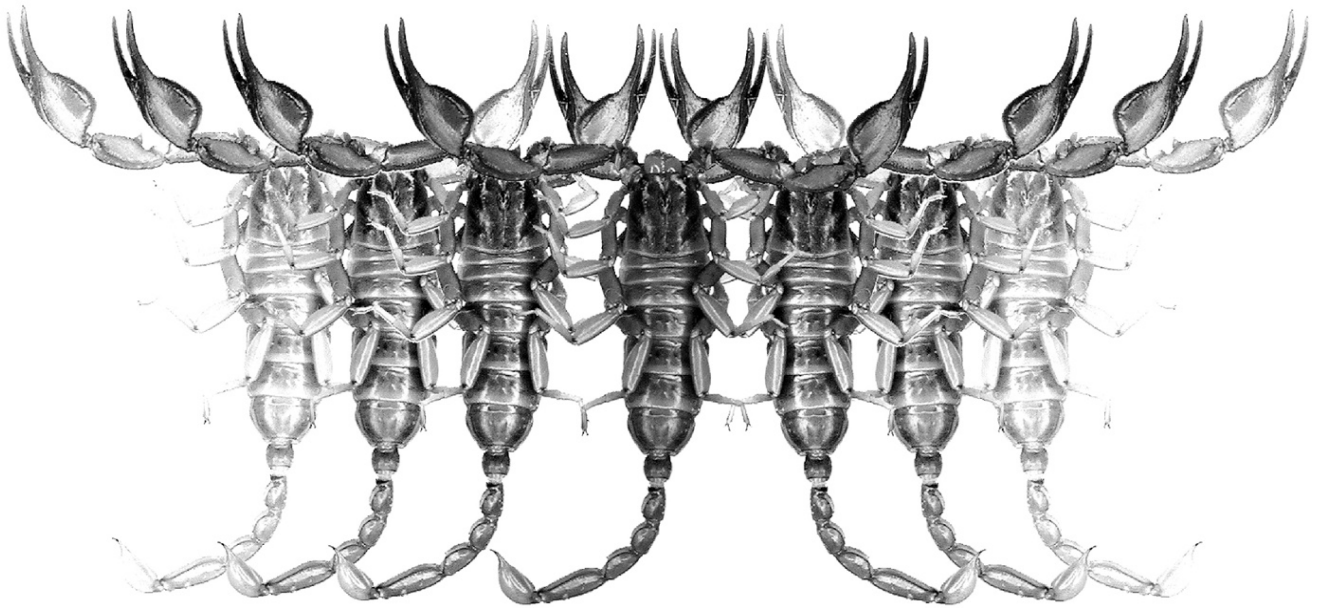


Euscorpium

Occasional Publications in Scorpiology



**The first record of *Scorpiops bhutanensis*
Tikader & Bastawade, 1983 from China, with
the first report of its female
(Scorpiones: Scorpiopidae)**

He-Yu Lv^{1,2} & Zhi-Yong Di^{1,2}

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**The first record of *Scorpiops bhutanensis*
Tikader & Bastawade, 1983 from China,
with the first report of its female (Scorpiones: Scorpipidae)**

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Summary

The first record of *Scorpiops bhutanensis* Tikader & Bastawade, 1983 from China (Xizang). An emended diagnosis, detailed redescription, and illustrations of the species are provided. Its female is reported here for the first time.

Introduction

Kovařík et al. (2020) and Štáhlavský et al. (2020) revised the family Scorpipidae Kraepelin, 1905. Kovařík et al. (2020) recently synonymized the genera of the family Scorpipidae (except *Parascorpiops* Banks, 1928) with *Scorpiops* Peters, 1861.

Scorpiops is the major genus of the family Scorpipidae, distributed mainly in South and Southeast Asia; it currently includes 100 species (Lourenço & Ythier, 2022). In China, 27 species are found in Hubei Province, Xinjiang Autonomous Region, Xizang Autonomous Region and Yunnan Province (Di & Qiao, 2020; Kovařík et al., 2020; Tang, 2022).

When examining specimens collected from Xizang, we identified the *Scorpiops bhutanensis* and confirmed unrecorded from China, and redescribed it in this paper.

