Euscorpius

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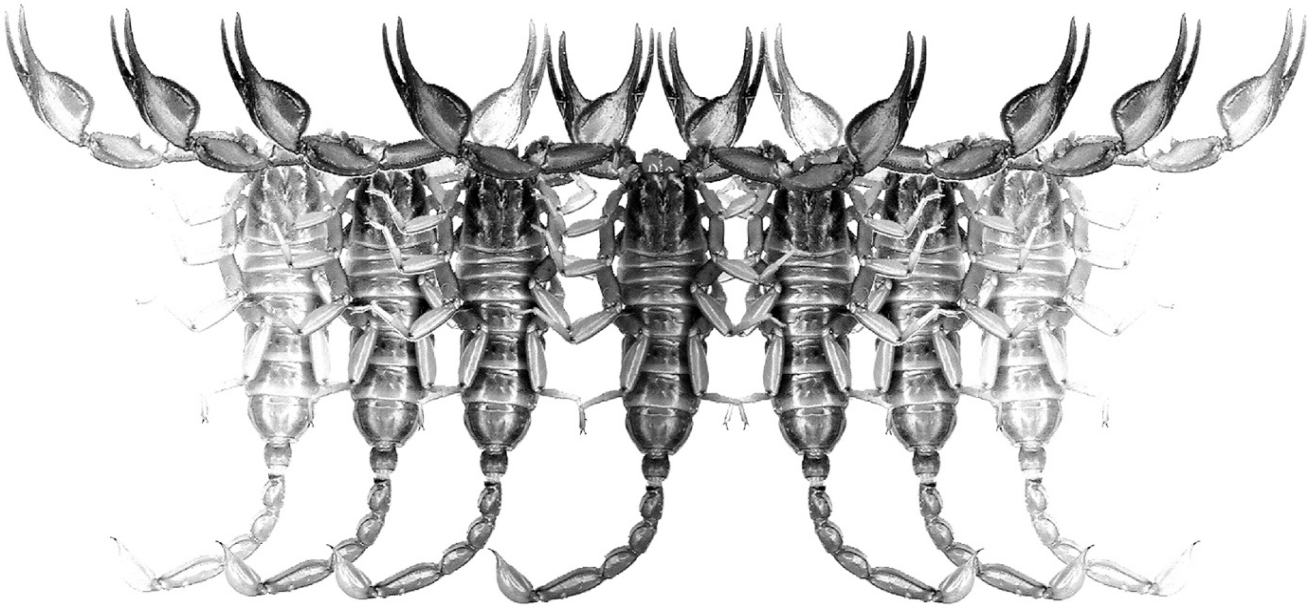

Scorpions of the Horn of Africa (Arachnida: Scorpiones). Part XXVI. Records of *Hottentotta polystictus* (Pocock, 1896), with descriptions of *H. haudensis* sp. n. and *H. nigrimontanus* sp. n. (Buthidae) from Somaliland

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Euscorpius

Occasional Publications in Scorpiology

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Euscorpius — Occasional Publications in Scorpiology. 2021, No. 330

Scorpions of the Horn of Africa (Arachnida: Scorpiones). Part XXVI. Records of *Hottentotta polystictus* (Pocock, 1896), with descriptions of *H. haudensis* sp. n. and *H. nigrimontanus* sp. n. (Buthidae) from Somaliland

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Summary

The distribution of *Hottentotta polystictus* (Pocock, 1896) is summarized according to recently confirmed records. Two new species, *Hottentotta haudensis* **sp**. **n**. and *H. nigrimontanus* **sp**. **n**. from the Somaliland, are described, compared with *H. polystictus*, and fully illustrated with color photos showing their morphology, habitus and collection areas. *H. haudensis* **sp**. **n**. is the smallest known species of the genus *Hottentotta* Birula, 1908, while *H. nigrimontanus* **sp**. **n**. is larger than *H. polystictus*.

Introduction

In the years 2011–2019, the first author had opportunities to participate in a number of zoological expeditions to the Horn of Africa to study scorpions at 62 localities in Somaliland and has published several articles on the scorpion fauna of that region. The genus *Hottentotta* is one of the most widely distributed genera within the family Buthidae. In its current scope, the genus ranges across much of Africa and the Arabian Peninsula, and extends into the Oriental Region, reaching Pakistan and India. The species *H. polystictus* was found to be relatively common in Somaliland. It was recorded from 18 of 58 sampled localities covering a variety of habitats (Fig. 138), making it the most frequently collected scorpion in Somaliland. During recent excursions, the first author discovered other populations of *Hottentotta*, similar in morphology to *H. polystictus*, but with allopatric areas of distribution (Fig. 138). These are herein described as two new species.

Methods, Material & Abbreviations

Nomenclature and measurements follow Stahnke (1971), Soleglad & Sissom (2001), Kovařík (2009), and Kovařík & Ojanguren Affilastro (2013), except for trichobothriotaxy (Vachon, 1974) and sternum (Soleglad & Fet, 2003). Hemispermatophore terminology follows Kovařík et al. (2018a).
Specimen Depositories: BMNH (The Natural History Museum, London, United Kingdom); and 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).
Morphometrics: D, depth; L, length; W, width.

Systematics

Family Buthidae C. L. Koch, 1837

Genus ***Hottentotta*** Birula, 1908

(Figures 1–150, Tables 1–2)

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Hottentotta: Fet & Lowe, 2000: 133–144 (complete reference and synonymy list until 1998); Kovařík & Ojanguren Affilastro, 2013: 159–180, figs. 942–1250 (complete reference and synonymy list until 2013); Kovařík et al., 2018b: 1–14, figs. 1–76, tab. 1; Kovařík et al., 2019c: 1–30, figs. 2, 5–178, tabs. 1–3.

Type species. *Scorpio hottentotta* Fabricius, 1787.

Diagnosis. Medium to large buthids, adults 27–130 mm. Carapace subrectangular, with distinct carinae, entire dorsal surface nearly planar, weakly emarginate anteriorly; ocular tubercle with well-developed median eyes; five pairs of lateral eyes in 'type 5' pattern (Loria & Prendini, 2014). Sternum type 1 (Soleglad & Fet, 2003), triangular in shape. Pectines

Figures 1–2: *Hottentotta polystictus*, male from locality 17ST (1) and female from locality 17SD (2) in vivo habitus.

long, pectinal tooth counts ♂ 16–43, ♀ 13–38, fulcra present. Hemispermatophore flagelliform, capsule with 3-lobed sperm hemiduct and hook-like basal lobe, flagellum folded with pars recta and pars reflecta, pars recta arising from base of sperm hemiduct, trunk elongate. Tergites I–VI granular, with three carinae; tergite VII with 5 carinae. Sternite III with two granulated lateral stridulatory areas, which may be reduced in some species (e. g. in *H. pachyurus* and *H. trilineatus*). Sternites III–IV with slit-like spiracles. Metasoma elongate, segment I with 10 carinae, segments II-IV with 8–10 carinae; ventrolateral carinae of metasoma V with granules more or less equal in size, never lobate; posterior margins of tergite VII and metasoma I–III with fine fringes of microsetae. Telson vesicle bulbous, coarsely and finely granulate, without subaculear denticle. Chelicerae with typical buthid pattern of dentition (Vachon, 1963), fixed finger armed with two denticles on ventral surface. Pedipalps orthobothriotaxic, type A-β (Vachon, 1974, 1975), femur petite d_2 dorsal, patella trichobothrium d_3 located between dorsomedian and dorsointernal carinae; chela *db* usually located between *est* and *et*, or level with *est*, rarely between *est* and *esb*; chela *eb* located clearly on pedipalp fixed finger. Dentate margin of pedipalp chela movable finger with distinct denticles forming 11–16 linear, non-imbricated rows, each flanked by a single external and internal accessory denticle; 4–6 terminal and one basal terminal denticles. Legs III and IV with well-developed tibial spurs, first and second tarsomeres of all legs with paired ventral macrosetae.

Remarks on hemispermatophores. We examined and compared 2 hemispermatophores from *H. haudensis* **sp. n.** (paratype 1198), 6 hemispermatophores from *H. nigrimontanus* s**p. n.** (paratypes 1337, 1399 and 1547), and 8 hemispermatophores from a third closely related species, *H. polystictus* (Pocock, 1896) (4 individuals, 1296, 1302, 1329 and 1335). Hemispermatophores from these species were similar to each other in their structural features and proportions, and we did not detect interspecies differences that could serve as diagnostic characters. Vachon & Stockmann (1968: 85–87) also reported a lack of reliable differences between hemispermatophores from different species of *Hottentotta* in sub-Saharan Africa. They remarked that intraspecific variation in some cases could be as great as interspecific variation. Allowing for variation, the shapes of the sperm hemiduct lobes, and the short, hook-like form of the basal lobe of the three species studied here are generally consistent with previously described hemispermatophore capsule lobes in the genus *Hottentotta* (from *H. buchariensis* (Birula, 1897), *H. conspersus* (Thorell, 1876), *H. gentili* (Pallary, 1924), *H. hottentotta* (Fabricius, 1787), *H. judaicus* (Simon, 1872), *H. minax occidentalis* (Vachon & Stockmann, 1968), *H. pellucidus* Lowe, 2010, *H. polystictus* (Pocock, 1896), *H. saulcyi* (Simon, 1880), *H. saxinatans* Lowe, 2010, *H. tamulus* (Fabricius, 1798) and *H. trilineatus* (Peters, 1861); Levy & Amitai, 1980; Lowe, 2010; Vachon, 1940a, 1940b, 1952, 1958; Vachon & Stockmann, 1968). In particular, the capsule lobes in our samples of *H. polystictus* closely matched the lobe profiles for this species illustrated by Vachon (1940a: 256, fig. 57).

Hottentotta polystictus (Pocock, 1896)

(Figures 1–45, 137–138, 140–143, Table 1)

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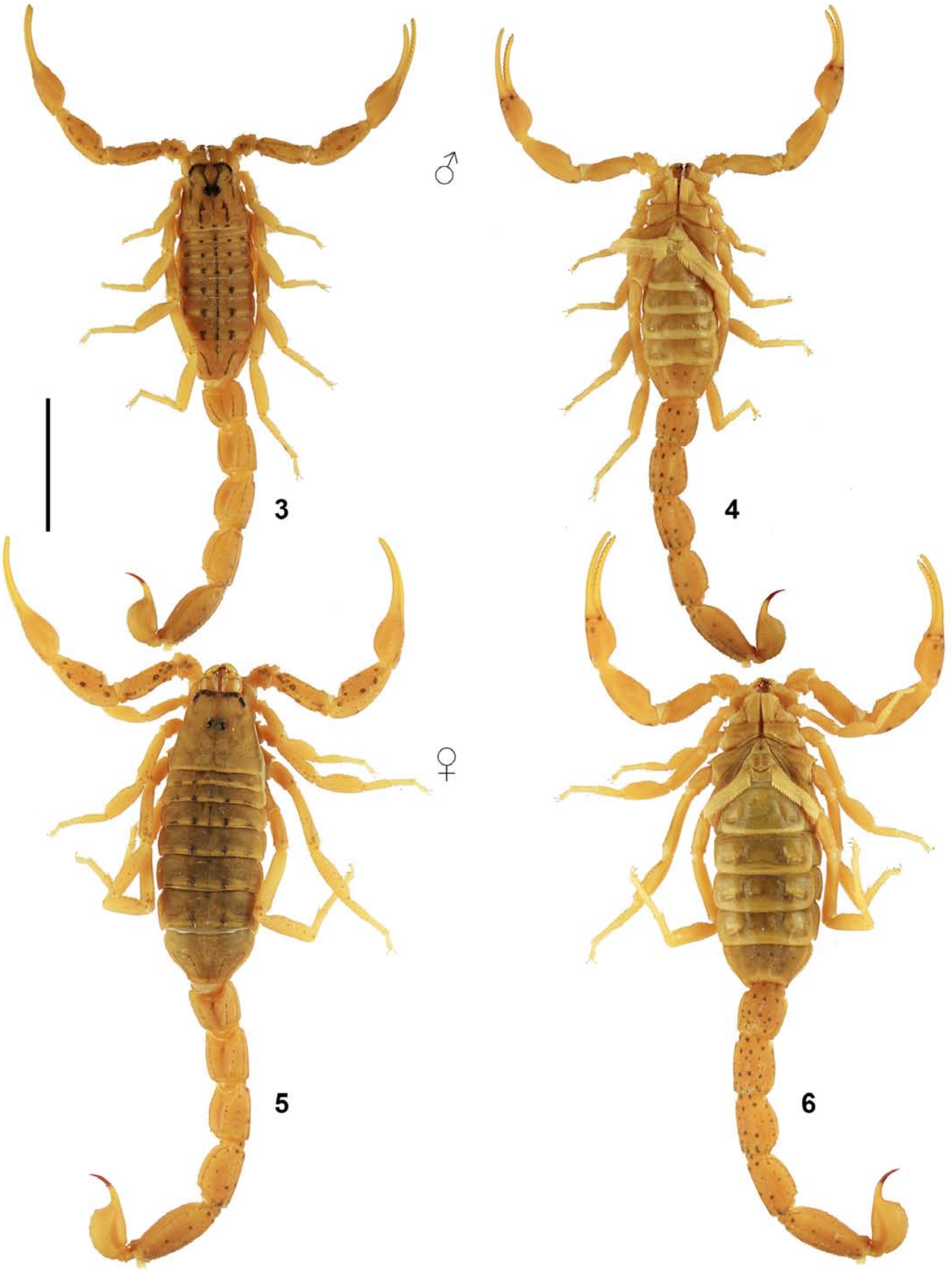
Buthus polystictus Pocock, 1896: 178.

