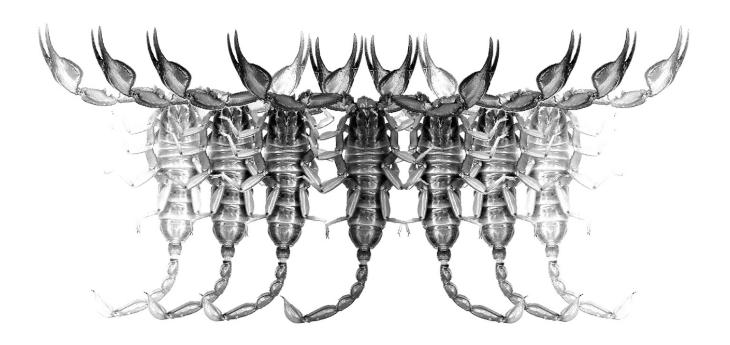
# Euscorpius

# Occasional Publications in Scorpiology



Scorpions of the Horn of Africa (Arachnida: Scorpiones). Part XL. Barbaracurus lowei sp. n. from Ethiopia (Buthidae)

František Kovařík & Hassan Sh Abdirahman Elmi

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# **Euscorpius**

### Occasional Publications in Scorpiology

EDITOR: Victor Fet, Marshall University, 'fet@marshall.edu' ASSOCIATE EDITOR: Michael E. Soleglad, 'msoleglad@gmail.com' TECHNICAL EDITOR: František Kovařík, 'kovarik.scorpio@gmail.com'

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#### Euscorpius — Occasional Publications in Scorpiology. 2025, No. 417

# Scorpions of the Horn of Africa (Arachnida: Scorpiones). Part XL. *Barbaracurus lowei* sp. n. from Ethiopia (Buthidae)

#### František Kovařík & Hassan Sh Abdirahman Elmi

Department of Zoology, Charles University, Viničná 7, CZ-128 44 Praha 2, Czech Republic; <a href="http://www.scorpio.cz">http://www.scorpio.cz</a>

http://zoobank.org/urn:lsid:zoobank.org:pub:12968353-3679-4E8E-B745-E4803E9805D5

#### **Summary**

*Barbaracurus lowei* **sp. n.** from Ethiopia is described and compared with other species of the genus, fully complemented with color photos of specimens of both sexes of the new species, as well as of their habitat. Included is a key for *Barbaracurus* and a map of the distribution of the genus in the Arabian Peninsula and the Horn of Africa.

#### Introduction

The genus *Barbaracurus* Kovařík, Lowe et Šťáhlavský, 2018 with type species *Babycurus sofomarensis* Kovařík et al., 2015, was described and compared to the genus *Babycurus* Karsch, 1886, by Kovařík et al. (2018). To date, 12 allopatric species have been recognized, found mainly in the Horn of Africa and the Arabian Peninsula but also in Cameroon and Nigeria (see also Kovařík et al., 2019; Kovařík et al., 2022; Kovařík, 2024). Here, we report the results of recent fieldwork in Ethiopia (Somali Province), which revealed another new species described as *Barbaracurus lowei* sp. n.. A key to the species of *Barbaracurus*, and a map of the distribution of the genus in the Arabian Peninsula and the Horn of Africa are provided.

#### Methods, Material & Abbreviations

Nomenclature and measurements follow Vachon (1963), Stahnke (1971), Sissom (1990), Kovařík (2009), and Kovařík & Ojanguren Affilastro (2013), except for trichobothriotaxy (Vachon, 1974, 1975), and morphology of sternum (Soleglad & Fet, 2003).

Specimens studied herein are preserved in 80% ethanol in the first authors collection (FKCP, František Kovařík, private collection, Prague, Czech Republic; will in future be merged with the collections of the National Museum of Natural History, Prague, Czech Republic).

#### **Systematics**

**Buthidae** C. L. Koch, 1837 **Barbaracurus** Kovařík, Lowe et Šťáhlavský, 2018 (Figures 1–45, Table 1) Babycurus: Kraepelin, 1913: 179–183 (in part); Fet & Lowe, 2000: 76–80 (in part); Kovařík, 2000: 244–245, 255–256, 260–262, figs. 10, 13, 21–22, 26, 38–40, tables 1–3 (in part); Kovařík, 2009: 30 (in part); Kovařík et al., 2015: 1–31 (in part), figs. 46–123.

