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Eric Ythier

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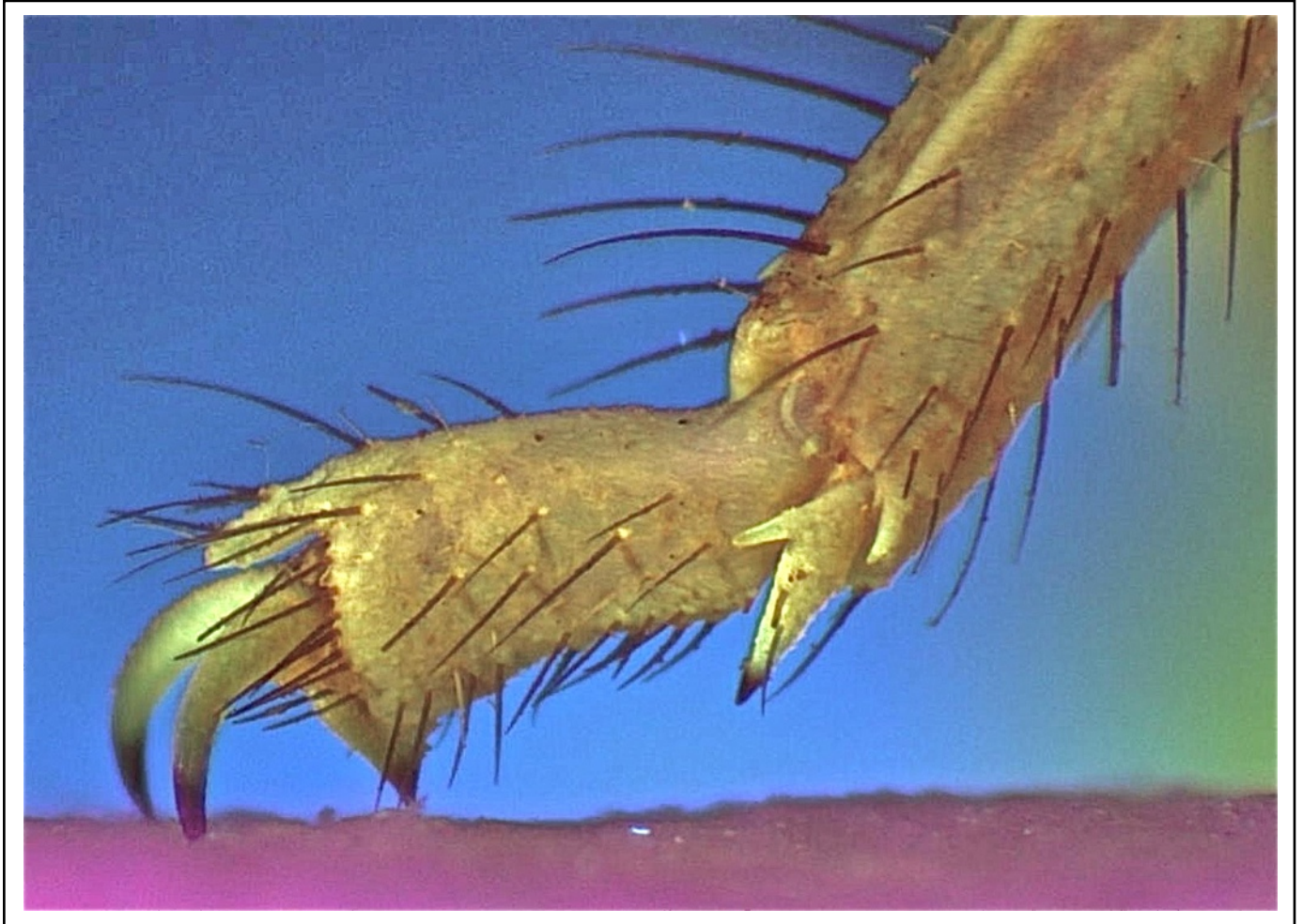
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A new species of *Buthus* Leach, 1815 from the savannas of Burkina Faso (Scorpiones: Buthidae)

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Scorpion;
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description;
morphology;
savanna;
Burkina Faso.