Methods

Illustrations and measurements were produced using a Leica M205 stereomicroscope. The photos were taken with a Canon 650D camera and a Leica M205FA stereomicroscope (with a digital color microscope camera Leica DFC495). Measurements (in mm) followed Sissom (1990). Trichobothrial notation followed Vachon (1974), and the morphological terminology mostly followed Hjelle (1990). The terminology of metasomal carination followed Vachon (1952), and the terminology of pedipalp chela carinae followed Soleglad and Sissom (2001). Studied specimens are deposited in the Museum of Hebei University, Baoding, China (MHBU).

Systematics

Family **Scorpipidae** Kraepelin, 1905

Genus ***Scorpiops*** Peters, 1861

***Scorpiops bhutanensis* Tikader & Bastawade, 1983**

(Figures 1–33, Table 1)

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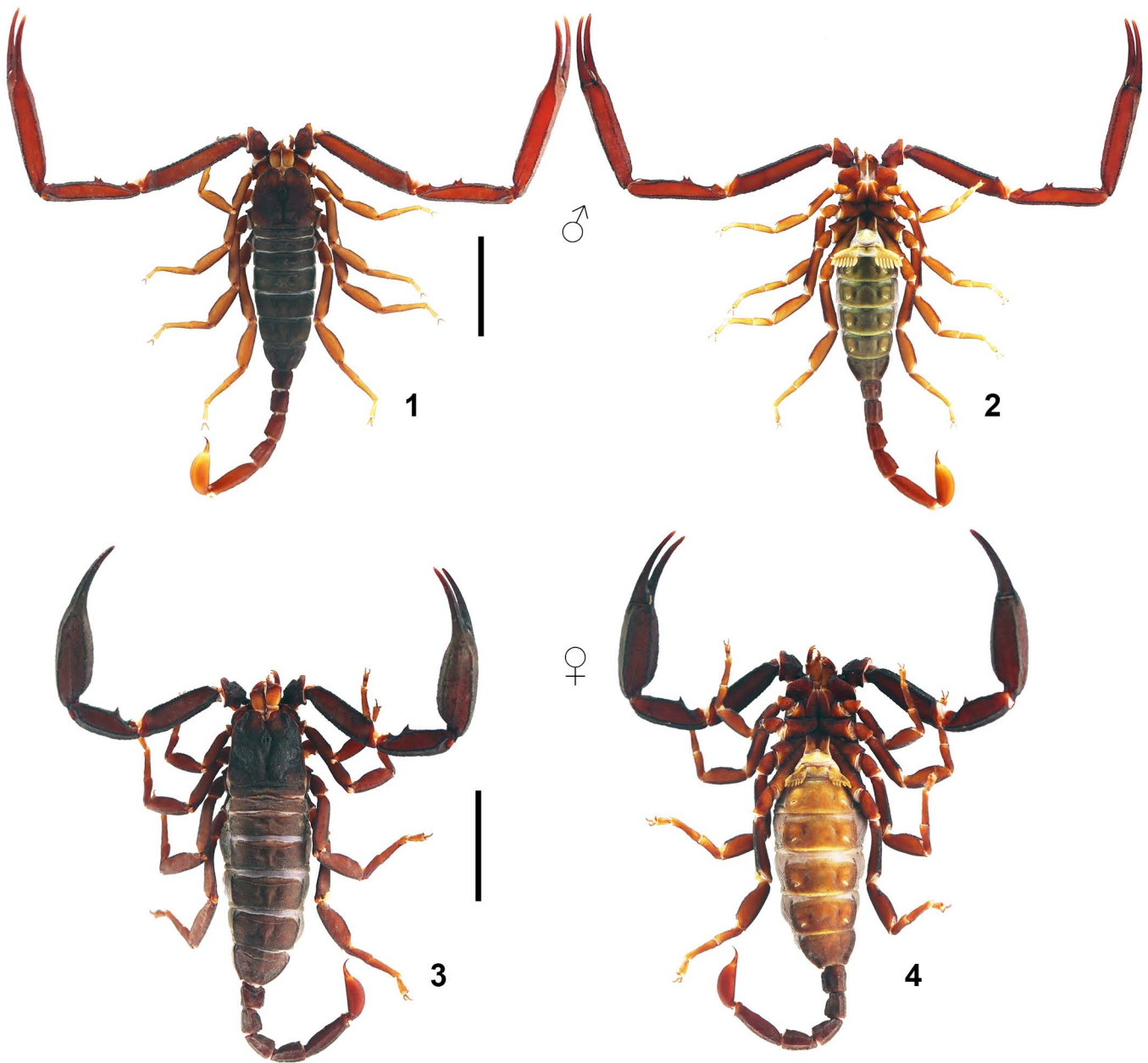
Scorpiops (Euscorpis) bhutanensis Tikader & Bastawade, 1983: 453–458, figs. 1247–1260.