Barbaracurus Kovařík, Lowe et Šťáhlavský, 2018: 4–41, figs. 1–10, 24–28, 32–36, 50–251, 258–262, tables 1–2; Kovařík et al., 2019: 1–11, figs. 1–46, table 1; Kovařík et al., 2022: 1–24, figs. 1–107, table 1; Kovařík, 2024: 1–12, figs. 1–33, table 1.

Type species. Babycurus sofomarensis Kovařík et al., 2015.

DIAGNOSIS. Small to medium-sized buthids, adult total length 19-60 mm. Carapace granular, lacking distinct carinae; flat, subrectangular with concave anterior margin. Median eyes on low ocular tubercle located at 1/3 of carapace length from anterior margin. Carapace usually bearing 4, or sometimes 5 pairs of lateral eyes (3 major ocelli, 1-2 minor ocelli). Anterior, central and posterior median furrows distinct, connected by median groove over ocular tubercle. Sternum type 1, triangular in shape. Tergites I-VI granular, with single median carina which may be obsolete on I-II, tergite VII with 5 carinae. Metasoma elongate, segment I with 10 carinae; segments II-IV with 8 carinae, lacking lateral median carina. Metasoma V convex, may be dilated, with carinae either present or obsolete. Telson ellipsoidal, pyriform or slightly bulbous, with a distinct subaculear tooth. Pectines with fulcra. Hemispermatophore capsule with 2-lobed sperm hemiduct and oblique carinate or scoop-like basal lobe, which may be obsolete. Chelicerae with typical buthid dentition, fixed finger with two accessory denticles on ventral surface. Pedipalps orthobothriotaxic, type A $\beta$ ; femur with 'trichobothrium' d, internal; patella with trichobothrium  $d_3$  external to dorsomedian carina,  $esb_2$  close to  $esb_1$ ; chela with trichobothrium  $Eb_2$  distal



Figures 1–2. Barbaracurus lowei sp. n., male paratype in vivo habitus (1) and its type locality (2).

		Barbaracurus lowei sp. n.	Barbaracurus lowei sp. n.
Dimensions (mm)		♂ holotype	♀ paratype
Carapace	L/W	3.01 / 2.72	4.38 / 3.91
Mesosoma	L	8.53	14.11
Tergite VII	L/W	2.17 / 2.58	3.51 / 4.32
Metasoma + telson	L	15.84	22.12
Segment I	L/W/D	1.89 / 1.62 / 1.50	2.76 / 2.24 / 1.88
Segment II	L/W/D	2.30 / 1.50 / 1.45	3.23 / 2.10 / 1.86
Segment III	L/W/D	2.48 / 1.48 / 1.43	3.52 / 2.04 / 1.97
Segment IV	L / W / D	2.88 / 1.48 / 1.40	3.99 / 1.96 / 1.89
Segment V	L / W / D	3.46 / 1.50 / 1.50	4.84 / 1.92 / 1.93
Telson	L/W/D	2.83 / 0.93 / 0.93	3.78 / 1.31 / 1.37
Pedipalp	L	10.72	15.01
Femur	L/W	2.54 / 0.83	3.63 / 1.22
Patella	L/W	3.19 / 1.14	4.58 / 1.66
Chela	L	4.99	6.80
Manus	W / D	1.43 / 1.29	1.76 / 1.65
Movable finger	L	2.78	4.08
Total	L	27.38	40.61

**Table 1**. Comparative measurements of adults of *Barbaracurus lowei* **sp**. **n**. Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (D).

to Eb<sub>1</sub>, db in distal half of fixed finger. Chela manus smooth, with carinae reduced or obsolete; dentate margins of chela movable finger with 6-8 non-imbricated, almost linear or contiguous rows of granules, each row terminated proximally by an enlarged granule flanked by single adjacent internal and external accessory granules. Most proximal granule row without internal accessory denticle, and either with (in species from the Horn of Africa and Arabian Peninsula) or without (in species from Cameroon and Nigeria) a single isolated external accessory granule midway along its length. Chela fixed and movable fingers bearing numerous short macrosetae with blunt, micropapillate tips. Pedipalp chelae sexually dimorphic, males typically with manus dilated and dentate margins of fingers proximally undulate; denticles of undulate subproximal granule rows in males are bicuspid. Tibial spurs absent on leg III, present on leg IV, tibia and tarsus III-IV without bristle combs, ventral surfaces of tarsi equipped with two rows of setae, ungues stout.