Abstract. – A new species of *Buthus* Leach, 1815 is described on the basis of one adult female specimen collected in the savannas of Western Burkina Faso. The new species is mainly characterized by a brownish yellow coloration with dark brownish to blackish confluent spots on tergites forming a blurred dark trivittate pattern, most carinae and granulations marked with dark brownish to blackish pigment, ventral carinae of metasomal segments II-III strongly marked and pedipalp chela manus of female quite slender. This new taxon represents the 7th known scorpion species reported from Burkina-Faso and the 5th described species for the genus *Buthus* in the sub-Saharan region of Western Africa. The presence of *B. elhennawyi* Lourenço, 2005 in Mali is also herewith reported.

Ythier E., 2021. – A new species of *Buthus* Leach, 1815 from the savannas of Burkina Faso (Scorpiones: Buthidae). *Faunitaxys*, 9(40): 1 – 5.

ZooBank: <http://zoobank.org/96011195-6FE1-4ADA-BB9F-226B5978CB7D>

Introduction

As already outlined in several papers (Lourenço, 2005a, 2005b, 2009; Lourenço & Leguin, 2012; Rossi, 2017), the presence of the genus *Buthus* in the sub-Saharan region of Western Africa was reported by Vachon (1949, 1952) but the identity of these populations distributed mainly from Senegal to Niger has long remained confuse. Vachon (1952) originally reported with a question mark the subspecies *Buthus occitanus occitanus* Amoreux, 1789 from this large area corresponding to the former French West Africa. However since then, several studies demonstrated that the distribution of *B. occitanus* does not extend beyond Southern France and North-eastern Spain (e.g. Gantenbein and Largiadèr 2003, Sousa et al. 2012, Pedroso et al. 2013). The status of one population from Guinea and Senegal was first clarified by Lourenço (2005), describing it as a new species, *Buthus elizabethae* Lourenço, 2005. Later, the taxonomic position of more populations from sub-Saharan West Africa was also clarified with the description of *Buthus elhennawyi* Lourenço, 2005 from Senegal and Niger, *Buthus prudenti* Lourenço & Leguin, 2012 from Cameroon and *Buthus danyii* Rossi, 2017 from Ghana.

Recent discovery in the collections of the Musée d'Histoire Naturelle de Lyon, France (MHNL) of a specimen collected in the savannas of Eastern Burkina Faso, has led to the description of another new species of *Buthus* from the sub-Saharan region. The new species can be associated with the “*Buthus occitanus*” complex of species and is mainly characterized by a brownish yellow coloration with dark brownish to blackish confluent spots on tergites forming a blurred dark trivittate pattern, most carinae and granulations marked with dark brownish to blackish pigment, ventral carinae of metasomal segments II-III strongly marked and pedipalp chela manus of female quite

slender. This new taxon represents the 7th known scorpion species reported from Burkina-Faso and the 5th described species for the genus *Buthus* in the sub-Saharan region of Western Africa.

In addition, the recent discovery in the collections of the MHNL of a *Buthus* specimen collected in Mali (Dogon Country) and corresponding to *B. elhennawyi*, described from Senegal and Niger, allows us to report the presence of this species also in Mali.

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). Specimens studied herein are deposited in the MHNL (Musée d'Histoire Naturelle de Lyon (Musée des Confluences), CCEC, Lyon, France).

Composition of the genus *Buthus* in the sub-Saharan region of West Africa (in order of description)

- *Buthus elizabethae* Lourenço, 2005 (Guinea, Senegal)
- *Buthus elhennawyi* Lourenço, 2005 (Mali, Niger, Senegal)
- *Buthus prudenti* Lourenço & Leguin, 2012 (Cameroon)
- *Buthus danyii* Rossi, 2017 (Ghana)
- *Buthus bobo* sp. n. (Burkina Faso)

Taxonomic treatment

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

Genus ***Buthus*** Leach, 1815

Buthus elhennawhyi Lourenço, 2005

1 subadult ♂, Mali, Dogon country, XII/1985 (D. Verdon), deposited in the MHNL (47023109).

***Buthus bobo* sp. n.**

(Fig. 1-6)

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Buthus occitanus occitanus: Vachon, 1952: 269-270.

