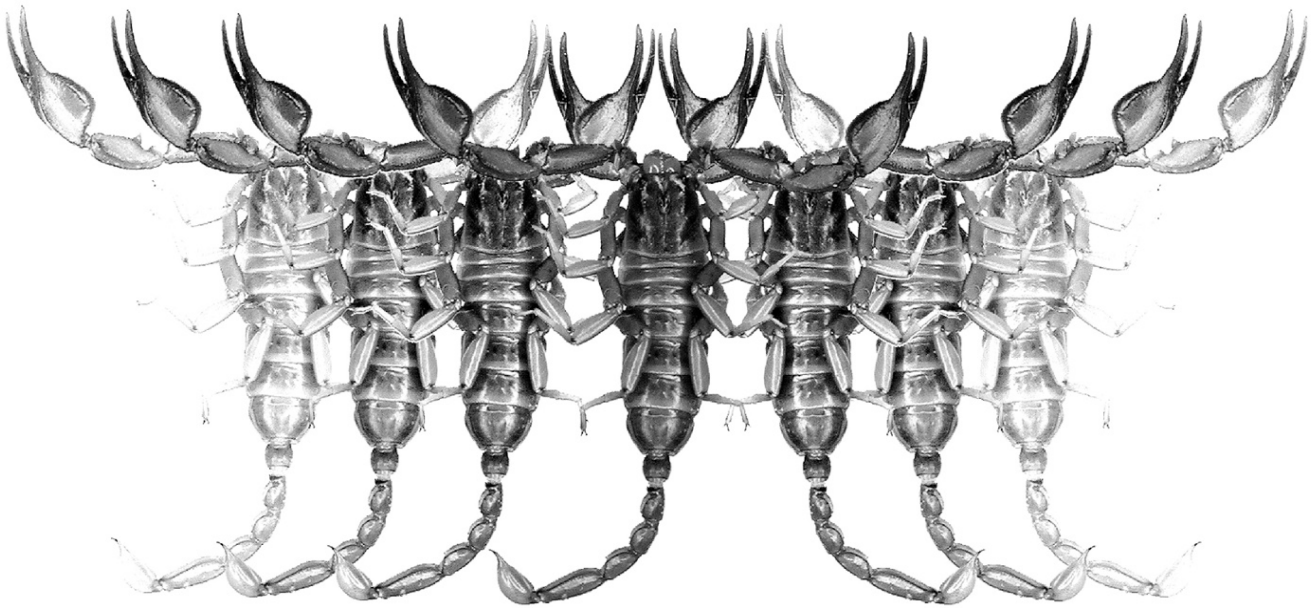


Euscorpius

Occasional Publications in Scorpiology



**Scorpions of the Horn of Africa
(Arachnida: Scorpiones).**

**Part XXXV. *Parabuthus starhai* sp. n. from
Somalia (Puntland) (Buthidae)**

František Kovařík

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Scorpions of the Horn of Africa (Arachnida: Scorpiones). Part XXXV. *Parabuthus starhai* sp. n. from Somalia (Puntland) (Buthidae)

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<http://zoobank.org/urn:lsid:zoobank.org:pub:85ABBE02-F350-4069-9350-CE5234A87F9C>

Summary

A new species *Parabuthus starhai* sp. n. from Somalia (Puntland) is described. Combination of two characters, pectine teeth number 56–59 in both sexes and pedipalp chela length/ width ratio 3.65 in male and 5.47 in female differ *P. starhai* sp. n. from all other species in the region. Included is also a map of distribution of *Parabuthus* species in Horn of Africa.

Introduction

Kovařík et al. (2016, 2018, 2024) revised all known species of *Parabuthus* Pocock, 1890 from the Horn of Africa. Analysis of a new material from Puntland collected recently, allowed to described another new species *P. starhai* sp. n.

Methods, Material & Abbreviations

Nomenclature and measurements follow Stahnke (1971), Kovařík (2009), and Kovařík & Ojanguren Affilastro (2013), except for trichobothriotaxy (Lowe & Kovařík, 2019; Vachon, 1974).

Specimen Depositories: FKCP (František Kovařík, private collection, Prague, Czech Republic, to be merged in future with collections of National Museum of Natural History, Prague, Czech Republic).

Morphometrics: D, depth; L, length; W, width.

