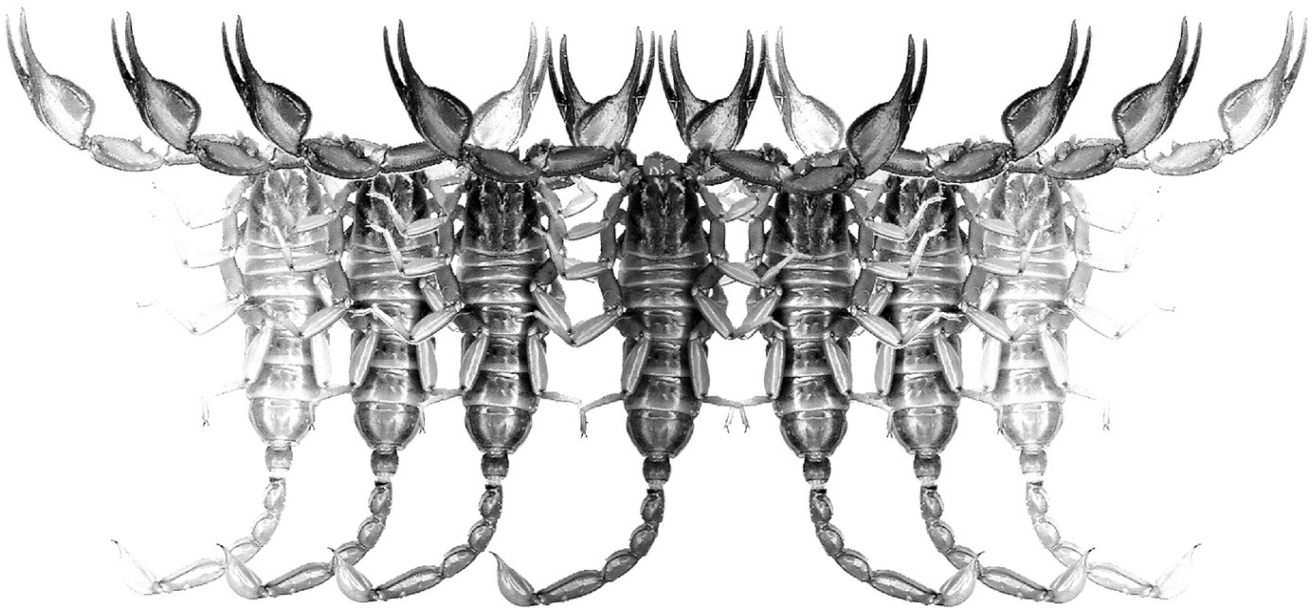


# *Euscorpius*

Occasional Publications in Scorpiology



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

František Kovařík, František Štáhlavský, Hassan Sh Abdirahman Elmi & Roman Štarha

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# *Euscorpius*

## *Occasional Publications in Scorpiology*

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

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<http://zoobank.org/urn:lsid:zoobank.org:pub:9F76696D-0085-4A64-96D4-9043FE0726D7>

## Summary

A new species *Parabuthus puntlandus* sp. n. from Somalia (Puntland) is described. Combination of five characters; metasoma V black; pectine teeth number 39–42 in both sexes; pedipalp chela length/width ratio 3.05–4.26 in both sexes; metasoma and telson sparsely hirsute; smooth inner side of the base of fingers of pedipalp chela (tubercle absent) distinguish *P. puntlandus* sp. n. from all other species in the region. In addition to the analyses of external morphology, we have provided descriptions of the karyotype of *P. puntlandus* sp. n. (2n=16). Included is also a map of distribution of *Parabuthus* species in Horn of Africa.

## Introduction

Kovařík et al. (2016, 2019, 2024) and Kovařík (2025) revised all known species of *Parabuthus* Pocock, 1890 from the Horn of Africa. Analysis of additional new material from Puntland allowed to described another new species *P. puntlandus* 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).

Karyotype analyses were performed on chromosome preparations obtained using the spreading technique, a widely employed method in scorpion cytogenetics (e. g., Kovařík et al., 2009; Sadílek et al., 2015). Chromosomes were stained with 5% Giemsa solution in Sörensen phosphate buffer for 20 minutes. Measurements were taken from five spermatocyte nuclei using ImageJ software (version 1.45r; <http://rsbweb.nih.gov/ij>) equipped with the Levan plugin (Sakamoto & Zacaro, 2009). The relative lengths of chromosomes were calculated based on the diploid complement.