Subordinate taxa. *B. exquisitus* (Lowe, 2000) (Oman), *B. feti* Kovařík et al., 2019 (Somaliland), *B. hofereki* Kovařík, 2024 (Djibouti), *B. kabateki* Kovařík et al., 2022 (Saudi Arabia), *B. lowei* sp. n. (Ethiopia), *B. prudenti* (Lourenço, 2013) (Cameroon), *B. sofomarensis* (Kovařík et al., 2015) (Ethiopia), *B. somalicus* (Hirst, 1907) (Somaliland), *B. subpunctatus* (Borelli, 1925) (Ethiopia, Somalia), *B. ugartei* (Kovařík, 2000) (Nigeria), *B. winklerorum* Kovařík et al., 2018 (Oman), *B. yemenensis* Kovařík et al., 2018 (Saudi Arabia, Yemen), *B. zambonellii* (Borelli, 1902) (Eritrea).

# Barbaracurus lowei sp. n. (Figures 1–45, Table 1)

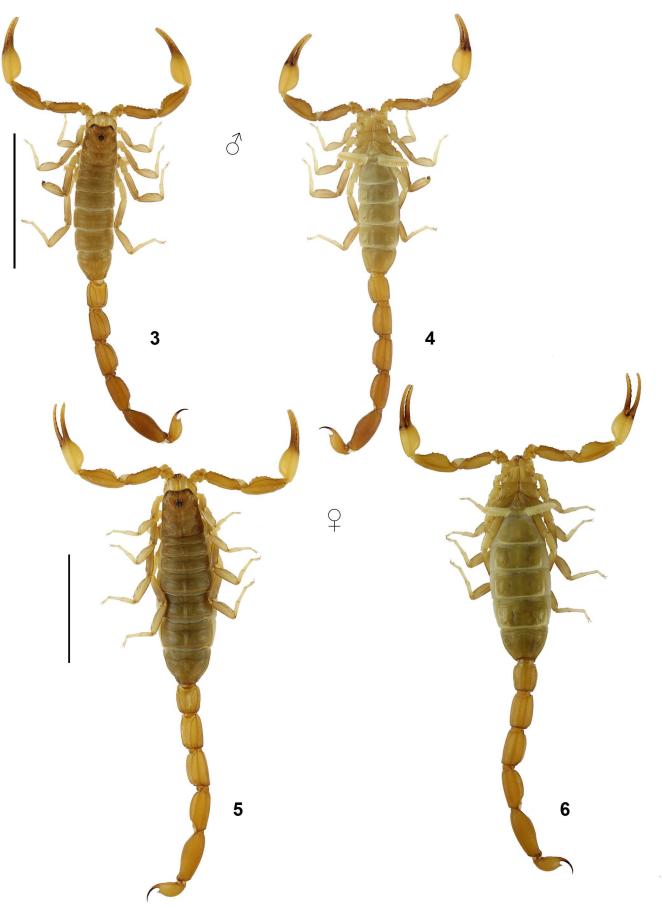
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Type locality and type depository. **Ethiopia**, Somali Province, S of Kebri Dahar, NE of Wabiyar village (farm), 06°33'20"N 44°15'04"E (06.55°N 44.25°E), 480 m a. s. l.; FKCP.