Systematics

Family Buthidae C. L. Koch, 1837

Parabuthus Pocock, 1890

(Figures 1–51, Table 1–2)

Buthus (*Parabuthus*): Pocock, 1890: 124–125.

Parabuthus: Pocock, 1895: 309–314, plate IX, figs. 4a–d; Fet & Lowe, 2000: 200–211 (complete reference list until 2000); Kovařík, 2009: 22, 31; Prendini & Esposito, 2010: 673–710, figs. 1–17; Kovařík et al., 2016: 1–58, figs. 1–204, tables 1–2; Kovařík et al., 2019: 1–62, figs. 1–305, tables 1–5; Kovařík et al., 2024: 1–27, figs. 1–129, table 1.

= *Heterobuthus* Kraepelin, 1891: 205–211 (63–69) (syn. by Kraepelin, 1895: 79 (7)).

= *Riftobuthus* Lourenço et al., 2010: 281, figs. 1 and 2 (syn. by Kovařík et al., 2016: 2).

TYPE SPECIES. *Androctonus* (*Prionurus*) *liosoma* Ehrenberg in Hemprich et Ehrenberg, 1828

DIAGNOSIS. Total length 35–180 mm. Carapace without distinct carinae, in lateral view with entire dorsal surface horizontal or nearly so. Five pairs of lateral eyes and eyespot present. Pectines with fulcra, female pectines typically with dilated or lobate basal middle lamella. Pectine teeth number 18–62. Hemispermaphore flagelliform, capsule with ‘2+1’ lobe configuration, with broad posterior lobe, small simple anterior lobe, and robust hook-like basal lobe; flagellum arising distally from posterior lobe, pars recta short and narrow, pars reflecta long and fusiform. Sternum subtriangular. Mesosoma with tergites I–VI monocarinate, sternites III–VI with slit-like spiracles. Dorsal surfaces of first and second metasomal segments with stridulatory areas. Telson without subaculear tubercle. Chelicera with typical buthid dentition, fixed finger with two ventral denticles. Orthobothriotaxic type A, dorsal trichobothria of pedipalp femur arranged in α -configuration. Patellar trichobothrium d_2 located external to dorsomedian carina (when carina is present). Chela manus with trichobothria V_1 and V_2 axis oblique, Eb_{1-3} in γ -configuration. Trichobothrium eb located on fixed finger of chela. Dentate margin of pedipalp chela movable finger with distinct granules divided into 9–14 rows, 3 terminal granules and one basal terminal granule. Tibial spurs present on third and fourth pairs of legs.



Figures 1–4: *Parabuthus starhai* 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) views. Scale bar: 10 mm (1–2, 3–4).

Dimensions (mm)		<i>Parabuthus starhai</i> sp. n.	<i>Parabuthus starhai</i> sp. n.
		♂ holotype	♀ paratype
Carapace	L / W	9.81 / 11.92	10.94 / 12.70
Mesosoma	L	25.10	33.48
Tergite VII	L / W	6.82 / 11.59	8.10 / 13.65
Metasoma + telson	L	55.38	57.14
Segment I	L / W / D	7.32 / 7.47 / 6.27	7.98 / 7.50 / 6.16
Segment II	L / W / D	8.36 / 7.81 / 6.92	8.29 / 7.70 / 6.54
Segment III	L / W / D	8.44 / 8.11 / 6.96	8.80 / 8.05 / 6.86
Segment IV	L / W / D	9.59 / 8.49 / 6.94	9.81 / 8.17 / 6.61
Segment V	L / W / D	10.40 / 7.90 / 6.39	10.86 / 7.54 / 6.25
Telson	L / W / D	11.27 / 5.12 / 4.60	ca 11.40 / 5.94 / 5.05
Pedipalp	L	32.50	35.49
Femur	L / W	8.82 / 2.26	9.48 / 2.58
Patella	L / W	8.88 / 3.16	9.94 / 3.04
Chela	L	14.80	16.07
Manus	W / D	4.05 / 3.77	2.94 / 2.74
Movable finger	L	8.84	11.47
Total	L	90.29	101.56

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

***Parabuthus starhai* sp. n.**

(Figs. 1–51, Table 1–2)

<http://zoobank.org/urn:lsid:zoobank.org:act:B4A7FADE-CC90-41AC-B01D-D01A2654D08B>

TYPE LOCALITY AND TYPE REPOSITORY. **Somalia**, Puntland, Wadi Cuun, 08°48.231'N 48°53.529'E, 493 m a. s. l.; FKCP.

