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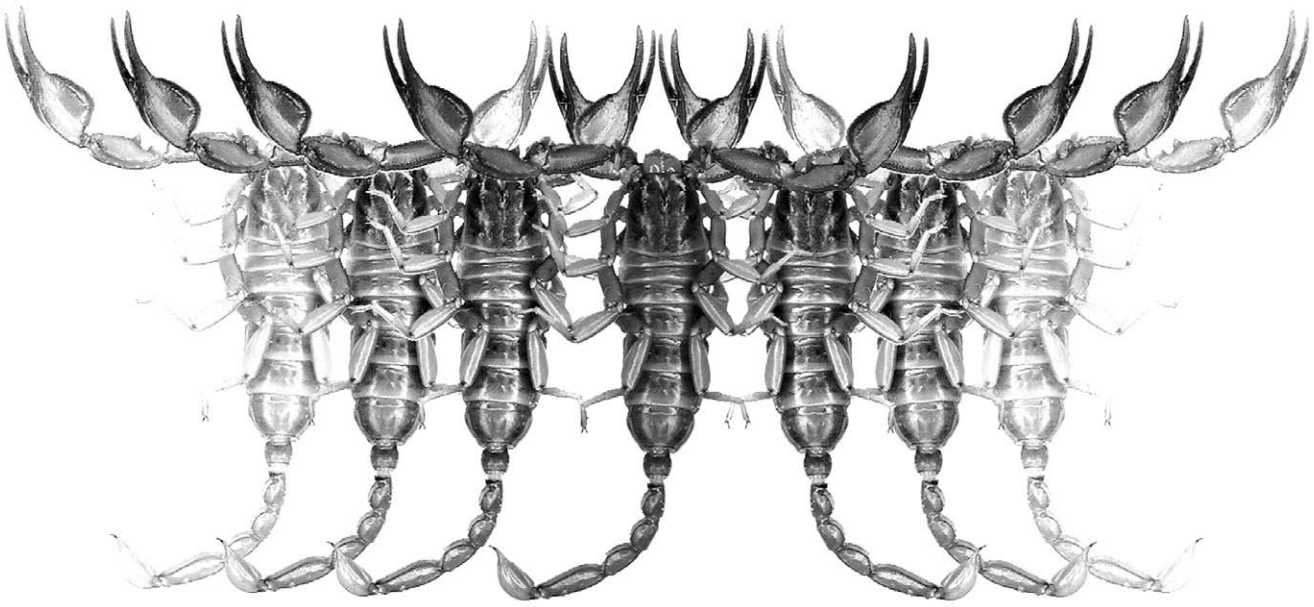

Scorpions of the Horn of Africa (Arachnida, Scorpiones). Part XIV. *Hottentotta somalicus* sp. n. (Buthidae) from Somalia

František Kovařík

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Scorpions of the Horn of Africa (Arachnida, Scorpiones). Part XIV. *Hottentotta somalicus* sp. n. (Buthidae) from Somalia

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http://zoobank.org/urn:lsid:zoobank.org:pub:86482F7C-F1F7-4667-B099-ED496D6E053C

Summary

Hottentotta somalicus **sp. n.** from Somalia is described and fully complemented with color photos. Morphologically it is similar to *H. polystictus* (Pocock, 1896). These two species have very narrow metasomal segments (1.63–1.73 in both sexes versus 1.31–1.61 in both sexes of other *Hottentotta* species from the Horn of Africa). *H. polystictus* and *H. somalicus* **sp**. **n**. occur in separate areas (Somaliland versus Somalia) and can be differentiated by color.

Introduction

In 2011–2017, the author has had an opportunity to participate in expeditions to the Horn of Africa, study scorpions at 113 localities in Ethiopa, Eritrea, and Somaliland, and published several articles on this fauna. During the expeditions he collected a lot of *Hottentotta* specimens which were summarized in a revison published by Kovařík & Mazuch in 2015. Here, we describe another species, *Hottentotta somalicus* **sp. n.** from the vicinity of Mogadishu, which belongs to the *Hottentotta polystictus* complex.

