ISSN 1759-0116 (Online)

ZooNova

Occasional Papers in Zoology

Number 41, Pages 1 – 13

A REVIEW OF SOME SPECIES OF *EBRECHTELLA* DAHL, 1907 (ARANEAE: THOMISIDAE) WITH DESCRIPTION OF TWO NEW SPECIES

Suresh P. Benjamin& U. G. S. L. Ranasinghe

Published on-line at https://zoonova.afriherp.org

Afriherp Communications, Greenford, United Kingdom

Date of publication: 11 March 2025

A review of some species of *Ebrechtella* Dahl, 1907 (Araneae: Thomisidae) with description of two new species

LSID: zoobank.org:pub:3B9B3279-B437-441D-8D72-A6200DEA2DC4

Suresh P. Benjamin[1,2*] & U. G. S. L. Ranasinghe[1,3]

[1] National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.
[2] Alexander Koenig Research Museum of Zoology, Adenauerallee 160, 53113 Bonn, Germany.
[3] sasanka.zfmk@gmail.com
[*] Corresponding author: suresh.benjamin@gmail.com; https://orcid.org/0000-0003-4666-0330

ABSTRACT

The crab spiders of the genus *Ebrechtella* Dahl, 1907 are small to medium-sized, foliage and canopy dwellers, predominantly known from the Oriental region. *Ebrechtella* currently contains 12 valid species. However, it is badly in need of revision and circumscription. Here we provide new locality data for *E. concinna* (Thorell, 1877) and *E. pseudovatia* (Schenkel, 1936) and describe two new species: *E. nigripuncta* **sp. nov.** (♂♀) and *E. ornatissima* **sp. nov.** (♂). The placement of the new species is considered provisional pending a revision of the genus.

Keywords: Arachnida, crab spiders, biodiversity, taxonomy, South Asia, systematic

INTRODUCTION

The crab spider genus *Ebrechtella* Dahl, 1907 currently comprises 12 valid species, primarily distributed across the Oriental region (World Spider Catalog, 2025). These spiders, ranging in size from small to medium (1.9–9.0 mm), are typically found inhabiting foliage and forest canopies. The type species, *Ebrechtella concinna* (Thorell, 1877), is widely distributed from Pakistan to New Guinea. Additionally, *E. tricuspidata* (Fabricius, 1775) stands out with its Trans-Palaearctic distribution, indicating a wider geographical reach within the genus (World Spider Catalog, 2024).

Despite the taxonomic work done by Lehtinen (2004), who redescribed the type species and provided a detailed overview of Southeast Asian species, the genus remains poorly understood and in urgent need of comprehensive revision and clearer circumscription. Many species descriptions are outdated, and some species' relationships within the genus are ambiguous. This paper seeks to address these gaps by reviewing several poorly known species within the genus, utilizing recently collected specimens from tropical Asia housed in various museum collections. Through examination of this material, we describe two new species, *E. nigripuncta* **sp. nov.** and *E. ornatissima* **sp. nov.** These newly described species may contribute to a better understanding of the genus's diversity and biogeographical patterns.

The findings underscore the importance of continued exploration and revision of *Ebrechtella*, aiming to clarify its taxonomy, enhance species descriptions, and establish more robust phylogenetic relationships. This work not only expands our knowledge of *Ebrechtella* but also highlights the rich biodiversity of the Oriental region's spider fauna, emphasizing the critical need for further taxonomic studies in these underexplored habitats.

MATERIALS AND METHODS

Types and other specimens were borrowed and examined from the following institutions: MCZ—Museum of Comparative Zoology, Massachusetts; RMNH—The National Museum of Natural History, Naturalis, Leiden; ZFMK—Zoological Research Museum Alexander Koenig, Bonn. The general methodology follows Benjamin (2011) and Ileperuma Arachchi & Benjamin (2019). Specimens used for habitus illustrations were placed in 70% EToH (ethanol) and photographed with a Zeiss AxioCam HRc camera mounted on a dissecting microscope (Zeiss Discovery V20) with top illumination and a magnification of up to 150x. Images were edited using the Zeiss ZEN Pro software package. Structures of the left male palp are depicted unless otherwise stated. All measurements are in millimetres and leg measurements are given in the order of femur, patella, tibia, metatarsus, and tarsus. The leg formulas are given from the longest to the shortest legs. Only leg I is measured and spines are not scored for any other legs, as these characters are not stable in thomisids (Benjamin, 2011).