TYPE MATERIAL (FKCP). **Somalia**, Puntland, Wadi Cuun, 08°48.231'N 48°53.529'E, 493 m a. s. l., VI. 2024, 1♂ (holotype) 1♀ (paratype), leg. Roman Štarha.

ETYMOLOGY. Named in honour of Roman Štarha (Czech Republic) who collected the type specimens.

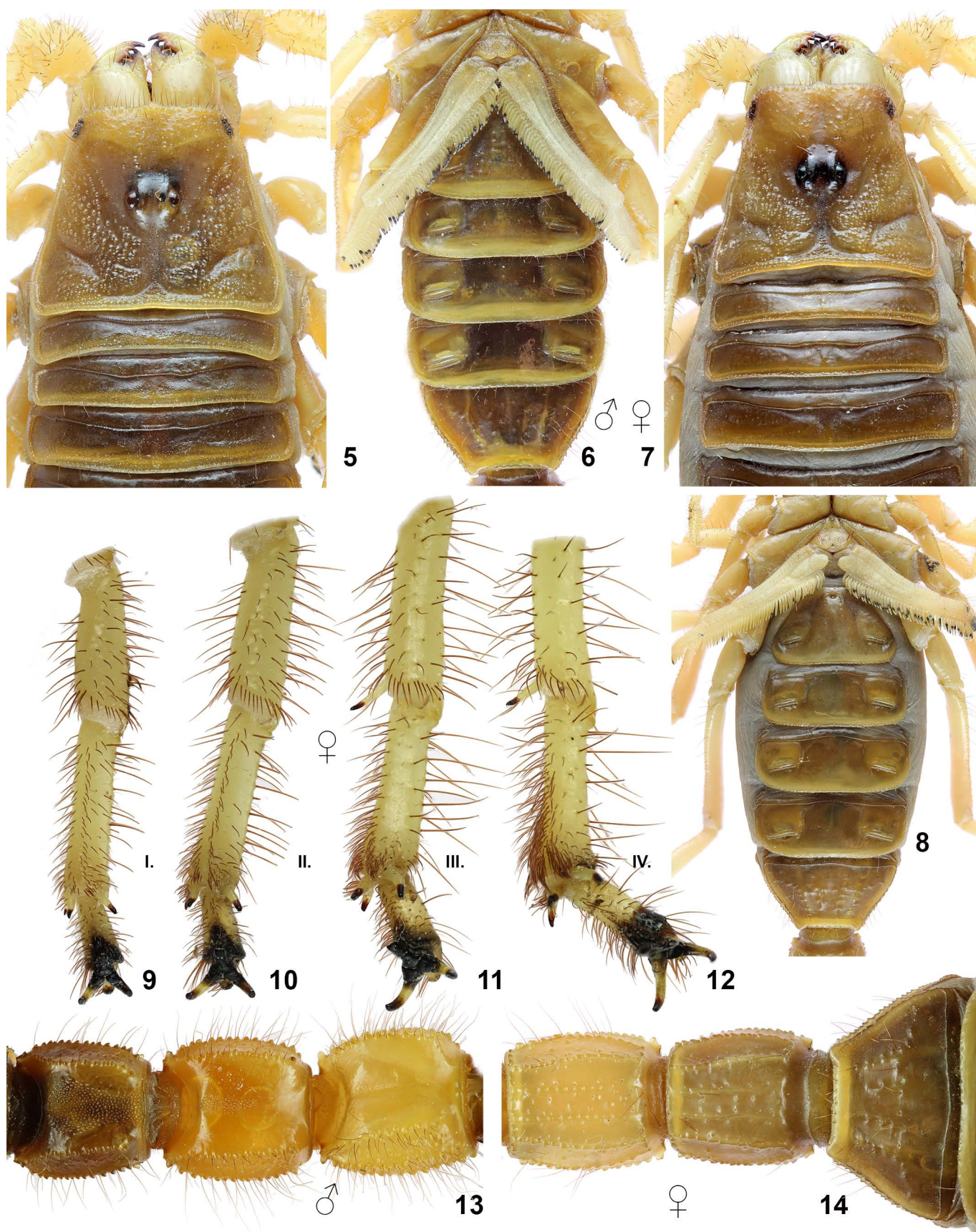
DIAGNOSIS ♂♀. Male holotype 90 mm long; female 101.5 mm long. Base color uniformly yellow to yellowish brown, metasoma IV–V and telson black. Pectine teeth number 56 and 59 in male and 57 in female. Stridulatory area present on dorsal surface of metasoma I–III (large in metasoma I and reduced in metasoma II–III), and absent in metasoma IV–V. Metasoma densely hirsute, more in male. Metasoma V length/ width ratio is 1.32 in male. Dorsal carina of metasoma IV composed posteriorly of blunt denticles, of which the posterior-most denticle is not enlarged. Movable and fixed fingers of pedipalp bear 13–14 rows of granules, all with external and internal accessory granules. Fingers of pedipalp not elongated. Fingers of pedipalps of male with inner side of base smooth, no trace of tubercle. Manus of pedipalp of male broader than in female, pedipalp chela length/ width ratio 3.65 in male and 5.47 in female. Pedipalp chela and patella smooth and densely hirsute. Tarsomere I of legs I–III with bristle-combs.