Methods, Material & Abbreviations

Nomenclature and measurements follow Stahnke (1971), Kovařík (2009), and Kovařík & Ojanguren Affilastro (2013), except for trichobothriotaxy (Vachon, 1974). Short, stout spiniform macrosetae are termed spinules.

We intentionally use here the name Somaliland (Hargeysa) for the northern territory corresponding to the former British colony (British Somaliland), which we distinguish from Somalia (Mogadishu). Somaliland has its own currency, a functional government with representation in several countries. Specimens used for this study were collected and imported with permitions of Amoud and Hargeisa Universities and Ministry of the Environment of the Republic of Somaliland.

All studied specimens are preserved in 80% ethanol in the author's collection, FKCP (František Kovařík, private collection, Prague, Czech Republic). *Morphometrics*: D, depth; L, length; W, width.

Systematics

Family Buthidae C. L. Koch, 1837

Hottentotta Birula, 1908
(Figs. 1–24, Table 1)

Buthus (*Hottentotta*) Birula, 1908: 141.
Hottentotta: Fet & Lowe, 2000: 133–144: Kovařík, 2007: 1–107, figs. 1–153; Kovařík & Mazuch, 2015: 1–37, figs. 1–158.
= *Dasyscorpio* Pallary, 1938: 279–280 (syn. by Vachon, 1949: 146 (1952: 232)).
= *Buthotus* Vachon, 1949: 143 (1952: 229–241, figs. 313–330) (syn. by Francke, 1985: 4).
Mesobuthus: Tikader & Bastawade, 1983: 185–242, figs. 504–700.
= *Buthotus* (*Balfourianus*) Vachon, 1979: 236, fig. 8 (syn. by Kovařík, 2007: 2).
= *Hottentotta (Deccanobuthus)* Lourenço, 2000: 192–195, figs. 1–7 (syn. by Kovařík, 2007: 2).

TYPE SPECIES. *Scorpio hottentotta* Fabricius, 1787.

DIAGNOSIS. Medium to large buthids, adults 30–130 mm. Sternum type 1 (Soleglad & Fet, 2003), triangular in shape. Pedipalps orthobothriotaxic, type Aβ (Vachon, 1974, 1975), femur trichobothrium d_2 dorsal, patella d_3

dorsal of dorsomedian carina. Chelal trichobothrium *db* usually located between *est* and *et*, or may be on level with trichobothrium *est*, rarely between *est* and *esb*. Trichobothrium *eb* clearly on fixed finger of pedipalp. Pectines with fulcra. Dentate margin of pedipalp-chela movable finger with distinct granules divided into 11–16 linear rows and (4)5–7 terminal granules. Chelicerae with typical buthid dentition, fixed finger armed with two denticles on ventral surface. Tergites I–VI granular, with three carinae, tergite VII with 5 carinae. Carapace with distinct carinae, entire dorsal surface nearly planate. First sternite with two granulated lateral stridulatory areas, which however may be reduced in some species (e. g. in *H. pachyurus* and *H. trilineatus*). Metasoma elongate, segment I with 10 carinae, segments II-IV with 8–10 carinae. Ventrolateral carinae of fifth metasomal segment with all granules more or less equal in size and never lobate. Telson bulbous, lumpy and granulated, without subaculear tooth. Legs III and IV with well developed tibial spurs, first and second tarsomeres with paired ventral setae.

Hottentotta polystictus (Pocock, 1896)
(Figs. 9–13)

Buthus polystictus Pocock, 1896: 178–179, pl. XI, fig. 1.
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. Somaliland, Goolis Mts., inland of Berbera; BMNH (The Natural History Museum, London, United Kingdom).