*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 1–47, Tables 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





**Figure 1.** *Parabuthus puntlandus* sp. n., male holotype in vivo habitus. Image taken in the laboratory with different sand/background than in reality is on the original locality.

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  $\alpha$ -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  $\gamma$ -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.

***Parabuthus puntlandus* sp. n.**

(Figures 1–47, Tables 1–2)

<http://zoobank.org/urn:lsid:zoobank.org:act:875D8359-CCB8-4BBC-8A0B-8FD5BDD7BB0E>

TYPE LOCALITY AND TYPE REPOSITORY. **Somalia**, Puntland, 3 km N of Barookhle, 10°33'6.179"N 49°15'4.835"E (10.551716°N 49.251343°E); FKCP.

TYPE MATERIAL (FKCP). **Somalia**, Puntland, 3 km N of Barookhle, 10°33'6.179"N 49°15'4.835"E (10.551716°N 49.251343°E) (Fig. 47), VI. 2024, 1♂ (holotype) 2♂1♀ (paratypes, DNA Nos. 2886 and 2887), leg. Roman Štarha.

ETYMOLOGY. Named after the country of occurrence.

Dimensions (mm)		<i>Parabuthus puntlandus</i> sp. n.	<i>Parabuthus puntlandus</i> sp. n.
		♂ holotype	♀ paratype
Carapace	L / W	9.54 / 10.23	10.59 / 11.57
Mesosoma	L	28.00	25.27
Tergite VII	L / W	7.00 / 9.70	6.22 / 11.30
Metasoma + telson	L	52.20	54.39
Segment I	L / W / D	7.24 / 6.40 / 5.63	7.48 / 7.06 / 6.55
Segment II	L / W / D	7.60 / 6.52 / 5.94	8.19 / 6.97 / 6.28
Segment III	L / W / D	8.49 / 6.90 / 5.94	8.45 / 7.12 / 6.24
Segment IV	L / W / D	9.21 / 7.11 / 6.12	9.84 / 7.21 / 6.06
Segment V	L / W / D	10.02 / 6.48 / 5.43	10.16 / 6.39 / 5.40
Telson	L / W / D	9.64 / 4.62 / 4.32	10.27 / 5.35 / 4.72
Pedipalp	L	29.30	29.49
Femur	L / W	7.42 / 2.35	7.41 / 2.63
Patella	L / W	8.06 / 3.25	8.27 / 3.40
Chela	L	13.82	13.81
Manus	W / D	4.52 / 4.54	3.24 / 3.38
Movable finger	L	7.74	9.47
<b>Total</b>	<b>L</b>	<b>89.74</b>	<b>90.25</b>

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

**DIAGNOSIS** ♂♀. Males 86–90 mm long; female 90 mm long. Base color uniformly yellow to yellowish brown, metasoma IV–V and telson black. Pectine teeth number 38–45 in males and 42 in female. Stridulatory area present on dorsal surface of metasoma I–III (large in metasoma I and reduced in metasoma III), and absent in metasoma IV–V. Metasoma sparsely hirsute in both sexes. Metasoma V length/ width ratio is 1.54–1.59 in both sexes. 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 12–13 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 3.05–3.06 in males and 4.26 in female. Pedipalp chela and patella smooth and hirsute. Tarsomere I of legs I–III with bristle-combs.

**DESCRIPTION** ♂♀. The adults are 86–90 mm (males) and 90 mm (female) long. The habitus is shown in Figs. 1–5. For position and distribution of trichobothria of pedipalps see Figs. 22–26, 28–29.

**Coloration** (Figs. 1–5). The base color is uniformly yellow to yellowish brown. The pedipalps and legs are yellow, fingers are brown. The metasoma I–III is yellow, metasoma IV–V and telson are black.

**Carapace and mesosoma** (Figs. 6–9). The entire carapace is covered with large granules, carinae are absent. The anterior margin of the carapace is medially weakly convex, and bears 14–16 symmetrically distributed stout spiniform macrosetae.