Buthus occitanus: Fet et al., 2000: 94.

Buthus sp.: Sousa et al., 2017: 16, 18.

Holotype, ♀, Burkina Faso (Haute-Volta according to the original label), Hauts-Bassins region, Houet Province, Bobo-Dioulasso, ca. 1950 (P. Cauchois), Cauchois family leg., 20/XII/2001, deposited in the MHNL (47023073).

Etymology. – The specific name is placed in apposition to the generic name and refers to the Bobo ethnic group, living in the area where the new species was found, Bobo-Dioulasso.

Diagnosis. – Scorpion of medium to large size for the genus, with a total length of 63 mm for the adult female holotype. General coloration brownish yellow; tergites with conspicuous dark brownish to blackish confluent spots on lateral areas, forming a blurred dark trivittate pattern; carinae and granulations marked with dark brownish to blackish pigment on carapace, tergites, metasoma and femur and patella of pedipalps and legs. Granulations weak to moderate and carinae moderate to strong on carapace, tergites and metasoma; ventral carinae of metasoma strongly marked on segments II-III with 13-14 lobate granules; anal arc composed of 12 ventral teeth and two lateral lobes. Telson without subaculear tooth; aculeus strongly curved and shorter than vesicle. Pectines with 26-26 teeth in female holotype. Pedipalp chela manus slender with chela length/width ratio 4.59 and length/depth ratio 4.15 in female; fixed finger with 13 rows of granules, movable finger with 12 rows of granules. Leg tarsus with two longitudinal rows of 7-8 long setae ventrally.

Description (based on female holotype).

Coloration. – Basically brownish yellow. Prosoma: carapace yellowish to brownish yellow with carinae, granulations and ocular tubercle marked with dark brownish to blackish pigment. Mesosoma brownish yellow with conspicuous dark brownish to blackish confluent spots on lateral areas, forming a blurred dark trivittate pattern; tergite VII slightly less pigmented, yellowish; carinae and granulation marked with dark brownish to blackish pigment. Metasomal segments yellowish with carinae marked with dark brownish pigment; segment IV and proximal half of segment V slightly darker, ventrally; telson vesicle yellowish, aculeus yellowish orange at its base and blackish at its extremity. Venter yellowish with some brownish areas. Chelicerae yellowish without any variegated spots; fingers yellowish with dark red teeth. Pedipalps yellowish to brownish yellow with carinae of femur and patella marked with dark brownish to blackish pigment; fingers with the oblique rows of granules dark red. Legs yellowish with carinae of femur and patella marked with dark brownish pigment.

Morphology. – Carapace weakly to moderately granular; anterior margin almost straight. Carinae strongly marked; anterior median, central median and posterior median carinae strongly granular, with lyre-shaped configuration. All furrows moderate to strong. Median ocular tubercle located in the centre of the carapace; eyes separated by about three ocular diameters; four pairs of lateral eyes, the first three of moderate size, the last only vestigial. Sternum triangular, wider than long. Mesosoma: tergites moderately granular. Three longitudinal carinae moderately to strongly crenulate in all tergites; lateral carinae reduced in tergite I; tergite VII pentacarinata. Venter: genital operculum divided



Fig. 1-2. *Buthus bobo* sp. n., ♀ holotype, habitus (dried specimen). 1. Dorsal aspect. 2. Ventral aspect. Scale bar = 1 cm.