Abbreviations of morphological structures: AH—anterior hood of epigyne, ALE—anterior lateral eyes, AME—anterior median eyes, C—conductor, CD—copulatory duct, DA—dorsal arm of the RTA, E—embolus, ITA— intermediate-apical tibial apophysis, PLE—posterior lateral eyes, PME—posterior median eyes, RTA— retrolateral-apical tibial apophysis, S—spermathecae, T—Tegulum, VA—ventral arm of the RTA, VTA— ventral-apical tibial apophysis.

RESULTS

Taxonomy

Order Araneae Clerck, 1757
Family Thomisidae Sundevall, 1833

***Ebrechtella* Dahl, 1907**
Ebrechtella Dahl, 1907: 376.

Type species: *Ebrechtella fruhstorferi* Dahl, 1907, by original designation. Not examined.

Diagnosis. Male leg I-II tibia (usually the distal half) and the metatarsi with distinct dark annulations (Figs. 1G, H) (absent in other Oriental Thomisidae genera). Male palpal tibia with RTA and VTA. RTA bifurcated (dorsal and ventral parts), but not diverging. dorsal part tapered and slightly longer than the ventral part (Figs. 3D, E, H); also see Lehtinen (2004: figs. 42, 44) (RTA not bifurcated in other Oriental Thomisidae genera). VTA stout with a flattened apical surface (hook-shaped VTA in all genera of the *Thomisus*-clade; see Benjamin (2011). Tegulum rounded, E short, stout, not twisted in any form, ¼ of the circumference of the tegulum. (Figs. 3A, C). Epigyne, with an anterior hood (Figs. 4B, C, E) and short copulatory ducts.

Remarks: This diagnosis is preliminary and modified from Lehtinen (2004). The presence of an ITA is only considered when an apophysis is present at the base of the RTA. If no such apophysis is found, the RTA is assumed to be bifurcated, and the two resulting sections are labelled as the dorsal and ventral arms of the RTA, respectively.

Species included: *E. concinna* (Thorell, 1877), (♂♀, Pakistan to Philippines, Indonesia (Sulawesi), New Guinea), *E. hongkong* (Song, Zhu & Wu, 1997), (♂, China), *E. juwangensis*

Seo, 2015, (♂♀, Korea), *E. margaritacea* (Simon, 1909), (♂♀, Vietnam), *E. patellamaculata* Wunderlich, 2023, (♂, Portugal), *E. pseudovatia* (Schenkel, 1936), (♂♀, Bhutan, China, Indonesia, Philippines, Taiwan, Thailand), *E. sufflava* (O. Pickard-Cambridge, 1885), (♂, Pakistan), *E. timida* (Thorell, 1887), (♂♀, Myanmar), *E. tricuspidata* (Fabricius, 1775), (♂♀, Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Korea, Japan), *E. tricuspidata concolor* (Caporiacco, 1935), (♂♀, Karakorum), *E. xinjiangensis* (Hu & Wu, 1989), (♂♀, China), and *E. xinjie* (Song, Zhu & Wu, 1997), (♂, China).