ETHIOPIAN MATERIAL EXAMINED. 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 MATERIAL EXAMINED. 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, XI.2010, 1♂, leg. T. Mazuch; Laas Gel, 50 km NE Hargeisa, 09°46'16.6"N 44°27'07.2"E, 1090 m a.s.l., 7.VII.2011, 1♂2♀3juvs., leg. F. Kovařík; beetwen Berbera and Sheikh, 10°05' 49.9"N 45°11'40.1"E, 628 m a.s.l., 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; beetween Burao and Laas Caanood, 09°11' 18.4"N 45°54'24"E, 871 m a.s.l., 11.VII.2011, 1♀2juvs., leg. F. Kovařík; Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l., 12.VII.2011, 1♂7♀, leg. F. Kovařík; 15 km N of Sheikh, Goolis Mts., 09°32'27.7"N 45°31' 38.9"E, 1056 m a.s.l, 6.II.2017, 1♀1juv., leg. F. Kovařík; Laas Gel, 50 km NE Hargeisa, 09°46'47"N 44°26'43"E, 1043 m a.s.l., 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., 28.-30.VIII.2017, 2♂3♀7 juvs., leg. F. Kovařík; between Berbera and Burao, 10°02'12"N 44°47'21"E, 60 m a.s.l., 30.VIII.2017, 1♂ im., leg. F. Kovařík; Sheikh, Goolis Mts., 09°56'38"N 45°10'59"E, 1418 m a.s.l., 6.IX.2017, 1♂9♀8juvs., leg. F. Kovařík; Borama, Amoud University campus, 09° 56'49"N 43°13'23"E, 1394 m a.s.l., 9-13.IX.2017, 1♂, leg. F. Kovařík.

DIAGNOSIS. Total length 40–60 mm, some males may be only 35 mm long. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Sexual dimorphism not pronounced; manus of pedipalp of approximately same width in both sexes, but males have fingers of pedipalps slightly twisted. Pectinal teeth number 22–27 in males, 18–22 in females. Chelicerae yellow, anterior part could be reticulated in darker specimens. Pedipalps sparsely hirsute. Metasoma with only a few hairs. Color 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, of which some are smooth, without granules and obsolete. Chela lacks carinae but is usually granulate. Movable fingers of pedipalps with 12–14 rows of granules and 5 or 6 terminal granules. Seventh sternite bears 4 well marked carinae, usually granulated. First to third metasomal segments with 10 carinae; fourth with 8 or 10 carinae; fifth with 5 carinae. All carinae granulated, dorsal carinae bear larger terminal granules. Metasoma very narrow. First metasomal segment of adults usually longer than wide or as long as wide, second metasomal segment always longer than wide. Fourth metasomal segment length/width ratio 1.70–1.73 in both sexes. Telson very bulbous. Telson length/depth ratio 2.45–2.48 in females.