longitudinally, each plate with a semi-triangular shape. Pectines: pectinal tooth count 26-26 in female holotype; middle basal lamella of the pectines not dilated. Sternites without granules, smooth with elongated spiracles; four moderate carinae on sternite VII, two weak on VI, other sternites acarinated and with two vestigial furrows. Metasomal segments with a weak setation; segment I with ten complete carinae, II-IV with eight, V with five; intermediate carinae complete on segment I, present on distal two-thirds of II, on distal half of III, absent on IV-V; ventral carinae moderately marked on all segments except on II-III where they are strongly marked with 13-14 lobate granules; segment V with latero-ventral carinae crenulate with 2-3 lobate denticles posteriorly; ventral median carina only slightly divided posteriorly, over 1/5 of the total length; anal arc composed of 12 ventral teeth and two lateral lobes. Intercarinal spaces weakly granular except for the ventral aspect of segment V which presents a thin intense granulation and some larger granules. Telson with some vestigial granulations ventrally and laterally; aculeus strongly 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 not fused; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps with a weak setation; femur pentacarinata; patella with 8 carinae moderately to strongly marked, all faces weakly granular; chela with vestigial carinae, almost smooth; fixed finger with 13 rows of granules, movable finger with 12 rows of granules; internal and external accessory granules present and moderate; three accessory granules on the distal end of the movable finger next to the terminal denticle. Legs: tarsus with two longitudinal rows of 7-8 long setae ventrally; tibial spurs strong on legs III and IV; pedal spurs 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).