DESCRIPTION ♂♀. The adults are 90 mm (male holotype) and 101.5 mm (female paratype) long. The habitus is shown in Figs. 1–4. For position and distribution of trichobothria of pedipalps see Figs. 23–27, 28–30.

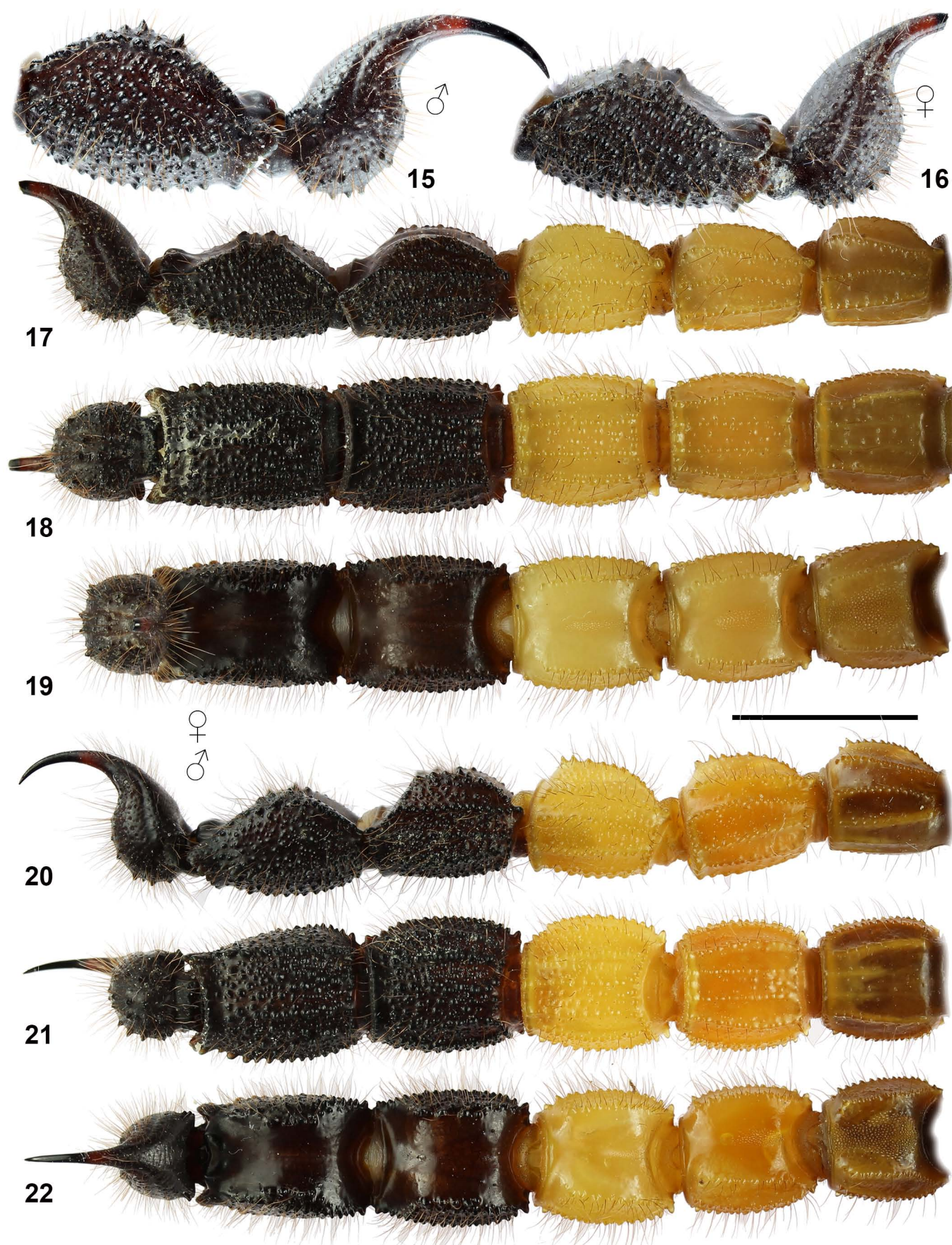
Coloration (Figs. 1–4, 50). The base color is uniformly yellow to yellowish brown. The pedipalps and legs are yellow. The metasoma I–III is yellow, metasoma IV–V and telson are black.

