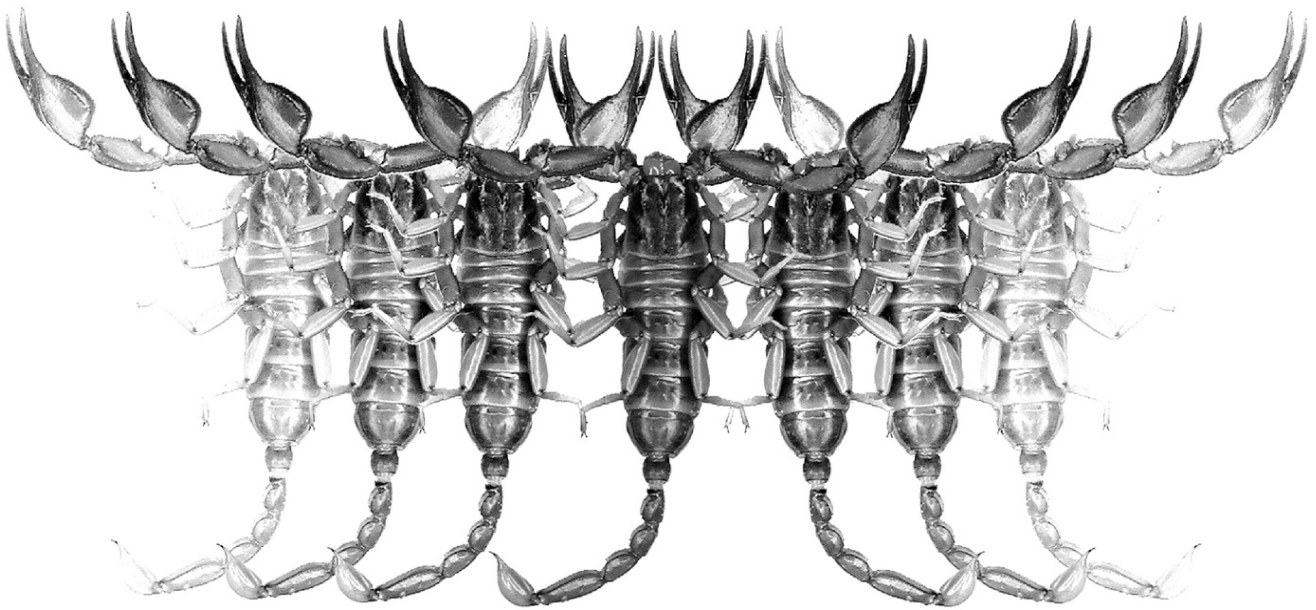


Euscorpius

Occasional Publications in Scorpiology



Uroplectes ebogo sp. n.
(Scorpiones: Buthidae)
from Cameroon

František Kovařík, František Štáhlavský & Valeriy Govorov

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Uroplectes ebogo sp. n. (Scorpiones: Buthidae) from Cameroon

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<http://zoobank.org/urn:lsid:zoobank.org:pub:D29EA08D-09DF-48C7-A434-7D6FCD300D51>

Summary

A new species *Uroplectes ebogo* sp. n. is described from Cameroon, fully illustrated with color photos showing its morphology and habitus. *Uroplectes ebogo* sp. n. is the only species of the genus with a combination two characters: metasoma without carinae and metasoma V and telson without punctuation. In addition to morphology and hemispermaphore, we also present the information about the karyotype of *Uroplectes ebogo* sp. n. (2n=24).

Introduction

In total 32 species of the genus *Uroplectes* occur in central and southern Africa. From Cameroon, only one species was cited, *Uroplectes occidentalis* Simon, 1876 (see Kraepelin, 1913: 176–77; Belfield, 1956: 45). Here we describe *Uroplectes ebogo* sp. n., the second species known from Cameroon.

Methods, Material & Abbreviations

Nomenclature and measurements follow Stahnke (1971), Kovařík (2009), and Kovařík & Ojanguren Affilastro (2013), except for trichobothriotaxy (Vachon, 1974), sternum (Soleglad & Fet, 2003), and hemispermaphores (Kovařík et al., 2018).

Karyotype analyses were conducted on chromosome preparations prepared using the spreading technique, a frequently used method in scorpions (e. g., Kovařík et al., 2009; Sadílek et al., 2015). The chromosomes were stained with a 5% Giemsa solution in Sörensen phosphate buffer for 20 min. Measurements of five spermatocyte nuclei were performed using Image J 1.45r software (<http://rsbweb.nih.gov/ij>) with the Levan plugin (Sakamoto & Zacaro, 2009). The relative length of the chromosomes was calculated for the diploid set.

Specimen Depositories: 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); ZMB (Museum für Naturkunde der Humboldt-Universität, Berlin, Germany).

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

Systematics

Buthidae C. L. Koch, 1837

Genus *Uroplectes* Peters, 1861

(Figures 1–39, Table 1)

Uroplectes Peters, 1861: 512; Fet & Lowe, 2000: 266–277 (complete reference list until 1998); Kovařík, 2009: 31; Lourenço, 2000: 499–506, figs. 1–3; Prendini, 2015: 1–31, figs. 1–13, tabs. 1–2.

= *Lepreus* Thorell, 1876: 7 (type species *Lepreus pilosus* Thorell, 1876: 7) (syn. by Kraepelin, 1908: 256).

= *Tityolepreus* Kraepelin, 1891: 232 (type species *Tityus chinchoxensis* Karsch, 1879: 370 = *Uroplectes occidentalis* Simon, 1876) (syn. by Kraepelin, 1895: 79, 87).

