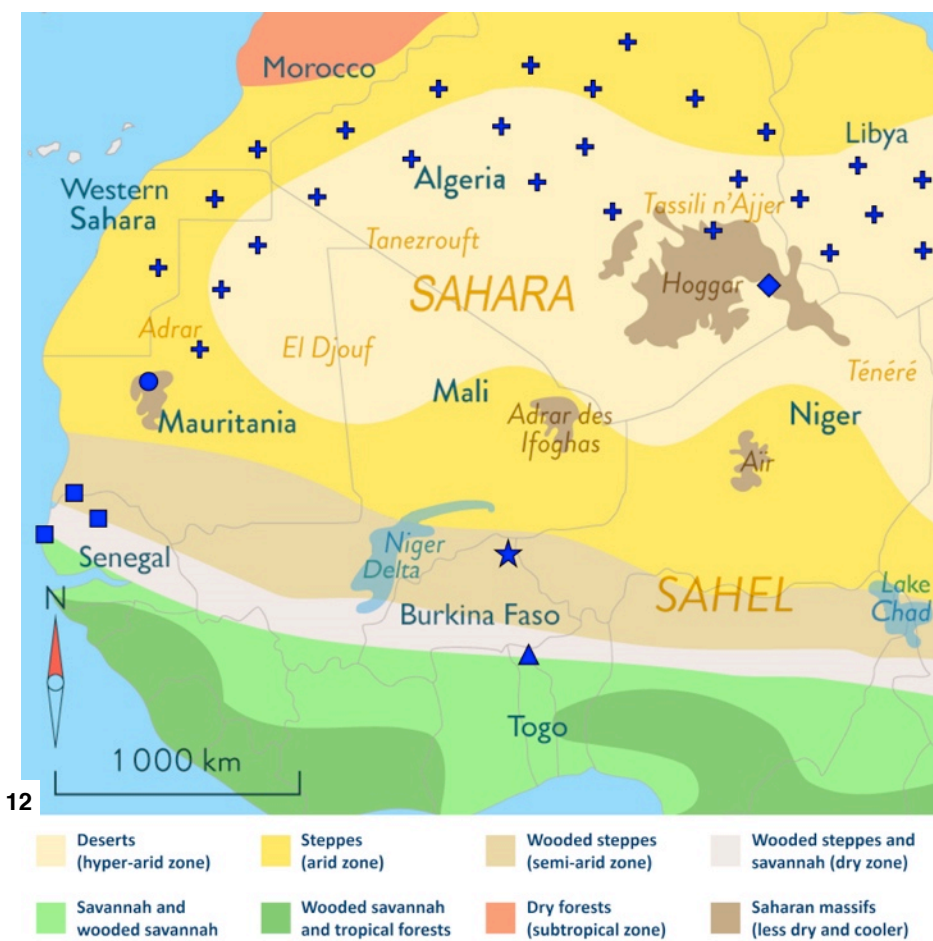


Fig. 12. Map of Northwestern Africa showing the main climatic zones and associated vegetation types, including the possible zone of distribution of *A. amoreuxi* (cross area; from Lourenço, 2008) and the type localities of *A. aleksandrplotkini* (circle), *A. dekeyseri* (square), *A. eburneus* (rhombus), *A. togolensis* (triangle) and *A. burkinensis* sp. n. (star).