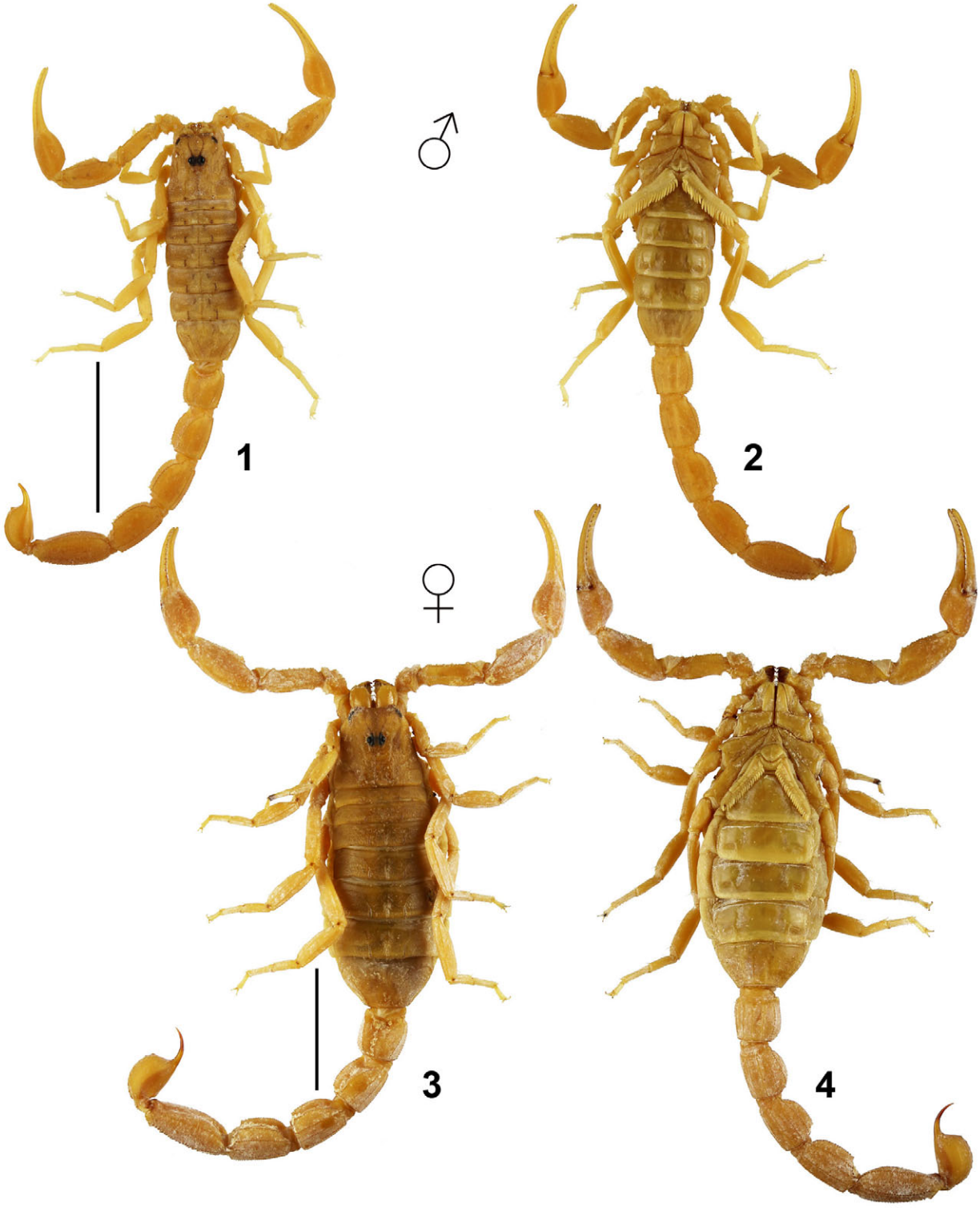
Hottentotta somalicus **sp. n.**
(Figs. 1–8, 14–24, Table 1)
http://zoobank.org/urn:lsid:zoobank.org:act:C9A7E9D8-E654-4D6B-B7DD-C2935ABBC76B

TYPE LOCALITY AND TYPE DEPOSITORY. Somalia, near Mogadishu; FKCP.

TYPE MATERIAL EXAMINED. Somalia, near Mogadishu, IX.2011, 1♂ (holotype) 2♀ (paratypes), FKCP.