***Ebrechtella concinna* (Thorell, 1877) (Figs. 1A–C, 3H, 4A–B)**
Diaea concinna Thorell, 1877: 516.
Diaea subargentata O. Pickard-Cambridge, 1885: 65.
Misumena dierythra Thorell, 1892: 92, 470.
Ebrechtella fruhstorferi Dahl, 1907: 376.
Misumenops direythra Roewer, 1955: 846.
Misumena gamma Chrysanthus, 1964: 99, figs 40, 48–50.
Misumena silveryi Tikader, 1965: 281, figs 6a–b.
Misumena silveryi Tikader, 1971: 42, figs 12f–g.
Misumena silveryi Tikader, 1980: 97, figs 136–137.
Misumenops subargentatus Marusik, 1993: 463, figs 15–18.
Misumenops maygitgitus Barrion & Litsinger, 1995: 267, figs 156a–f.
Ebrechtella concinna Lehtinen, 2004: 164, figs 11, 42–45.

Type material (not examined): Holotype of *E. fruhstorferi* from Java – ♂ in Museum für Naturkunde, Berlin, Germany (Lehtinen, 2004). Holotype of *Diaea concinna* – ♂ in Museo Civico Storia Naturale G. Doria, Genova, Italy (Lehtinen, 2004). Holotype of *Misumena dierythra* – immature, in Swedish Museum of Natural History (Naturhistoriska Riksmuseet), Stockholm Sweden (Lehtinen, 2004). Holotype of *Misumenops maygitgitus* – ♀ in International Rice Research Institute (IRRI), Manila, Philippines (Lehtinen, 2004). Lectotype and paralectotype of *Misumenops subargentatus* – lectotype ♂ and paralectotypes 2 ♀♀ and 1 imm. ♂ in Oxford University Museum of Natural History (Marusik, 1993).

Material examined: 1♀ (RMNH.ARA.17899), Malaysia, Sabah, West Sabah, 6°06'N, 116°50'E, Sorinsim, 5-year-old adjacent sec. forest, canopy fogging *Melochia umbellata* (Stercul.), 16 February 1997, leg. A. Floren. 1♀ (RMNH.ARA.17898), same locality, 16 February 1997, leg. A. Floren. 1♂ 1♀ (RMNH.ARA.17900), same locality, 24 February 1997, leg. A. Floren. 1♂ (RMNH.ARA.17902), same locality, 25 February 1997, leg. A. Floren; 1♂ (RMNH.ARA.17896), same locality, 26 February 1997, leg. A. Floren; 8♂, 5♀ (RMNH.ARA.17893), same locality, 10 March 1997, leg. A. Floren. 5♂, 2♀, same locality, 11 March 1997, leg. A. Floren (RMNH.ARA.17895); 4♂, same locality, 12 March 1997, leg A. Floren (RMNH.ARA.17894); 1♀ (RMNH, no number), same locality, 5º26' N 116º 08 E Crocker Range, 20 yr old isolated sec. forest, canopy fogging *Melanolepis glandulosa*, 18 February 2001, leg. A. Floren.

Diagnosis: This species can be separated from male congeners by having the dorsal arm of the RTA subequal to the ventral arm of the RTA (VA and DA in Fig 3H). The dorsal arm is relatively longer in *E. pseudovatia* (Fig 3I). Also separated by the absence of any prominent markings or patterns on the opisthosoma (Figs. 1A–C) from *E. nigripuncta* **sp. nov.** (Figs 1D, E) and *E. ornatissima* **sp. nov.** (Figs 1F, G). Females of this species can be separated from females of *E. nigripuncta* **sp. nov.** by the triangular anterior hood, short CD and irregular

spermathecae (Figs. 4A, B). The anterior hood of the epigyne is absent in *E. tricuspidata*. See also Tikader (1965, 1971, 1980).