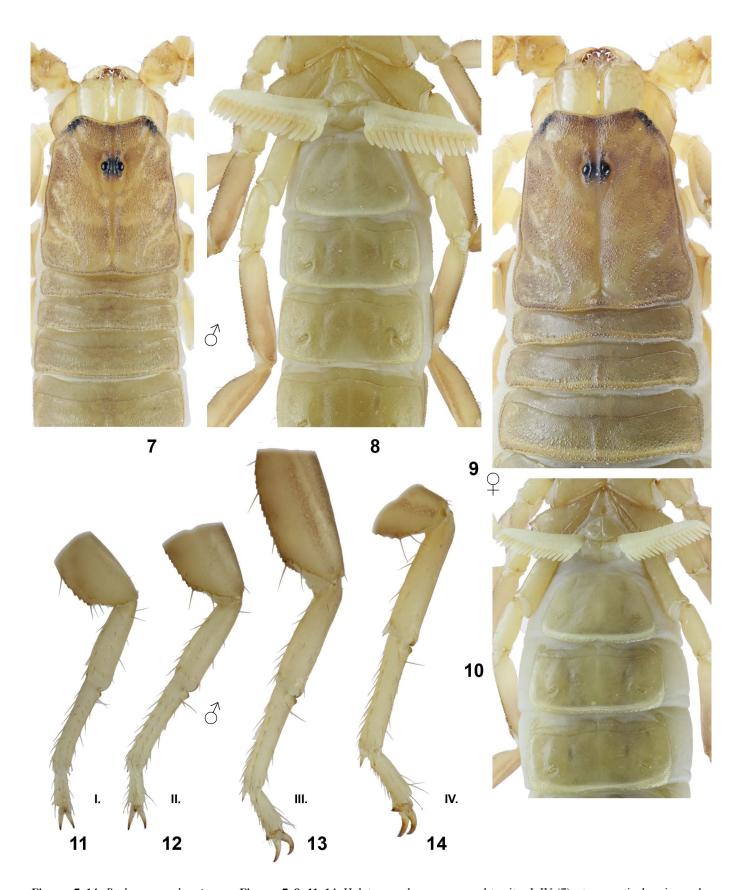
MATERIAL EXAMINED (FKCP). **Ethiopia**, Somali Province, S of Kebri Dahar, NE of Wabiyar village (farm), 06°33'20"N 44°15'04"E (06.55°N 44.25°E), 480 m a. s. l. (locality No. **25EB**, Fig. 2 and fig. 130 in Kovařík et al., 2024), VI.2024, 3♂ (paratypes), leg. H. Elmi, 13–16 June 2025, 1♂ (holotype), 3♂2♀ (paratypes, DNA No. 2893), leg. F. Kovařík et H. Elmi.

ETYMOLOGY. The first author is pleased to name this species after his friend and colleague, Graeme Lowe (Philadelphia, USA), who contributed greatly to the knowledge of scorpions worldwide. His assistance in understanding and descriptions of the genus *Barbaracurus* and its species was crucial.

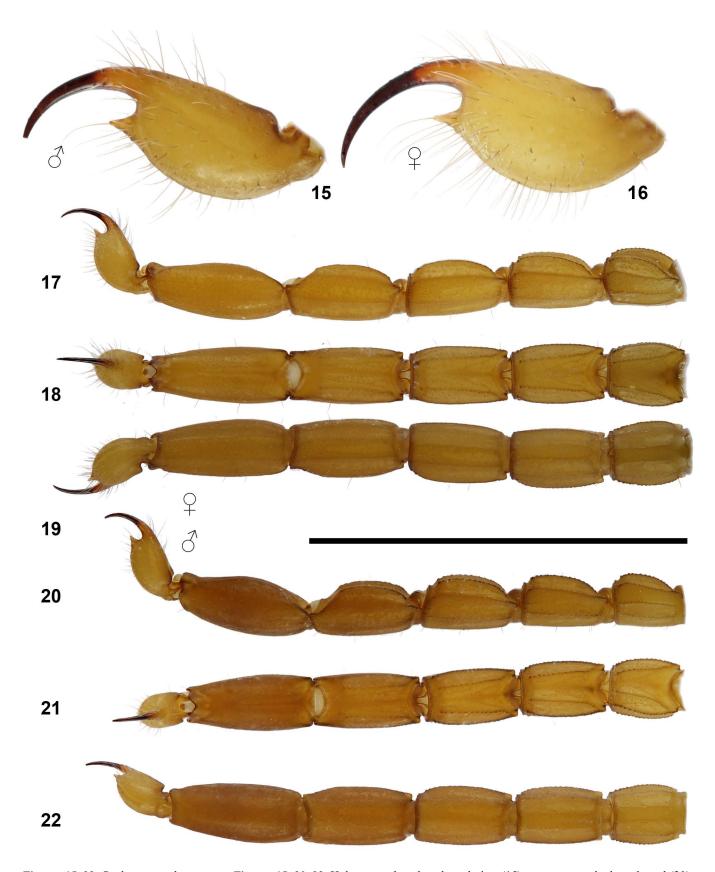
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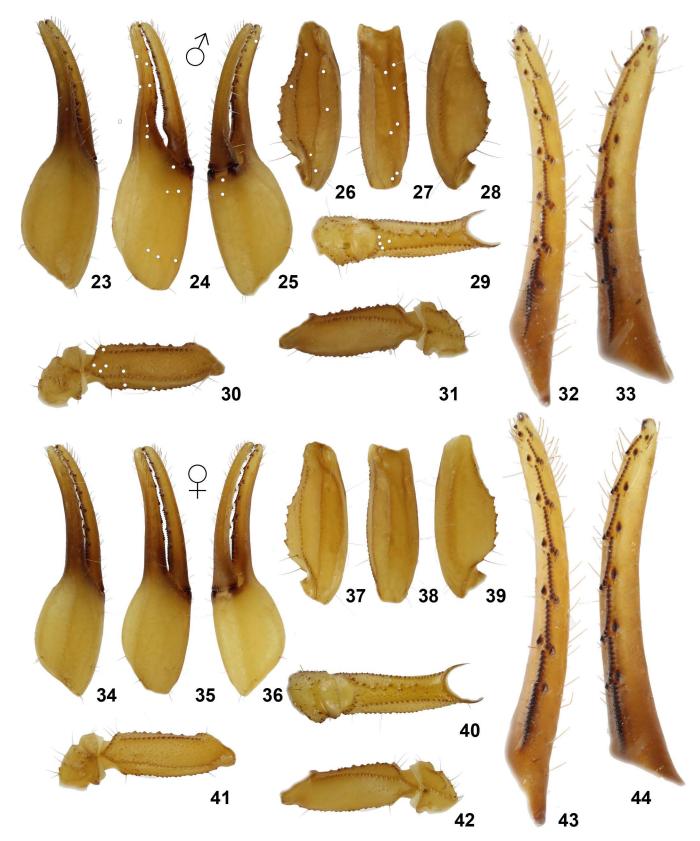
**Figures 3–6**: *Barbaracurus lowei* **sp. n. Figures 3–4**. Holotype male, dorsal (3) and ventral (4) views. **Figures 5–6**. Paratype female, dorsal (5) and ventral (6) views. Scale bar: 10 mm (3–4, 5–6.