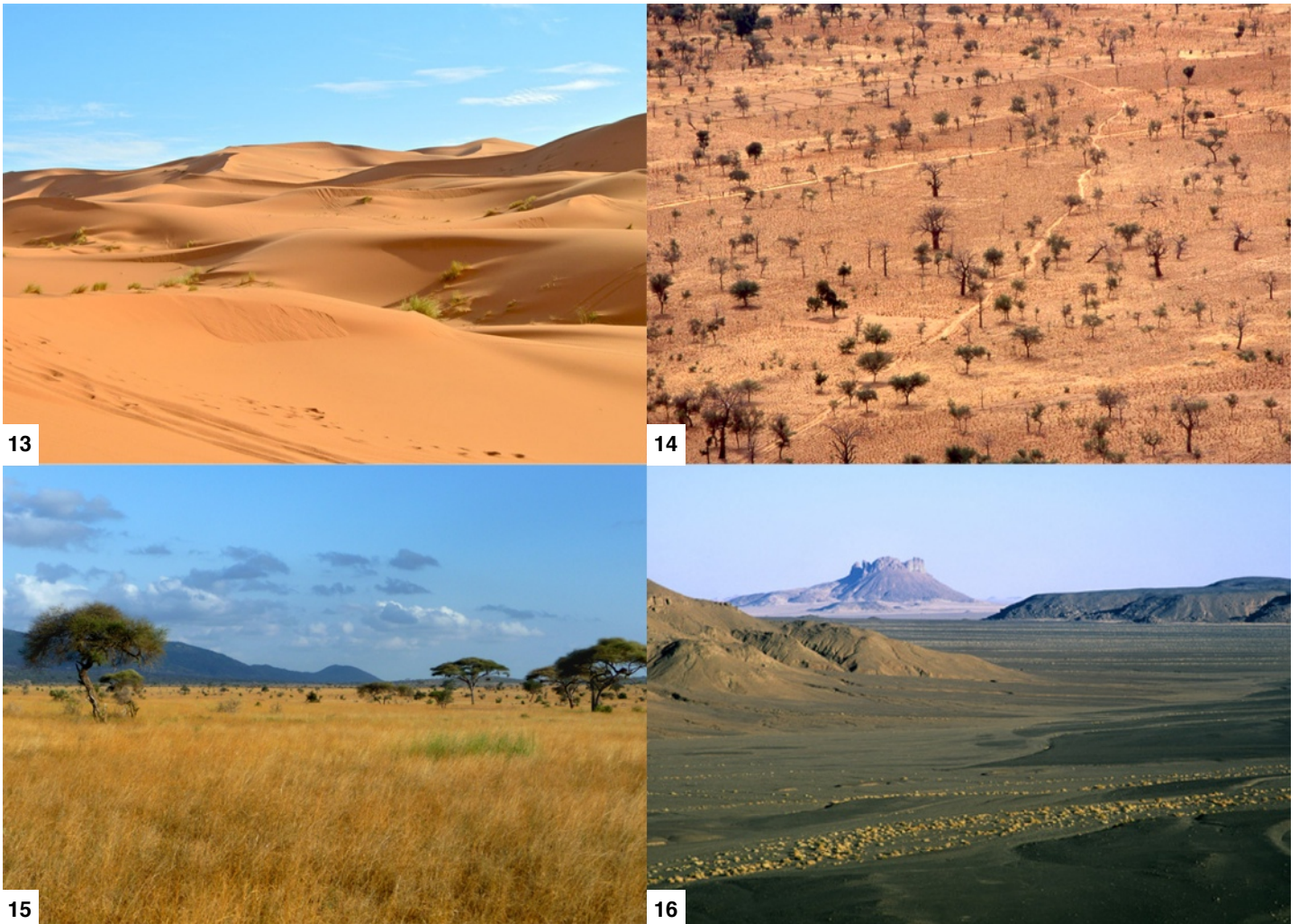


Fig. 13-16. Natural habitats of related *Androctonus* species discussed in this work. **13.** Sahara desert (*A. amoreuxi* and *A. aleksandrplotkini*). **14.** Sahel wooded steppe (*A. burkinensis* **n. sp.** and *A. dekeyseri*). **15.** Savannah formation (*A. togolensis*). **16.** Saharan massif (*A. eburneus*).

These two species can however be easily distinguished from *A. burkinensis* **n. sp.** notably by the following main features:

- *A. togolensis*

(i) scorpions of medium size for the genus with a total length of 57 to 60 mm in males (small size with a total length of 48.5 mm for the male *A. burkinensis* **n. sp.** (Tab. I)),

(ii) carinae and granulations weakly to moderately marked on carapace and tergites (moderately to strongly marked in *A. burkinensis* **n. sp.**),

(iii) fixed finger with 11 rows of granules, movable finger with 12 rows of granules (13-13 in *A. burkinensis* **n. sp.**),

(iv) metasoma with lateral inframedian carinae represented by 3-4 granules on segment II, absent on III (8-9 granules on distal two thirds of segment II, 2-3 granules on III in *A. burkinensis* **n. sp.**) and with dorsal carinae of segments II-IV with one bigger posterior spinoid granule (spinoid granule only present on III-IV in *A. burkinensis* **n. sp.**),

(v) metasoma with carinae slightly reddish (not pigmented in *A. burkinensis* **n. sp.**),

(vi) distinct type of habitat, the savannah-like formations of Northern Togo (wooded steppes of Sahel in Northern Burkina Faso for *A. burkinensis* **n. sp.** (Fig. 11-16)).