= *Scorpiobuthus* Werner, 1939: 361 (type species *Scorpiobuthus apatris* Werner, 1939: 361 = *Uroplectes chubbi* Hirst, 1911) (syn. by Fet & Sissom, 1997: 408).

= *Uroplectoides* Lourenço, 1998: 313 (type species *Uroplectoides abyssinicus* Lourenço, 1998: 313 = *Uroplectes fischeri* (Karsch, 1879)) (syn. by Kovařík et al., 2016: 1).

TYPE SPECIES. *Uroplectes ornatus* Peters, 1861 (= *Uroplectes flavoviridis* Peters, 1861)

DIAGNOSIS. Medium sized buthids, adults 30–60 mm in length; sternum *type* 1, subtriangular in shape; pedipalps orthobothriotaxic, α -configuration, femur trichobothrium d_2 dorsal, patella trichobothrium d_3 external to DM_c carina; pectines with fulcra; median denticle (MD) row of pedipalp



Figure 1. Holotype male of *Uroplectes ebogo* sp. n. in vivo habitus.

chelal finger arranged in oblique groups; chelicerae with typical buthid dentition, fixed finger smooth, lacking denticles on ventral surface; tergites I–VI with one or three carinae; carapace without distinct carinae; metasoma elongate; telson with or without subaculear tooth; legs III and IV with tibial spur.

DISTRIBUTION. Angola, Botswana, Cameroon, Congo, Democratic Republic of Congo, Ethiopia, Gabon, Kenya, Lesotho, Malawi, Mozambique, Namibia, Somalia, Somaliland, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.

***Uroplectes ebogo* sp. n.**
(Figs. 1–37, Table 1)

<http://zoobank.org/urn:lsid:zoobank.org:act:F6449BA4-DFD6-469D-84BF-8CC126C3BD63>

TYPE LOCALITY AND TYPE DEPOSITORY. Cameroon, Ebogo, 3.41363°S 11.48748°E; FKCP.

TYPE MATERIAL EXAMINED. Cameroon, Ebogo, 3.41363°S 11.48748°E (Figs. 36–37), IX.2024, 1♂ (holotype, DNA 2808), leg. local collector.

ETYMOLOGY. The species epithet is given after the type locality.

DIAGNOSIS (♂). Total length 33.5 mm (male, holotypes), female unknown; chelicerae yellow, strongly reticulate;

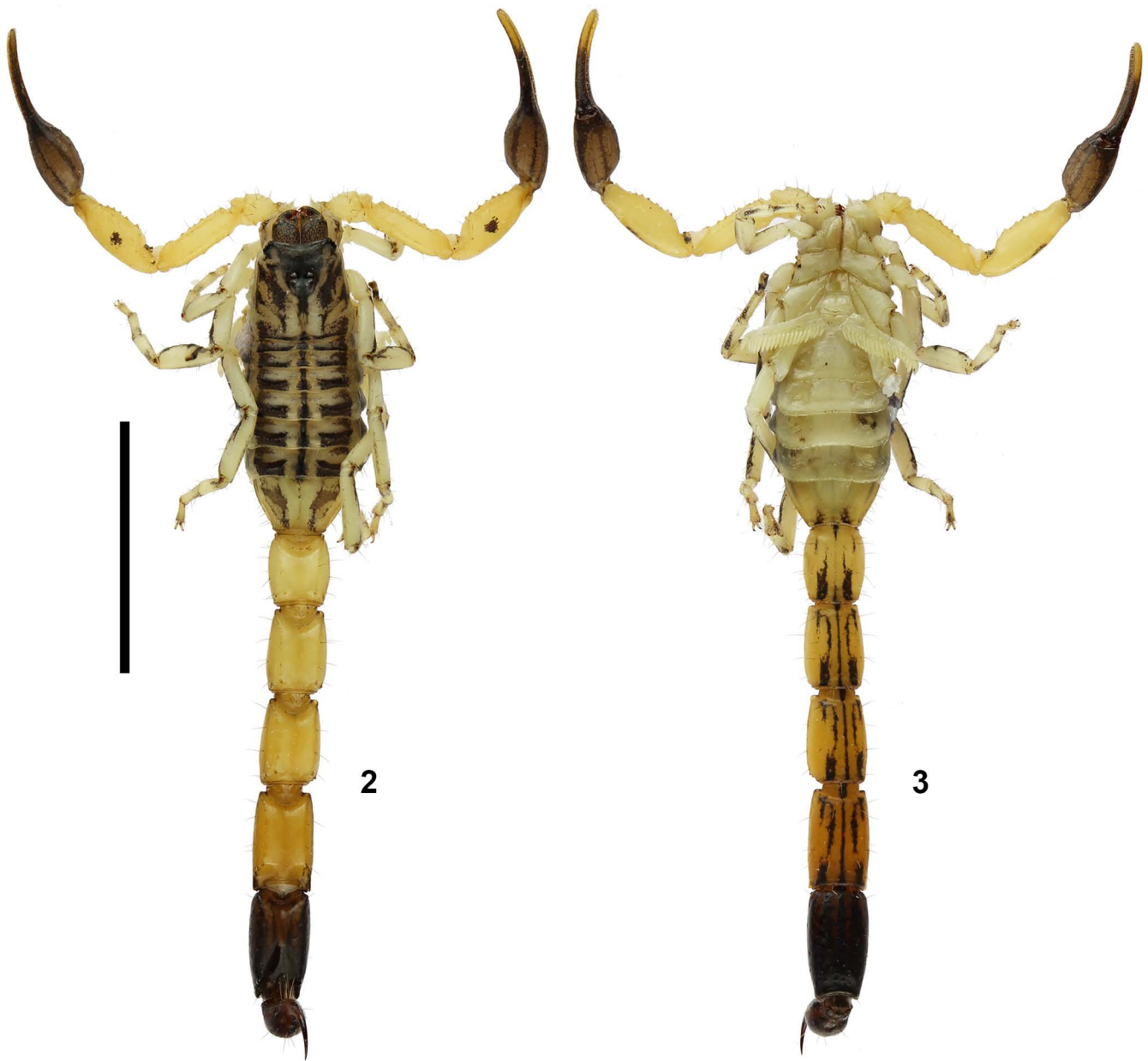
movable finger of pedipalp with 12 rows of denticles, with two external and one internal accessory denticle; metasomal segments and telson are smooth without punctuation and carinae; carapace with dark triangular marking; telson partly setose with distinct subaculear tubercle; Adult male with ratio metasoma I length to width 1.17, ratio metasoma V length to width 1.77; pectines with 19–20 teeth in male.