Scorpiops bhutanensis: Kovařík, 2000:167–168.

TYPE DATA AND TYPE DEPOSITORY: ♂ holotype, Gomchu, eastern Bhutan; ZSI (Zoological Survey of India), 5094/18.

MATERIAL EXAMINED. **China**, Xizang, Shannan City, Cuona County, 1♂, 7 June 2018, leg. Xinglong Bai (Ar.-MHBU-ScXZCN1806070101), 3♀, 30 July 2019, leg. Zhiyong Di (Ar.-MHBU-ScXZCN1907300601–03).

EMENDED DIAGNOSIS. Adult body length about 46–52 mm. Base color uniformly yellow-brown in males, reddish-brown in females. Patella of pedipalp with 17–19 (5 *eb*, 2 *esb*, 2 *em*, 4–5 *est*, 5 *et*), and 7–8 (usually 7) ventral trichobothria in both sexes. Chelal trichobothria *Eb3* is located in distal half of manus between trichobothria *Dt* and *Est*. Chela with 4 ventral trichobothria. The manus of the pedipalp in the male is very long and narrow. Chela length/width ratio is 6.5–7.7 in males and 3.8 in females, chela fingers on adult male and



Figures 1–4: *Scorpiops bhutanensis* from Cuona County. **Figures 1–2.** Male (Ar.-MHBUScXZCN1806070101), dorsal (1) and ventral (2) views. **Figures 3–4.** Female (Ar.-MHBUScXZCN1907300601), dorsal (3) and ventral (4) views. Scale bars: 12.0 mm.

female scalloped. Pectinal teeth count 7 in males and 6 or 7 in females, fulcra present. Telson elongate and granulate, annular ring present in both sexes.

REDESCRIPTION (based on male specimen Ar.-MHBUScXZCN1806070101).

Coloration (Figs. 1, 2; after remaining in alcohol for four years). Carapace, yellow-brown. Median and lateral ocular tubercles black-brown. Tergites yellow-brown. Metasomal segments black-brown. Vesicle yellow-brown, with a brown aculeus. Chelicerae yellow-brown; with the fingers dark brown and gradually lighter toward the tip. Pedipalps yellow-brown. Legs yellow. Tarsal claws yellow. Sternum, yellow-brown. Sternites light yellow-brown. Genital operculum and pectines pale yellow.

Carapace (Figs. 5, 6). Integument is coarse, with sparse, fine granules; anterior median furrow, broad and deep; lateral furrow, broad; posterior median furrow, broad and deep. Median eyes situated anteriorly compared to center of carapace; three pairs of lateral ocelli with posterior-most one the smallest. Median ocular tubercle with granules and a median furrow. Lateral ocular tubercle with some coarse granules around lateral eyes.

Chelicerae (Figs. 9, 10). Dorsally with irregular pattern, ventrally with long hairs. Fixed finger of chelicera with 3 large triangular teeth on inner margin; ventral of movable finger with 7 teeth on inner margin, dorsal of movable finger with 5 teeth on inner margin.

Mesosoma. All tergites weakly granular; tergite I to tergite VI

Dimensions (mm)		<i>Scorpiops bhutanensis</i> ♂ ScXZCN1806070101	<i>Scorpiops bhutanensis</i> ♀ ScXZCN1907300601
Carapace	L / W	7.1 / 7.5	8.3 / 8.7
Mesosoma	L	14.6	17.1
Tergite VII	L / W	3.0 / 4.4	3.5 / 5.5
Metasoma + telson	L	26.1	25.5
Segment I	L / W / D	2.5 / 2.5 / 2.2	2.7 / 2.3 / 2.1
Segment II	L / W / D	2.8 / 2.3 / 2.3	2.9 / 2.3 / 2.2
Segment III	L / W / D	3.1 / 2.1 / 2.0	3.4 / 2.2 / 2.0
Segment IV	L / W / D	3.8 / 2.0 / 1.9	3.5 / 2.0 / 1.9
Segment V	L / W / D	6.5 / 1.9 / 1.7	6.1 / 1.9 / 1.6
Telson	L / W / D	7.4 / 2.4 / 2.3	6.9 / 2.4 / 2.0
Pedipalp	L	46.9	35.1
Femur	L / W	13.6 / 2.4	9.8 / 2.8
Patella	L / W	11.7 / 2.9	8.6 / 3.6
Chela	L	21.6	16.7
Manus	W / D	2.8 / 2.4	4.4 / 3.1
Movable finger	L	8.3	9.1
Total	L	47.8	50.9