Hottentotta polystictus: Kovařík & Ojanguren, 2013: 171–172, 318, 338–339, figs. 1069–1072, 1206–1216 (complete reference list until 2013); Kovařík & Mazuch, 2015: 23, figs. 112–131, table 4.

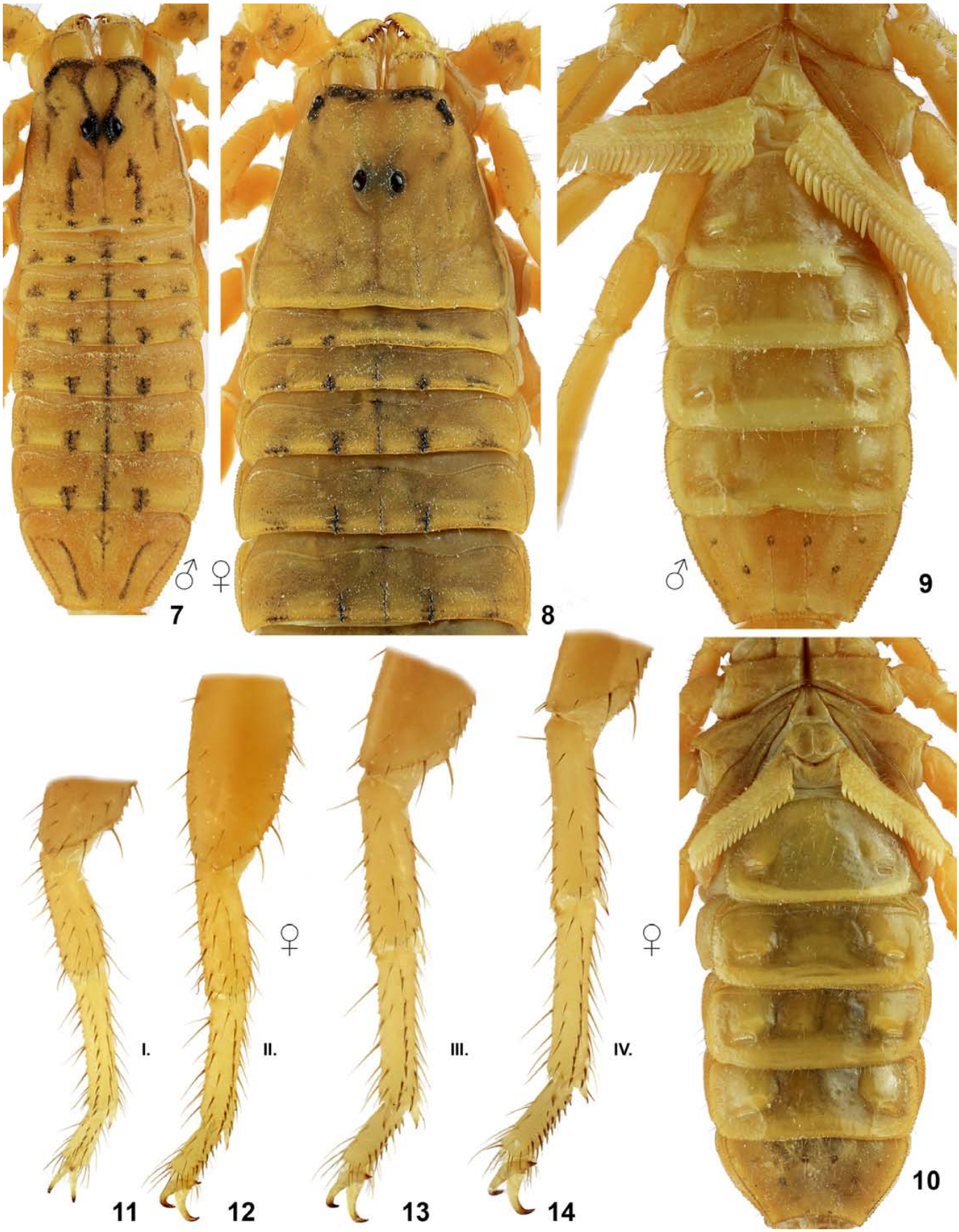
Type locality and type repository. Somalia, Goolis Mountains, inland of Berbera; BMNH.

Type material examined. **Somaliland**, Goolis Mountains, inland of Berbera, 2♀1im. (holotype and paratypes, fig. 84 in Kovařík, 2007: 55), leg. E. Lort Phillips, BMNH No. 1895.6.1.46-7.

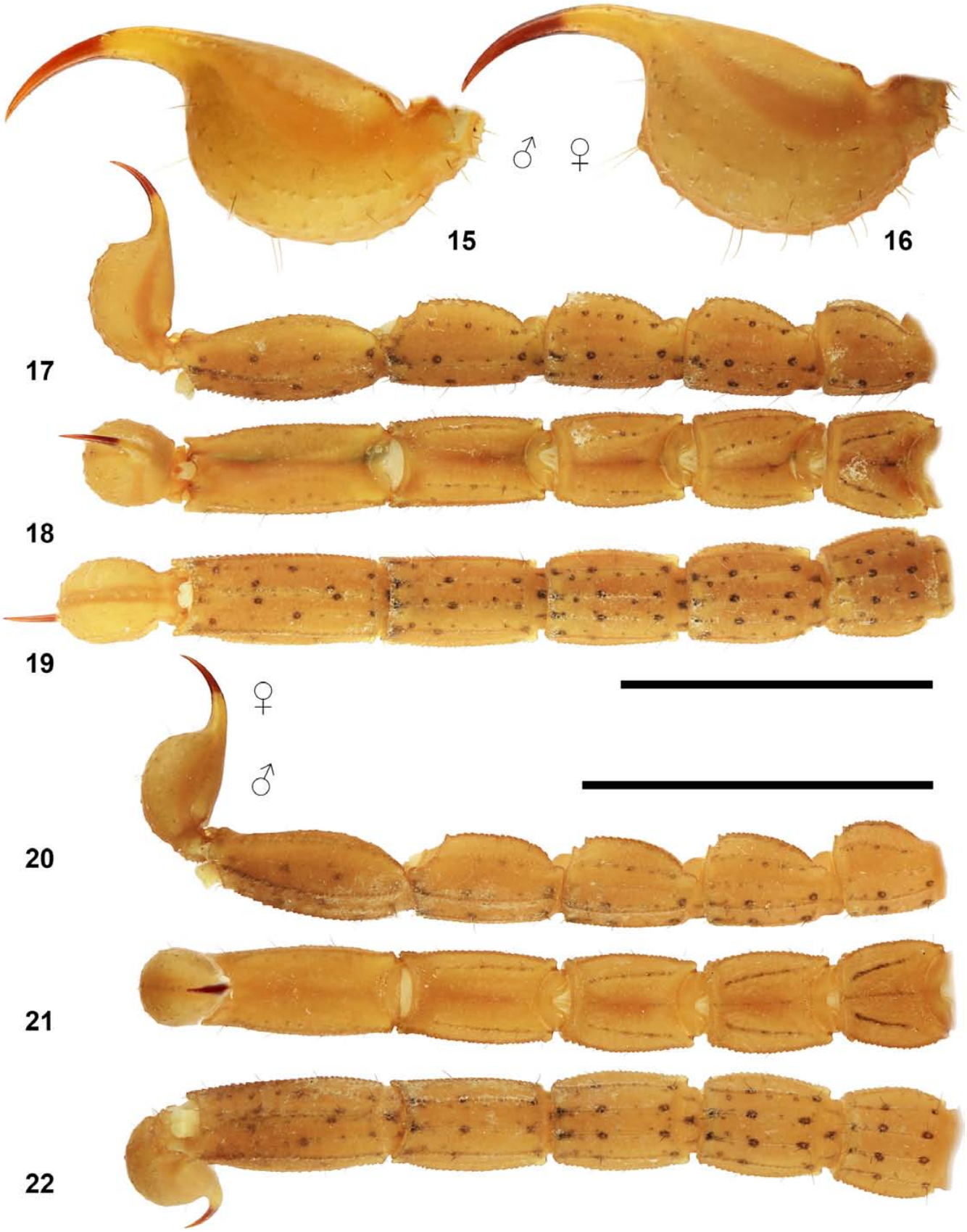
Other material examined (FKCP). **Djibouti**, Barra Yer (Petit Barre), 11°18'33.56"N 42°42'39.17"E, 585 m a. s. l., I. 2017, 3juvs., leg. R. Štarha. **Ethiopia**, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a. s. l., 30.I.2015, 1♀, leg. T. Mazuch. **Somaliland**, Hamas, between Hargeisa and Berbera, 10°02.267'N 44°47.299'E, 650 m a. s. l., XI.2010, 1♂1♀, leg. T. Mazuch; 70 km from Berbera to Hargeysa, 1♂, XI.2010, leg. T. Mazuch; Laas Gel, 50 km NE Hargeisa, 09°46'16.6"N 44°27'07.2"E, 1090 m a. s. l. (Locality **11SB**), 7.VII.2011, 1♂2♀3juvs., leg. F. Kovařík; between Berbera and Sheikh, 10°05'49.9"N 45°11'40.1"E, 628 m a. s. l. (Locality **11SH**), 10.VII.2011, 1♀im., leg. F. Kovařík; Sheikh, Goolis mts., 09°56'23"N 45°11'14.2"E, 1439 m a. s. l., 11.VII.2011, 2♀2juvs., leg. F. Kovařík; Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a. s. l. (Locality **11SN**), 12.VII.2011, 1♂7♀, leg. F. Kovařík; Laas Gel, 50 km NE Hargeisa, 09°46'47"N 44°26'43"E, 1043 m a. s. l. (Locality No. **17SD**), 7.II.2017, 1♀, leg. F. Kovařík; Laas Gel, 50 km NE Hargeisa, 09°46'47"N 44°26'43"E, 1043 m a. s. l. (Locality No. **17SF**=17SD), 28.-30.VIII.2017, 2♂3♀7juvs. (1290), leg. F. Kovařík; between Berbera and Burao, 10°02'12"N 44°47'21"E, 60 m a. s. l. (Locality No. **17SG**), 30.VIII.2017, 1♂im. (1303), leg. F. Kovařík; Sheikh, Goolis Mts., 09°56'38"N 45°10'59"E, 1418 m a. s. l (Locality No. **17SO**), 6.IX.2017, 1♂9♀8juvs., leg. F. Kovařík; Borama, campus Amoud University, 09°56'49"N 43°13'23"E, 1394 m a. s. l. (Locality No. **17SR**=17SA), 9-13.IX.2017, 1♂ (No. 1330), leg. F. Kovařík; Gerissa, N of Borama, 10°36'01"N 43°26'07"E, 245 m a. s. l. (Locality No. **17ST**), 11.-12.IX.2017, 3♂4♀ (1296, 1335), leg. F. Kovařík; between Gerissa and Borama, 10°12'16"N 43°07'58"E, 1289 m a. s. l. (Locality No. **17SU**), 12.IX.2017, 2♂ (1302, 1329), leg. F. Kovařík; campus Hargeysa University, 09°33'30"N 44°04'01"E, 1258 m a. s. l. (Locality No. **18SA**), 19.VIII.2018, 1♀1juv., leg. F. Kovařík; between Berbera and Hargeysa, 09°57'48"N 44°42'33"E, 787 m a. s. l. (Locality No. **18SL**), 2.IX.2018, 1♂1♀2juvs., leg. F. Kovařík; Jidhi village, 10°37'13.9"N 43°04'09.4"E, 462



