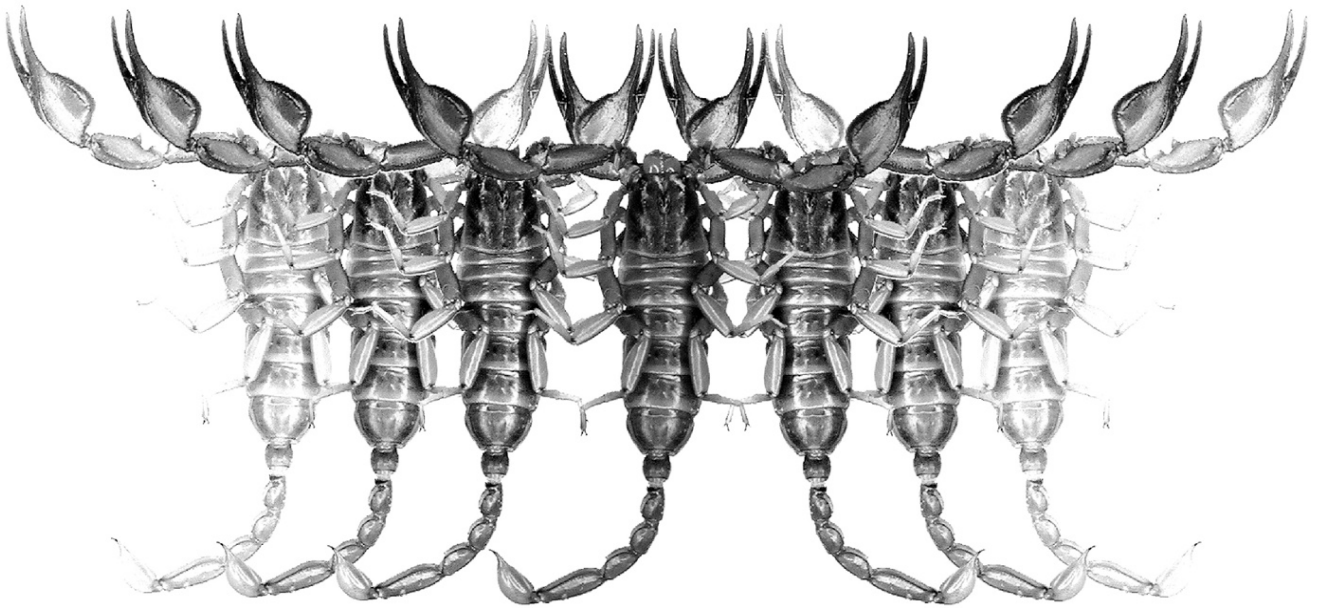


Euscorpius

Occasional Publications in Scorpiology



**Scorpions of the Horn of Africa
(Arachnida, Scorpiones). Part XXXII.
Barbaracurus hofereki sp. n. from Djibouti**

František Kovařík

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Scorpions of the Horn of Africa (Arachnida, Scorpiones). Part XXXII. *Barbaracurus hofereki* sp. n. from Djibouti

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<http://zoobank.org/urn:lsid:zoobank.org:pub:03B4D776-DA8D-442D-8E68-B5BAD608DFE7>

Summary

Barbaracurus hofereki sp. n. from Djibouti is described and compared with other species of the genus. *B. hofereki* sp. n. is the only species of the genus with pedipalp movable finger with 8 rows of granules and pectinal tooth count 27–28 in female. Also, its pedipalp chela with very narrow manus (chela length/width ratio 6.07 in female), narrower than in all other African species of the genus. A map of the distribution of the genus in the Horn of Africa and the Arabian Peninsula is provided.

Introduction

The genus *Barbaracurus* Kovařík, Lowe et Šťáhlavský, 2018 with type species *Babycurus sofomarensis* Kovařík et al., 2015, was recently defined and compared to the genus *Babycurus* Karsch, 1886, by Kovařík et al. (2018). To date, nine allopatric species have been recognized. Other studies produced *B. feti* Kovařík et al., 2019 from Somaliland and *B. kabateki* Kovařík et al., 2022 from Saudi Arabia. Here, we report the result of recent fieldwork in Djibouti which revealed for the first time the presence of *Barbaracurus* in that country and produced a new species described here as *Barbaracurus hofereki* sp. n. Totally, 10 species of scorpions so far are known from Djibouti (Kovařík & Lowe, 2022).

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).

Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (D).