Table 1. Comparative measurements of *Scorpiops bhutanensis* specimens. Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (D).

without any carina; tergite VII with two pairs of weakly granular carinae (Fig. 11). Pectinal teeth count 7/7, fulcra present (Fig. 13). Genital operculum subtriangular with genital papillae protruding (Fig. 13). Sternites smooth and shiny; segment VII with some fine granules and four weak ventral carinae.

Metasoma and telson. Integument is coarse, segments II to V longer than wide; segments I to V with respectively 10-8-8-8-7 granular carinae; segments I to IV carinated and dorsal carinae weakly crenulated, elevated on segments I & II but much elevated, crenulated more strongly on segments III & IV; segment V with a pair of vestigial lateral carinae. Vesicle with dense granules and few setae (Fig. 15).

Pedipalps. Integument rough with granules and few setae, especially dorsal surface with dense granules. Femur with dorsointernal, dorsoexternal, external, internal, ventroexternal, ventrointernal carinae granulated (Fig. 16). Patella with granules on the dorsointernal, dorsoexternal, ventrointernal, ventroexternal, and external carinae; two spinoid granules present on the internal surface (Figs. 17–20). Trichobothrial pattern C, neobothriotaxic (Vachon, 1974); patella with 18–19 external trichobothria (5 *eb*, 2 *esb*, 2 *em*, 4–5 *est*, 5 *et*), 7 (left) and 8 (right) ventral trichobothria (Figs. 18–20). Chela with 4 ventral trichobothria, all carinae granular and coalesced except the dorsal secondary, dorsal internal, and ventromedian carinae vestigial; movable fingers, and fixed fingers with scalloped margins, a pronounced lobe in the movable finger and a corresponding notch in the fixed fingers (Figs. 26–29).

Legs. Integument coarse with few setae. Trochanter dorsal surface with some small granules. Femur dorsal surface densely granular. Patella dorsal surface densely granular,