The tergites are densely granulated. Tergite VII is pentacarinat, with lateral pairs of carinae strong, serratocrenulate. The pectinal tooth count is 38–45 in males and 42 in female. The pectine marginal tips extend to the ca half of the fourth sternite in both sexes. The pectines have three marginal lamellae and 9–10 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. 14–21). The metasoma I–IV with a total of 10 granulated carinae. The fifth segment has five carinae, and its ventral and lateral surfaces are sparsely 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–II and reduced on metasoma III. On the fourth and fifth segments the stridulatory area is absent. The entire metasoma and the telson are sparsely hirsute with long hairs. The ventral surface of the telson is granulated. The metasomal segment V length/ width ratio is 1.54–1.59 in both sexes. The telson is rather bulbous, with the aculeus approximately the same length as the vesicle.

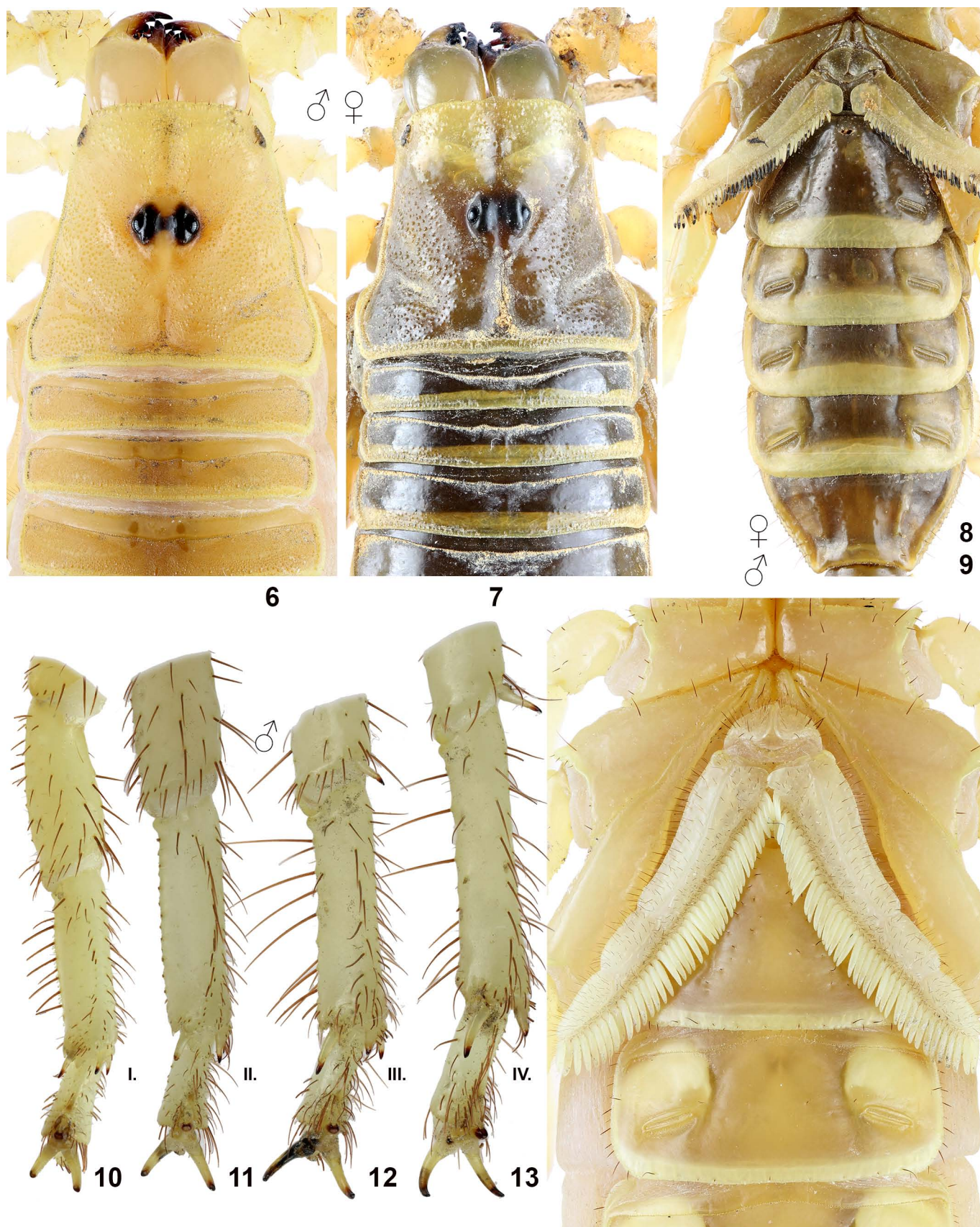
**Pedipalps** (Figs. 22–42). The whole pedipalps including trochanter are rather sparsely hirsute with short setae. The femur bears four carinae. The chela is smooth without carinae. The patella is granulate with carinae indicated mainly in female. The movable and fixed fingers of pedipalp bear 12–13 rows of granules, all with external and internal accessory granules. The fingers of pedipalps of both sexes with inner