Systematics

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

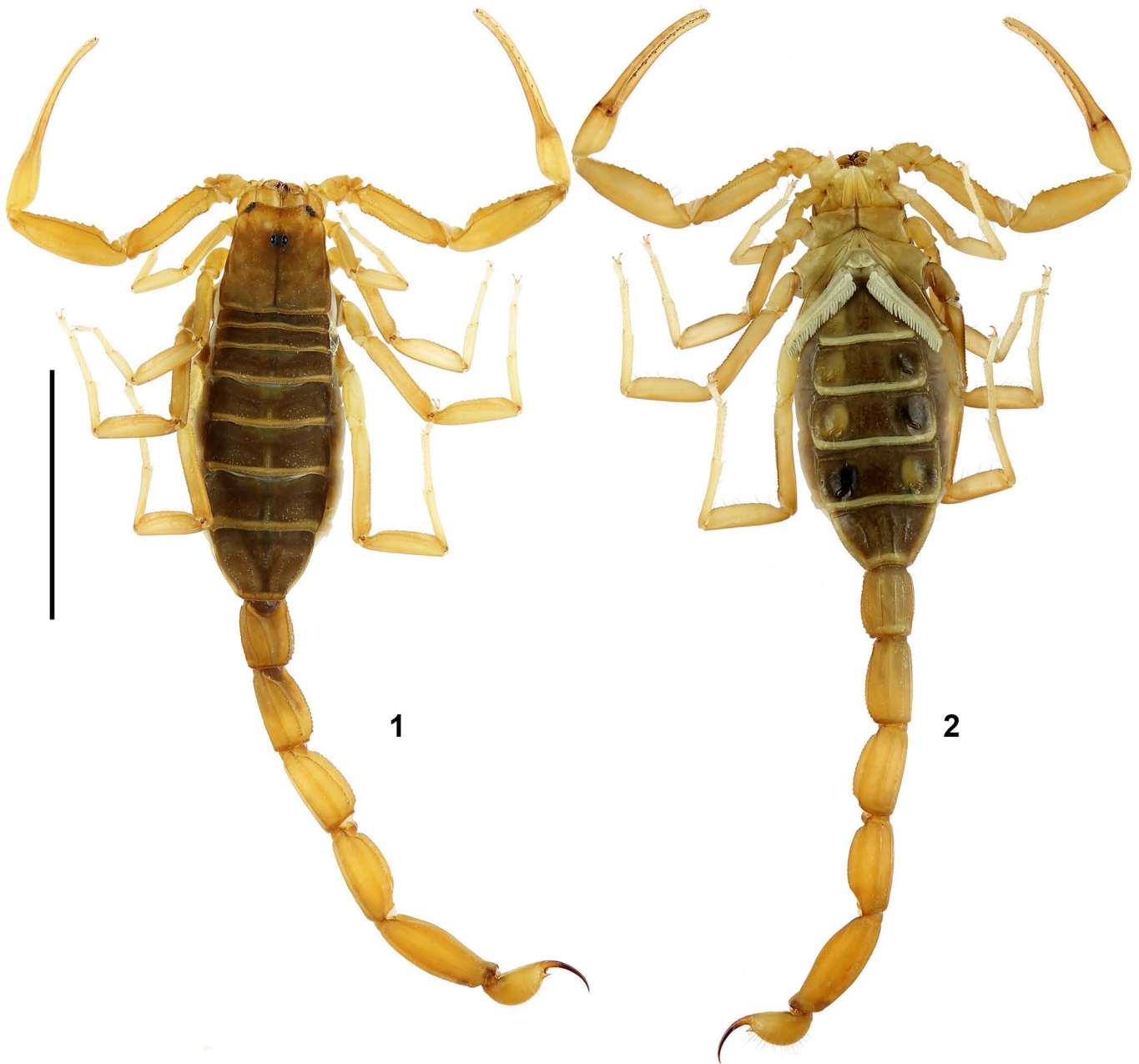
Barbaracurus Kovařík, Lowe et Šťáhlavský, 2018
(Figures 1–33, Table 1)

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, 2018b: 4–41, figs. 1–10, 24–28, 32–36, 50–251, 258–262, tabs. 1–2; Kovařík et al., 2019: 1–11, figs. 1–46, table 1; Kovařík et al., 2022: 1–26, figs. 1–107, table 1.

TYPE SPECIES. *Babycurus sofomarensis* Kovařík, Lowe, Seiter, Plíšková et Šťáhlavský, 2015.