**Figures 7–14**: *Barbaracurus lowei* **sp. n. Figures 7–8**, **11–14**. Holotype male, carapace and tergites I–IV (7), sternopectinal region and sternites III–VI (8), and distal segments of right legs I–IV, retrolateral views (11–14), **Figures 9–10**. Paratype female, carapace and tergites I–III (9), sternopectinal region and sternite III–V (10).



**Figures 15–22**: *Barbaracurus lowei* **sp. n. Figures 15**, **20–22**. Holotype male, telson lateral view (15), metasoma and telson, lateral (20), dorsal (21) and ventral (22) views. **Figures 16–19**. Paratype female, telson lateral view (16), metasoma and telson, lateral (17), dorsal (18) and ventral (19) views. Scale bar: 10 mm (17–22).



Figures 23–44: Barbaracurus lowei sp. n. Figures 23–33. Holotype male. Pedipalp chela, dorsal (23), external (24), and ventral (25) views. Pedipalp patella, dorsal (26), external (27), and ventral (28) views. Pedipalp femur and trochanter, internal (29), dorsal (31) and ventral (31) views. Pedipalp chela, movable (32) and fixed (33) fingers dentate margin. The trichobothrial pattern is indicated in Figures 24–27 and 29–30 (white circles). Figures 23–33. Paratype female. Pedipalp chela, dorsal (34), external (35), and ventral (36) views. Pedipalp patella, dorsal (37), external (38), and ventral (39) views. Pedipalp femur and trochanter, internal (40), dorsal (41) and ventral (42) views. Pedipalp chela, movable (32) and fixed (33) fingers dentate margin.

undulate so as to leave a gap with fingers closed; dentate margin of movable finger armed with 6 rows of granules, and a short apical row of 3–4 denticles. Pectines with 15–19 teeth in both sexes. No sexual dimorphism in length and width of metasomal segments; metasoma I with 10 carinae, II–IV with 8 carinae. Telson setose, bearing numerous long macrosetae and short, pointed subaculear tubercle; vesicle smooth, elongate, pyriform, telson length/depth ratio 2.76–3.04 in both sexes; aculeus slender, curved, shorter than vesicle.

DESCRIPTION (♂♀). Total length of adults 19 (male) – 41 mm (female). Measurements of the carapace, telson, segments of the metasoma and pedipalps are given in Table 1. Base color is yellowish brown (Figs. 1, 3–6). Chelicerae are yellow with traces of reticulation (Figs. 7, 9). Sexual dimorphism minor, adult male with wider pedipalp chela than female, pedipalp chela length/width ratio 3.49 in male and 3.86 in female, the fingers of females are straight, while those of males are strongly undulate proximally; no sexual difference in length and width of metasomal segments. For position and distribution of trichobothria of pedipalps, see Figs. 24–27 and 29–30.