DESCRIPTION (♂). The male holotype is 33.5 mm long. The habitus is shown in Figs. 2–3. For position and distribution of trichobothria of pedipalp see Figs. 17–21, and 23–24.

Coloration (Figs. 1–3). The base color is uniformly yellow to yellowish orange or green, with anterior dark triangular and strong symmetrical dark spots in carapace; two symmetrical incomplete and one median narrow complete dark stripes on tergites I–VI; symmetrical dark spots on tergite VII; metasoma I–IV ventral with dark median strip and strong symmetrical spots; metasoma V and telson reddish black; femur and patella of pedipalp yellow with dark central spot on patella dorsal; chela of pedipalp brown to black with light tips of fingers; legs yellowish with dark spots mainly on margins.

Carapace (Figs. 4, 12). Very slightly trapezoidal, anterior margin concave; surface locally with dense, coarse granulation bounded smooth parts, carinae absent; median eyes large, well separated; 5 lateral eyes (3 larger, 2 reduced).

Chelicera (Figs. 4). Fingers comply with the basic pattern of buthid dentition (Vachon, 1963); fixed finger smooth, lacking denticles on ventral surface.



Figures 2–3. *Uroplectes ebogo* sp. n., male holotype in dorsal (2) and ventral (3) views. Scale bar: 10 mm.

Mesosoma (Figs. 4–5, 12–13). *Tergites* I–VI with a median carina reduced on tergite VII; margins of tegites I–VI smooth but central part densely granulated; Tergite VII smooth with several solitary granules; *sternites* with slit-like spiracles; with smooth surfaces without carinae; *sternal chaetotaxy*: sternite III–VI posterior margins bearing 3–6 macrosetae, VII with 6 macrosetae on medial surface; *pectines* with margins extending to third quarter of sternite IV, with 3 marginal lamellae, 8–9 middle lamellae; lamellae and fulcra bear numerous short, fine, dark macrosetae; pectine basal piece and genital opercula smooth with fine macrosetae; pectinal tooth counts 19–20 in male; sternum type 1, subtriangular to subpentagonal in shape; posterior depression present.

Metasoma and telson (Figs. 6–9, 14–16). *Metasoma* without carinae, dorsal carinae replaced by three round granules on posterior part on metasoma I–VI; Metasoma smooth, several granules are in central part of dorsal surfaces on metasoma III and IV; *telson* smooth with aculeus slightly shorter than vesicle in length, strongly curved; subaculear tubercle present; *chaetotaxy*: metasomal segments and telson setose; long macrosetae dispersed irregularly on lateral and ventral surface; telson dorsally setose more densely.

Pedipalps (Figs. 17–29). Segments relatively slender, with patella narrower than chelae; *femur* with 3 strong, granulated carinae: dorsoexternal, dorsointernal, and ventrointernal; ventromedial carina indicated by several granules; dorsal,

Dimensions (mm)		<i>Uroplectes ebogo</i> sp. n.
		♂ holotype
Carapace	L / W	4.06 / 4.08
Mesosoma	L	7.58
Tergite VII	L / W	2.15 / 3.84
Metasoma + telson	L	21.88
Segment I	L / W / D	2.91 / 2.49 / 2.16
Segment II	L / W / D	3.44 / 2.37 / 2.14
Segment III	L / W / D	3.51 / 2.37 / 2.08
Segment IV	L / W / D	4.02 / 2.44 / 2.20
Segment V	L / W / D	4.31 / 2.43 / 2.18
Telson	L / W / D	3.69 / 1.55 / 1.45
Pedipalp	L	15.67
Femur	L / W	3.83 / 1.20
Patella	L / W	4.47 / 1.62
Chela	L	7.37
Manus	W / D	1.87 / 1.69
Movable finger	L	4.40
Total	L	33.52

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

lateral and ventral surfaces smooth except for a few small solitary granules, internal surface granulated by solitary strong granules; *patella* with two partly granulated and 5 smooth to absent carinae; setation sparse, with large solitary macrosetae; *chela* smooth, carinae obsolete to absent; dentate margins of movable and fixed fingers with 12 rows of denticles, with two external and one internal accessory denticles; distal ends of movable finger with 6 subterminal denticles.