Carapace and mesosoma (Figs. 5–8). The entire carapace is covered with large granules, carinae are absent. The anterior margin of the carapace is medially weakly convex, and bears ca 30 symmetrically distributed stout spiniform macrosetae. The tergites are densely granulated. Tergite VII is pentacarinata, with lateral pairs of carinae strong, serratocrenulate. The pectinal tooth count is 56 and 59 in male and 57 in female. The pectine marginal tips extend to the third quarter of the five sternite in male and to the third quarter of the fourth sternite in female. The pectines have three marginal lamellae and 14–16 middle lamellae. The lamellae and fulcra bear numerous dark setae. All sternites are smooth, except that there is a stridulatory area on the third sternite. Sternite VII bears four smooth carinae.

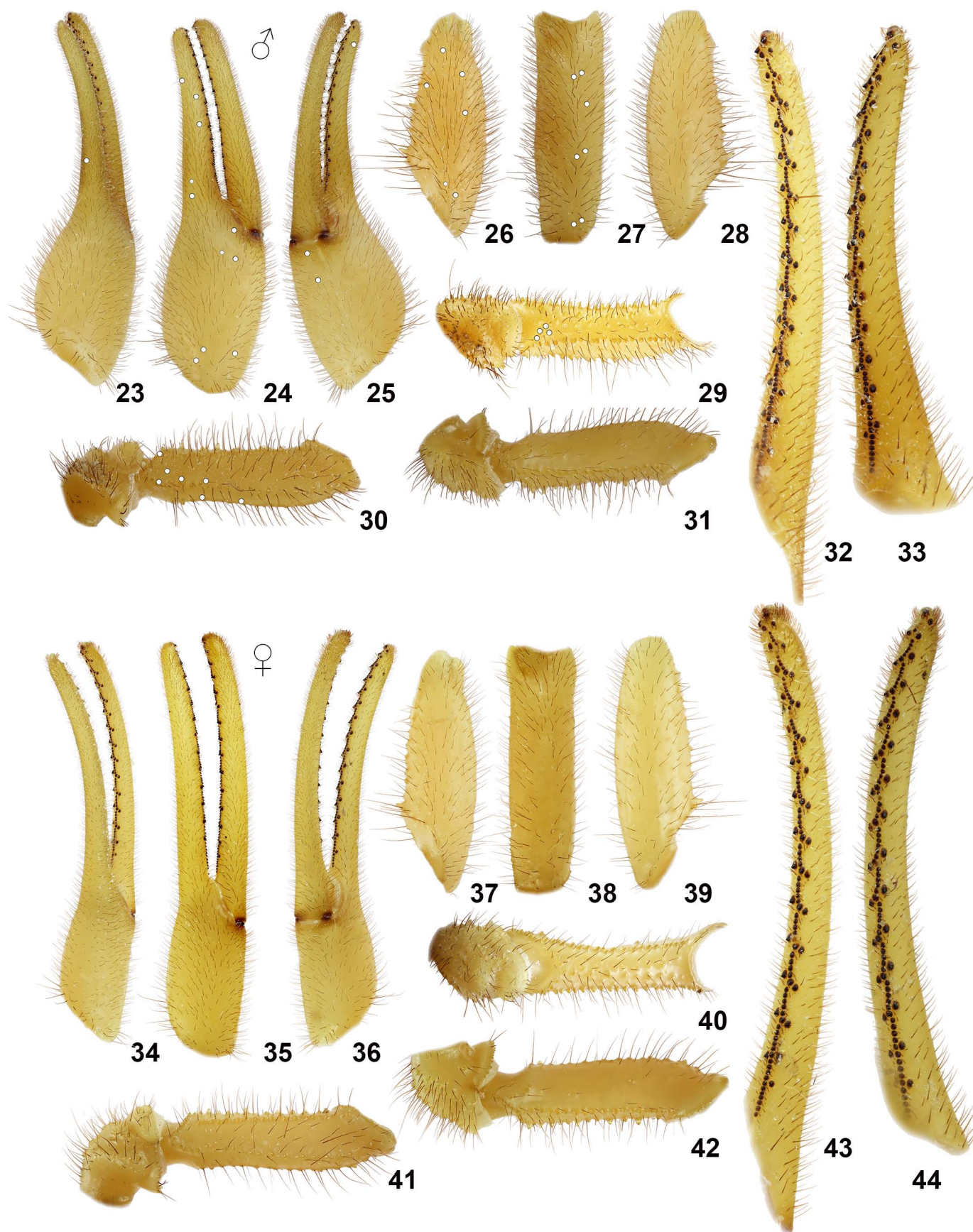
Metasoma and telson (Figs. 13–22). The metasoma I–IV with a total of 10 granulated carinae. The fifth segment has five carinae, and its ventral and lateral surfaces are strongly granulated. Dorsolateral carinae of the fourth and fifth segments composed of blunt denticles, of which the posterior-most denticle is not enlarged. The stridulatory area is located on the dorsal surface of the metasoma I–III, large on metasoma I and reduced on metasoma II–III. On the fourth and fifth segments the stridulatory area is absent. The entire metasoma and the telson are pilose with long hairs. The ventral surface