Pedipalp (Figs. 23-44). Pedipalp mostly sparsely hirsute, but more densely so on ventral surface of movable finger. Femur granulated, with five granulose carinae. Patella almost smooth with seven granulose carinae developed. Chela smooth with traces of carinae visible; fingers long, curved; movable finger with 6 granule rows and short apical row of 4 denticles on dentate margins, the most proximal row with one external and no internal accessory granule; fixed finger with 6 granule rows. Carapace (Figs. 7, 9). Slightly trapezoidal (narrower anteriorly) and slightly longer than wide; anterior margin concave, with some short microsetae. Carination absent. Median and posterior lateral furrows wide and deep, others vestigial to absent. Tegument densely and coarsely granulose. Median eyes large and raised; four or five pairs of lateral eyes: three major ocelli aligned along each anterolateral corner, plus two minor ocelli that may be vestigial or absent.

**Mesosoma** (Figs. 7–10). Tergites I–VI bear a single conspicuous median carina; tergite VII bears five well-defined carinae (median, submedians and laterals), which are long and serrate to crenulate. All tergites densely and coarsely granulose mainly on posterior parts. Sternum type 1, triangular in shape; medial depression large. Pectines extending to around a quarter of sternite IV in male and maximally end of sternite V in female. Tooth count 15–19 (1 x 15, 3 x 16, 6 x 17, 3 x 18, 1 x 19) in male, and 16–18 (5 x 16, 1 x 18) in female. Pectines with 3 marginal lamellae and 6–7 middle lamellae. Sternites lacking carinae and sparsely setose, sternite III smooth, other sternites finely granulated. Posterior margin of sternite V with smooth median patch in both sexes vestigial to absent. Sternite VII with four well-defined carinae, which are long and serrate to crenulate.

**Legs** (Figs 11–14). Tarsomeres bearing two rows of macrosetae on their ventral surface and numerous macrosetae on other surfaces; bristle combs absent. Femur bearing only solitary macrosetae. Femur surface coarsely granulose, femur and patella with carinae developed. Moderate tibial spurs

present on leg IV.

Metasoma and telson (Figs. 15–22). Segments I–IV with granulate, completely developed carinae, segment V with carinae indicated in both sexes. The carinae are composed of minute, rounded, equal-sized, evenly spaced granules. The first metasomal segment has a total of 10 carinae, the second through fourth segments have eight carinae, and the fifth segment has five indicated carinae. All metasomal segments are granulated, except metasoma V in male. Metasoma is very sparsely hirsute. Telson smooth with only a weakly indicated ventral carina and a dense cover of long setae mainly on the ventral surface. Subaculear tubercle short and pointed. Vesicle elongate, ellipsoidal or pyriform, telson length/depth ratio 2.76–3.04 in both sexes. Aculeus slender, curved, shorter than vesicle.

AFFINITIES. The combination of five characters (pedipalp movable finger with an external accessory granule midway along most proximal granule row; pedipalp movable finger with 6 rows of granules; pedipalp chela length/width ratio 3.49 in male and 3.86 in female; pedipalp movable finger of female stright at base and strongly undulate at base, leaving wide gap when closed in male; pedipalp chela length versus movable finger ratio is 1.67–1.79 in both sexes) is unique in the entire genus *Barbaracurus*.

COMMENTS ON LOCALITIES AND LIFE STRATEGY. The type locality, 25EB is semi-desert with red sands and small rocky areas, which *Barbaracurus lowei* **sp. n.** prefers (Fig. 2 and fig. 130 in Kovařík et al., 2024). The types of *B. lowei* **sp. n.** were recorded at night during UV collecting together with *Gint derbiae* Kovařík et al., 2024 (type locality), *Hottentotta polystictus* (Pocock, 1896), *Parabuthus* sp., and *Pandinurus smithi* (Pocock, 1897). The authors visited the locality on 13–16 June 2025 and recorded maximum daytime temperatures of 27 °C and a minimum nighttime temperature of 21 °C (rainy season).