Legs (Figs. 10–11). Surfaces of all segments smooth; tibia and tarsal segments bearing macrosetae; small tibial spurs present on legs III–IV; ventral surfaces of basitarsi with numerous macrosetae arranged roughly in two parallel series; ventral surfaces of telotarsi with dense brush of macrosetae irregularly arranged.

Hemispermatothore. (Figs. 30–32) Trunk long, narrow, basally broadened. Flagellum relatively short, with pars recta shorter than pars reflecta. Capsule region with several lobe structures: a long posterior lobe at the base of the flagellum, a short anterior lobe, and a rounded basal lobe or hook. The overall shape of the hemispermatothore and its lobes are consistent with that reported by Vachon (1950: 18, figs. 19–21) for *U. occidentalis* Simon, 1876.

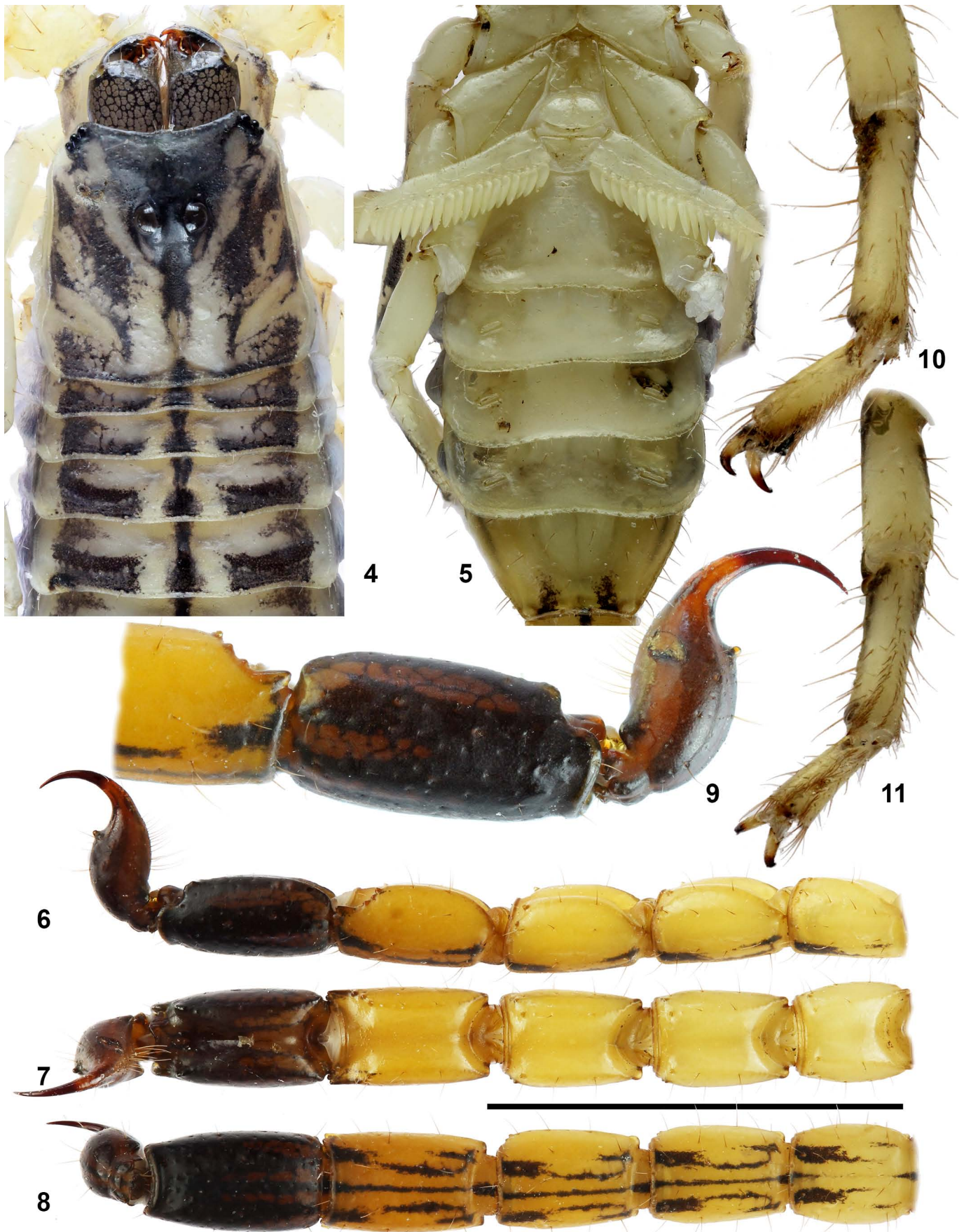
Karyotype (Figs. 33–35). We analyzed karyotype of the male holotype. The chromosomes of this species (Figs. 33–34) exhibit typical characteristics observed in all members of the family Buthidae. These chromosomes are holocentric, and males have achiasmatic meiosis. Additionally, species within this family typically have a low number of chromosomes (see Schneider et al., 2024). The karyotype of *Uroplectes ebogo*

sp. n. consists of 24 chromosomes, which aligns with the diploid numbers reported in ten cytogenetically analyzed *Uroplectes* species ($2n=16-28$) (Schneider et al., 2024). A diploid number of $2n=24$ has only been observed in two species: *U. olivaceus* (Pocock, 1896) and *U. vittatus* (Thorell, 1876), both from Zimbabwe (Newlands & Martindale, 1980). In the analyzed specimen, we observed a multivalent association (six chromosomes forming a ring multivalent) during postpachytene (Fig. 34). The karyotype consists of two extra-long pairs of chromosomes, with lengths of chromosomes 6.20% and 6.09% of the diploid set. Six additional chromosomes form a multivalent association, with lengths gradually decreasing from 5.96% to 4.03% of the diploid set. The remaining chromosomes form bivalents during postpachytene, with lengths gradually decreasing from 3.88% to 2.86% of the diploid set (Fig. 35).