EMENDED DIAGNOSIS. Small to medium-sized buthids, adult total length 20–60 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



Figures 1–2. *Barbaracurus hofereki* sp. n., holotype female, dorsal (1) and ventral (2) views. Scale bar: 10 mm.

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. Pectinal tooth number 15–28. Pectines with fulcrum. 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 β ; femur with ‘trichobothrium’ d_2 internal; patella with trichobothrium d_3 external to dorsomedian carina, esb_2 close to esb_1 ; chela with trichobothrium Eb_2 distal

to Eb_1 , 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

Dimensions (mm)		<i>B. hofereki</i> sp. n.
		♀ holotype
Carapace	L / W	4.35 / 4.45
Mesosoma	L	11.47
Tergite VII	L / W	2.82 / 4.13
Metasoma + telson	L	22.55
Segment I	L / W / D	2.79 / 2.22 / 2.02
Segment II	L / W / D	3.30 / 1.95 / 1.86
Segment III	L / W / D	3.55 / 1.93 / 1.88
Segment IV	L / W / D	3.90 / 1.79 / 1.82
Segment V	L / W / D	4.78 / 1.78 / 1.85
Telson	L / W / D	4.23 / 1.31 / 1.47
Pedipalp	L	17.62
Femur	L / W	4.35 / 1.24
Patella	L / W	5.33 / 1.60
Chela	L	7.94
Manus	W / D	1.31 / 1.18
Movable finger	L	5.82
Total	L	38.37

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

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, unguis stout.

SUBORDINATE TAXA. *B. exquisitus* (Lowe, 2000) (Oman), *B. feti* Kovařík et al., 2019 (Somaliland), *B. hofereki* sp. n. (Djibouti), *B. kabateki* Kovařík et al., 2022 (Saudi Arabia), *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 hofereki* sp. n.**

(Figures 1–33, Table 1)

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TYPE LOCALITY AND TYPE DEPOSITORY. **Djibouti**, Tadjoura District, 2 km E of Ditolou, 11°46'48.279"N 42°42'25.509"E, 500 m a. s. l.; FKCP.

TYPE MATERIAL EXAMINED. **Djibouti**, Tadjoura District, 2 km E of Ditolou, 18 October 2023, 11°46'48.279"N 42°42'25.509"E, 500 m a. s. l., (Locality No. 23DH, Figs. 32–33), 2♀ (holotype and paratype, DNA No. 2639), leg. F. Kovařík et al.

ETYMOLOGY. The specific epithet honors David Hoferek (Czech Republic) for his friendship and help with the scorpion collection and studies.

DIAGNOSIS (♀). Total length of adult female 38 mm, male unknown. Coloration yellowish brown to orange, chelicerae yellow with weak reticulation. Pedipalp chela length/ width ratio 6.07 in female; dentate margin of movable finger armed with 8 rows of granules, and a short subapical row of 3 denticles; most proximal granule row with one external accessory granule. Pectines with 27–28 teeth in females. Metasoma narrow, metasoma V length/ width ratio 2.68 in female; metasoma I with 10 carinae, II–IV with 8 carinae. Telson setose, bearing numerous long macrosetae and a short, spiniform subaculear tubercle; vesicle smooth, elongate, ellipsoidal in lateral profile, telson length/ depth ratio 2.88; aculeus slender, curved, shorter than vesicle.

DESCRIPTION (♀). Total length of adult female 38.37 mm, male unknown. Base color is pale yellowish brown to orange (Figs. 1–2). Chelicerae are yellow with weak reticulation (Fig. 3).

Pedipalp (Figs. 720). Pedipalp mostly sparsely hirsute, but more densely so on ventral surface of movable finger. Femur dorsally smooth with several solitary granules, with five granulose carinae. Patella smooth with two dorsal granulose carinae developed, other 5 carinae reduced to absent. Chela smooth with traces of carinae visible; fingers long, curved; movable finger with 8 granule rows and a short apical row of



Figures 3–4. *Barbaracurus hofereki* sp. n., holotype female, carapace and tergites I–V (3) and sternoplectinal region and sternites (4) under white light.

3 denticles on dentate margins, the most proximal row with one external and no internal accessory granule; fixed finger with 9 granule rows. Fixed and movable fingers bearing pale, fluorescent setae of various lengths, as well as short, dark, non-fluorescent macrosetae of almost constant length with blunt tips. **Carapace** (Figs. 3, 5). Slightly trapezoidal (narrower anteriorly) and slightly wider than long; anterior margin concave, with some short microsetae. Carinae absent. Median and posterior lateral

furrows wide and deep, others vestigial to absent. Tegument densely and coarsely granulose. Median eyes large and raised; five pairs of lateral eyes: three major ocelli aligned along each anterolateral corner, plus two minor ocelli vestigial to absent.