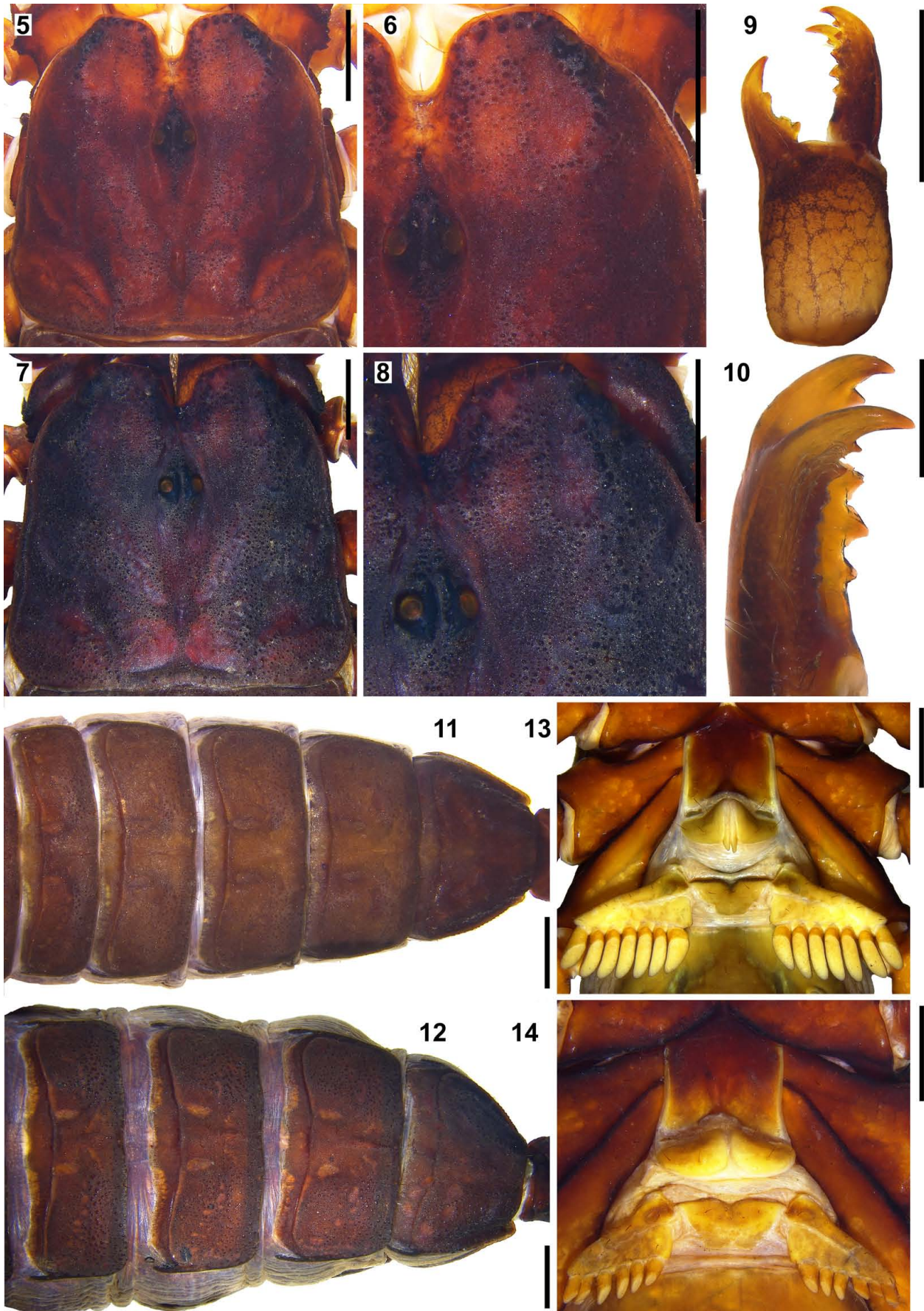
with dorsoexternal carinae. Tibiae without spurs (Fig. 33). Basitarsus with more setae, spurs, and two lateral pedal spurs (Fig. 33). Tarsus ventrally with a row of spinules (Fig. 33). Tarsal ungues curved and hook-like (Fig. 33).

Variation. Illustrations of an adult females are provided (Figs. 3, 4, 7, 8, 12, 14, 21–25, 30–32). Coloration of adult females is darker than in male: carapace, tergites, and metasoma dark-brown; vesicle and legs yellow-brown, legs with yellow-brown tarsi. Number (left/right) of trichobothria on the external surface of the pedipalp patellae: females with 18/18 (2) and 18/? (1), male with 18/19 (1). Number (left/right) of trichobothria on the ventral surface of the pedipalp patellae: females with 8/8 (1), 7/7 (1), and 7/7 (1), male with 8/7 (1). Number of pectinal teeth: females with 7/6 (1), 6/6 (1) and 7/7 (1), male with 7/7 (1). The pedipalp of the male is longer and narrower than female. Chela with an average length/width ratio of 7.7 in studied male (one adult) and 3.8 in females (three adults). Holotype (male): total length 49.5 mm, patella with 17 external and 7 or 8 ventral trichobothria, pectinal teeth count 7/7 (Tikader & Bastawade, 1983; Kovařík, 2000).