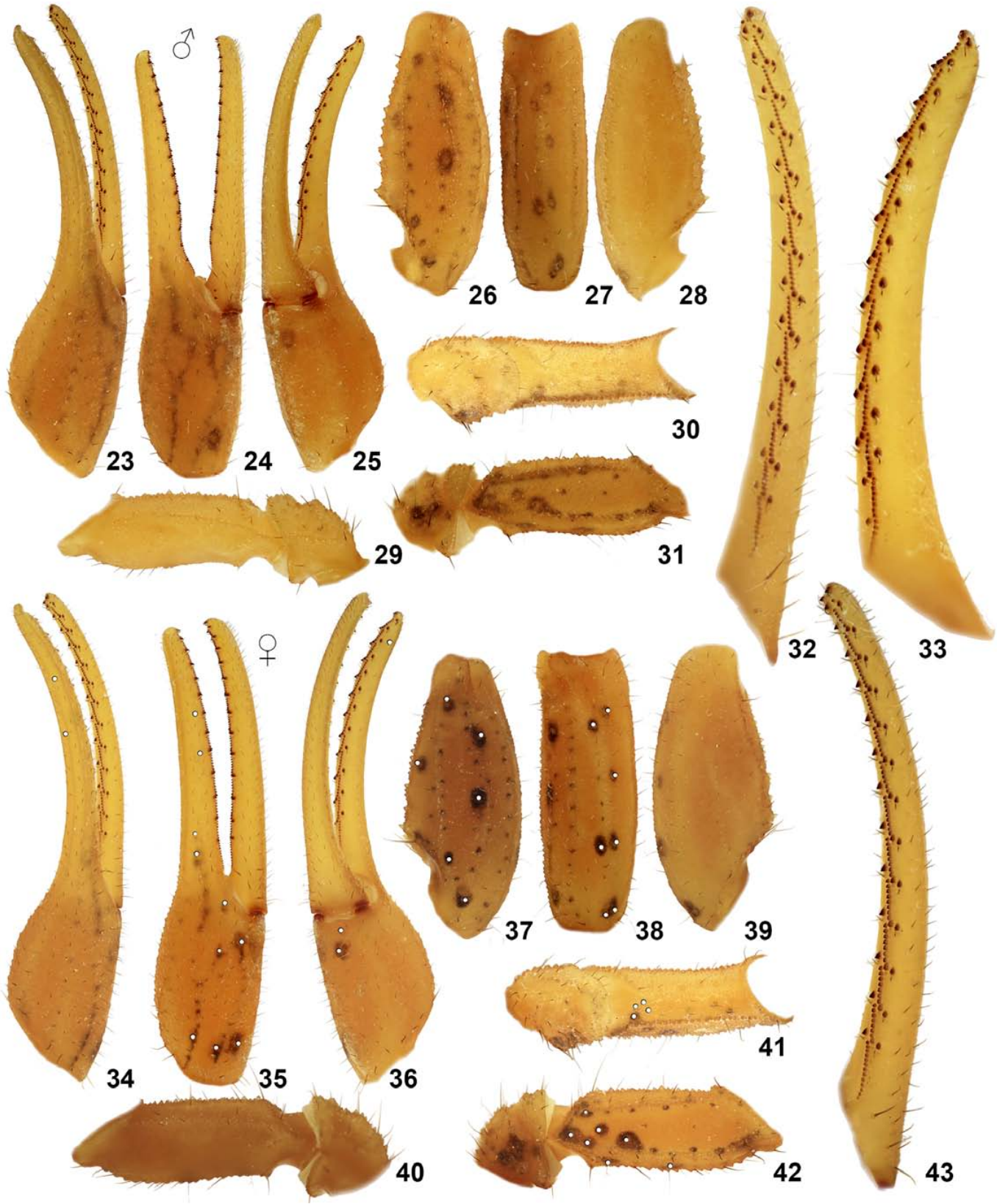
Figures 3–6: *Hottentotta polystictus*, topotypes, Somaliland, Hamas, between Hargeisa and Berbera, 10°02.267'N 44°47.299'E. **Figures 3–4**. Male, dorsal (3) and ventral (4) views. **Figures 5–6**. Female, dorsal (5) and ventral (6) views. Scale bar: 10 mm.



Figures 7–14: *Hottentotta polystictus*, topotypes, Somaliland, Hamas, between Hargeisa and Berbera, 10°02.267'N 44°47.299'E. **Figures 7**, **9**, **11–14**. Male, chelicerae, carapace and tergites (7), sternopectinal region and sternites (9), and left legs I–IV, retrolateral aspect (11–14). **Figures 8**, **10**, Female, chelicerae, carapace and tergites I–V (8), and sternopectinal region and sternites (10).



Figures 15–22: *Hottentotta polystictus*, topotypes, Somaliland, Hamas, between Hargeisa and Berbera, 10°02.267'N 44°47.299'E. **Figures 15**, **20**–**22**. Male, telson lateral (15), and metasoma and telson lateral (20), dorsal (21), and ventral (22). **Figures 16**–**19**. Female, telson lateral (16), and metasoma and telson lateral (17), dorsal (18), and ventral (19). Scale bars: 10 mm (17–19, 20–22).



Figures 23–43: *Hottentotta polystictus*, topotypes, Somaliland, Hamas, between Hargeisa and Berbera, 10°02.267'N 44°47.299'E. **Figures 23**–**33**. Male, pedipalp chela dorsal (23), external (24) and ventral (25) views, patella dorsal (26), external (27) and ventral (28) views, femur and trochanter ventral (29), internal (30), and dorsal (31) views, movable (32) and fixed (33) fingers dentition. **Figures 34**–**43**. Female, pedipalp chela dorsal (34), external (35) and ventral (36) views, patella dorsal (37), external (38) and ventral (39) views, femur and trochanter ventral (40), internal (41), and dorsal (42) views, movable finger dentition (43). Trichobothrial pattern indicated in Figures 34–38 and 41–42 by white circles.

Figures 44–45: *Hottentotta polystictus*, female from locality 11SD, in vivo habitus at locality with newborns (44), and with juveniles after first ecdysis (45).

Dimensions (mm)		*H. polystictus* ♂ topotype	*H. polystictus* ♀ topotype	*H. haudensis* sp. n. ♂ holotype	*H. haudensis* sp. n. ♀ paratype
Carapace	L / W	5.01 / 5.00	6.04 / 6.90	3.35 / 3.31	3.77 / 3.67
Mesosoma	L	11.25	15.78	8.88	12.22
Tergite VII	L / W	2.89 / 4.98	4.11 / 6.69	2.04 / 3.02	2.50 / 3.95
Metasoma + telson	L	26.51	31.00	17.14	17.44
Segment I	L / W / D	3.27 / 3.18 / 2.81	3.57 / 3.51 / 3.02	2.02 / 1.96 / 1.80	2.07 / 2.12 / 1.82
Segment II	L / W / D	3.76 / 2.94 / 2.57	4.29 / 3.16 / 3.06	2.41 / 1.77 / 1.74	2.36 / 1.90 / 1.80
Segment III	L / W / D	3.93 / 2.81 / 2.57	4.34 / 3.07 / 3.03	2.49 / 1.73 / 1.73	2.48 / 1.87 / 1.76
Segment IV	L / W / D	4.45 / 2.60 / 2.52	5.07 / 2.87 / 2.85	2.79 / 1.60 / 1.57	2.89 / 1.83 / 1.68
Segment V	L / W / D	5.52 / 2.49 / 2.45	6.83 / 2.87 / 2.77	3.75 / 1.59 / 1.58	3.91 / 1.80 / 1.65
Telson	L / W / D	5.58 / 2.19 / 2.22	6.93 / 2.88 / 2.84	3.68 / 1.37 / 1.33	3.73 / 1.63 / 1.55
Pedipalp	L	17.75	21.26	11.04	12.16
Femur	L / W	4.20 / 1.48	4.99 / 1.69	2.45 / 0.91	2.79 / 1.01
Patella	L / W	5.22 / 1.94	6.08 / 2.49	3.26 / 1.37	3.65 / 1.50
Chela	L	8.33	10.19	5.33	5.72
Manus	W / D	2.08 / 2.11	2.21 / 2.15	1.40 / 1.27	1.41 / 1.37
Movable finger	L	5.41	6.80	3.32	3.54
Total	**L**	**42.77**	**52.82**	**29.37**	**33.43**

Table 1. Comparative measurements of adults of *Hottentotta polystictus* and *H. haudensis* **sp**. **n**. Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (D).

m a. s. l. (Locality No. **19SE**), 1.VII.2019, 1♂1juv. (**1690**), leg. F. Kovařík; near Zeyla, 11°19'31.2"N 43°22'16.9"E, 21 m a. s. l. (Locality No. **19SG**), 3.VII.2019, 1♀ (1663), leg. F. Kovařík; Rugi, 09°58'00.6"N 43°25'36.2"E, 1130 m a. s. l. (Locality No. **19SM**), 7.VII.2019, 1♂ (1678), leg. F. Kovařík; Gerissa, 10°36'01"N 43°26'07"E, 245 m a. s. l. (Locality No. **19SH**=17ST), 3.VII.2019, 1♂3♀, leg. F. Kovařík; Cali Haidh, 10°02'50.6"N 43°47'08.7"E, 1056 m a. s. l. (Locality No. **19SN**), 8.VII.2019, 4♂1♀juv. (1685, 1699, 1721), leg. F. Kovařík; Agabar, 09°53'04.8"N 43°57'40.9"E, 982 m a. s. l. (Locality No. **19SO**), 1♂1♀1juv. (1674, 1675, 1687), 9.VII.2019, leg. F. Kovařík & T. Mazuch.

Diagnosis. Total length of adult males 35–45 mm, of females 40–55 mm. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Sexual dimorphism not pronounced; manus of pedipalp usually about the same width in both sexes, but males have fingers of pedipalps slightly undulate. Pectine teeth number 22–24 in males, 18–20 in females. Chelicerae yellow, anterior manus reticulated. Pedipalps sparsely hirsute. Metasoma with only a few setae. Base color almost uniformly yellowish brown. Dorsal surfaces of pedipalps and ventral surfaces of metasoma with numerous dark spots. Mesosoma yellowish to reddish brown, with black spots. Femur of pedipalp with 5 carinae that may be incomplete. Patella with 8 carinae, usually granulated. Chela lacks carinae, surfaces usually granulate. Movable fingers of pedipalps with 12–14 rows of denticles and 4–6 terminal and one basal terminal denticles. Seventh sternite bears 4 well marked carinae, usually granulated. Metasoma I–III with 10 carinae; metasoma IV with 8 or 10 carinae; metasoma V with 5 carinae. All carinae granulated, dorsal carinae bear larger posterior terminal granules. Metasoma narrow; metasomal segment I of adults usually longer than wide, or as long as wide; metasomal segment II always longer than wide; metasomal segment IV length/width ratio 1.70–1.77 in both sexes. Telson vesicle bulbous, telson length/depth ratio 2.40–2.48 in females.

Distribution. Djibouti, Ethiopia, Somaliland (Fig. 138).

Hottentotta haudensis sp. n.