Mesosoma (Figs. 3–6). Tergites I–VI bear a single conspicuous median carina; tergite VII bears five well-defined carinae (median, submedians and laterals); short median carina granulate, submedian and lateral carinae long



Figures 5–6. *Barbaracurus hofereki* sp. n., holotype female, carapace and tergites (5) and sternopectinal region and sternites (6) under UV fluorescence.

and granulate. All tergites coarsely granulate, bearing small granules on anterior surfaces and larger granules mainly on posterior surfaces. Sternum type 1, triangular in shape; medial depression large. Pectines extending to around half of sternite IV. Pectinal tooth count 27–28 in females. Pectines with 3 marginal lamellae and 9–10 middle lamellae. Sternites III–VI lacking carinae, surfaces smooth and sparsely setose. Posterior margin of sternite V without smooth median patch,

weakly concave. Sternite VII with four well-defined carinae, which are long and serrate to crenulate.

Legs (Figs. 28–31). 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 granulate, femur and patella with carinae developed. Moderate tibial spurs present on leg IV.



Figures 7–17. *Barbaracurus hofereki* sp. n., holotype female, right pedipalp. Chela, dorsal (7), external (8) and ventrointernal (9) views; patella, dorsal (10), external (11), and ventral (12); femur and trochanter, internal (13), dorsal (14) and ventral (15) views. Chela, movable (16) and fixed (17) finger dentate margins. Trichobothrial pattern indicated in Figures 8–11, 13–14 (white circles). Scale bar: 10 mm (19–21).

Metasoma and telson (Figs. 21–27). Metasoma I–IV with developed carinae, partly smooth but dorsal and laterodorsal granulated. Dorsal carinae composed of minute, rounded, equal-sized, evenly spaced granules. Metasoma I with a total of 10 carinae, metasoma II–IV with eight carinae, and metasoma V with five smooth to indicated carinae. All metasomal segments smooth, very sparsely granulated and hirsute. Telson smooth with a dense cover of long setae, mainly ventrally. Subaculear tubercle short and spiniform. Vesicle elongate, ellipsoidal, telson length/ depth ratio 2.88. Aculeus slender, curved, shorter than vesicle.

Measurements. See Table 1.

COMMENTS ON LOCALITIES AND LIFE STRATEGY. The type locality, 23DH is a rocky mountain area (Figs. 32–33). The types of *Barbaracurus hofereki* sp. n. were recorded at night during UV collecting together with *Buthus* cf. *awashensis* Kovařík, 2011, *Orthochirus afar* Kovařík et Lowe, 2016, *Compsobuthus* sp., *Hottentotta polystictus* (Pocock, 1896), and *Neobuthus ferrugineus* (Kraepelin, 1898). We visited the locality on 18–19 October 2023