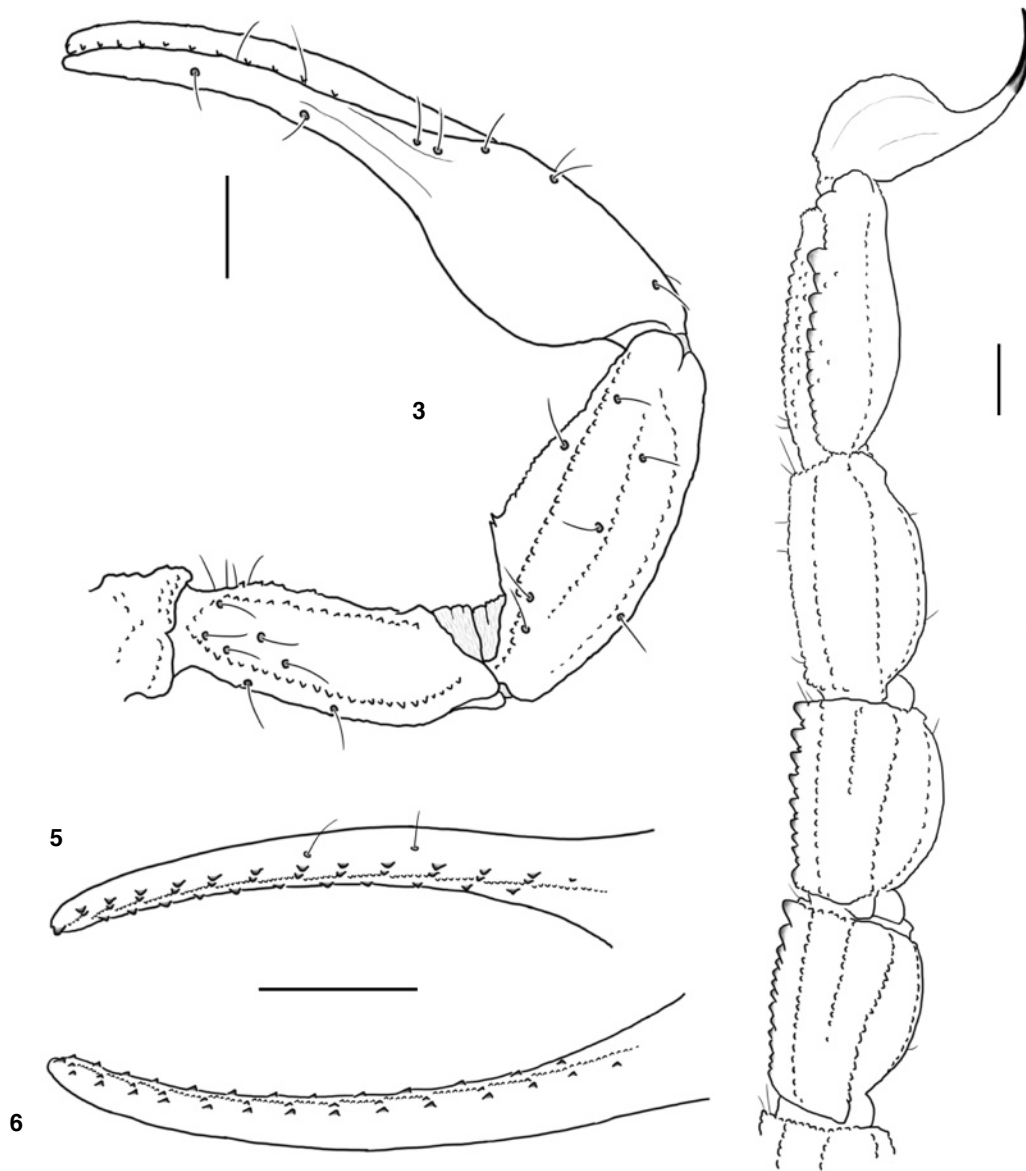


Fig. 3-6. *Buthus bobo* sp. n., ♀ holotype. **3.** Metasomal segments II to V and telson, lateral aspect. **4.** Pedipalp femur, patella and chela, dorsal aspect, showing the trichobothrial pattern. **5-6.** Cutting edge of pedipalp chela fingers with longitudinal series of granules. **5.** Fixed finger. **6.** Movable finger. Scale bars = 2 mm.

Morphometric values (mm), female holotype.

- Total length: 62.85 (including telson length).
- Carapace: length 7.62; anterior width 4.29; posterior width 7.71.
- Mesosoma: length 16.19.
- Metasomal segments
 - I: length 4.76; width 5.05;
 - II: length 5.62; width 4.86;
 - III: length 5.71; width 4.67;
 - IV: length 7.05; width 4.67;
 - V: length 8.19; width 4.38; depth 3.52.
- Telson: length 7.71.
- Vesicle: length 4.38; width 3.33; depth 3.05.
- Pedipalp
 - femur, length 6.67; width 2.10;
 - patella, length 7.14; width 2.95;
 - chela, length 12.67; width 2.76; depth 3.05.
- Movable finger: length 8.29.
- Morphometric ratios
 - Metasomal segment I length/width 0.94;
 - segment III length/width 1.22;
 - segment V length/width 1.87; length/depth 2.33.

Pedipalp chela length/width 4.59; length/depth 4.15;
chela length/movable finger length 1.53.

Telson vesicle length/aculeus length 1.31.

Relationships. – *Buthus bobo* sp. n. can be associated with the “*Buthus occitanus*” complex of species. It can be distinguished from other species of *Buthus* distributed in the sub-Saharan region of Western Africa, by the following main features:

– *B. danyii* from Ghana:

- (i) general coloration yellowish without darker pigmentation (general coloration brownish yellow with conspicuous dark brownish to blackish confluent spots on lateral areas of tergites, forming a blurred dark trivittate pattern in *B. bobo* sp. n.),
- (ii) carinae and granulations without darker pigmentation (carinae and granulations marked with dark brownish to blackish pigment on carapace, tergites, metasoma and femur and patella of pedipalps and legs in *B. bobo* sp. n.),
- (iii) carapace with carinae moderately marked (strongly marked in *B. bobo* sp. n.),
- (iv) ventral carinae of metasomal segments II-III with little marked granules (strongly marked with lobate granules in *B. bobo* sp. n.),
- (v) fixed and movable fingers with 12-11 rows of granules, respectively (13-12 respectively in *B. bobo* sp. n.),

(vi) aculeus approximately as long as vesicle (shorter than vesicle in *B. bobo* sp. n.).

– *B. elizabethae* from Guinea and Senegal:

(i) general coloration pale yellow without darker pigmentation (general coloration brownish yellow with conspicuous dark brownish to blackish confluent spots on lateral areas of tergites, forming a blurred dark trivittate pattern in *B. bobo* sp. n.),

(ii) carinae and granulations without darker pigmentation on tergites, pedipalps and legs, slightly reddish on carapace and metasoma (carinae and granulations marked with dark brownish to blackish pigment on carapace, tergites, metasoma and femur and patella of pedipalps and legs in *B. bobo* sp. n.),

(iii) carapace with carinae moderately marked and furrows moderate to weak (granulation strongly marked and furrows moderate to strong in *B. bobo* sp. n.),

(iv) anal arc composed of 7-8 ventral teeth (12 in *B. bobo* sp. n.),

(v) fixed and movable fingers with 12 rows of granules (13-12 respectively in *B. bobo* sp. n.),

(vi) aculeus approximately as long as vesicle (shorter than vesicle in *B. bobo* sp. n.),

(vii) female pedipalp chela manus more globose with chela length/width and length/depth ratios 3.84 and 3.72, respectively (4.59 and 4.15 respectively in *B. bobo* sp. n.).