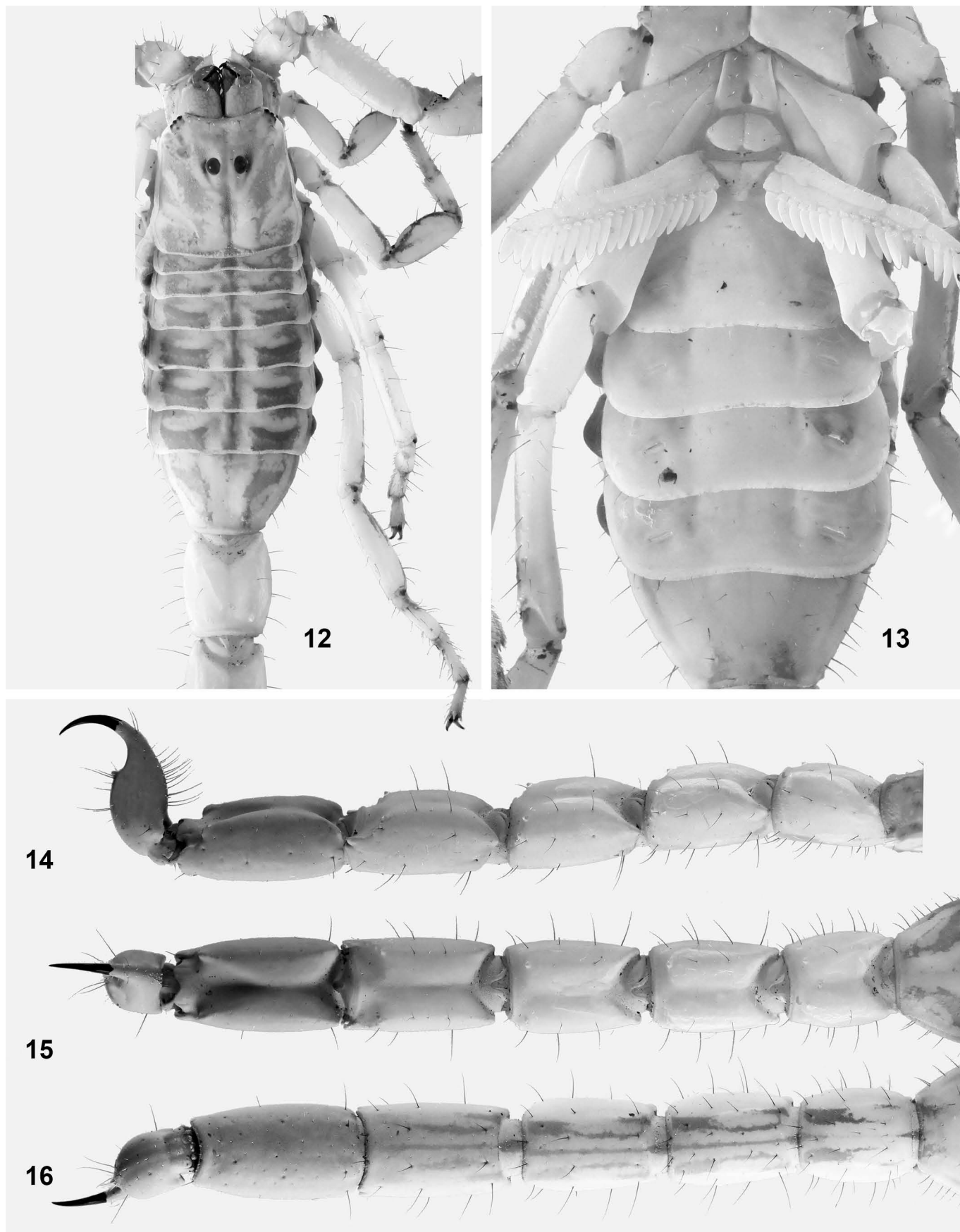
Measurements. See Table 1.

AFFINITIES. The described features distinguish *Uroplectes ebogo* sp. n. from all other species of the genus. The combination of only two characters (metasoma without carinae and metasoma and telson without punctuation) is unique in the entire genus *Uroplectes*.