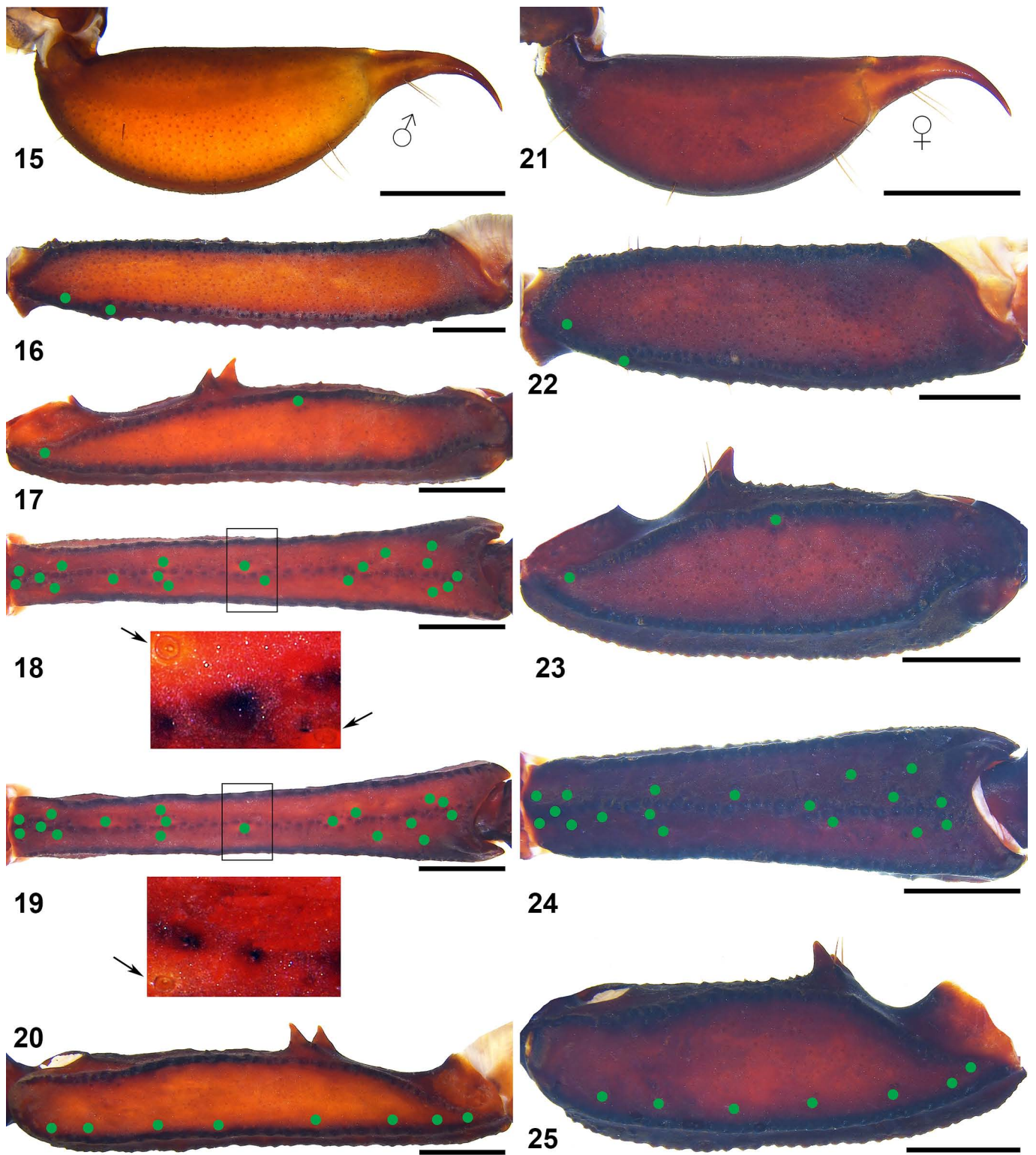
Measurements. See Table 1.

COMMENTS. Tikader & Bastawade (1983) described *Scorpiops bhutanensis* based on a single male specimen and indicated the position and distribution of trichobothria on the patella of pedipalps (7 or 8 ventral trichobothria and 17 external trichobothria).