– *B. prudenti* from Cameroon:

(i) carinae and granulations without darker pigmentation on carapace, metasoma and legs, slightly darker or reddish on tergites and pedipalps (carinae and granulations marked with dark brownish to blackish pigment on carapace, tergites, metasoma and femur and patella of pedipalps and legs in *B. bobo* sp. n.),

(ii) carapace and tergites strongly granular (weakly to moderately granular in *B. bobo* sp. n.),

(iii) ventral carinae of metasoma strongly marked on segments II to IV (strongly marked on II-III in *B. bobo* sp. n.),

(iv) anal arc composed of 8-9 ventral teeth (12 in *B. bobo* sp. n.),

(v) fixed and movable fingers of female with 11 rows of granules (13-12 respectively in *B. bobo* sp. n.),

(vi) female pedipalp chela manus more globose with chela length/width and length/depth ratios 4.21 and 3.94, respectively (4.59 and 4.15 respectively in *B. bobo* sp. n.).

– *B. elhennawhyi* from Senegal, Mali and Niger:

(i) small size for the genus (medium to large size in *B. bobo* sp. n. with total length of 68 mm for the female holotype),

(ii) general coloration yellowish without darker pigmentation (general coloration brownish yellow with conspicuous dark brownish to blackish confluent spots on lateral areas of tergites, forming a blurred dark trivittate pattern in *B. bobo* sp. n.),

(iii) carinae and granulations without darker pigmentation on legs, slightly reddish on carapace, tergites, metasoma and pedipalps (carinae and granulations marked with dark brownish to blackish pigment on carapace, tergites, metasoma and femur and patella of pedipalps and legs in *B. bobo* sp. n.),

(iv) ventral carinae of metasoma strongly marked on segments II to IV (strongly marked on II-III in *B. bobo* sp. n.),

(v) anal arc composed of 8-9 ventral teeth (12 in *B. bobo* sp. n.),

(vi) telson with vestigial subaculear tooth (absent in *B. bobo* sp. n.),

(vii) fixed and movable fingers with 11 to 12 rows of granules (13-12 respectively in *B. bobo* sp. n.).

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Fig. 7. Map of Northwestern Africa showing the known localities of the five sub-saharan *Buthus* species: *B. elizabethae* (square), *B. elhennawhyi* (circle), *B. prudenti* (rhombus), *B. danyii* (triangle) and *B. bobo* sp. n. (star). Type locality of *B. occidentalis* Lourenço, 2009 is also indicated (inverted triangle).