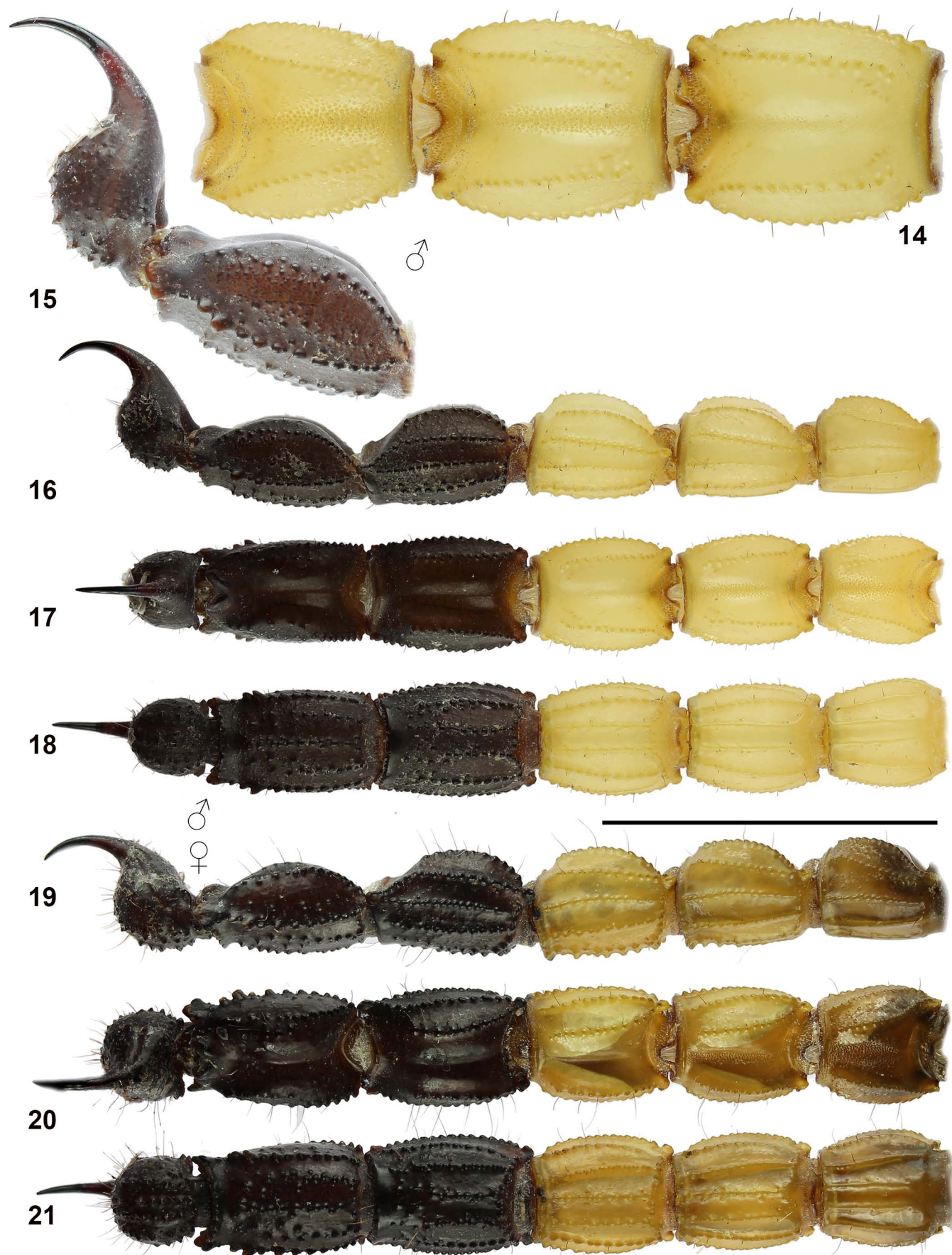
**Figures 2–5:** *Parabuthus puntlandus* sp. n. **Figures 2–3.** Male holotype, in dorsal (2) and ventral (3) views. **Figures 4–5.** Female paratype, in dorsal (4) and ventral (5) views. Scale bar: 10 mm (2–3, 4–5).