Figures 5–14: *Parabuthus starhai* sp. n. **Figures 5–6, 13.** Male holotype, carapace and tergites I–III (5), sternoplectinal area and sternites (6), metasoma I–III dorsal (13). **Figures 7–12, 14.** Female paratype, carapace and tergites I–III (7), sternoplectinal area and sternites (8), right legs I–IV, retrolateral aspect (9–12), sternite VII and metasoma I–II ventral (14).



Figures 15–22: *Parabuthus starhai* sp. n. **Figures 15, 20–22.** Male holotype, metasoma V, and telson in lateral view (15), metasoma and telson in lateral (20), ventral (21), and dorsal (22) views. **Figures 16–19.** Female paratype, metasoma V, and telson in lateral view (16), metasoma and telson in lateral (17), ventral (18), and dorsal (19) views. Scale bar: 10 mm (17–22).



Figures 23–44. *Parabuthus starhai* sp. n., pedipalps of male holotype (23–33) and female paratype (34–44). Right pedipalp, chela in dorsal (23, 34), external (24, 35), and ventral (25, 36) views, patella in dorsal (26, 37), external (27, 38), and ventral (28, 39) views, femur and trochanter in internal (29, 40), dorsal (30, 41), and ventral (31, 42) views. Dentate margins of movable (32, 43) and fixed (33, 44) fingers. Trichobothrial pattern indicated in Figures 23–27 and 29–30.

	♂ pectine teeth number	♀ pectine teeth number	♂ pedipalp chela length/width ratio	♀ pedipalp chela length/width ratio
<i>Parabuthus abyssinicus</i> Pocock, 1901	38–43	33–40	2.95–3.11	4.25–4.40
<i>Parabuthus cimrmani</i> Kovařík, 2004	61–62	32–33	5.90	7.42
<i>Parabuthus dorisae</i> Kovařík et al., 2024	43–44	32–39	3.35	–
<i>Parabuthus erigavoensis</i> Kovařík et al., 2019	–	31–37	–	4.80–4.90
<i>Parabuthus eritreaensis</i> Kovařík, 2003	39	35–36	6.13	7.22–7.23
<i>Parabuthus evae</i> Kovařík et al., 2024	58–59	–	5.62	–
<i>Parabuthus granimanus</i> Pocock, 1895	42–49	36–44	3.10–3.30	4.50–4.85
<i>Parabuthus hamar</i> Kovařík et al., 2016	38–44	30–35	3.05–3.13	4.27
<i>Parabuthus heterurus</i> Pocock, 1897	36–42	32–39	3.40–3.89	4.12–4.66
<i>Parabuthus kabateki</i> Kovařík et al., 2019	42–48	40–43	2.90–3.25	4.64
<i>Parabuthus kajibu</i> Kovařík et al., 2016	37–39	33–35	3.52	5.25–5.45
<i>Parabuthus mazuchi</i> Kovařík et al., 2019	36	–	7.05	–
<i>Parabuthus pallidus</i> Pocock, 1895	33–38	28–36	4.30–4.80	4.30–4.80
<i>Parabuthus quincyae</i> Kovařík et al., 2024	43–44	–	3.14	–
<i>Parabuthus robustus</i> Kovařík et al., 2019	34–42	33–37	2.93–3.16	4.21–4.46
<i>Parabuthus somalilandus</i> Kovařík et al., 2019	39–44	36–39	3.38–3.91	4.59–4.90
<i>Parabuthus starhai</i> sp. n.	56–59	57	3.65	5.47