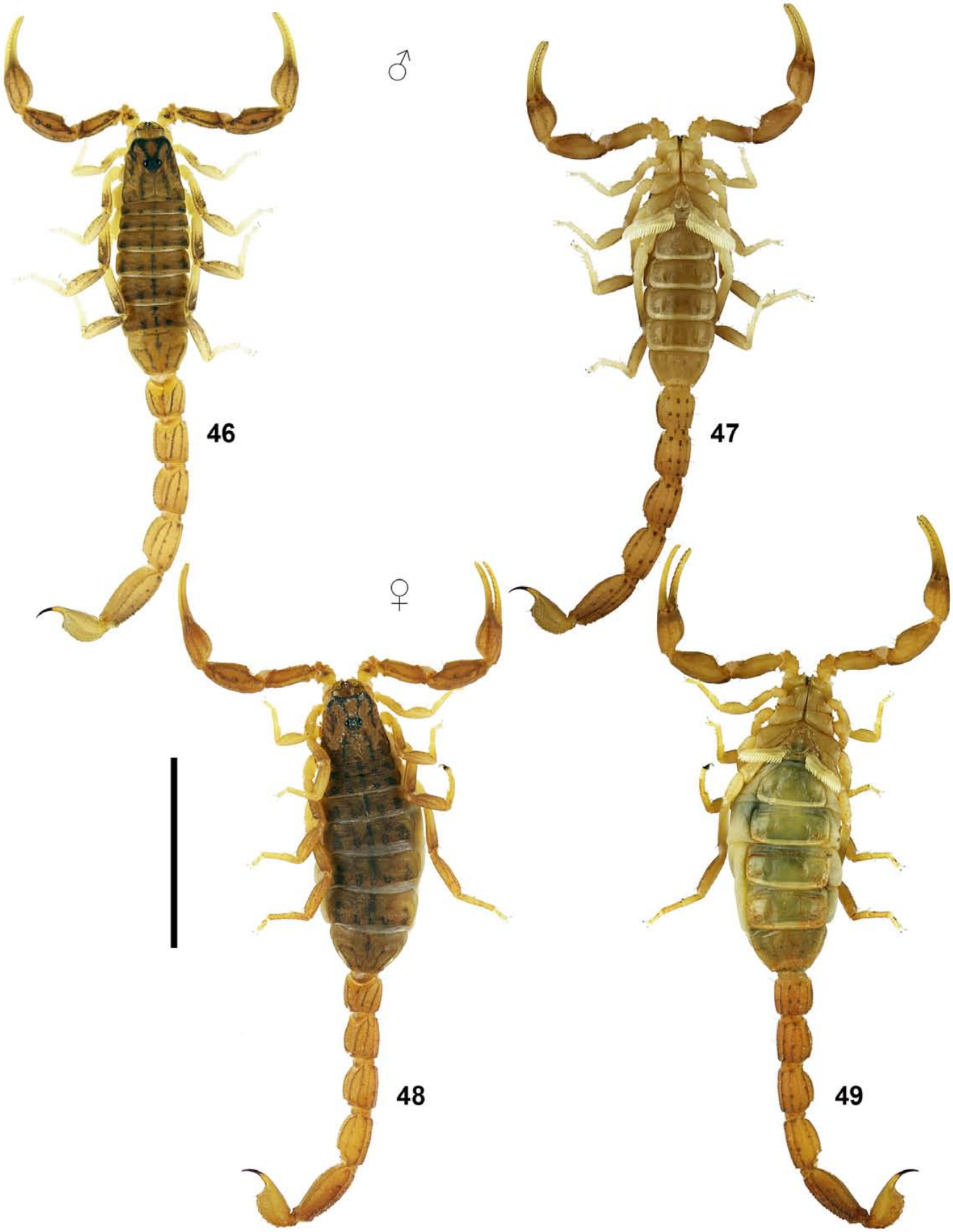
(Figures 46–90, 136, 138, 144–146, Table 1)

http://zoobank.org/urn:lsid:zoobank.org:act:6B1B184E-FD98-4CF9-A056-9303A990AC5A

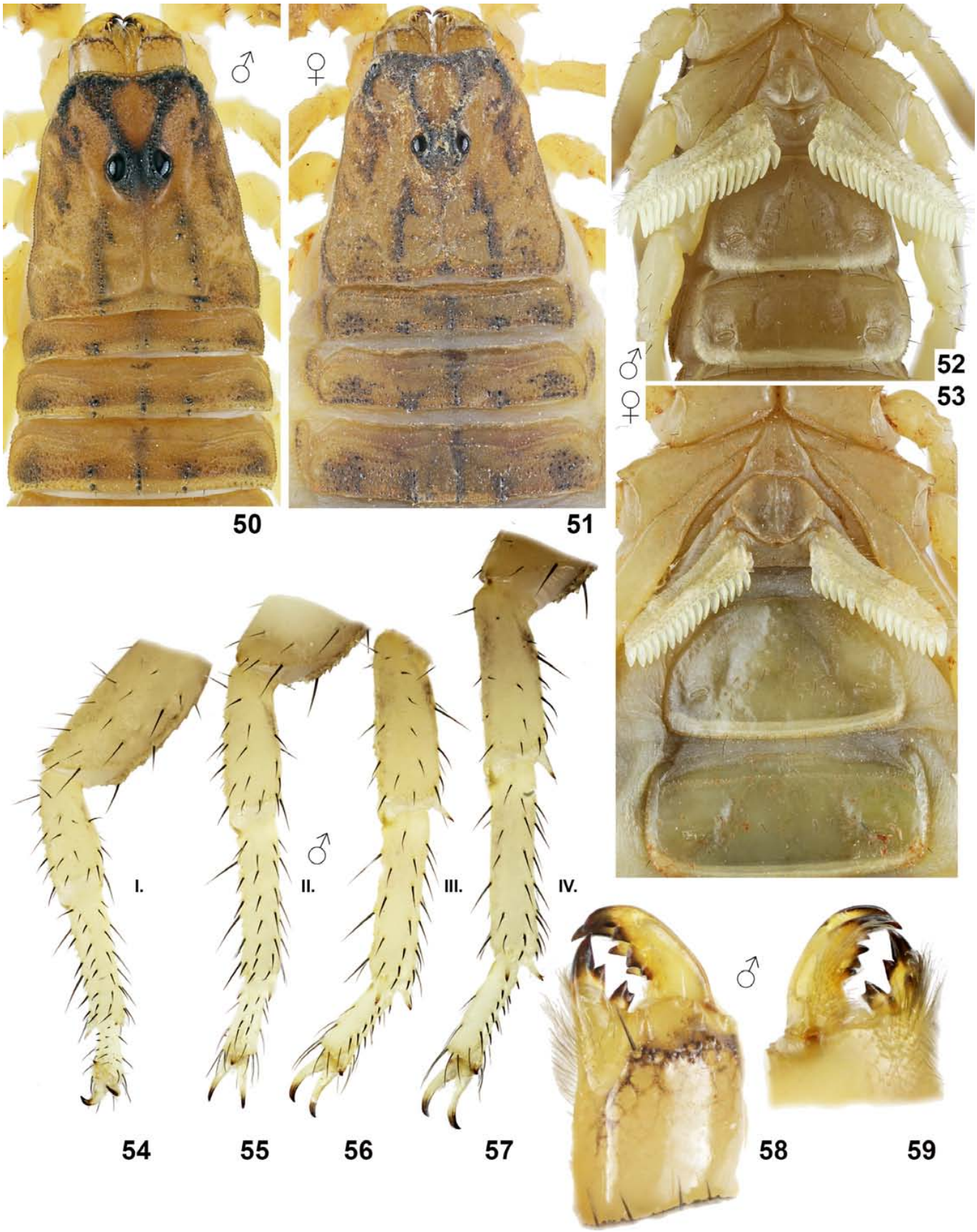
Type locality and type repository. **Somaliland**, Shanshade Village, 08°39'35"N 45°55'49"E, 790 m a. s. l. (Locality No. 18SJ); FKCP.

Type material (FKCP). **Somaliland**, Shanshade Village, 08°39'35"N 45°55'49"E, 790 m a. s. l. (Locality No. **18SJ**, Fig. 89), 29-31.VIII.2018, 1♂ (holotype) 4♂1♀1♀juv. (paratypes), leg. F. Kovařík; N of Burao, Togdheer, surrounding of Egal Hotel, 09°33'24"N 45°31'58"E, 1014 m a. s. l. (Locality No. **17SH**), 30.-31.VIII.2017, 1♂3♀ (paratypes), leg. F. Kovařík; Burao, airport, 09°31'51"N 45°33'15"E, 1040 m a. s. l (Locality No. **17SC**), 6.II.2017, 1♀1♂1♂juv. (paratypes, 1198, 1202), leg. F. Kovařík.

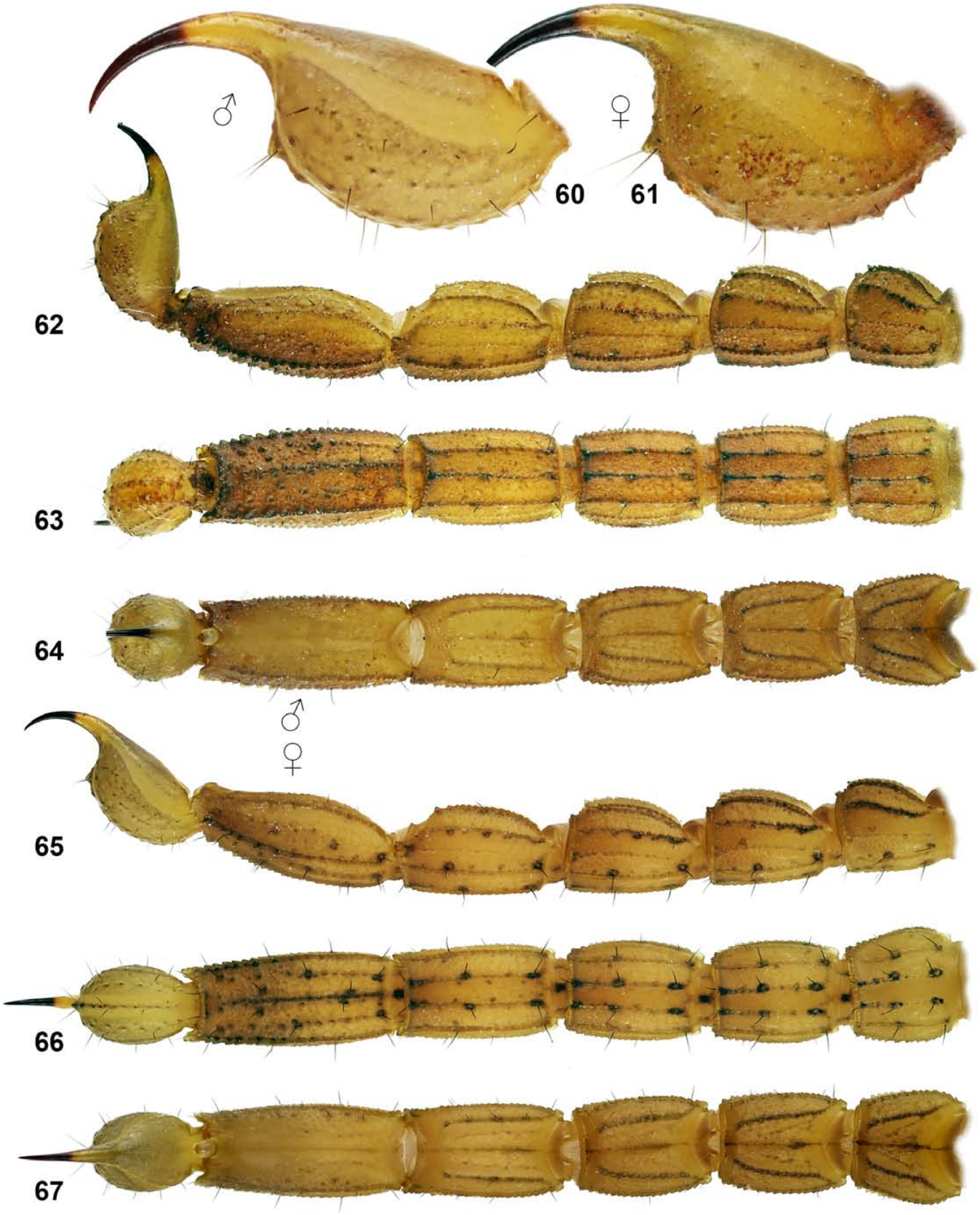
Etymology. Named after the Haud area, a region of thornbush and grasslands in the Horn of Africa characterized by red sands, see Fig. 136.