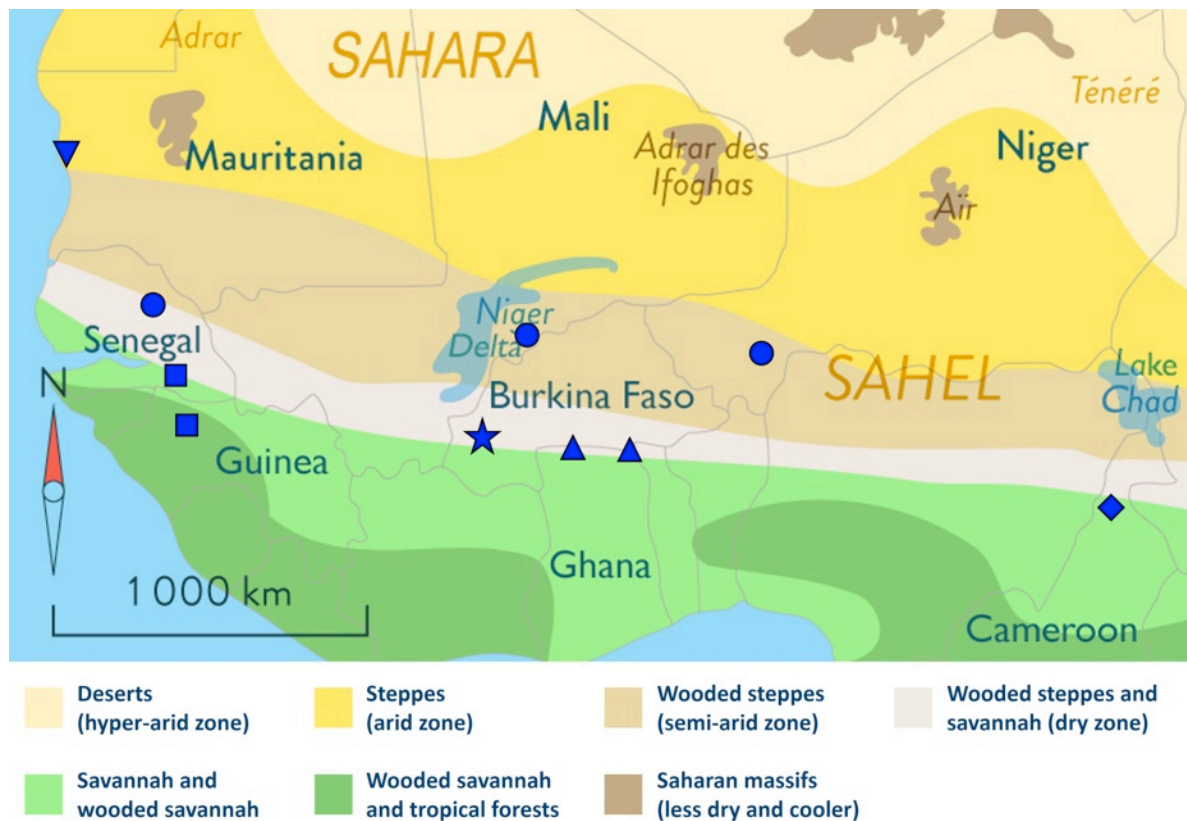


Fig. 8. Map of Northwestern Africa showing the main climatic zones and associated vegetation types, including the known localities of the five sub-saharan *Buthus* species: *B. elizabethae* (square), *B. elhennawhyi* (circle), *B. prudenti* (rhombus), *B. danyii* (triangle) and *B. bobo* sp. n. (star). Type locality of *B. occidentalis* Lourenço, 2009 is also indicated (inverted triangle).

Résumé

Ythier E., 2021. – Une nouvelle espèce de *Buthus* Leach, 1815 des savanes du Burkina Faso (Scorpiones: Buthidae). *Faunitaxys*, 9(40): 1 – 5.

Une nouvelle espèce appartenant au genre *Buthus* Leach, 1815 est décrite sur la base d'une femelle adulte collectée dans les savanes de l'ouest du Burkina Faso. L'espèce est principalement caractérisée par sa coloration jaune brunâtre avec des taches brunâtres sur les tergites formant trois bandes verticales diffuses, la plupart des carènes et granulations marquées de pigment brunâtre à noirâtre, les carènes ventrales des anneaux metasomiaux II-II fortement marquées et les mains des pédipalpes de la femelle plutôt fines. Ce nouveau taxon représente la septième espèce de scorpion connue pour le Burkina-Faso et la cinquième espèce de *Buthus* décrite pour la zone sub-saharienne d'Afrique de l'Ouest. La présence de *B. elhennawhyi* Lourenço, 2005 au Mali est également confirmée.

Mots clés. – Scorpion, *Buthus*, *bobo*, taxonomie, nouvelle espèce, description, morphologie, savanes, Burkina Faso.

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SOMMAIRE

Une nouvelle espèce de *Buthus* Leach, 1815 des savanes du Burkina Faso (Scorpiones: Buthidae).
Eric Ythier 1 – 5

CONTENTS

A new species of *Buthus* Leach, 1815 from the savannas of Burkina Faso (Scorpiones: Buthidae).
Eric Ythier 1 – 5

Illustration de la couverture : leg tarsus of *Buthus bobo* sp. n.

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Fig. 8 (modifiée) : <https://www.schoolmouv.fr/cours/le-sahara-ressources-et-conflits-2/fiche-de-cours>

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