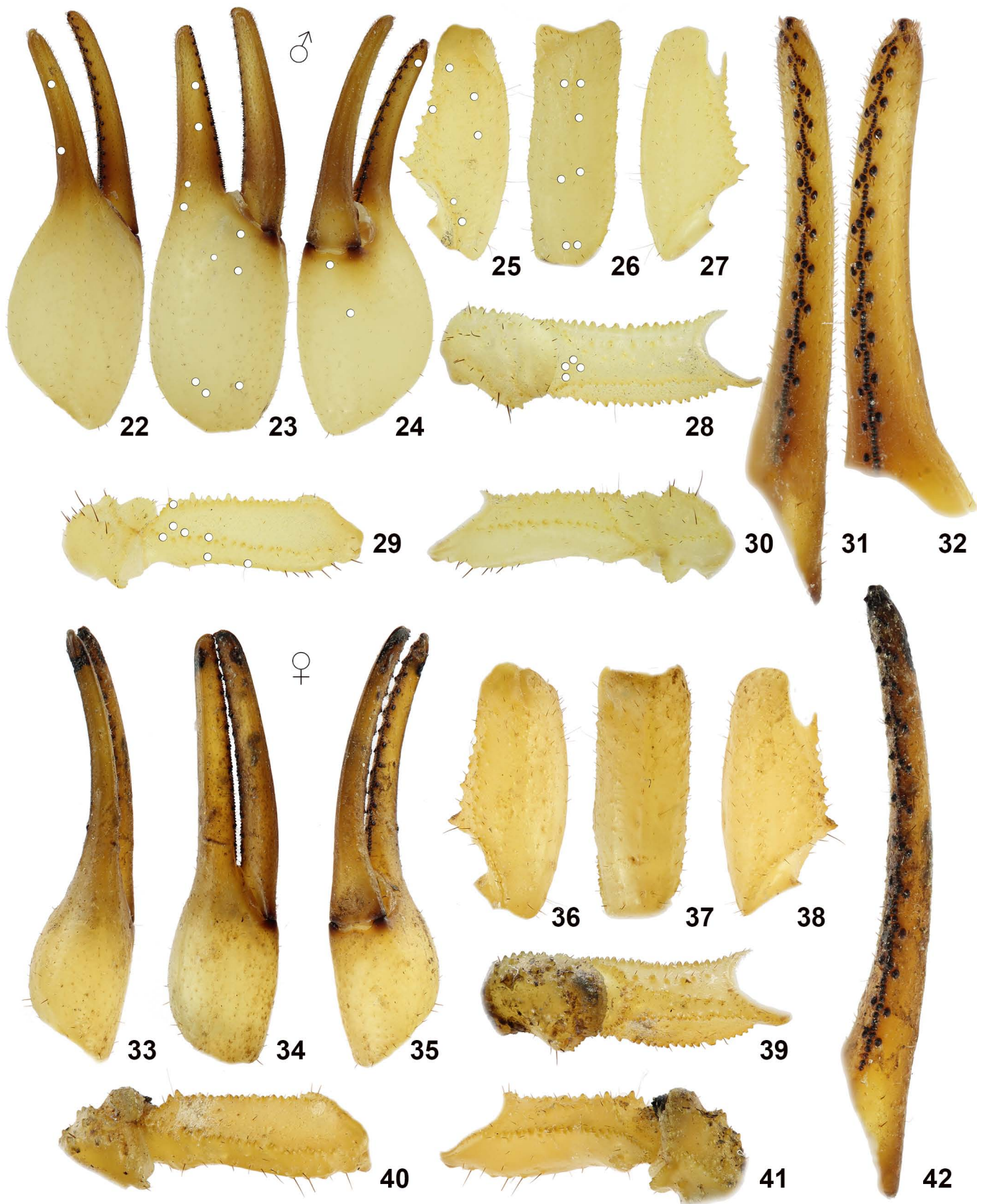
**Figures 6–13:** *Parabuthus puntlandus* sp. n. **Figures 6, 9–13.** Male holotype, carapace and tergites I–III (6), sternoplectinal area and sternites III–IV (9), right legs I–IV, retrolateral aspect (10–13). **Figures 7–8.** Female paratype, carapace and tergites I–III (7), sternoplectinal area and sternites (8).