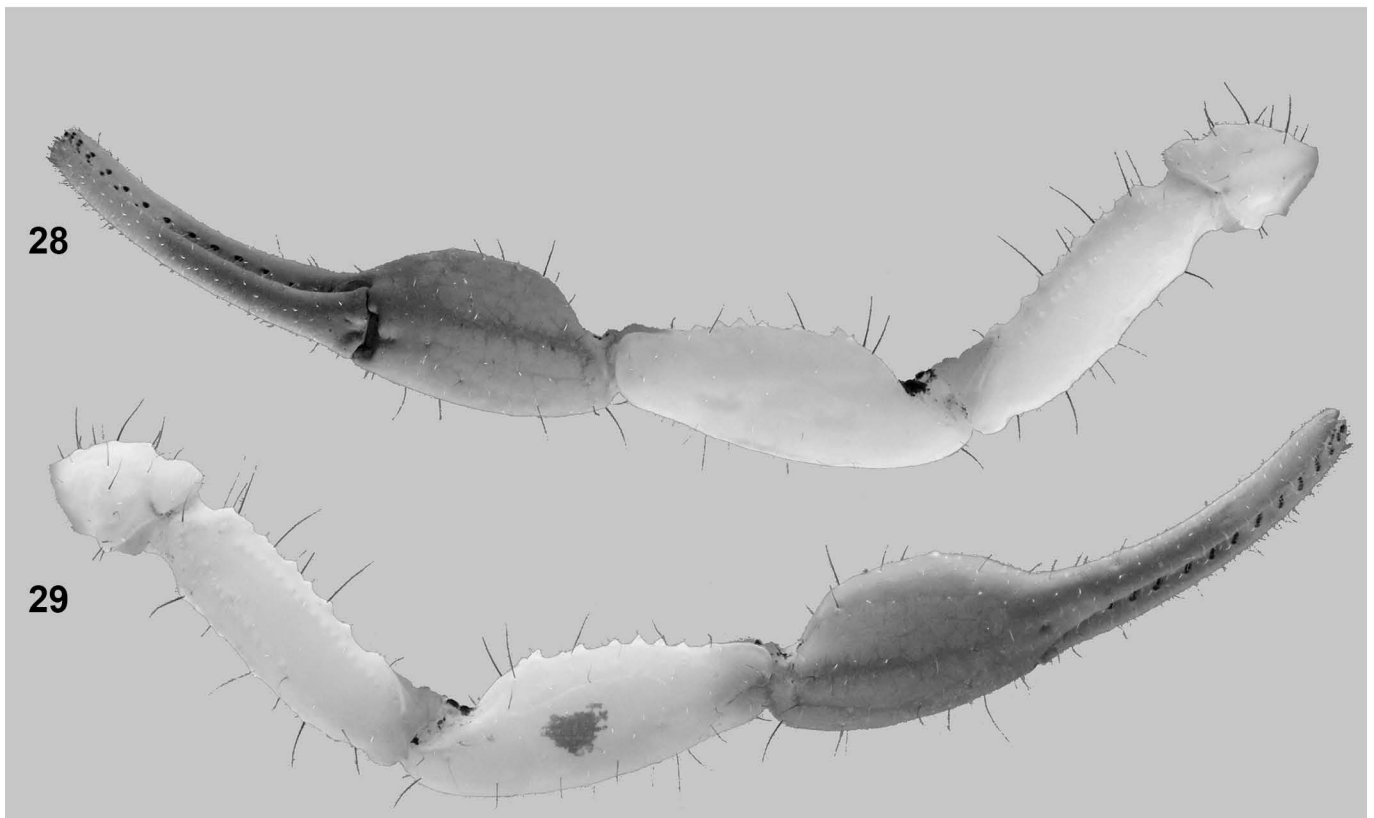
Unlike *Uroplectes ebogo* sp. n. metasomal dorsal carinae at least on metasoma I–III are present in *U. ansiedippenaarae* Prendini, 2015, *U. carinatus* (Pocock, 1890), *U. flavoviridis* Peters, 1862, *U. formosus* Pocock, 1890, *U. gracilior* Hewitt, 1914, *U. insignis* Pocock, 1890, *U. lineatus* (C. L. Koch, 1843), *U. longimanus* Werner, 1936, *U. marlothi* Purcell,



Figures 4–11: *Uroplectes ebogo* sp. n., male holotype. **Figure 4.** Carapace and tergites I–IV. **Figure 5.** Coxosternal area and sternites. **Figures 6–9.** Metasoma and telson lateral (6, 9), dorsal (7), and ventral (8) views. **Figures 10–11.** Left legs IV (10) and III (11), retrolateral aspect (respectively). Scale bar: 10 mm (6–8).