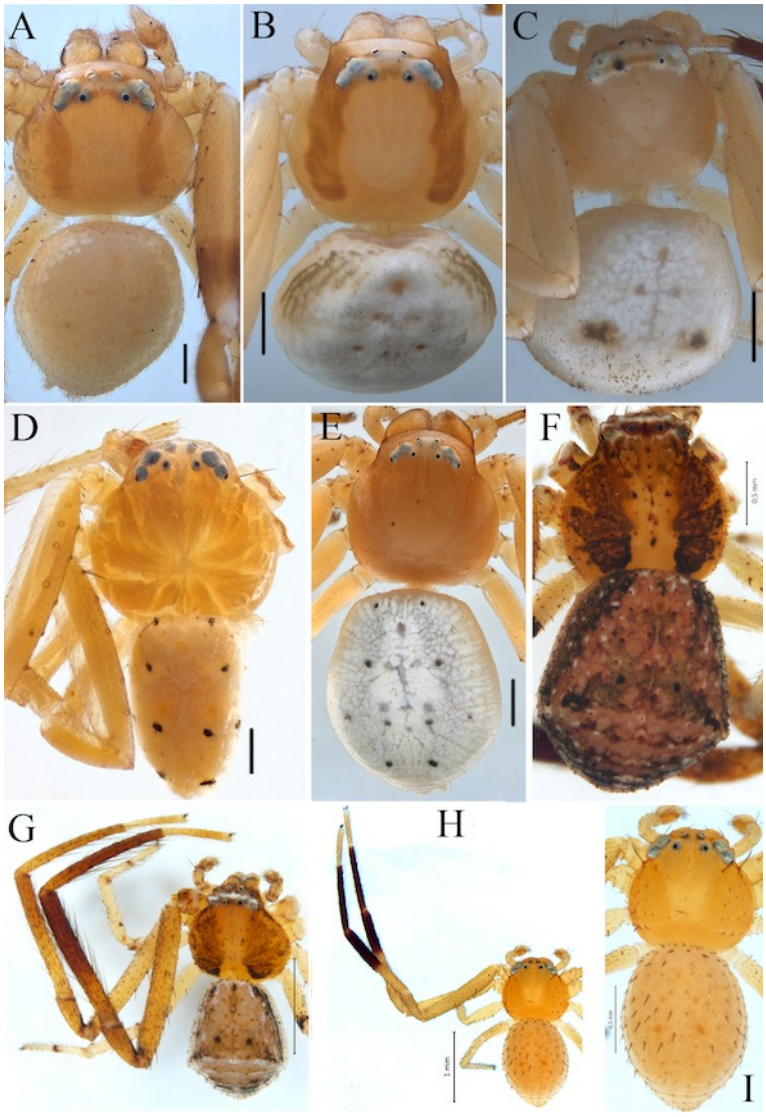

Fig. 1: A *Ebrechtella concinna* (RMNH.ARA.17895) male from Malaysian Borneo; B *E. concinna* (RMNH.ARA.17895) female from Malaysian Borneo; C *E. concinna* (RMNH.ARA.17898) female from Malaysian Borneo; D *E. nigripuncta* (RMNH.ARA.17906) male from Indonesia, Moluccas, Banda Isls; E *E. nigripuncta* (RMNH.ARA.17903) female from Indonesia, Moluccas, Banda Isls; F *E. ornatissima* **sp. nov.** (MCZ 33751); male holotype from Thailand, Khao Pu-Khao Ya NP; G *E. ornatissima* **sp. nov.** (MCZ 34000) male from Thailand, Chaiyaphum; H *E. pseudovatia* (CASENT_9045620) male from Philippines, Luzon Isl; I same. A, D, E, G, H, I male, habitus dorsal; B, C female, habitus dorsal. Note the metatarsal distinct dark annulations in the Figs G, H. Scale lines = 0.2 mm (A, D), 0.5 mm (B, C, E, F), 1.0 mm (G, H, I).

Description of non-type male: Total length: 3.1; carapace 1.6 long, 1.5 wide. Prosoma yellow, roundish, marginally longer than wide, distinct brown band starting from around the lateral eyes and extends up to the posterior border of carapace. Leg I: 6.5 (2.0,0.7,1.7,1.1,1.0). All leg segments with brown annulations. Eyes in two rows, both recurved. Eyes dark, on tubercles, tubercles white, ALE > PLE > PME > AME. Maxillae, labium and sternum dark brown, with white and black patches. Chelicerae dark brown, without teeth. Opisthosoma oval, patterns as in Fig. 1A. Opisthosoma, sides frilled, lighter in colour, Rectangular,

anterior end wider than posterior end. Palp as in Figs 3H, dorsal arm of the RTA subequal to the ventral arm of the RTA.