**Figures 14–21:** *Parabuthus puntlandus* sp. n. **Figures 14–18.** Male holotype, metasoma I–III dorsal (14), metasoma V, and telson in lateral view (15), metasoma and telson in lateral (16), dorsal (17), and ventral (18) views. **Figures 19–21.** Female paratype, metasoma and telson in lateral (19), dorsal (20), and ventral (21) views. Scale bar: 10 mm (16–21).

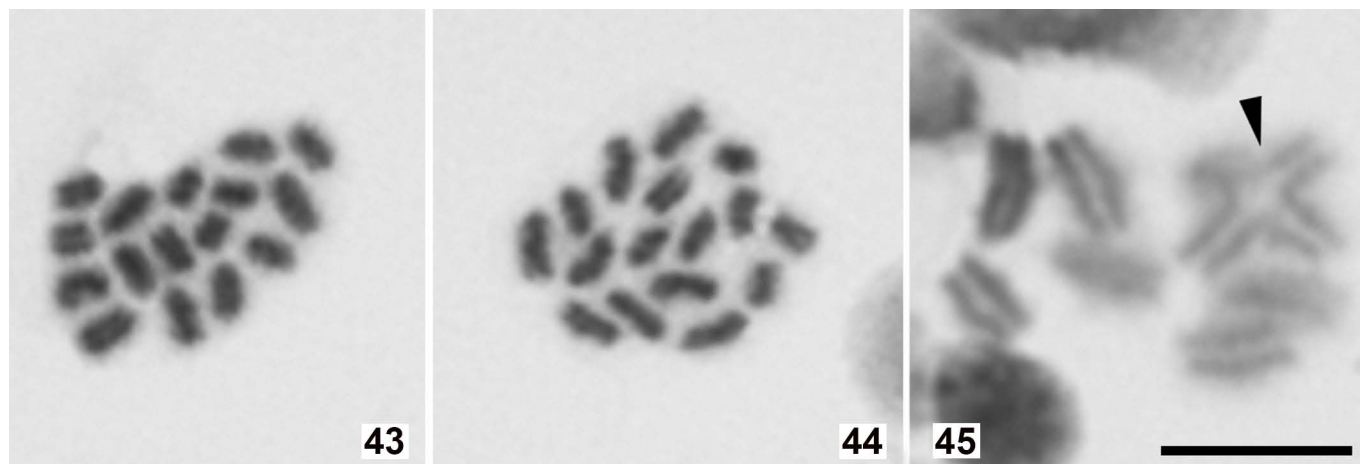




**Figures 22–42.** *Parabuthus puntlandus* sp. n., pedipalps of male holotype (22–32) and female paratype (33–42). Right pedipalp, chela in dorsal (22, 33), external (23, 34), and ventral (24, 35) views, patella in dorsal (25, 36), external (26, 37), and ventral (27, 38) views, femur and trochanter in internal (28, 39), dorsal (29, 40), and ventral (30, 41) views. Dentate margins of movable (31, 42) and fixed (32) fingers. Trichobothrial pattern indicated in Figures 22–26 and 28–29.