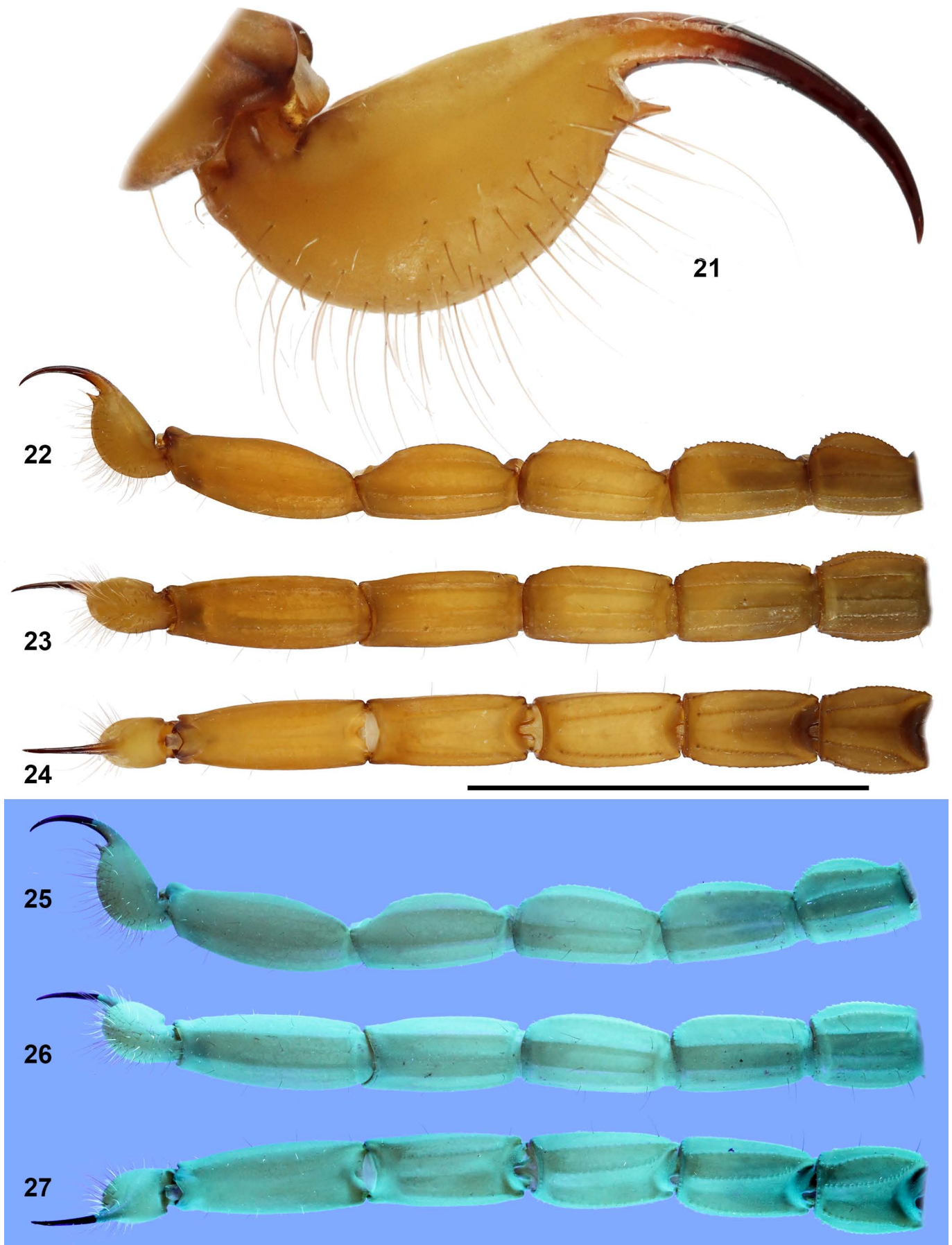
and recorded a minimum nighttime temperature of 24°C (humidity 79%) and maximum daytime temperature of 34°C (humidity 35%).

AFFINITIES. *Barbaracurus hofereki* sp. n. is the only species of the genus with pedipalp movable finger with 8 rows of granules (Fig. 16). Other species have pedipalp movable finger with 6 (*B. feti*, *B. prudenti*, *B. sofomarensis*, *B. somalicus*, *B. subpunctatus*, *B. ugartei*) or 7 (*B. exquisitus*, *B. kabateki*, *B. winklerorum*, *B. yemenensis*, *B. zambonellii*) rows of granules (figs. 1–9 in Kovařík et al., 2018; fig. 26 in Kovařík et al., 2019; fig. 16 in Kovařík et al., 2022).

Females of *B. hofereki* sp. n. have pectinal tooth count 27–28 which is the highest in the genus *Barbaracurus* (*B. exquisitus*, 21–22 in both sexes; *B. feti*, 25–27 in both sexes; *B. kabateki*, 20 in male; *B. prudenti*, 15–16 in both sexes; *B. sofomarensis*, 18–20 in both sexes; *B. somalicus*, 17–20 in both sexes; *B. subpunctatus*, 16–17 in both sexes; *B. ugartei*, 15–16 in female; *B. winklerorum*, 18–20 in both sexes; *B. yemenensis*, 22–25 in male, 19–23 in female; *B. zambonellii*, 17–19 in both sexes).



Figures 18–20. *Barbaracurus hofereki* sp. n., holotype female, right pedipalp in dorsal (18), external (19), and ventral (20) views under UV fluorescence.



Figures 21–27. *Barbaracurus hofereki* sp. n., holotype female, telson lateral (21), metasoma and telson, lateral (22, 25), ventral (23, 26) and dorsal (24, 27) views under white light (21–24) and under UV fluorescence (25–27). Scale bar: 10 mm (22–27).



Figures 28–31. *Barbaracurus hofereki* sp. n., holotype female, distal segments of left legs I–IV, lateral-ventral views.