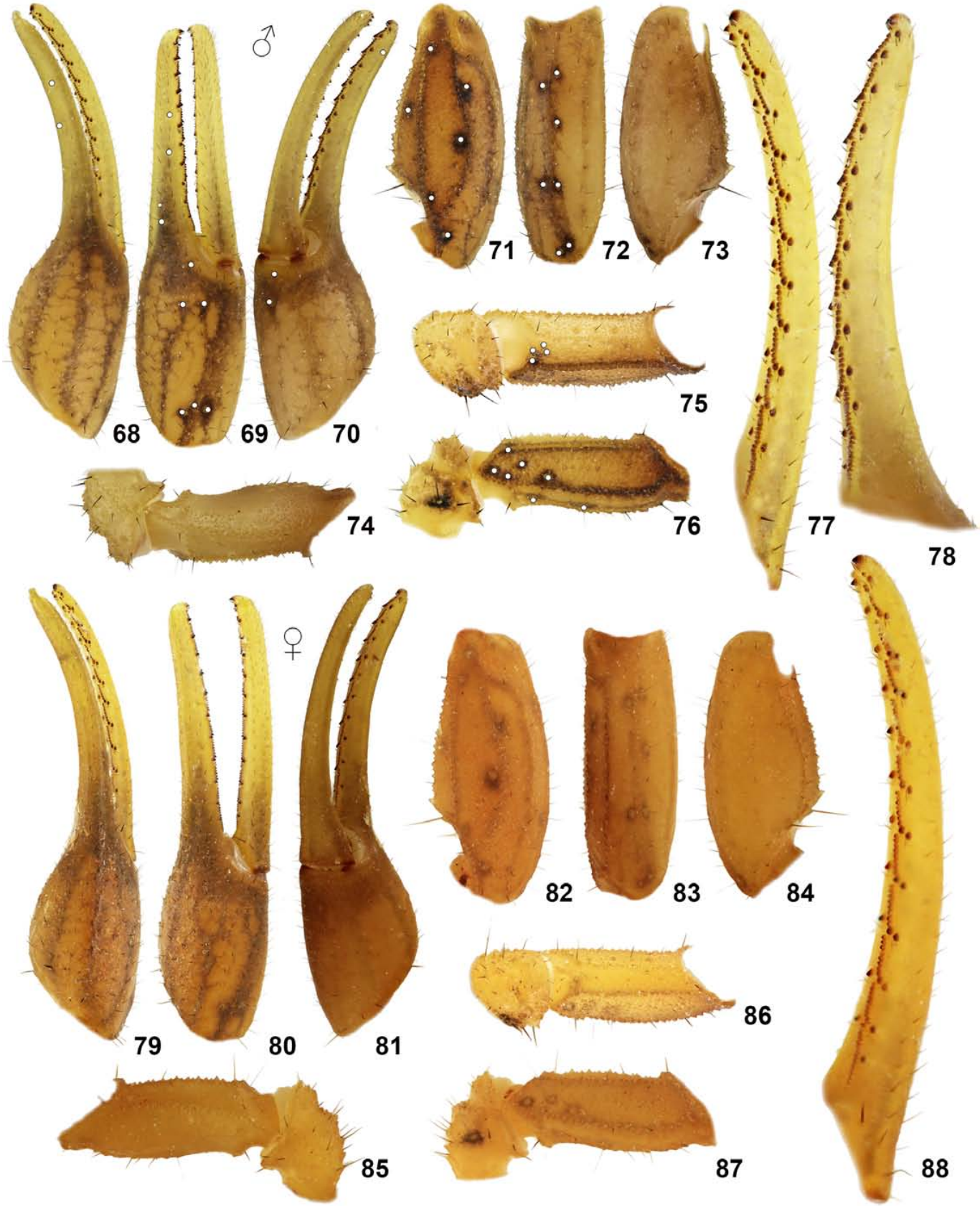
Figures 46–49: *Hottentotta haudensis* **sp**. **n**. **Figures 46–47**. Male holotype, dorsal (46) and ventral (47) views. **Figures 48–49**. Female paratype, dorsal (48) and ventral (49) views. Scale bar: 10 mm.



Figures 50–59: *Hottentotta haudensis* **sp**. **n**. **Figures 50**, **52**, **54–59**. Male holotype, chelicerae, carapace and tergites I–III (50), sternopectinal region and sternites III–IV (52), left legs I–IV, retrolateral aspect (54–57), and right chelicera dorsal (58) and ventral (59) views. **Figures 51**, **53**, Female paratype, chelicerae, carapace and tergites I–III (51), and sternopectinal region and sternites III–IV (53).



Figures 60–67: *Hottentotta haudensis* **sp**. **n**. **Figures 60**, **62–64**. Male holotype, telson lateral (60), and metasoma and telson lateral (62), ventral (63), and dorsal (64). **Figures 61**, **65–67**. Female paratype, telson lateral (61), and metasoma and telson lateral (65), ventral (66), and dorsal (67). Scale bar: 10 mm (62–67).



Figures 68–88: *Hottentotta haudensis* **sp**. **n**. **Figures 68–78**. Male holotype, pedipalp chela dorsal (68), external (69) and ventral (70) views, patella dorsal (71), external (72) and ventral (73) views, femur and trochanter ventral (74), internal (75), and dorsal (76) views, movable (77) and fixed (78) fingers dentition. **Figures 79–88**. Female paratype, pedipalp chela dorsal (79), external (80) and ventral (81) views, patella dorsal (82), external (83) and ventral (84) views, femur and trochanter ventral (85), internal (86), and dorsal (87) views, movable finger dentition (88). Trichobothrial pattern indicated in Figures 68–72 and 75–76 by white circles.

Figures 89–90: *Hottentotta haudensis* **sp**. **n**., male (89) and female (90) paratypes from locality 17SC in vivo habitus.

Diagnosis. Total length of males 27–31 mm, of females 31–33.5 mm. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Sexual dimorphism not pronounced; manus of pedipalp about the same width in both sexes. Pectine teeth number 16–19 in males, 14–16 in females. Chelicerae yellow, anterior manus reticulated. Pedipalps sparsely hirsute. Metasoma with only a few setae. Base color yellowish to orange brown. Dorsal surfaces of pedipalps and ventral surfaces of metasoma with numerous dark spots. Mesosoma yellowish to reddish brown, with black spots. Femur of pedipalp with 5 carinae that may be incomplete. Patella with 8 granulated carinae. Chela lacks carinae except dorsal carinae which are present or indicated, surfaces usually granulate. Movable fingers of pedipalps with 10–11 rows of denticles and 4 terminal and one basal terminal denticles. Sternite VII bears 4 well marked carinae, usually granulated. Metasoma I–IV with 10 carinae; metasoma V with 5 carinae. All carinae granulated, dorsal carinae bear larger posterior terminal granules. Metasoma narrow; metasomal segment I of adults usually longer than wide or as long as wide; metasomal segment II always longer than wide; metasomal segment IV length/width ratio 1.5–1.7 in both sexes. Telson vesicle bulbous, telson length/depth ratio 2.28 in female.

Description. Total length of adult males 27–31 mm, females 31–33.5 mm. Trichobothrium *db* on fixed finger of pedipalp is situated between trichobothria *et* and *est*. Pedipalp fingers proximally rather straight in both sexes. Female has more bulbous telson vesicle than male. Chelicerae yellow, anterior manus reticulated. For the position and distribution of trichobothria see Figs. 69–73, 75–76.

Coloration (Figs. 19–24). Whole body yellowish or orange brown; carapace, tergites, metasoma, telson, dorsal surfaces of pedipalps and legs with black spots; tarsomeres of legs yellow without spots.

Carapace and mesosoma (Figs. 46–53). Carapace carinate and unevenly covered by granules of varying size; much of the granulation is fine, but some granules are larger and distinctly rounded. Tergites I–VI bear three carinae and are granulated, with some intercarinal granules small and others larger and rounded. Tergite VII is pentacarinate. Pectinal tooth count is 16–19 (1x16, 1x17, 4x18, 4x19) in males and 14–16 (2x14, 2x16) in females. Pectinal marginal tips extend to the posterior end of sternite III in males and to the proximal ¾ of sternite III in females. Pectines have 3 marginal lamellae and 7–9 middle lamellae. Lamellae bear numerous dark long setae, each fulcrum with 3–5 setae. All sternites sparsely hirsute and finely granulated with smooth parts mainly in medial area. Sternite VII with four granulate carinae, other sternites have two furrows.

Metasoma and telson (Figs. 60–67). All metasomal segments only very sparsely hirsute. Metasoma I–IV with 10 carinae, metasoma V with 5 carinae. All carinae granulated, dorsal carinae bear larger posterior terminal granules. First metasomal segment of adults usually longer than wide or as long as wide, second metasomal segment always longer than wide. Telson vesicle bulbous and sparsely granulated. Telson length/depth ratio 2.28 in female.

Pedipalps (Figs. 68–88). Pedipalps sparsely hirsute and granulated. Femur with five granulate carinae, patella with eight granulate carinae and chela with dorsal carinae present or indicated, other carinae absent. Movable fingers of pedipalps bear 10–11 rows of denticles and 4 terminal and one basal terminal denticles.

Legs (Figs. 54–57). Tarsomeres have two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces; bristle combs absent. Femur coarsely granulose with only several macrosetae, femur and patella with carinae well developed. Moderate tibial spurs present on legs III–IV and absent on other legs.

Hemispermatophore (Figs. 144–146). Flagelliform; flagellum folded into pars recta and pars reflecta. Pars recta shorter, with fin-like expansion of anterior margin; pars reflecta about twice as long as pars recta, narrow, hyaline. Trunk long, narrow, basally widened with attached pedicel. Capsule short, sperm hemiduct divided into 3 laminate lobes: posterior lobe longest, with rounded apex; median lobe shortest, tapered, apically acuminate, concave side connected to posterior lobe along proximal half of midline rib or median lobe carina; anterior lobe of intermediate length, distal portion narrower but not tapered, with blunt apex. Basal lobe short, strong, hook-like, located at base of median lobe. Morphology was similar in both left and right hemispermatophores examined from paratype 1198. Measurements of left hemispermatophore (mm): trunk L, 3.76; capsule L 0.33; flagellum pars recta L 0.90, pars reflecta L 2.04, total L 2.94.

Measurements. See Table 1.

Affinities. The described features distinguish *H. haudensis* **sp**. **n**. from all other species of the genus. It is the smallest species of the genus. Certain morphological features (characteristic spots and narrow metasoma) are shared with *H. polystictus*, suggesting a close affinity with this species. These two species can be differentiated by: **1**) total length 27–31 (males), 31–33.5 (females) mm in *H. haudensis* **sp**. **n**., vs. total length 35–45 (males), 40–55 (females) mm in *H. polystictus*; **2**) pectinal tooth counts of 16–19 in males, 14–16 in females of *H. haudensis* **sp**. **n**., vs. counts of 22–24 in males, 18–20 in females of *H. polystictus*, with pectines being distinctly shorter in *H. haudensis* **sp**. **n**.; **3**) movable fingers of pedipalps with 10–11 rows of denticles in *H. haudensis* **sp**. **n**., vs. 12–14 rows of denticles in *H. polystictus*.