	♂ pectine teeth number	♀ pectine teeth number	♂ pedipalp chela length/width ratio	♀ pedipalp chela length/width ratio	♂♀ metasoma V color
<i>Parabuthus abyssinicus</i> Pocock, 1901	38–43	33–40	2.95–3.11	4.25–4.40	black
<i>Parabuthus cimrmani</i> Kovařík, 2004	61–62	32–33	5.90	7.42	black
<i>Parabuthus dorisae</i> Kovařík et al., 2024	43–44	32–39	3.35	–	yellow
<i>Parabuthus erigavoensis</i> Kovařík et al., 2019	–	31–37	–	4.80–4.90	black
<i>Parabuthus eritreaensis</i> Kovařík, 2003	39	35–36	6.13	7.22–7.23	yellow
<i>Parabuthus evae</i> Kovařík et al., 2024	58–59	–	5.62	–	black
<i>Parabuthus granimanus</i> Pocock, 1895	42–49	36–44	3.10–3.30	4.50–4.85	black
<i>Parabuthus hamar</i> Kovařík et al., 2016	38–44	30–35	3.05–3.13	4.27	black
<i>Parabuthus heterurus</i> Pocock, 1897	36–42	32–39	3.40–3.89	4.12–4.66	yellow
<i>Parabuthus kabateki</i> Kovařík et al., 2019	42–48	40–43	2.90–3.25	23468	yellow
<i>Parabuthus kajibu</i> Kovařík et al., 2016	37–39	33–35	3.52	5.25–5.45	yellow
<i>Parabuthus mazuchi</i> Kovařík et al., 2019	36	–	7.05	–	black
<i>Parabuthus pallidus</i> Pocock, 1895	33–38	28–36	4.30–4.80	4.30–4.80	yellow
<i>Parabuthus puntlandus</i> sp. n.	38–45	42	3.05–3.06	4.26	black
<i>Parabuthus quincyae</i> Kovařík et al., 2024	43–44	–	3.14	–	yellow
<i>Parabuthus robustus</i> Kovařík et al., 2019	34–42	33–37	2.93–3.16	4.21–4.46	yellow
<i>Parabuthus somalilandus</i> Kovařík et al., 2019	39–44	36–39	3.38–3.91	4.59–4.90	yellow
<i>Parabuthus starhai</i> Kovařík, 2025	56–59	57	3.65	5.47	black

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



**Figures 43–45:** Chromosomes of *Parabuthus puntlandus* sp. n. Mitotic metaphase (sample S2886) (43), mitotic metaphase (44) and postpachytene (45) (sample S2887). Arrowhead shows chromosomes in multivalent association during postpachytene. Scale bar: 10 µm.

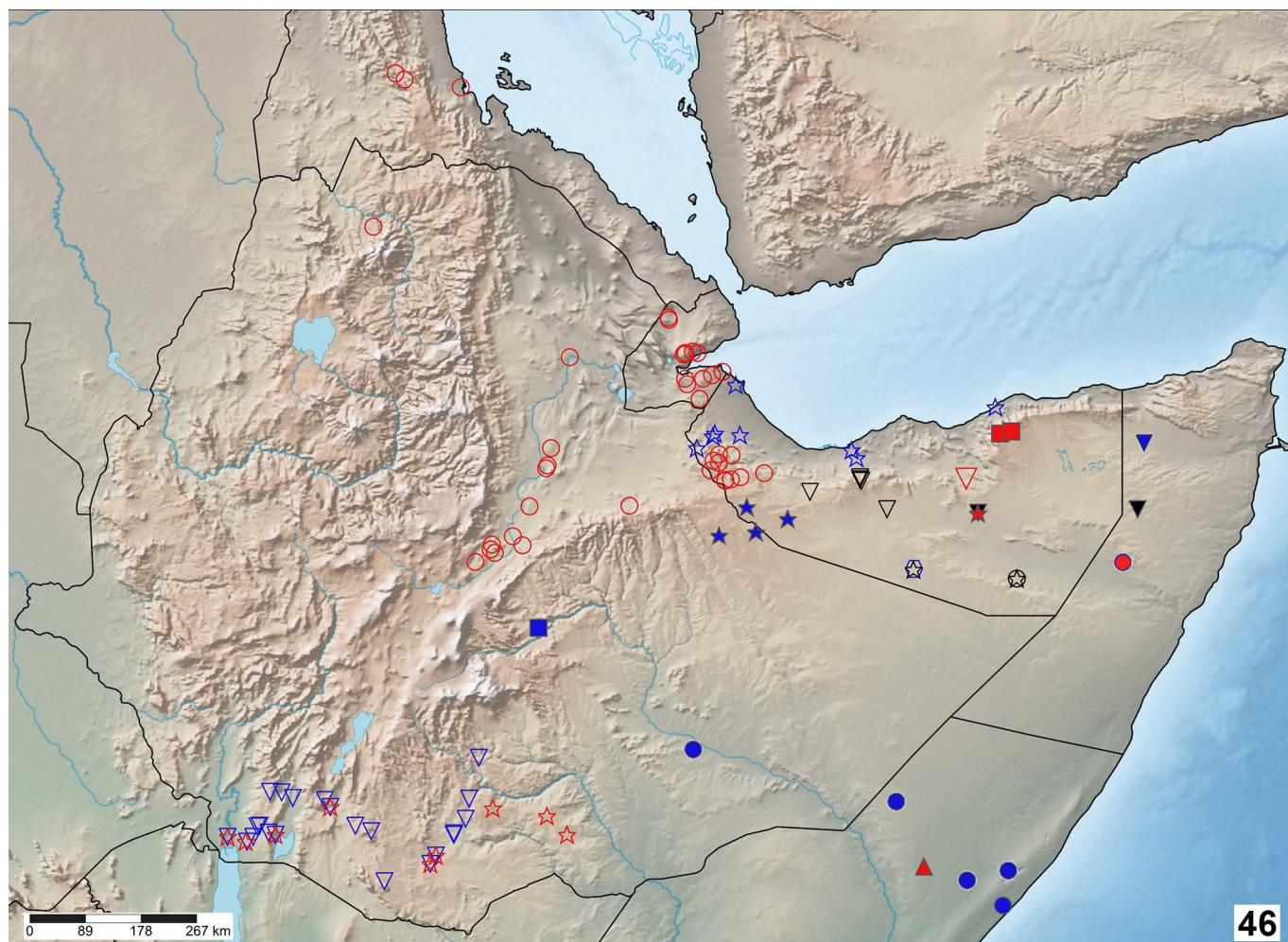
side of base smooth, tubercle absent. The manus of pedipalp of male broader than in female, pedipalp chela length/ width ratio 3.05–3.06 in males and 4.26 in female.