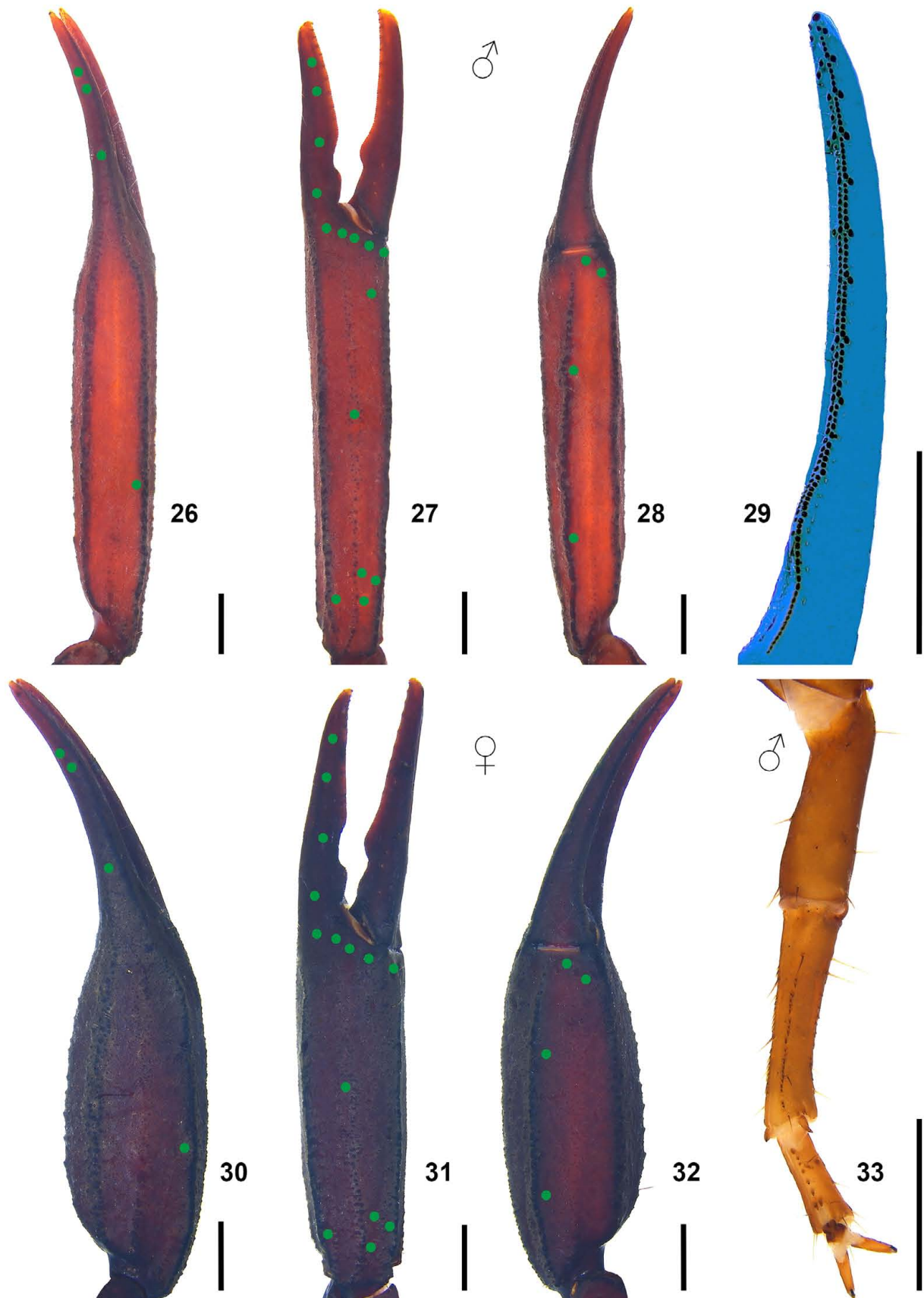
DISTRIBUTION. Eastern Bhutan (Gomchu = Gomphu?), China (Xizang) (Fig. 34).



Figures 5–14: *Scorpiops bhutanensis* from Cuona County. **Figures 5, 6, 9–11, 13.** Male (Ar.-MHBUScXZCN1806070101), carapace (5), eyes and nearby area (6), chelicerae dorsal (9), chelicerae movable finger ventral (10), tergites dorsal (11), and sternoplectinal area (13) views. **Figures 7, 8, 12, 14.** Female (Ar.-MHBUScXZCN1907300601), carapace (7), eyes and nearby area (8), tergites dorsal (12), and sternoplectinal area (14) views. Scale bars: 2 mm (5–9, 11–14) and 0.5 mm (10).



Figures 15–25: *Scorpiops bhutanensis* from Cuona County. **Figures 15–20.** Male (Ar.-MHBU-ScXZCN1806070101), telson lateral (15), pedipalp femur dorsal (16), patella dorsal (17), external (18, right; 19, left, details shows location of the trichobothria) and ventral (20) views. **Figures 21–25.** Female (Ar.-MHBU-ScXZCN1907300601), telson lateral (21), pedipalp femur dorsal (22), patella dorsal (23), external (24) and ventral (25) views. Trichobothria indicated by green dots. Scale bars: 2.0 mm (except details in 18 and 19).