#### Key to the species of Barbaracurus

l.	Pedipalp movable finger without an external accessory granule midway along most proximal granule row 2
-	Pedipalp movable finger with an external accessory granule midway along most proximal granule row
2.	Base color uniformly yellow or orange, without any darker
	markings; sternite VII with very weak carination
	<i>B. prudenti</i> (Lourenço, 2013)
_	Base color yellow with brown spots on carapace, dark
	stripes on tergites, dark pedipalp patella and metasoma V;
	sternite VII with 4 well developed carinae
	Pedipalp movable finger with 6 rows of granules 4
-	Pedipalp movable finger with 7 rows of granules 8
-	Pedipalp movable finger with 8 rows of granules

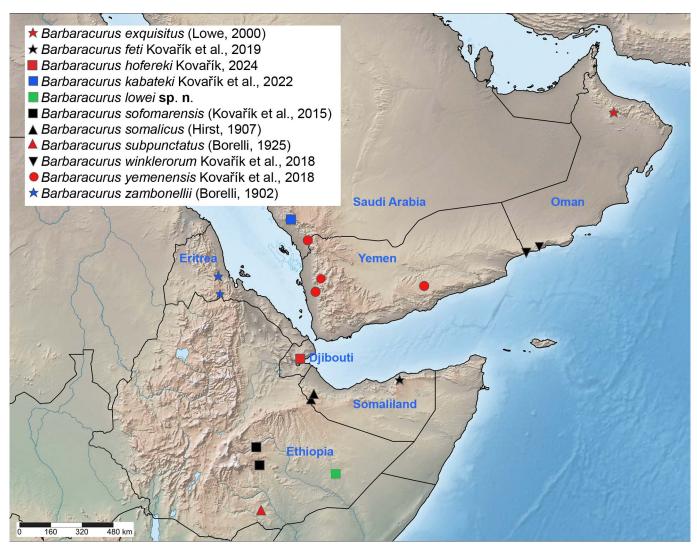


Figure 45. Map showing confirmed distribution of Barbaracurus spp.

- Pedipalp chela with broader manus, chela length/ width ratio 3.4–4.2, finger margins strongly undulate at base, leaving wide gap when closed at least in male.
- 5. Total length 22.5 mm in male, 32.1–32.25 mm in females; pectines with 16–17 teeth in both sexes; distributed in Ethiopia and Somalia. ... *B. subpunctatus* (Borelli, 1925)
- Total length 31.25 mm in male, 38.80 mm in female;
   pectines with 25–27 teeth in both sexes; distributed in Somaliland.
   B. feti Kovařík et al., 2019
- Pedipalp movable finger of female at least weakly undulate at base. Pedipalp chela length versus movable finger ratio is 1.51–1.56 in female.

- Telson vesicle symmetric in lateral profile (figs. 76–77 in Kovařík et al., 2015); telson length/ depth ratio 2.60–2.73; pedipalp movable finger of female moderately undulate at base; hemispermatophore basal lobe a well developed scoop-like lamina (figs. 26, 34 in Kovařík et al., 2018). ....
  B. sofomarensis (Kovařík et al., 2015)
- Pedipalp chela with narrower manus (figs. 62, 64, 66, 68, 210, 212 in Kovařík et al., 2018), chela length/ width ratio
   4.07–6.12 (♀, ♂); proximal margins of pedipalp fingers of

- Pectines with 22–25 (♂) 19–23 (♀) teeth; telson less bulbous, length/ depth ratio 2.48–2.70 (♀, ♂); distributed in the Arabian Peninsula.
  - ..... B. yemenensis Kovařík et al., 2018
- 10. Metasoma V length/ width ratio 2.71 (♂); pedipalp chela length/ width ratio 4.07 (♂); hemispermatophore basal lobe obsolete, reduced to a weak ridge (figs. 102–103 in Kovařík et al., 2022); found in Saudi Arabia. ......
- 11. Telson more slender (figs. 81–82) in Kovařík et al., 2018), length/ depth ratio 2.89 (♀), 2.70 (♂); found in Al Hajar mountains of northern Oman. *B. exquisitus* (Lowe, 2000)
- Telson less slender (figs. 85–87 in Kovařík et al., 2018), length/ depth ratio 2.70–2.72 (♂, ♀); not found in northern Oman.
   B. winklerorum Kovařík et al., 2018

#### Acknowledgement

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#### References

- FET, V. & G. LOWE. 2000. Family Buthidae C. L. Koch, 1837. Pp. 54–286 in Fet, V., W. D. Sissom, G. Lowe & M. E. Braunwalder. *Catalog of the Scorpions of the World* (1758–1998). New York: The New York Entomological Society, 689 pp.
- KOVAŘÍK, F. 2000. Revision of *Babycurus* with descriptions of three new species (Scorpiones: Buthidae). *Acta Societatis Zoologicae Bohemicae*, 64: 235–265.
- KOVAŘÍK, F. 2009. Illustrated catalog of scorpions. Part I. Introductory remarks; keys to families and genera; subfamily Scorpioninae with keys to Heterometrus and Pandinus species. Prague: Clairon Production, 170 pp.