Table 2. Comparative of pectine teeth number and shape of pedipalp chela of *Parabuthus* spp. from Djibouti, Eritrea, Ethiopia, Somalia (including Puntland), and Somaliland.



Figures 45–47: Pedipalp, chela of males in dorsal views. **Figure 45.** *Parabuthus starhai* sp. n., holotype. **Figure 46.** *Parabuthus evae*, holotype. **Figure 47.** *Parabuthus cimrmani*, holotype.

of the telson is strongly granulated. The metasomal segment V length/width ratio is 1.32 in male. The telson is rather bulbous, with the aculeus approximately the same length as the vesicle.

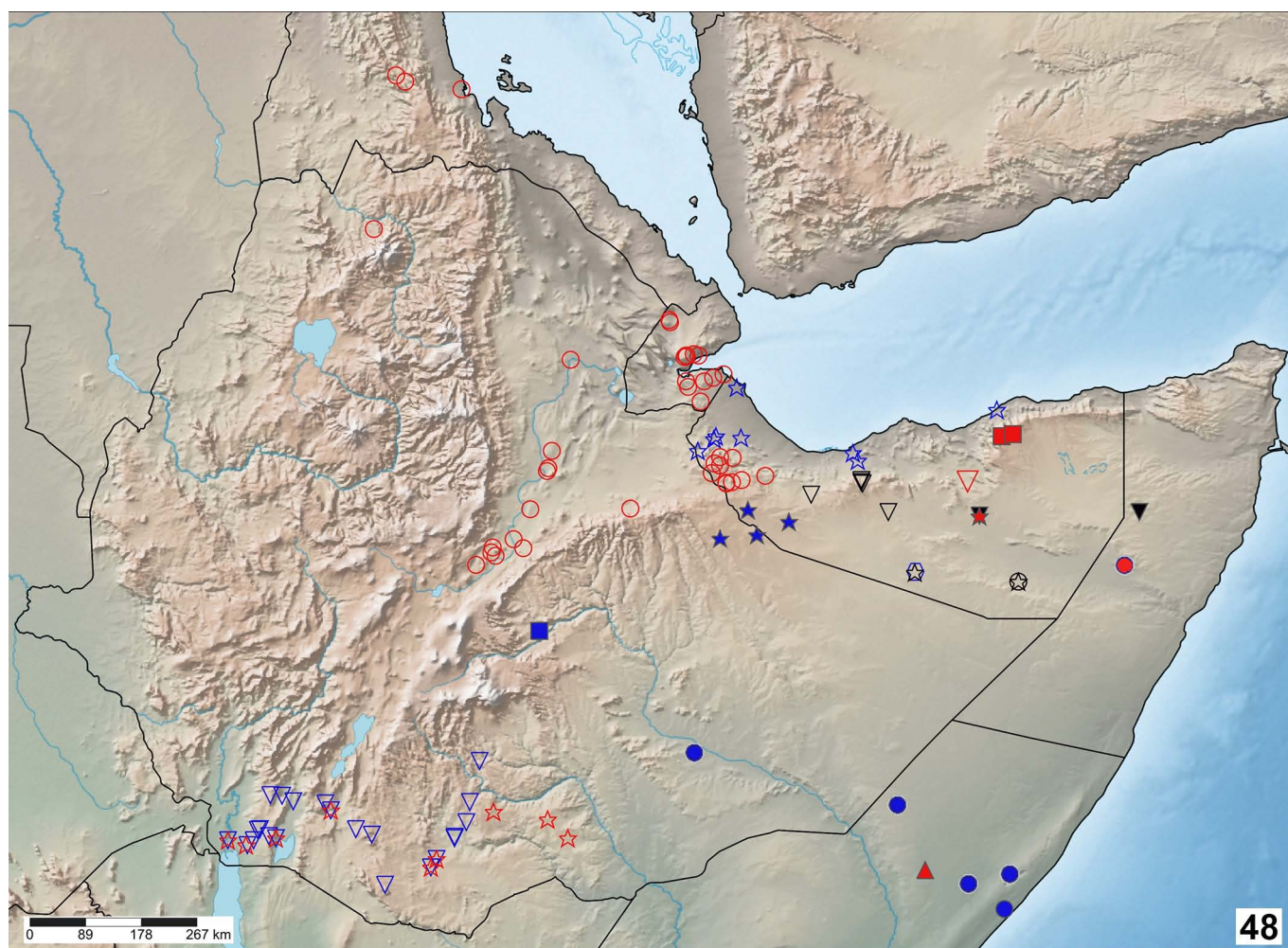
Pedipalps (Figs. 23–44). The whole pedipalps including trochanter are densely hirsute with long setae. The femur bears four carinae. The chela and the patella are smooth without carinae. The movable and fixed fingers of pedipalp bear 13–14 rows of granules, all with external and internal accessory granules. The fingers of pedipalps of male with inner side of base smooth, tubercle absent. The manus of pedipalp of male broader than in female, pedipalp chela length/width ratio 3.65 in male and 5.47 in female.