Description of non-type female: Habitus (Fig. 1B) as in male except as given below. Total length: 4.0; prosoma length: 2.0., width: 2.3. Leg I: 8.8 (2.5, 1.0, 2.8, 1.7, 0.8). Epigyne and vulva as in Figs 4A, B, with prominent triangular anterior hood (AH), CD short, spermathecae (S) with irregular ducts.

Distribution: Pakistan to the Philippines (but absent from Sri Lanka), Indonesia (Sulawesi), Malaysia (Sabah), and New Guinea (World Spider Catalog, 2025).

Remarks: Identification based on figures of the copulatory organs published by Marusik (1993) and Lehtinen (2004). Names in the synonymy may represent valid species; see discussion below.

***Ebrechtella nigripuncta* sp. nov. (Figs 1D, E, 2F, 3A, B, 4C, D, 5E)**

LSID:zoobank.org:act:24679BB6-BD77-44C4-9126-FE66BCCA4F33

Type material: Holotype:♂ (RMNH.ARA.17906), Indonesia, Maluku Province, Moluccas Banda Islands, 5–7 February 1996, leg. J. Sahupala. Paratype ♂ (RMNH.ARA.17906), same data; paratype ♀ (RMNH.ARA.17903), Indonesia, Maluku Province, Banda Islands: Banda Neira, nutmeg plantations. 20 January 1995, leg. C.L. Deeleman.

Diagnosis: This species can be separated from *E. concinna*, *E. pseudovatia* and *E. sufflava* by its prominent, tapered RTA (Fig 3A)' the RTA is bifurcated, dorsal part is tapered and slightly longer than the ventral part in the three above-mentioned species (Figs. 3D, E, H). Further, the abdomen is white with 10 black dots in both males and females (Fig. 1D, E). Females are separated by the prominent epigyne hood, well-defined CD, and oval spermathecae (Fig. 4C, D). In *E. nigripuncta* **sp. nov.** the RTA is bifurcated, but the dorsal part is twice as long as the ventral part.

Etymology: The specific name refers to the characteristic black dots of the opisthosoma (Fig 1D).

Description of holotype male: Total length: 3.0; prosoma length: 1.5, width: 1.5. Prosoma dark brown, yellow, roundish, marginally longer than wide, no markings, defined bands. Leg I: 6.8 (1.6, 1.2, 1.1, 1.0, 0.9, 1.0) and tarsus darker than femur and patella. Eyes in two rows, both recurved. Eyes on tubercles, tubercles white, not touching. ALE > PLE > AME > PME. Maxillae, labium and sternum light yellow, without pattern, with observable dense setae. Chelicerae yellow, without teeth. Femur I with 10 apical spines. Legs I, II are considerably longer than III, IV. Opisthosoma, without any markings except for 10 black, round dots (from front to back 2, 2, 4, 2). It is possible that each dot contained a single large spine. Opisthosoma, sides frilled, lighter in colour, rectangular, anterior part wider than posterior one. Palp as in Figs 2F, 3A, B, RTA prominent, tapered, not bifurcated.

Description of paratype female: Habitus as in Figs 1E. As in male except as given below. Total length: 10.1–11.0; prosoma length: 4.3–4.5, width: 3.5–4.0. Leg I: 13.7–19.0 (2.3–3.6,1.2–1.6, 3.0–3.8, 1.2–2.0, 6.0–8.0). Epigyne and vulva as in Figs 4C, D, 5E, with a prominent rectangular anterior hood of epigyne, CD long, tapering backward, spermathecae oval.

Distribution: Banda Neira, Banda Islands, Indonesia (Fig. 6).