Figures 32–33. *Barbaracurus hofereki* sp. n., type locality, Djibouti, Tadjoura District, 2km E of Ditolou.

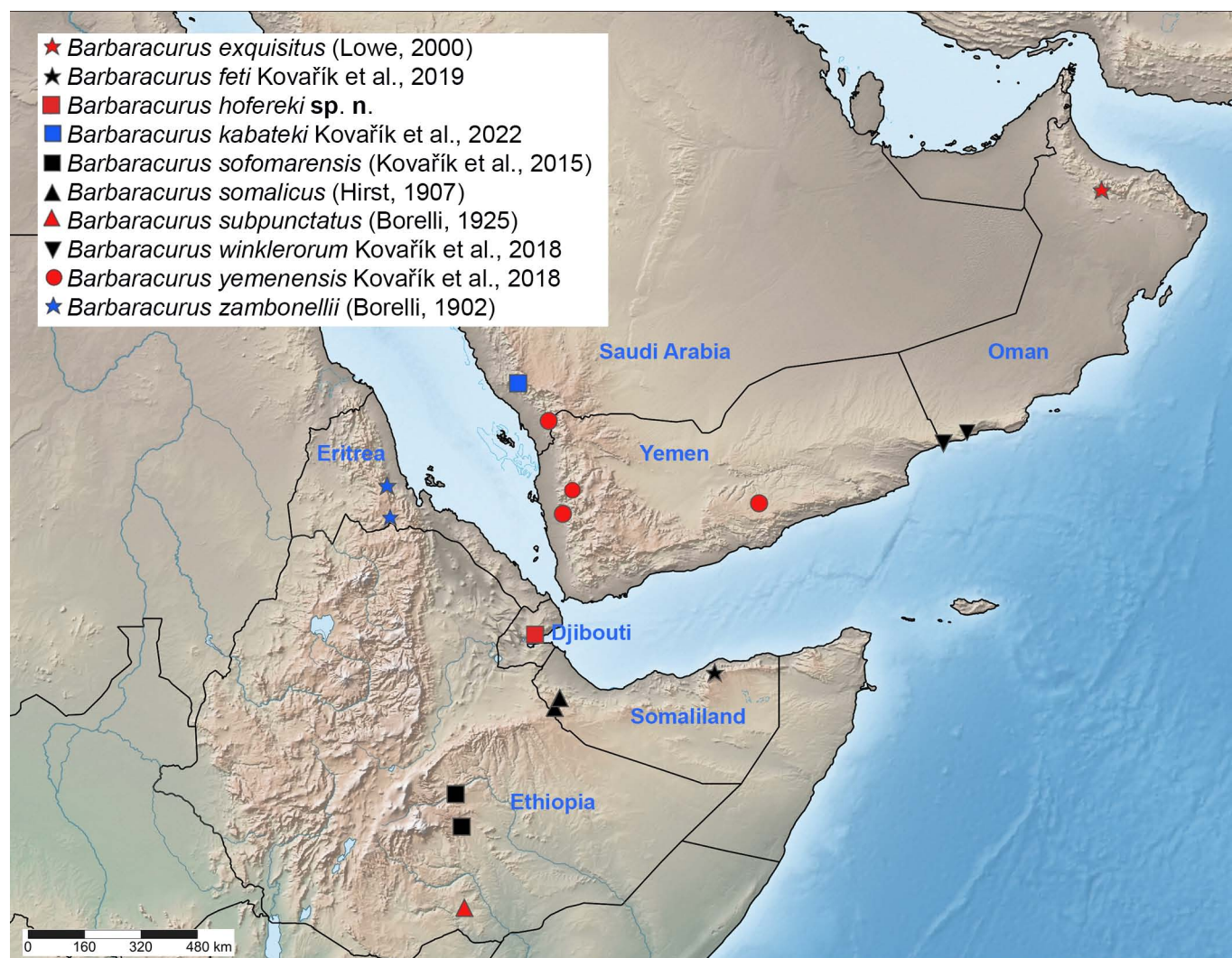


Figure 34. Map showing confirmed distribution of *Barbaracurus* spp. except for *B. ugartei* (Kovařík, 2000) from Nigeria and *B. prudenti* (Lourenço, 2013) from Cameroon.

B. hofereki sp. n. is also characterized by a pedipalp chela with a very narrow manus (Figs. 7–9, chela length/ width ratio 6.07 in female), narrower than in all African species of the genus.

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