Comments on localities and life strategy. The type locality of *Hottentotta haudensis* **sp**. **n**., (Somaliland, Shanshade Village, 08°39'35"N 45°55'49"E, 790 m a. s. l., 18SJ), in a red sandy semidesert (Fig. 136 and figs. 60–61 in Kovařík & Lowe, 2019), is also the type locality of three other buthid scorpions, *Gint banfasae* Kovařík & Lowe, 2019 (the numerically dominant scorpion species at this locality), *Parabuthus kabateki* Kovařík et al., 2019, and *Parabuthus mazuchi* Kovařík et al., 2019. All scorpions were recorded at

Dimensions (mm)		*Hottentotta nigrimontanus* **sp. n.** ♂ **holotype**	*Hottentotta nigrimontanus* **sp. n.** ♀ **paratype**
Carapace	L / W	5.88 / 6.19	7.55 / 7.83
Mesosoma	L	11.42	19.69
Tergite VII	L / W	3.32 / 5.69	4.44 / 7.59
Metasoma + telson	L	30.35	37.04
Segment I	L / W / D	3.61 / 3.58 / 3.26	4.28 / 4.17 / 3.98
Segment II	L / W / D	4.22 / 3.36 / 3.17	4.95 / 3.72 / 3.71
Segment III	L / W / D	4.35 / 3.18 / 3.09	5.22 / 3.63 / 3.55
Segment IV	L / W / D	5.20 / 3.09 / 2.94	6.23 / 3.46 / 3.42
Segment V	L / W / D	6.50 / 2.95 / 2.82	8.26 / 3.44 / 3.30
Telson	L / W / D	6.47 / 2.40 / 2.41	8.10 / 3.17 / 3.13
Pedipalp	L	21.41	25.77
Femur	L / W	5.05 / 1.64	6.00 / 2.00
Patella	L / W	6.32 / 2.35	7.62 / 3.02
Chela	L	10.04	12.15
Manus	W / D	2.57 / 2.62	2.81 / 2.98
Movable finger	L	6.46	7.93
Total	**L**	**47.65**	**64.28**

Table 2. Comparative measurements of adults of *Hottentotta nigrimontanus* **sp. n.** Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (D).

night during UV collecting together with another rare buthid, *Lanzatus somalilandus* Kovařík & Lowe, 2016. We visited this locality on 29–31 August 2018 and recorded a maximum daytime temperature of 40 ºC, and a minimum nighttime temperature of 23 ºC. The recorded humidity was between 24% (minimum at day) and 65% (maximum at night).

Distribution. Somaliland (Fig. 138).

Hottentotta nigrimontanus sp. n.

(Figures 91–135, 138–139, 147–150, Table 2)

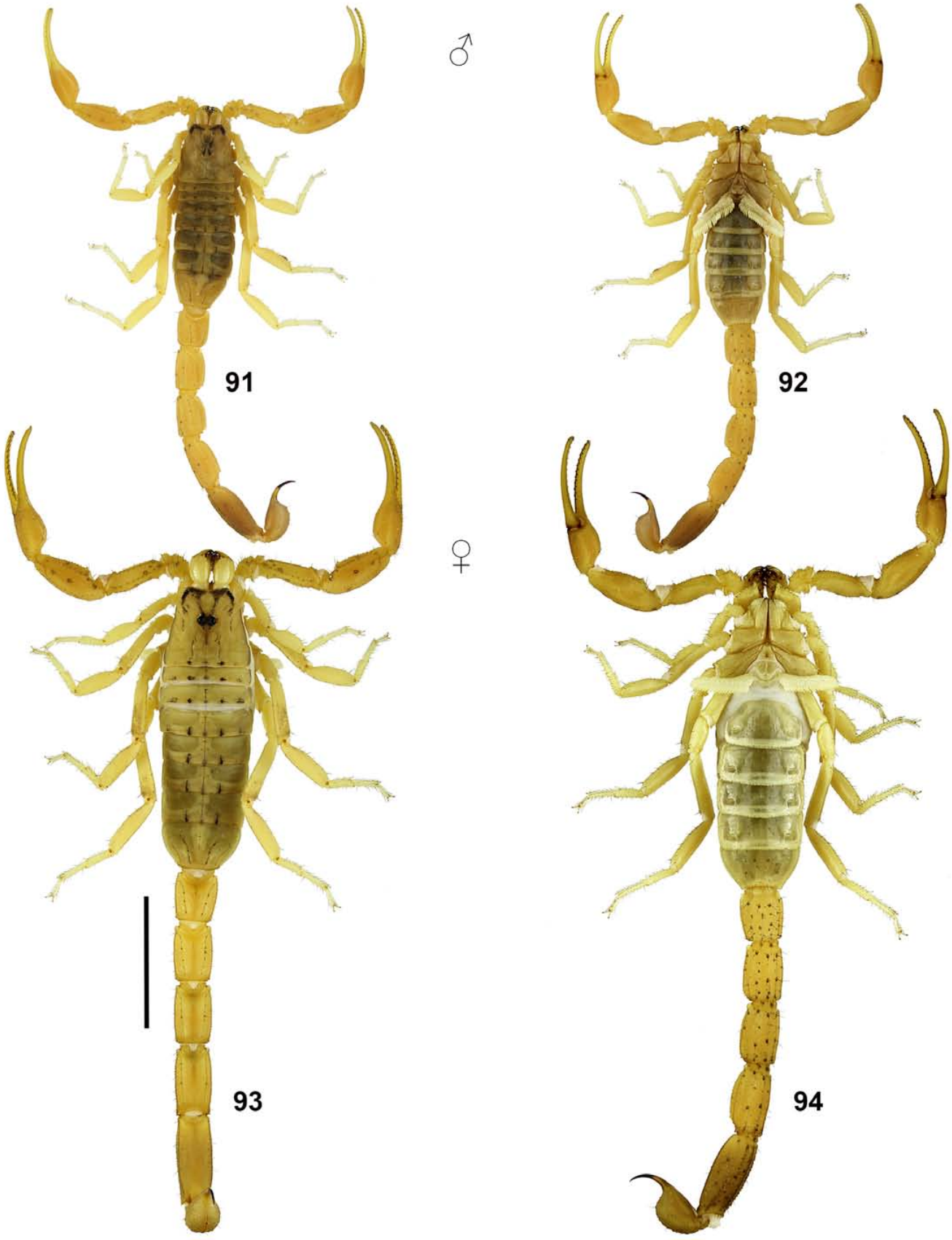
http://zoobank.org/urn:lsid:zoobank.org:act:98AC8E51-D3BA-43E0-B4FE-C7FDE28546DB

Type locality and type repository. Somaliland, Mader Mage village, between Erigavo and Maid, 10°48'03"N 47°17'46"E, 1389 m a. s. l. (Locality No. 18SD, Fig. 139 and fig. 82 in Kovařík et al., 2019a: 15); FKCP.

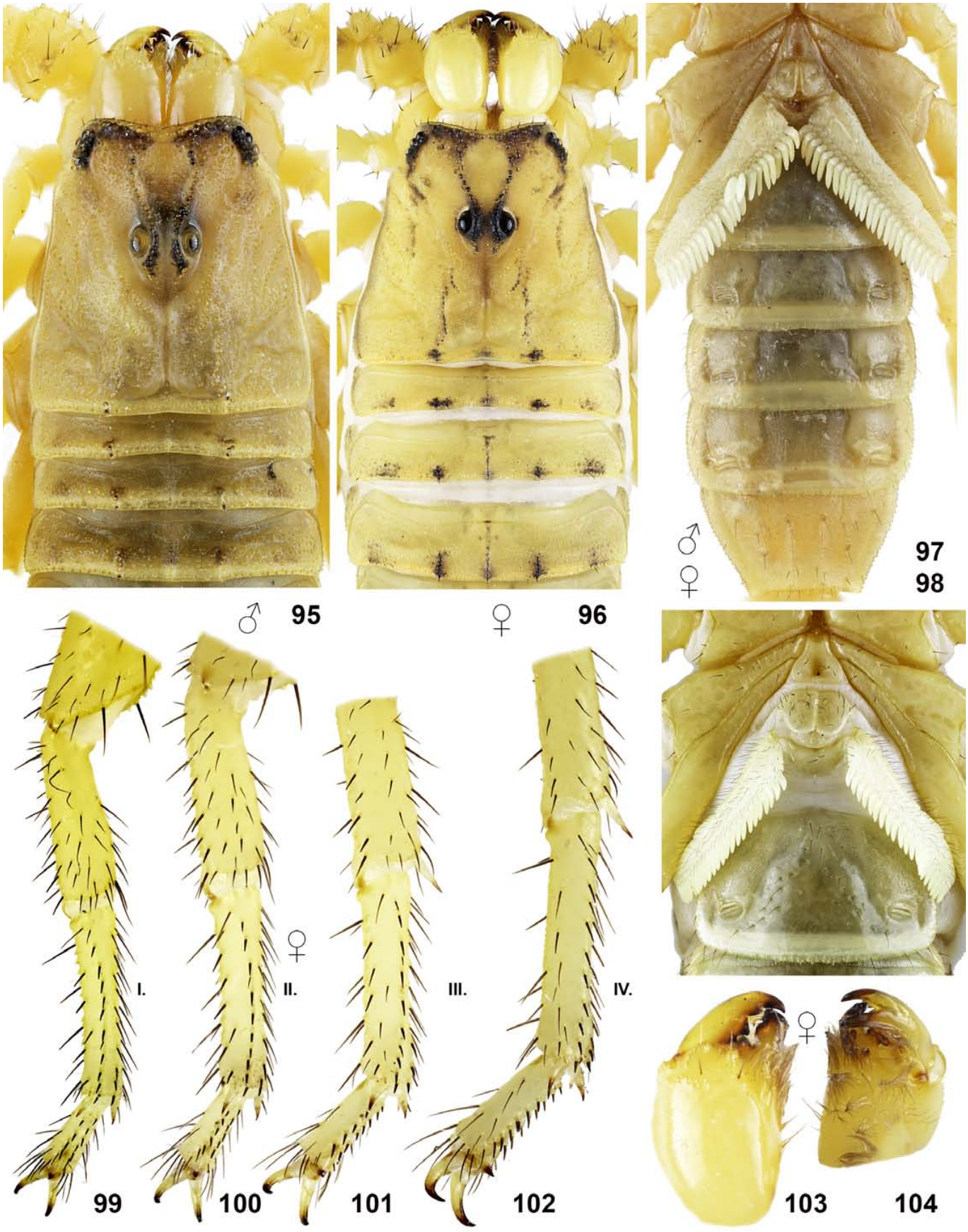
Type material (FKCP). **Somaliland**, between Erigavo and Maid, 10°48'15"N 47°19'14"E, 1031 m a. s. l. (Locality No. **17SL**), 3.IX.2017, 1♂3♀3♂juvs.7♀juvs. (paratypes, 1399), leg. F. Kovařík et al.; Mader Mage vill., between Erigavo and Maid, 10°48'03"N 47°17'46"E, 1389 m a. s. l. (Locality No. **18SD**), 23.VIII.2018, 1♂ (holotype) 1♂4♀ (paratypes), leg. F. Kovařík; Rugay village, between Erigavo and Maid, 10°50'46"N 47°18'23"E, 428 m a. s. l. (Locality No. **18SE**), 24.VIII.2018, 1♂ (paratype, 1337), leg. F. Kovařík; Maid, 11°00'03"N 47°06'30"E, 52 m a. s. l. (Locality No. **18SG**=17SN), 25.VIII.2018, 1♀juv. (paratype), leg. F. Kovařík; Buq vill. near Erigavo, 10°37'25"N 47°10'53"E, 1723 m a. s. l. (Locality No. **18SH**), 27.VIII.2018, 5♂1♀1♂juv.2♀juvs. (paratypes, 1547), leg. F. Kovařík.

Etymology. Named after the Cal Madow Mountains ("Black Mountains") where the new species is found (see Fig. 138).

Diagnosis. Total length of adult males 47–58 mm, of females 55–65 mm. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Sexual dimorphism not pronounced; manus of pedipalp of usually about the same width in both sexes, but males have fingers of pedipalps slightly undulate. Pectinal teeth number 24–27 in males, 19–23 in females. Chelicerae yellow without reticulation. Pedipalps sparsely hirsute. Metasoma with only a few setae. Base color yellowish or orange brown. Dorsal surfaces of pedipalps and ventral surfaces of metasoma with numerous dark spots. Mesosoma yellowish to reddish brown, with black spots. Femur of pedipalp with 5 carinae that may be incomplete. Patella with 8 granulated carinae. Chela lacks carinae, surfaces usually granulate. Movable fingers of pedipalps with 13–14 rows of denticles and 4 or 5 terminal and one basal terminal denticles. Seventh sternite bears 4 well marked granulated carinae. Metasoma I–III with 10 carinae; metasoma IV with 8 or 10 carinae; metasoma V with 5 carinae. All carinae granulated, dorsal carinae bear larger posterior terminal granules. Metasoma narrow; metasomal segment I of adults longer than wide; metasomal segment IV length/width ratio 1.66–1.83 in both sexes. Telson vesicle bulbous, telson length/depth ratio 2.52–2.56 in females.