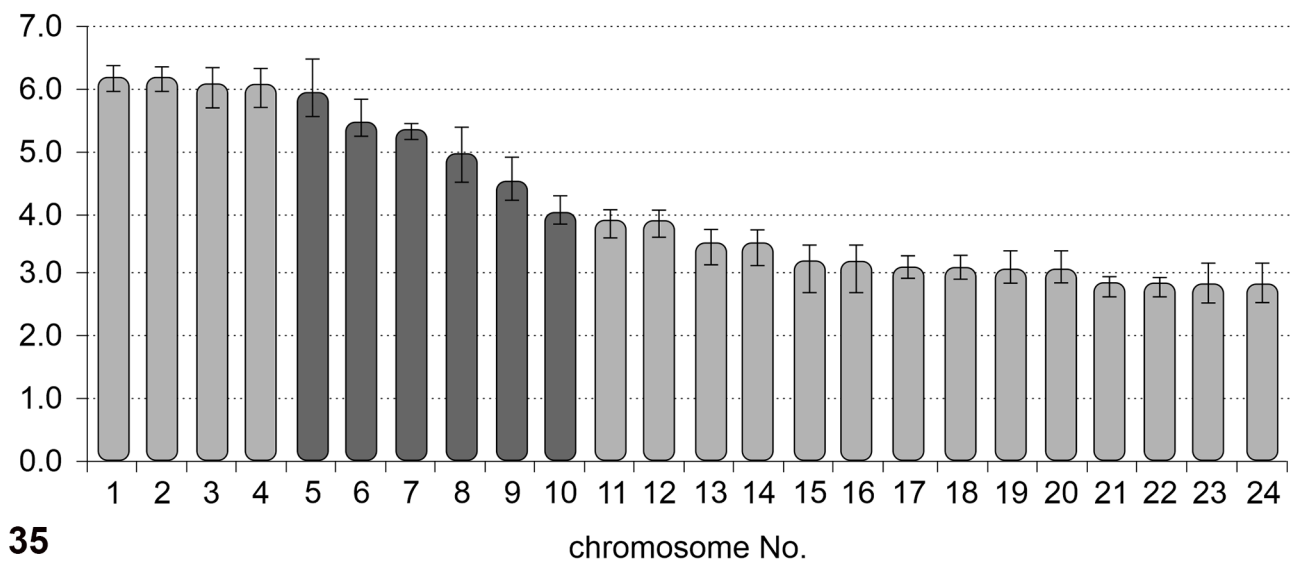
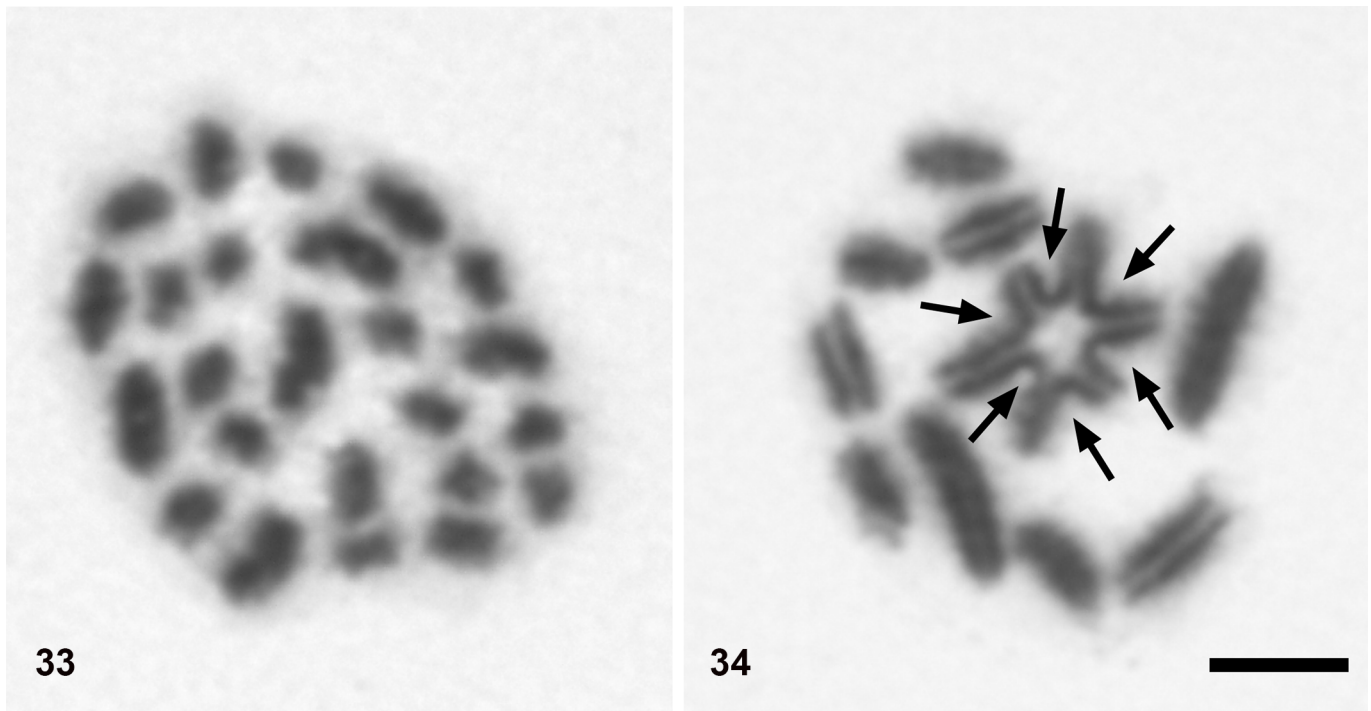
Figures 12–16: *Uroplectes ebogo* sp. n., male holotype under UV fluorescence. **Figure 12.** Chelicerae, carapace and tergites. **Figure 13.** Coxosternal area and sternites. **Figures 14–16.** Metasoma and telson lateral (14), dorsal (15), and ventral (16) views.



Figures 17–29: *Uroplectes ebogo* sp. n., male holotype, pedipalp. **Figures 17–27.** Pedipalp segments under white light, chela dorsal (17), external (18), ventral (19) views, patella dorsal (20), external (21), and ventral (22) views, femur and trochanter internal (23), dorsoexternal (24), and ventrointernal (25) views, movable (26) and fixed (27) finger dentition. Trichobothrial pattern is indicated by white circles in Figures 17–21 and 23–24. **Figures 28–29.** Pedipalp segments under UV fluorescence in ventral (28) and dorsal (29) views.



Figures 30–32. Left hemispermatophore of *Uroplectes ebogo* **sp. n.**, male holotype. Views of entire hemispermatophore in concave aspect (30), and capsule region in concave (31) and convex (32) views. Scale bar: 1 mm (30).



Figures 33–35: *Uroplectes ebogo* sp. n., male holotype, mitotic metaphase (33), postpachytene (34) and ideogram (35) (y axis - % of the chromosome length of the diploid set, lines indicate min.-max. values, dark grey indicates chromosomes from multivalent). Arrows show chromosomes in multivalent association during postpachytene. Scale bar: 5 μ m (33–34).