Figures 26–33: *Scorpiops bhutanensis* from Cuona County. **Figures 26–29, 33.** Male (Ar-MHBU-ScXZCN1806070101), pedipalp chela dorsal (26), external (27) and ventral (28) views, dentate margin of movable finger under UV light (29), and right leg I, retrolateral view (33). **Figures 30–32.** Female (Ar-MHBU-ScXZCN1907300601), pedipalp chela dorsal (30), external (31) and ventral (32) views. Trichobothria indicated by green dots. Scale bars: 2.0 mm.

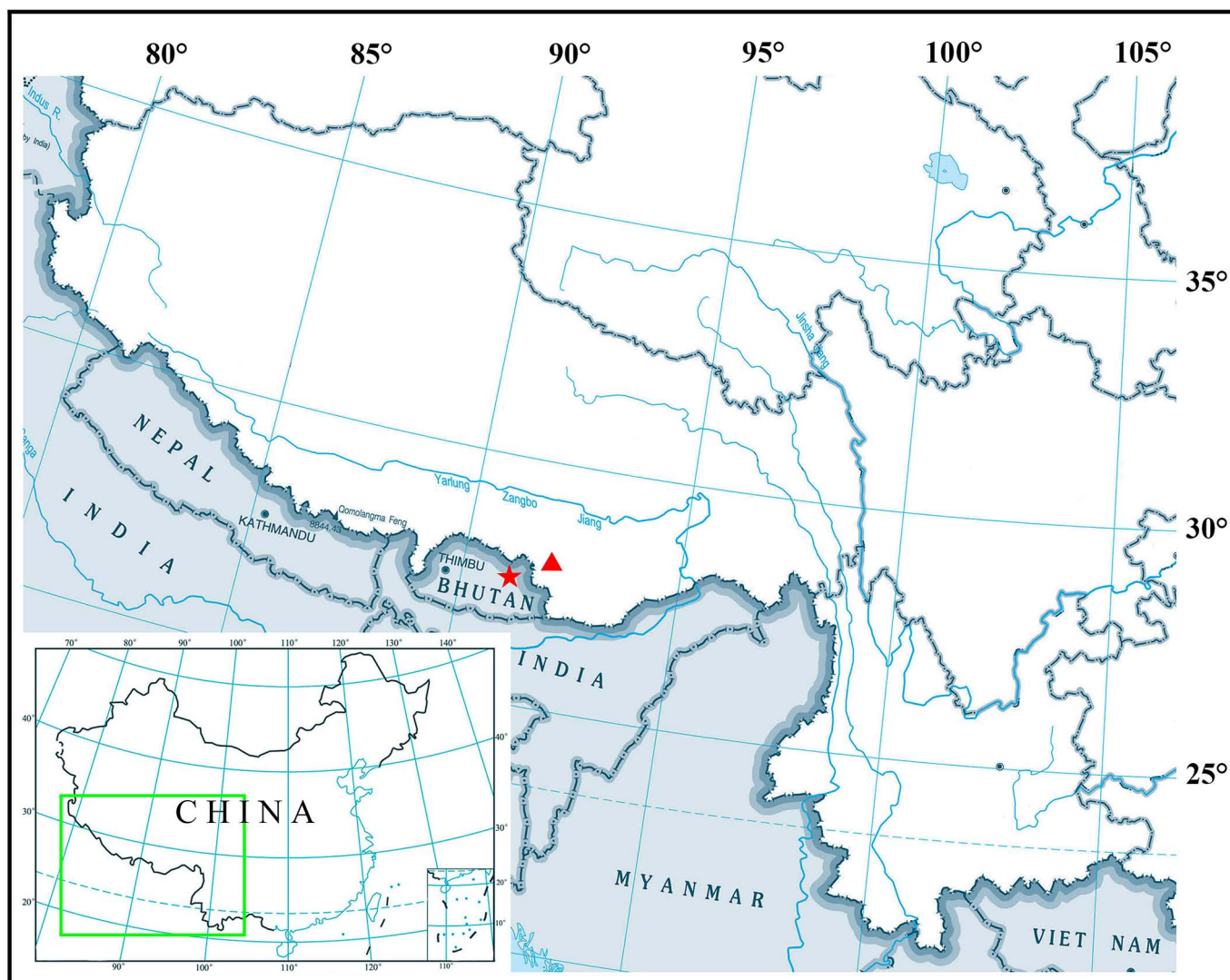


Figure 34: Distribution of *Scorpiops bhutanensis* in eastern Bhutan (star, type locality), and in Xizang, China (triangle).

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