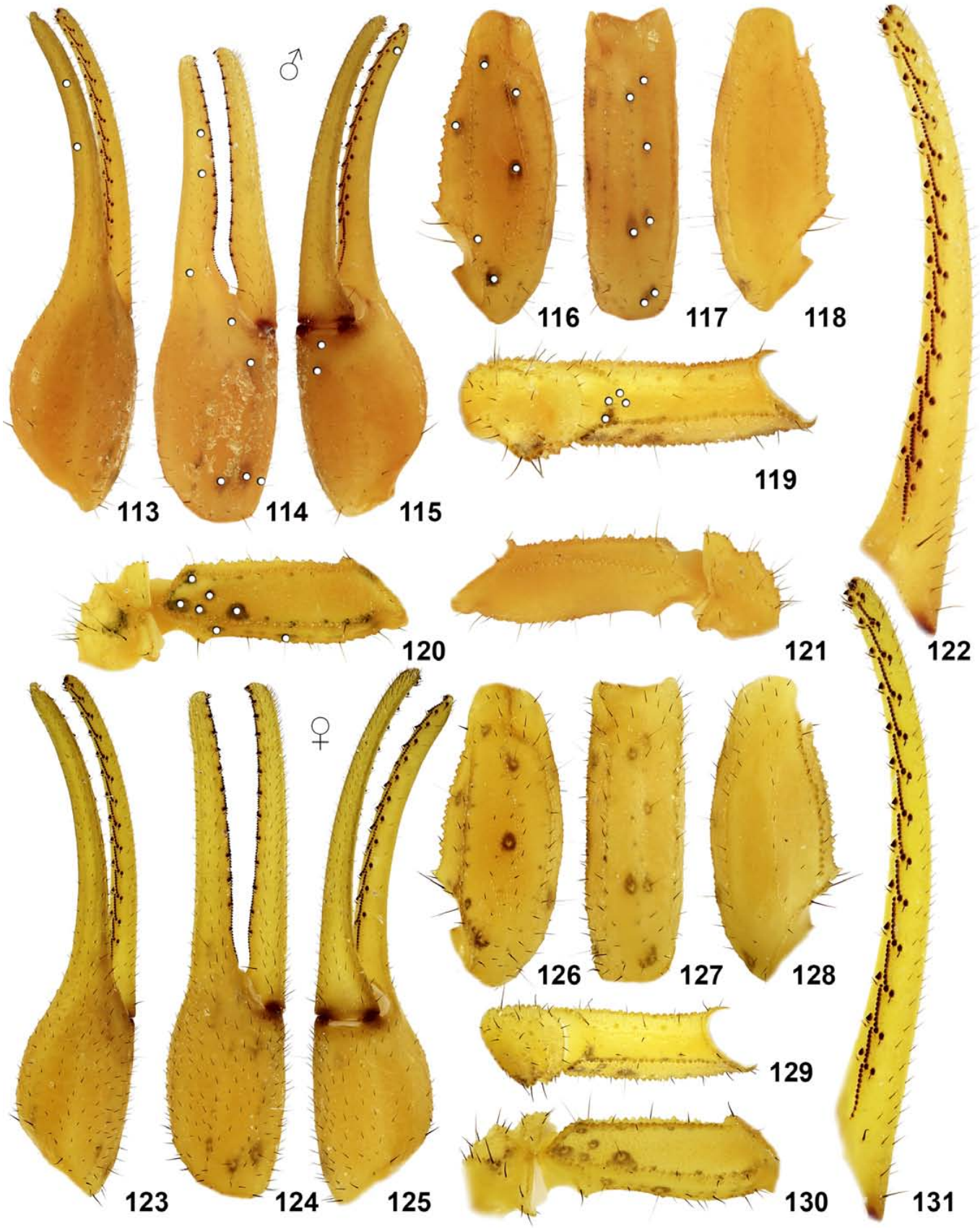


Figures 91–94: *Hottentotta nigrimontanus* **sp. n.**, paratypes from locality 17SL. **Figures 91–92**. Male, dorsal (91) and ventral (92) views. **Figures 93–94**. Female, dorsal (93) and ventral (94) views. Scale bar: 10 mm.



Figures 95–**104**: *Hottentotta nigrimontanus* **sp**. **n**., paratypes from locality 17SL. **Figures 95**, **97**. Male, chelicerae, carapace and tergites I–III (95) and sternopectinal region and sternites (97). **Figures 96**, **98**–**104.** Female, chelicerae, carapace and tergites I–III (96), sternopectinal region and sternite III (98), left legs I–IV, retrolateral aspect (99–102), and left chelicera dorsal (103) and ventral (104) views.

Figures 105–**112**: *Hottentotta nigrimontanus* **sp**. **n**., paratypes from locality 17SL. **Figures 105**, **107**–**109**. Male, telson lateral (105), and metasoma and telson lateral (107), ventral (108), and dorsal (109). **Figures 106**, **110**–**112**. Female, telson lateral (106), and metasoma and telson lateral (110), ventral (111), and dorsal (112). Scale bar: 10 mm (107–109, 110–112).



Figures 113–131: *Hottentotta nigrimontanus* **sp**. **n**. **Figures 113**–**122**. Male holotype, pedipalp chela dorsal (113), external (114) and ventral (115) views, patella dorsal (116), external (117) and ventral (118) views, femur and trochanter internal (119), dorsal (120), and ventral (121) views, and movable finger dentition (122). **Figures 123**–**131**. Female paratype from locality 17SL, pedipalp chela dorsal (123), external (124) and ventral (125) views, patella dorsal (126), external (127) and ventral (128) views, femur and trochanter internal (129) and dorsal (130) views, and movable finger dentition (131).

Figures 132–133: *Hottentotta nigrimontanus* **sp**. **n**., male paratype from locality 18SD (132) and female paratype from locality 17SL (133) in vivo habitus.

Figures 134–135: *Hottentotta nigrimontanus* **sp. n.**, female paratype from locality 17SL, in vivo habitus with newborns (134) and with juveniles after first ecdysis (135).

Description. Total length of adult males 47–58 mm, females 55–65 mm. Trichobothrium *db* on fixed finger of pedipalp is situated between trichobothria *et* and *est*. Pedipalp fingers slightly undulate in males and almost straight in females. Female has more bulbous telson vesicle than males. Chelicerae yellow without reticulation. For the position and distribution of trichobothria see Figs. 113–117, 119–120.

Coloration (Figs. 91–94, 132–135). Whole body yellowish or orange brown; carapace, tergites, metasoma, telson, dorsal surfaces of pedipalps and legs with black spots; tarsomeres of legs yellow without spots.

Carapace and mesosoma (Figs. 95–98). Carapace carinate and unevenly covered by granules of varying size; much of the granulation is fine, but some granules are larger and distinctly rounded. Tergites I–VI bear three carinae and are granulated, with some intercarinal granules small and others larger and rounded. Tergite VII is pentacarinate. Pectinal tooth count is 24–27 (9x24, 8x25, 7x26, 1x27) in males and 19–23 (3x19, 11x20, 16x21, 4x22, 4x23) in females. Pectinal marginal tips extend to the proximal ¾ of sternite IV in males and to the proximal ¾ of sternite III in females. Pectines have 3 marginal lamellae and 8–9 middle lamellae. Lamellae bear numerous dark long setae, each fulcrum with 3–5 setae. All sternites sparsely hirsute and finely granulated with smooth parts mainly in medial area. Sternite VII with four granulate carinae, other sternites have two furrows.

Metasoma and telson (Figs. 105–112). All metasomal segments only very sparsely hirsute. Metasoma I–III with 10 carinae, metasoma IV with 8 or 10 carinae, metasoma V with 5 carinae. All carinae granulated, dorsal carinae bear larger posterior terminal granules. All metasomal segments of adults longer than wide. Telson vesicle bulbous and sparsely granulated. Telson length/depth ratio 2.52–2.56 in females.

Pedipalps (Figs. 113–131). Pedipalps sparsely hirsute and granulated. Femur with five granulate carinae, patella with eight granulate carinae and chela without carinae but surfaces are usually finely granulate. Movable fingers of pedipalps bear 13–14 rows of denticles and 4 or 5 terminal and one basal terminal denticles.

Legs (Figs. 99–102). Tarsomeres have two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces; bristle combs absent. Femur coarsely granulose with only several macrosetae, femur and patella with carinae well developed. Moderate tibial spurs present on legs III–IV and absent on other legs.

Hemispermatophore (Figs. 147–150). Flagelliform; flagellum folded into pars recta and pars reflecta. Pars recta shorter, with fin-like expansion of anterior margin; pars reflecta about twice as long as pars recta, narrow, hyaline. Trunk long, narrow, basally widened with attached pedicel. Capsule short, sperm hemiduct divided into 3 laminate lobes: posterior lobe longest, with gently pointed apex; median lobe shortest, tapered, apically acuminate, concave side connected to posterior lobe along proximal half of midline rib or median lobe carina; anterior lobe of intermediate length, distal portion narrower but not tapered, with blunt apex. Basal lobe short, strong, hook-like, located at base of median lobe. Morphology was similar in 6 examined hemispermatophores (left and right hemispermatophores from 3 paratypes: 1337, 1399 and 1547). Measurements of left hemispermatophore of paratype 1547 (mm): trunk L, 6.00; capsule L 0.55; flagellum pars recta L 1.65, pars reflecta L 2.60, total L 4.25.

Measurements. See Table 2.

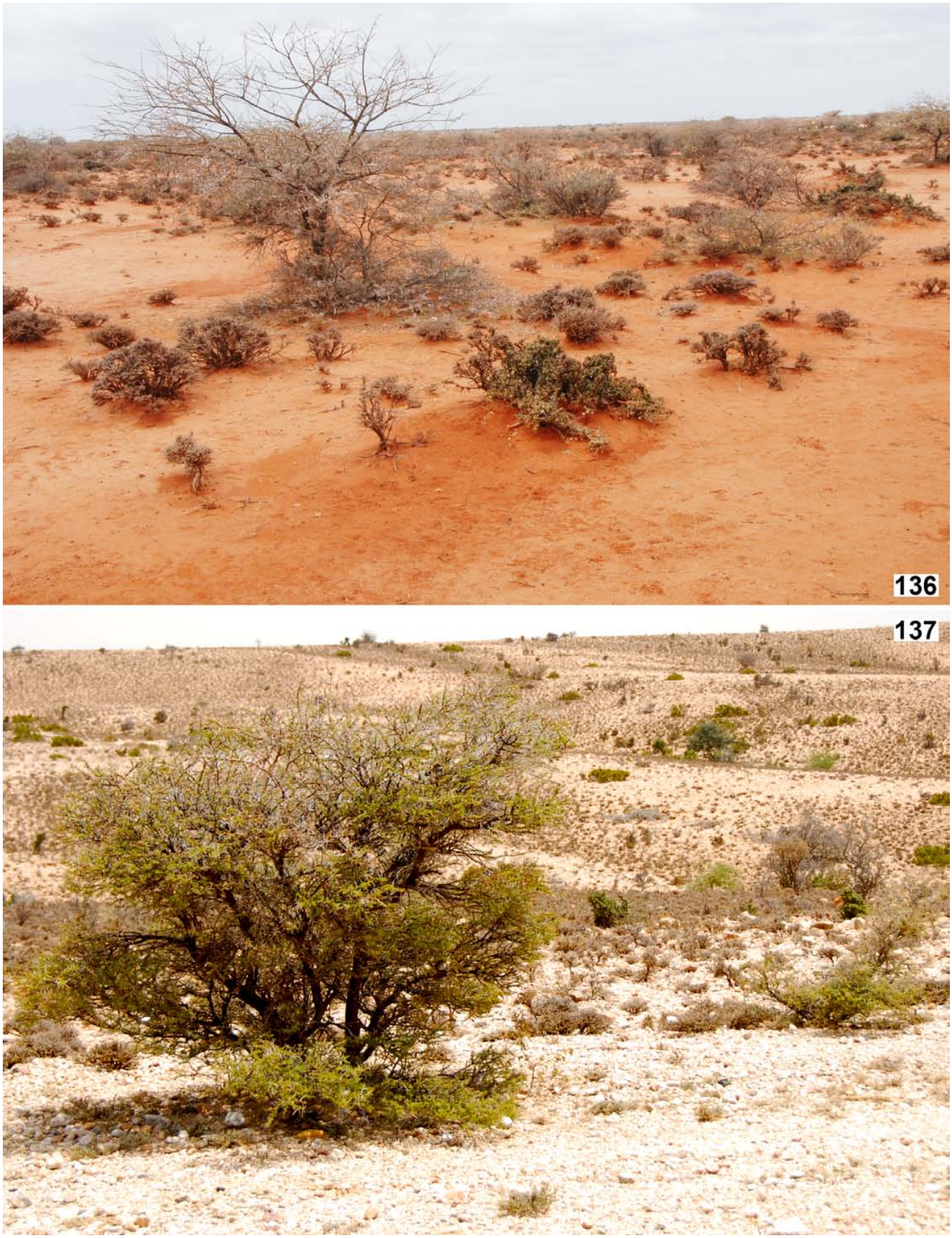
Affinities. The described features distinguish *H. nigrimontanus* **sp**. **n**. from all other species of the genus. Certain morphological features (characteristic spots and narrow metasoma) are shared with *H. polystictus*, suggesting a close affinity with this species. These two species can be differentiated by: **1**) total length 47–58 mm (males), 55–65 mm (females) in *H. nigrimontanus* **sp**. **n**., vs. total length 35–45 mm (males), 40–55 (females) mm in *H. polystictus*; **2**) chelicerae yellow without reticulation (Figs. 103–104) in *H. nigrimontanus* **sp**. **n**., vs. chelicerae yellow with anterior manus reticulated (Fig. 8) in *H. polystictus*; **3**) pectinal tooth counts of 24–27 in males, 19–23 in females of *H. nigrimontanus* **sp**. **n**., vs. counts of 22–24 in males, 18–20 in females in *H. polystictus*.