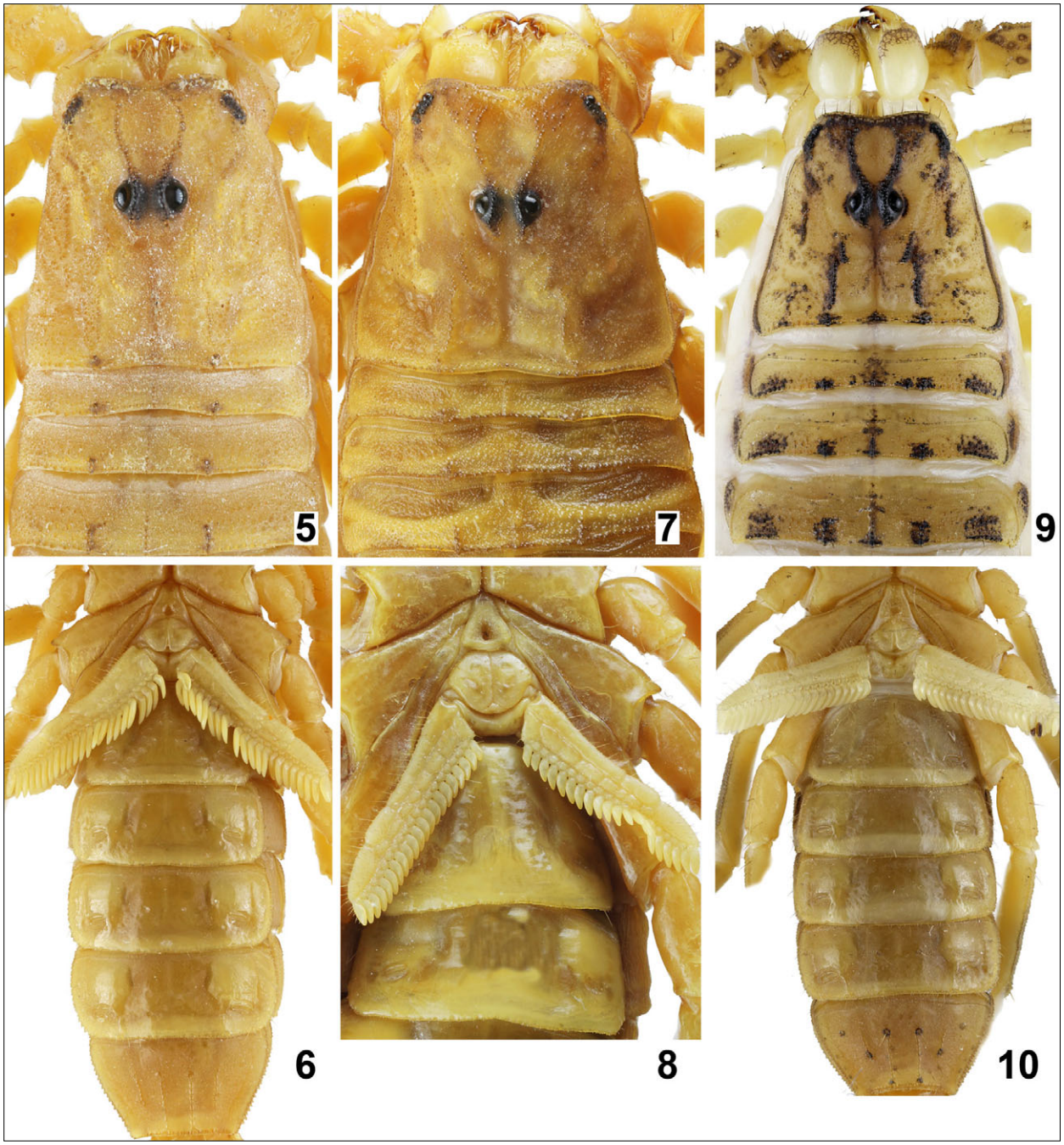
ETYMOLOGY. Named after the country of occurence.

DIAGNOSIS. Total length 40 (male) to 65 (female) mm. Trichobothrium *db* on fixed finger of pedipalp is situated between trichobothria *et* and *est*. Sexual dimorphism not