- *A. eburneus*

(i) pectinal tooth count 37-38 in male (33 in male of *A. burkinensis* **n. sp.**),

(ii) fixed finger with 12 rows of granules, movable finger with 13 rows of granules (13-13 in *A. burkinensis* **n. sp.**),

(iii) different morphometric ratios in pedipalps including chela fingers proportionally longer (movable finger length / chela palm length 2.15 in *A. eburneus*, 1.62 in *A. burkinensis* **n. sp.** (Tab. I)),

(iv) very distinct type of habitat, the Saharan massif of Tassili N'Ajjer in Southern Algeria (wooded steppes of Sahel in Northern Burkina Faso for *A. burkinensis* **n. sp.** (Fig. 11-16)).

In addition, *Androctonus burkinensis* **n. sp.** can also be easily distinguished from other related yellowish species occurring in the region by the following main features:

(i) small size for the genus with a total length of 48.5 mm for the male (77 mm and up to 100 mm for the males of *A. dekeyseri* and *A. amoreuxi*, respectively),

(ii) uniform yellowish coloration without spots (thin reticular spots over the body and appendages in *A. aleksandrplotkini*),

(iii) fixed and movable fingers with 13 rows of granules (11-12 in *A. aleksandrplotkini*, 12-13 in *A. dekeyseri* and *A. amoreuxi*),

(iv) metasomal segments narrow and of approximately the same width (strongly enlarged posteriorly in *A. dekeyseri*) and with a moderately deep dorsal depression (deep in *A. dekeyseri*, shallow in *A. aleksandrplotkini* and very feebly marked in *A. amoreuxi*),

(v) metasoma with dorsal carinae of segments III-IV with one bigger posterior spinoid granule (no spinoid granules in *A. aleksandrplotkini* and *A. amoreuxi*), distinct type of habitat, the wooded steppes of Sahel in Northern Burkina Faso (deserts of the core and peri-saharan regions for *A. amoreuxi* and *A. aleksandrplotkini* (Fig. 11-16)).

Table I. Morphometric values (in mm) of the male holotype of *Androctonus burkinensis* sp. n., male holotype of *Androctonus togolensis* and male lectotype of *Androctonus eburneus*.

	<i>A. burkinensis</i> sp. n.	<i>A. togolensis</i>	<i>A. eburneus</i>
	♂ holotype	♂ holotype	♂ lectotype
Total length (including telson)	48.5	56.7	47.6
Carapace:			
- Length	6.3	7.2	6.8
- Anterior width	3.5	4.8	4.5
- Posterior width	6.4	7.8	7.2
Mesosoma length	9.9		
Metasomal segment I:			
- Length	3.8	4.8	4.1
- Width	3.9	4.9	4.3
Metasomal segment II:			
- Length	4.7		
- Width	3.9		
Metasomal segment III:			
- Length	5.0		
- Width	3.9		
Metasomal segment IV:			
- Length	5.9		
- Width	3.6		
Metasomal segment V:			
- Length	6.5	8.5	7.2
- Width	3.5	4.5	3.6
- Depth	3.0	3.8	3.1
Telson length:	6.4		
Vesicle:			
- Length	3.3		
- Width	2.5	3.0	2.6
- Depth	2.2	2.5	2.3
Pedipalp:			
- Femur length	4.7	5.8	5.1
- Femur width	1.8	2.2	1.8
- Patella length	6.0	7.0	6.3
- Patella width	2.6	3.2	2.6
- Chela length	10.2	12.2	10.7
- Chela width	2.3	3.6	2.3
- Chela depth	2.5	3.6	2.5
- Movable finger length	6.3	7.9	7.3