**Legs** (Figs. 10–13). 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.

**Karyotype** (Figs. 43–45). We analyzed two male paratypes (S2886, S2887). The chromosomes of both males exhibit characteristics typical of the family Buthidae: holocentric chromosomes, achiasmatic meiosis in males, and generally low chromosome numbers (see Schneider et al., 2013). The karyotype of *P. puntlandus* sp. n. consists of 16 chromosomes, a number commonly observed in species from the Horn of Africa, such as *P. abyssinicus*, *P. dorisae*, *P. kabateki*, *P. robustus*, *P. quincyae*, and *P. somalilandus* (Kovařík et al., 2016, 2019, 2024). The first chromosome pair is slightly longer,





- *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* Kovařík, 2025
- ▼ *Parabuthus puntlandus* sp. n.



**Figures 46–47:** Figure 46. Map showing confirmed distribution of *Parabuthus* spp. in Djibouti, Eritrea, Ethiopia, Somalia (including Puntland), and Somaliland. Figure 47. *Parabuthus puntlandus* sp. n., type locality.

comprising 4.33% of the diploid set, while the remaining chromosomes gradually decrease in length, ranging from 3.57% to 2.29%. In both analyzed specimens, a quadrivalent was observed during postpachytene. Similar chromosome associations are frequently found in representatives of the Buthidae (see Šťáhlavský et al., 2020).

**AFFINITIES.** Combination of three characters, metasoma V black, pectine teeth number 39–42 in both sexes and pedipalp chela length/ width ratio 3.05–4.26 in both sexes is present in five species: *Parabuthus puntlandus* sp. n., *P. abyssinicus* Pocock, 1901, *P. erigavoensis* Kovařík et al., 2019, *P. granimanus* Pocock, 1895, and *P. hamar* Kovařík et al., 2016 (see Table 2). *P. puntlandus* sp. n. differs from *P. abyssinicus*, *P. hamar*, and *P. erigavoensis* in having metasoma and the telson only sparsely hirsute; these three cited species have metasoma and the telson densely hirsute (Figs. 16–21 versus figs. 2–7 in Kovařík et al., 2019). Male of *P. granimanus* has a tubercle on inner side of base of fingers of pedipalp chela, *P. puntlandus* sp. n. has inner side of base of fingers of pedipalp chela smooth, tubercle absent.

**DISTRIBUTION.** Somalia (Puntland) (Fig. 46).

## Acknowledgments

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