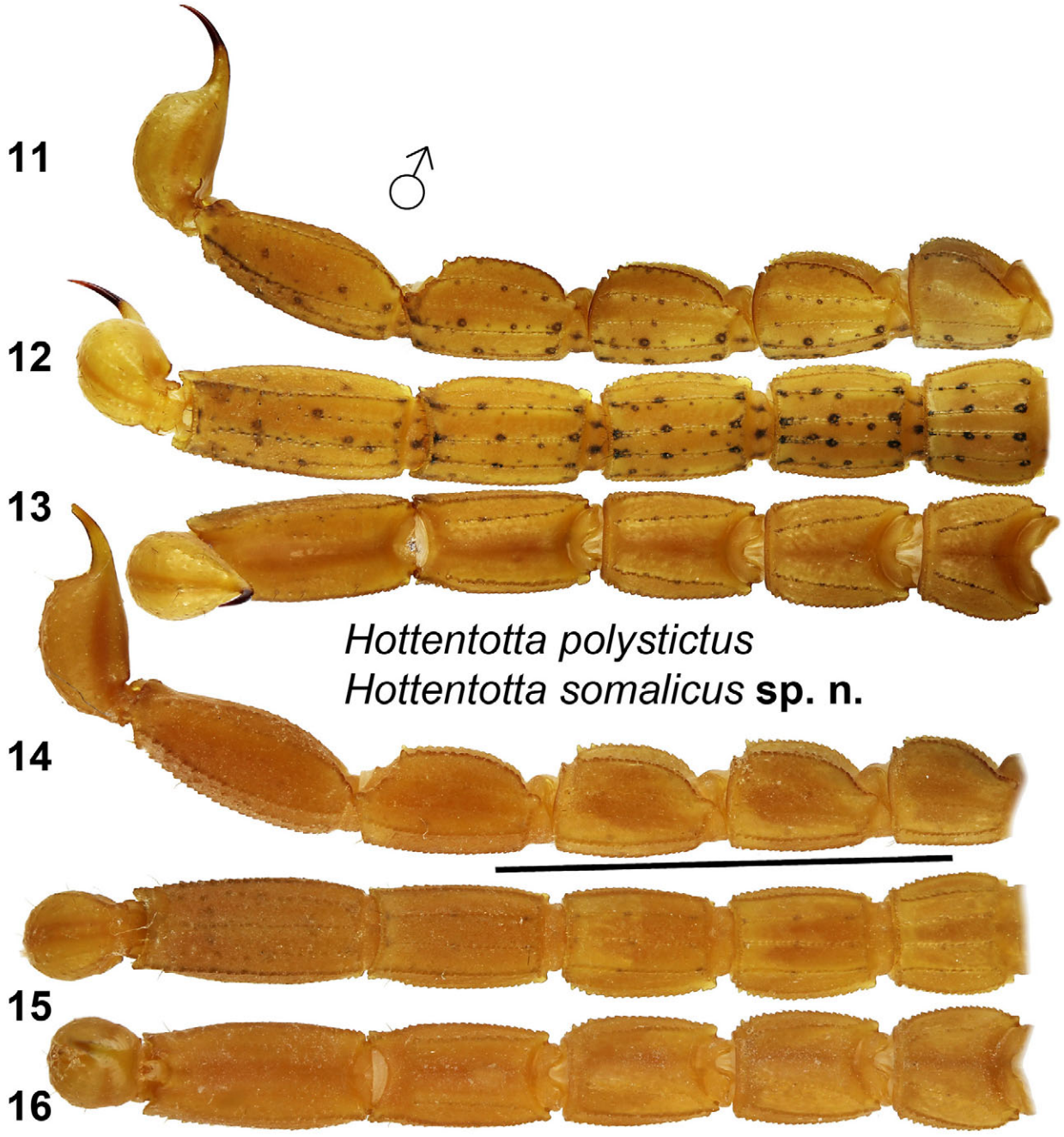
Figures 1–4: *Hottentotta somalicus* **sp. n. Figures 1–2**. Male holotype in dorsal (1) and ventral (2) views. **Figures 3–4:** Female paratype in dorsal (3) and ventral (4) aspects. Scale bars: 10 mm.

pronounced; manus of pedipalp of approximately same width in both sexes, but males have fingers of pedipalps slightly twisted. Pectinal teeth number 23 in males, 19–21 in females. Chelicerae yellow. Pedipalps sparsely hirsute. Metasoma with only a few hairs. Color uniformly yellowish brown. Femur of pedipalp with 4 or 5



Figures 5–10: Figures 5–8: *Hottentotta somalicus* **sp. n. Figures 5–6**. Male holotype, carapace and tergites I–III (5), coxosternal area and sternites (6). **Figures 7–8**. Female paratype, carapace and tergites I–III (7), coxosternal area and sternites III–IV (8). **Figures 9–10:** *Hottentotta polystictus*, female from Ethiopia, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a.s.l., chelicerae, carapace and tergites I–III (9); male from Somaliland, Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l., coxosternal area and sternites (10).

carinae. Patella with 8 carinae, of which some are smooth, without granules and obsolete. Chela lacks carinae but is usually finely granulate. Movable fingers of pedipalps with 13–14 rows of granules and 5 or 6 terminal granules. Sternite WII bears 4 well marked granulated carinae. First to third metasomal segments with 10 carinae; fourth with 8 or 10 carinae; fifth with 5 carinae. All carinae granulated, dorsal carinae bear larger terminal granules. Metasoma very narrow. All metasomal segment of adults longer than wide. Fourth