Comments on locality and life strategy. The type locality of *H. nigrimontanus* **sp**. **n**., **18SD** (Somaliland, Mader Mage vill., between Erigavo and Maid, 10°48'03"N 47°17'46"E, 1389 m a. s. l., Fig. 139 and fig. 82 in Kovařík et al., 2019a: 15) is a mountain slope with trees and bushes, and is also the type locality of the scorpionid *Pandinurus fulvipes* Kovařík et al., 2019. All specimens were collected by day under rocks and at night during UV collecting. At this locality, the first author recorded a minimum nighttime temperature of 24 ºC. The minimum recorded humidity was 37%.

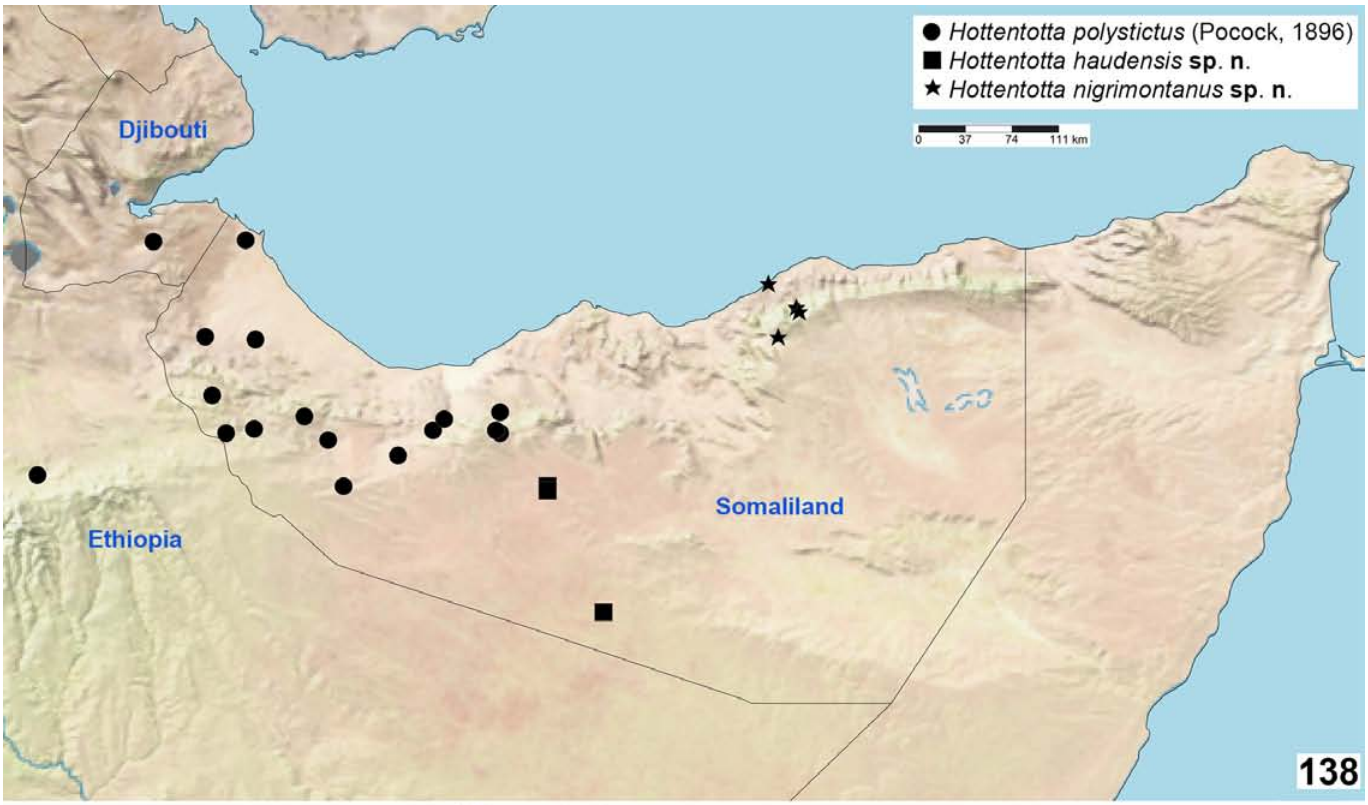
The locality **18SH** is a mountain slope in rocky semi-desert terrain at 1723 m a. s. l. (cf. fig. 83 in Kovařík et al., 2019a: 15). The first author visited the locality in the dry season. All specimens were collected by day under rocks and at night during UV collecting. At this locality, the first author recorded a maximum daytime temperature of 27 ºC, and a minimum nighttime temperature of 17 ºC. The recorded humidity was between 37% (minimum at day) and 69% (maximum at night).

The locality, **18SE** is rocky semi-desert (cf. fig. 42 in Kovařík et al., 2019a, and fig. 46 in Kovařík et al., 2019b), and is also the type locality of the buthid *Barbaracurus feti* Kovařík et al., 2019. The paratype male of *H. nigrimontanus* **sp**. **n**. was recorded at night during UV collecting. The first author visited the locality on 24–25 August 2018 and recorded a maximum daytime temperature of 38 ºC and a minimum nighttime temperature of 32 ºC. The recorded humidity was between 20% (minimum at day) and 33% (maximum at night). More information about the locality is available in Kovařík et al. (2019a).

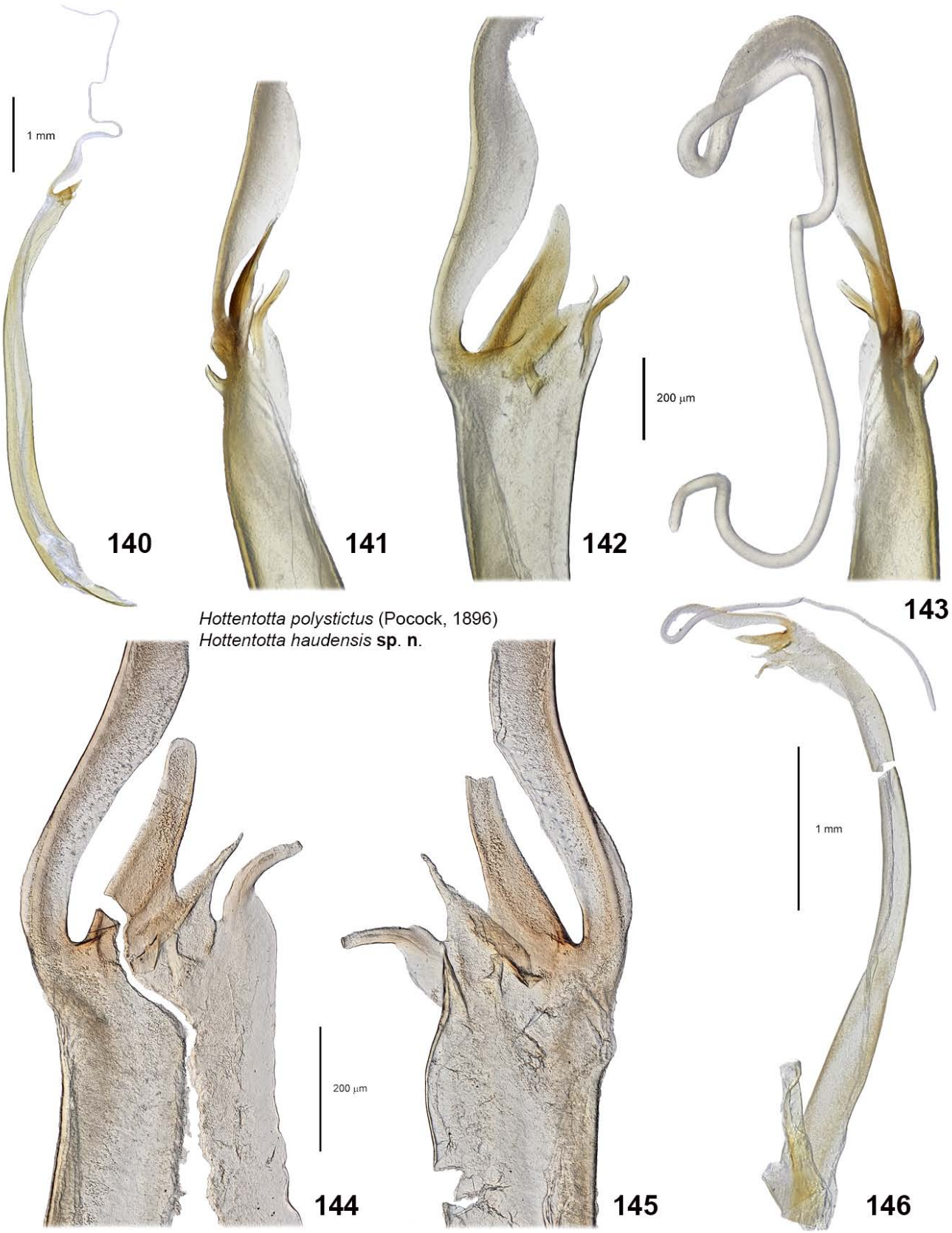
The locality, **18SG** (=17SN) is in a sandy semi-desert to desert area (cf. fig. 120 in Kovařík et al., 2018a). The paratype juvenile was recorded at night during UV collecting. More information about the locality is available in Kovařík et al. (2018).



Figures 136–137: Collection localities. **Figure 136**. *Hottentotta haudensis* **sp**. **n**., type locality. **Figure 137**. *H. polystictus*, locality 11SH.



Figures 138–139: **Figure 138**. Map showing the distribution of *Hottentotta* in Somaliland checked during 2011–2019 expeditions, including records of *H. polystictus* from Djibouti and Ethiopia. **Figure 139**. *Hottentotta nigrimontanus* **sp**. **n**., type locality (18SD).



Figures 140–146: Hemispermatophores. **Figures 140–143**: *Hottentotta polystictus* (Pocock, 1896), male from locality 17ST (1335). **Figure 140**. Whole right hemispermatophore, convex view. **Figures 141–143**. Capsule region of right hemispermatophore, anterior (141), convex compressed (142) and posterior (143) views. Scale bars: 1 mm (140), 200 μm (141–143). **Figures 144–146**: *H. haudensis* **sp**. **n**., paratype male (1198). **Figures 144–145**. Capsule regions of right (144) and left (145) hemispermatophores, convex views. Right capsule was fractured, split off lobes were positioned for display. Capsules compressed to separate the lobes. **Figure 146**. Whole left hemispermatophore, convex view. Trunk was fractured, pieces were positioned for display. Scale bars: 200 μm (144–145), 1 mm (146).

Figures 147–150: *Hottentotta nigrimontanus* **sp**. **n**., hemispermatophore, paratype male (1547). **Figure 147**. Whole left hemispermatophore, convex view. **Figures 148–150**. Capsule region of left hemispermatophore, posterior (148), convex (149) and anterior (150) views. Scale bars: 1 mm (147), 200 µm (148–150).

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