References

- Dupré G., 2019. – Les scorpions d’Afrique de l’Ouest. *Arachnides*, 91: 1-13.
- Fet V., Sissom W. D., Lowe G. & Braunwalder M. E., 2000. – Catalog of the Scorpions of the World (1758–1998). New York, New York Entomological Society, 690 pp.
- Hjelle J. T., 1990. – Anatomy and morphology. Pp. 9-63. In: G. A. Polis (ed.), *The Biology of Scorpions*. Stanford Univ. Press, 587 pp.
- Lourenço W. R., 2005. – Nouvelles considérations taxonomiques sur les espèces du genre *Androctonus* Ehrenberg, 1828 et description de deux nouvelles espèces (Scorpionnes, Buthidae). *Revue suisse de Zoologie*, 112(1): 145-171.
- Lourenço W. R., 2008. – A new species of *Androctonus* Ehrenberg, 1828 from Togo (Scorpionnes, Buthidae). *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg*, 15(179), 37-44.
- Lourenço W. R. & Qi J.-X., 2006. – A new species of *Androctonus* Ehrenberg, 1828 from Afghanistan (Scorpionnes, Buthidae). *Zoology in the Middle East*, 38: 93-97.
- Lourenço W. R. & Qi J.-X., 2007. – A new species of *Androctonus* Ehrenberg, 1828 from Mauritania (Scorpionnes, Buthidae). *Boletín de la Sociedad Entomológica Aragonesa*, 40: 215-219.
- Prost A., 1982. – L'identification des scorpions de Haute-Volta. *Notes et documents Voltaïques*, 13 (1): 4-10.
- Stahnke H. L., 1970. – Scorpion nomenclature and mensuration. *Entomological News*, 81: 297-316.
- Vachon M., 1948. – Etudes sur les Scorpions. III (suite). Description des Scorpions du Nord de l’Afrique. *Archives de l’Institut Pasteur d’Algérie*, 26(3): 288-316.
- Vachon M., 1952. – Etudes sur les scorpions. Publications de l’Institut Pasteur d’Algérie, Alger: 482 pp.
- Vachon M., 1963. – De l’utilité, en systématique, d’une nomenclature des dents des chélicères chez les Scorpions. *Bulletin du Muséum national d’Histoire naturelle*, Paris, 2e sér., 35 (2): 161-166.
- Vachon M., 1974. – Etude des caractères utilisés pour classer les familles et les genres de Scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriax et types de trichobothriotaxie chez les Scorpions. *Bulletin du Muséum national d’Histoire naturelle*, Paris, 3e sér., n° 140, Zool. 104: 857-958.
- 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. *Comptes Rendus des Séances de l’Académie de Sciences*, 281 (D): 1597-1599.

Résumé

Ythier E., 2021. – Une nouvelle espèce d’*Androctonus* Ehrenberg, 1828 des steppes boisées sahéliennes du Burkina Faso (Scorpionnes: Buthidae). *Faunitaxys*, 9(31): 1 – 7.

Une nouvelle espèce appartenant au genre *Androctonus* Ehrenberg, 1828 est décrite sur la base d’un spécimen mâle collecté dans les steppes boisées du Sahel dans le nord du Burkina Faso. La nouvelle espèce est caractérisée par une petite taille en comparaison des autres espèces du genres, une coloration jaunâtre à jaune pâle sans taches plus foncées, et les segments du metasoma étroits avec le sillon sur la face dorsale moyennement profond. Ce nouveau taxon représente la 30^{ème} espèce d’*Androctonus* décrite à ce jour.

Mots clés. – Scorpion, *Androctonus*, *burkinensis*, taxonomie, nouvelle espèce, description, morphologie, Sahel, steppes boisées, Burkina Faso.

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Illustration de la couverture : aculeus of *Androctonus burkinensis* sp. n.

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Fig. 12: <https://www.schoolmouv.fr/cours/le-sahara-ressources-et-conflits-2/fiche-de-cours> (modifié)

Fig. 13: <https://www.pourlascience.fr/sd/climatologie/comment-le-sahara-vert-a-disparu-12749.php> (© **Marion Couturier**)

Fig. 14: <https://www.peuplesdumonde.voyagesaventures.com/lageographie/g%C3%A9ographie-de-lafrique/afrique-de-louest/afrique-sah%C3%A9lienne.html> (© **Peuples du monde**)

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