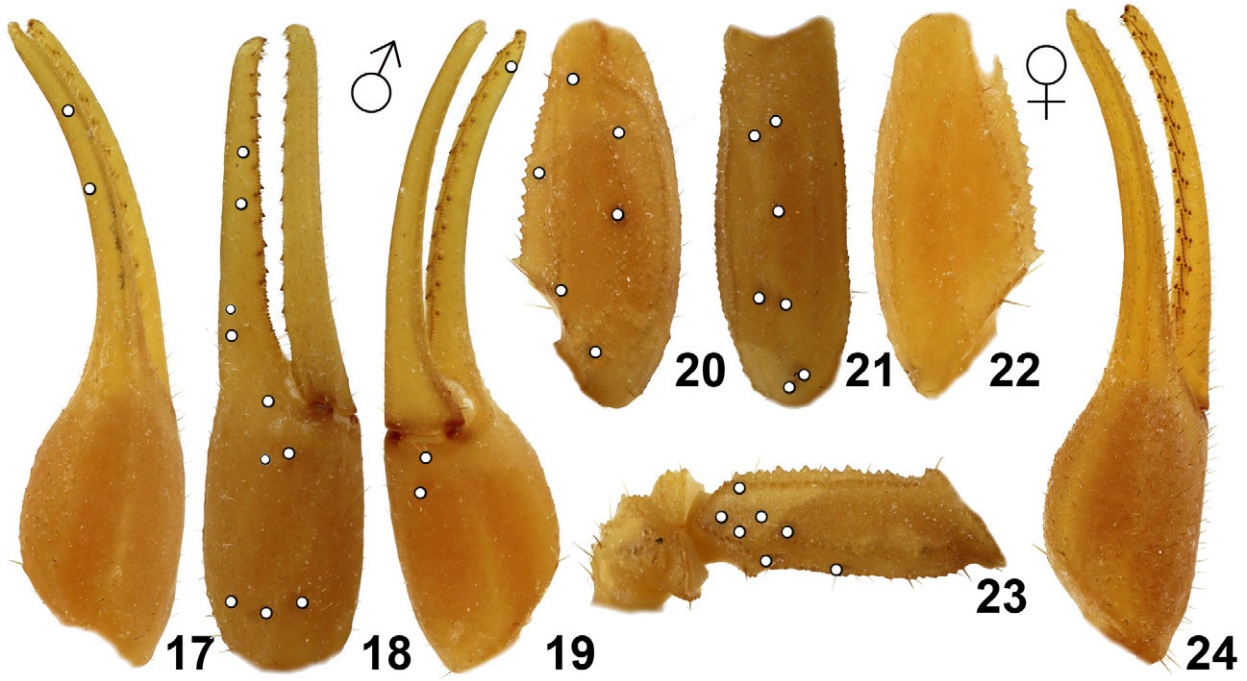
Figures 11–16: Metasoma and telson lateral (11, 14), ventral (12, 15), and dorsal (13, 16). **Figures 11–13:** *Hottentotta polystictus*, male from Somaliland, Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l. **Figures 14–16:** *Hottentotta somalicus* **sp. n.**, male holotype. Scale bar: 10 mm.

metasomal segment length/width ratio 1.63–1.77 in both sexes. Telson bulbous. Telson length/depth ratio 2.41–2.49 in females.

DESCRIPTION. Total length 40 (male) to 65 (female) mm. The habitus is shown in Figs. 1–4. For position and distribution of trichobothria of pedipalps see Figs. 17–21, 23. Note, four internal femoral trichobothria are present but not visible in these figures. Sexual dimorphism minor, there is no difference in length and width of metasomal segments.

Coloration (Figs. 1–4). The base color is uniformly yellow to yellowish brown, dark spots absent or extremely reduced.

Carapace and mesosoma (Figs. 5–8). The carapace is carinate and unevenly covered by granules of varying size; much of the granulation is fine, but some granules



Figures 17–24: Figures 17–23: *Hottentotta somalicus* **sp. n.**, male holotype, pedipalp chela dorsal (17), externodorsal (18) and ventrointernal (19), pedipalp patella dorsal (20), external (21) and ventral (22), and trochanter and femur dorsoexternal (23). **Figure 24**. Female paratype, pedipalp chela dorsal (24). Trichobothrial pattern is indicated in Figures 17–21 and 23.