- KOVAŘÍK, F. 2024. Scorpions of the Horn of Africa (Arachnida, Scorpiones), Part XXXII. *Barbaracurus hofereki* sp. n. from Djibouti. *Euscorpius*, 387: 1–12.
- KOVAŘÍK, F., H. SH. A. ELMI & F. ŠŤÁHLAVSKÝ F. 2024. Scorpions of the Horn of Africa (Arachnida, Scorpiones), Part XXXIII. Three new species of *Gint* from Ethiopia and Somaliland (Buthidae), with description of a new species. *Euscorpius*, 392: 1–25.
- KOVAŘÍK, F., G. LOWE, M. SEITER, J. PLÍŠKOVÁ & F. ŠŤÁHLAVSKÝ. 2015. Scorpions of Ethiopia (Arachnida: Scorpiones), Part II. Genus *Babycurus* Karsch, 1886 (Buthidae), with description of two new species. *Euscorpius*, 196: 1–31.
- KOVAŘÍK, F., G. LOWE & F. ŠŤÁHLAVSKÝ. 2018. Review of the genus *Babycurus* Karsch, 1886 (Arachnida, Scorpiones, Buthidae), with description of *Barbaracurus* gen. n. and two new species from Oman and Yemen. *Euscorpius*, 267: 1–41.
- KOVAŘÍK, F., G. LOWE, F. ŠŤÁHLAVSKÝ & A. A. HURRE. 2019. Scorpions of the Horn of Africa (Arachnida, Scorpiones). Part XX. *Barbaracurus feti* sp. n. from Somaliland (Buthidae). *Euscorpius*, 280: 1–11.
- KOVAŘÍK F., G. LOWE, F. ŠŤÁHLAVSKÝ & P. JUST. 2022. The genus *Barbaracurus* in Saudi Arabia (Scorpiones: Buthidae), with description of a new species. *Euscorpius*, 365: 1–26.
- KOVAŘÍK, F. & A. A. OJANGUREN AFFILASTRO. 2013. Illustrated catalog of scorpions. Part II. Bothriuridae; Chaerilidae; Buthidae I. Genera Compsobuthus, Hottentotta, Isometrus, Lychas, and Sassanidotus. Prague: Clairon Production, 400 pp.
- KRAEPELIN, K. 1913. Neue Beiträge zur Systematik der Gliederspinnen. III. A. Bemerkungen zur Skorpionenfauna Indiens. B. Die Skorpione, Pedipalpen und Solifugen Deutsch-Ostafrikas. *Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten*, 30: 123–196.
- SISSOM, W. D. 1990. Systematics, biogeography and paleontology. Pp. 64–160 in POLIS, G. A. (Ed.) *The Biology of Scorpions*. Stanford, California: Stanford University Press.
- SOLEGLAD, M. E. & V. FET 2003. The scorpion sternum: structure and phylogeny (Scorpiones: Orthosterni). *Euscorpius*, 5: 1–34.
- STAHNKE, H. L. 1971. Scorpion nomenclature and mensuration. *Entomological News*, 81: 297–316.

- VACHON, M. 1963. De l'utilité, en systématique, d'une nomenclature des dents de chélicères chez les scorpions. *Bulletin du Muséum national d'Histoire naturelle, Paris*, (2), 35(2): 161–166.
- VACHON, M. 1974. Études des caractères utilisés pour classer les familles et les genres des scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriaux et types de trichobothriotaxie chez les Scorpions. *Bulletin du Muséum national d'Histoire naturelle*, 3e série, 140 (Zoologie, 104): 857–958.
- VACHON, M. 1975. Sur l'utilisation de la trichobothriotaxie du bras des pedipalps des Scorpions (Arachnides) dans le classement des genres de famille des Buthidae Simon. Comptes rendus de l'Academie des Sciences, Paris Série D Sciences Naturelles, 281(21): 1597–1599.