Legs (Figs. 9–12). Legs III and IV bear long tibial spurs. Retrolateral and prolateral pedal spurs are present on all legs. All legs without distinct carinae and smooth. The tarsomeres bear two rows of macrosetae on the ventral surface and other macrosetae on the other surfaces. The bristle-combs are present on all legs, although slightly reduced on the fourth leg.

Measurements. See Table 1.

AFFINITIES. In the region only three species have more than 50 pectinal teeth (*Parabuthus starhai* sp. n., 56–59; *P. evae* Kovařík et al., 2024, 58–59; *P. cimrmani* Kovařík, 2004, 61–62). Male of *P. starhai* sp. n. has broad pedipalp chela (pedipalp chela L/W ratio 3.65) and other two cited species has narrow pedipalp chela of male. Male of *P. evae* has pedipalp chela L/W ratio 5.62 and male of *P. cimrmani* has pedipalp chela L/W ratio 5.90. See also Table 2 and Figs. 45–47.

DISTRIBUTION. Somalia (Puntland) (Fig. 48).



- *Parabuthus abyssinicus* Pocock, 1901
- ▲ *Parabuthus cimrmani* Kovařík, 2004
- ★ *Parabuthus dorisae* Kovařík et al., 2024
- *Parabuthus erigavoensis* Kovařík et al., 2019
- ▼ *Parabuthus eritreaensis* Kovařík, 2003
- *Parabuthus evae* Kovařík et al., 2024
- ☆ *Parabuthus granimanus* Pocock, 1895
- ★ *Parabuthus hamar* Kovařík et al., 2016
- *Parabuthus heterurus* Pocock, 1897
- ☆ *Parabuthus kabateki* Kovařík et al., 2019
- *Parabuthus kajibu* Kovařík et al., 2016
- *Parabuthus mazuchi* Kovařík et al., 2019
- ▽ *Parabuthus pallidus* Pocock, 1895
- ▽ *Parabuthus quincyae* Kovařík et al., 2024
- ★ *Parabuthus robustus* Kovařík et al., 2019
- ▽ *Parabuthus somalilandus* Kovařík et al., 2019
- *Parabuthus starhai* sp. n.



Figures 48–49: Figure 48. Map showing confirmed distribution of *Parabuthus* spp. in Djibouti, Eritrea, Ethiopia, Somalia (including Puntland), and Somaliland. **Figure 49.** *Parabuthus starhai* sp. n., type locality (photo Roman Štarha).



Figures 50–51: *Parabuthus starhai* sp. n. **Figure 50.** Female paratype in vivo habitus. **Figure 51.** Type locality, Somalia, Puntland, Wadi Cuun (both photos Roman Štarha).

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