Dimensions (MM)		*H. somalicus* **sp. n.** ♂ **holotype**	*H. somalicus* **sp. n.** ♀ **paratype**
Carapace	L / W	4.35 / 4.50	6.88 / 7.90
Mesosoma	L	11.10	18.60
Tergite VII	L / W	3.03 / 4.40	4.70 / 8.45
Metasoma & telson	L	24.78	34.80
Segment I	L / W / D	3.15 / 2.83 / 2.60	4.35 / 4.25 / 3.80
Segment II	L / W / D	3.55 / 2.55 / 2.40	4.90 / 3.80 / 3.60
Segment III	L / W / D	3.70 / 2.48 / 2.46	5.05 / 3.65 / 3.50
Segment IV	L / W / D	4.25 / 2.40 / 2.35	5.65 / 3.45 / 3.65
Segment V	L / W / D	5.33 / 2.47 / 2.30	7.60 / 3.50 / 3.30
Telson	L / W / D	4.80 / 2.06 / 2.05	7.96 / 3.20 / 3.30
Pedipalp	L	16.38	24.00
Femur	L / W	3.80 / 1.30	5.60 / 2.05
Patella	L / W	4.78 / 2.03	7.10 / 3.06
Chela	L	7.80	11.30
Manus	L / W / D	2.70 / 2.05 / 1.98	3.60 / 3.10 / 2.88
Movable finger	L	5.10	7.70
Total	**L**	**40.23**	**60.28**

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

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. The pectinal tooth count is 23 in male and 19–21 in females. The pectinal marginal tips extend to about the third quarter of the fourth sternite in males and about a quarter of the fourth sternite in females. The pectines have three marginal lamellae and

eight to nine middle lamellae. The lamellae bear numerous dark long setae, each fulcrum with three to five setae. All sternites are smooth and sparsely hirsute. The seventh sternite bears four granulate carinae. The other sternites bear two furrows.

METASOMA AND TELSON (Figs. 14–16). All metasomal segments are only very sparsely hirsute. All metasomal segments are longer then wide. Segments I–III bear 10 carinae, segment IV bears 8 or 10 carinae and segment V bears five carinae, three or five ventral and two dorsal. All carinae are granulated. The dorsal surface of all segments is smooth to very finely granulated. Other surfaces are granulated. The telson is only sparsely hirsute, bulbous, lumpy and granulated.

PEDIPALPS (Figs. 17–24). The pedipalps are sparsely hirsute and weakly granulated. The femur bears four or fifth granulated carinae. The patella bears eight granulated carinae. The chela is without carinae. The movable fingers of pedipalps bear 13–14 rows of granules and five or six terminal granules.

LEGS. The tarsomeres bear two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces; bristle combs absent. Femur bears only several macrosetae. Femur coarsely granulose, femur and patella with carinae well developed. Tibial spurs present and long on third and fourth legs and absent in the other legs.

Measurements. See Table 1.

AFFINITIES. The described features distinguish *H. somalicus* **sp**. **n**. from all other species of the genus. The morphology makes the new species close to *H. polystictus*. Females of most *Hottentotta* from the Horn of Africa have telson length/depth ratio 2.06–2.36 and females of *H. polystictus* and *H. somalicus* **sp**. **n**. usually have telson length/depth ratio 2.41–2.49. These two "sibling" species also have very narrow metasomal segments (1.63–1.73 in both sexes versus 1.31–1.61 in both sexes of other *Hottentotta* species of Horn of Africa). *H. polystictus* and *H. somalicus* **sp**. **n**. occur in separate areas (fig. 158 in Kovařík & Mazuch, 2015: 35) and can be differentiated by color. *H. somalicus* **sp**. **n**. is uniformly yellow to yellowish brown with dark spots absent or extremely reduced (Figs. 1–8, 14–16) while *H. polystictus* has dark spots strongly developed (Figs. 9–12). Because this character might not be stable, it is important that the DNA analysis also indicates divergence between these two species (Šťáhlavský et al., in preparation).

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