1902, *U. ngangelarum* Monard, 1930, *U. olivaceus* Pocock, 1896, *U. otjimbinguensis* (Karsch, 1879), *U. pardalis* Werner, 1913, *U. pictus* Werner, 1913, *U. pilosus* (Thorell, 1876), *U. planimanus* (Karsch, 1879), *U. schlechteri* Purcell, 1902, *U. triangulifer* (Thorell, 1876), *U. teretipes* Lawrence, 1966, *U. tumidimanus* Lamoral, 1979, *U. variegatus* (C. L. Koch, 1843).

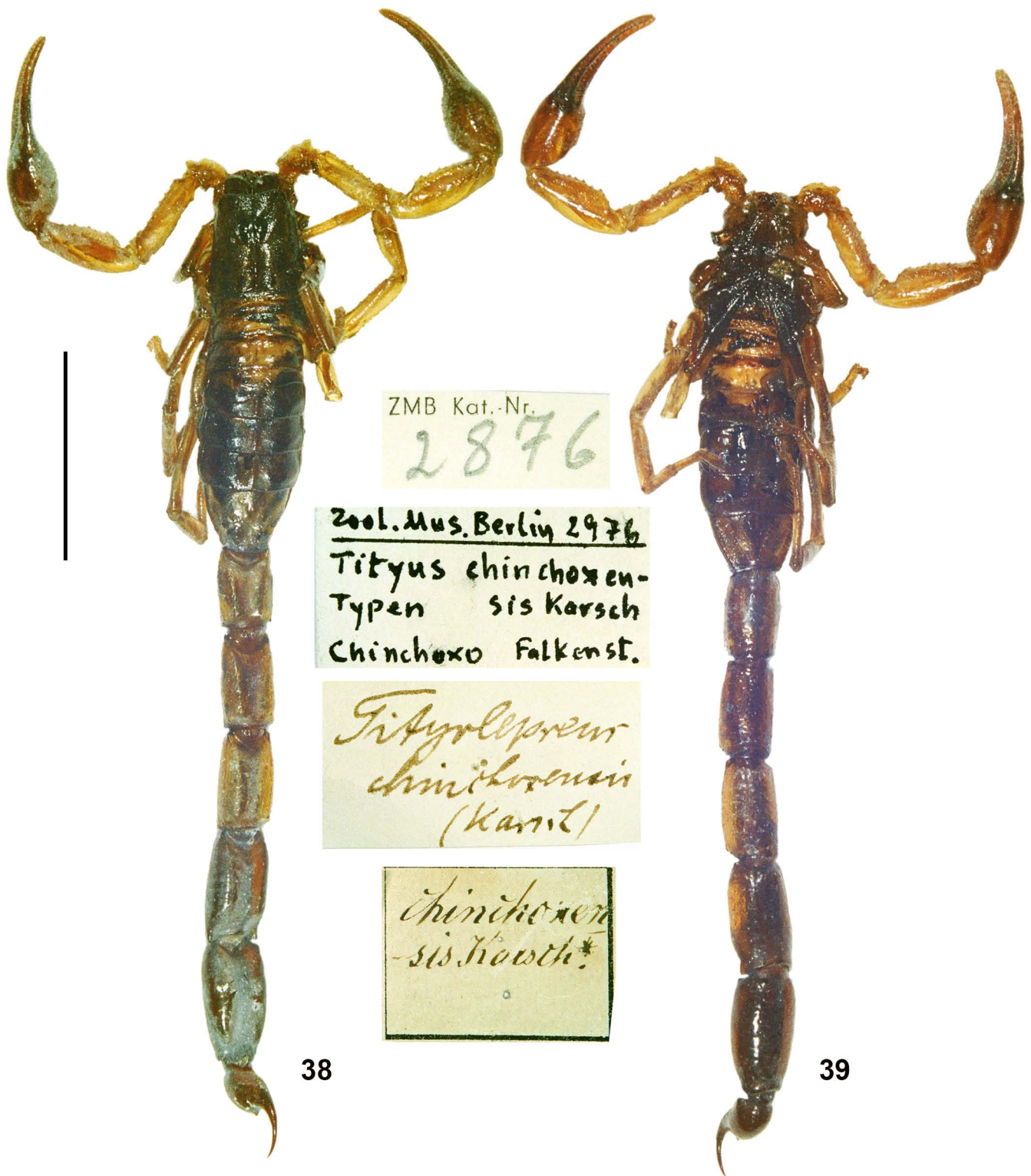
Unlike *Uroplectes ebogo* sp. n. at least metasoma V but often also metasoma IV and telson have punctuation in *U. chubbi* Hirst, 1911, *U. emiliae* (Werner, 1916), *U. fischeri*

(Karsch, 1879), *U. katangensis* Prendini, 2015, *U. machadoi* Lourenço, 2000, *U. malawicus* Prendini, 2015, *U. monardi* Vachon, 1950, *U. occidentalis* Simon, 1876, *U. pardii* Kovařík, 2003, *U. vittatus* (Thorell, 1876), *U. zambezicus* Prendini, 2015.

From Cameroon only one species was recorded, *Uroplectes occidentalis* Simon, 1876 (see Kraepelin, 1913: 176–77; Belfield, 1956: 45) from which *Uroplectes ebogo* sp. n. differs also by wider metasomal segments (see Figs. 1–2 versus 38–39).



Figures 36–37. *Uroplectes ebogo* sp. n., type locality, Cameroon, Ebogo. Male holotype was found at night on the wall of the building on the left in Figure 37.



Figures 38–39. *Uroplectes occidentalis* Simon, 1876, male lectotype of *Tityus chinchoensis* Karsch, 1879 here be designated, Congo, Chinchono, ZMB 2976 in dorsal (38) and ventral (29) views. Scale bar: 10 mm.

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