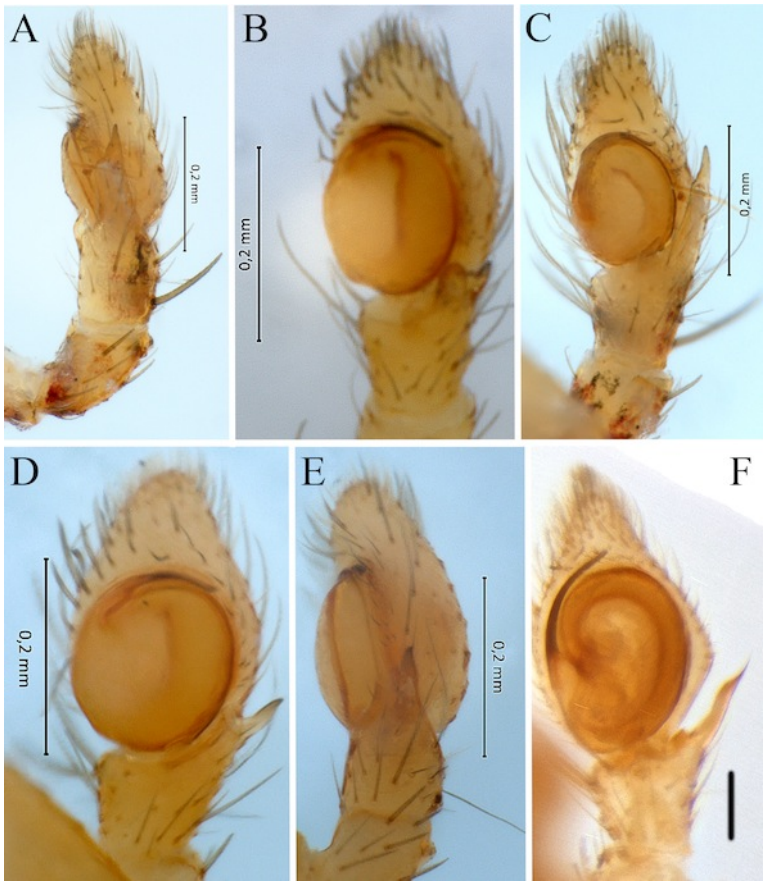

Fig. 2: Male palps A *E. ornatissima* **sp. nov.** (MCZ 34000); B *E. pseudovatia*, Philippines, Luzon Island(CASENT 9045620); C *E. ornatissima* **sp. nov.** (MCZ 34000); D *E. pseudovatia* from Thailand, Chaiyaphum (MCZ 96642); E *E. pseudovatia* (MCZ 96642); F *E. nigripuncta* **sp. nov.** (RMNH.ARA.17906). Scale lines = 0.1 mm (F), 0.2 mm (A-E).

Ebrechtella ornatissima sp. nov. (Figs 1F, G , 2A, C, 3C, I, J, 5A, B)

LSID: zoobank.org:act:3A3D3F1B-8230-40D7-A458-9C560BDAEC16

Type material: Holotype ♂ (MCZ_33751), Thailand, Trang Province, Khao Pu-Khao Ya NP, 7° 33.038'N 99° 47.369'E, 75 m, 25 January 2006, leg M. Sharkey; paratypes: 1♂ (MCZ 16042), Thailand, Chaiyaphum Prov., Tat Tone NP, forest, fire protection station, 16°48.54'N, 102°01.335'E, 195m, 4–5 June 2006, leg. T. Jaruphan *et al*. 1♂ (MCZ 34000), same locality, Pa Hin Ngam NP, dry evergreen forest, Thepana waterfall, 15°38.884'N, 101°25.84'E, 605 m, leg Kata Sa-nog *et al*. 15 October 2006. 1♂ (MCZ 96015), Loei Prov., Phu Ruea Np, Huay Sai, 17°29.92'N 101 20.51'E, 1177m, 12-19 April 2007. Leg. Patikhom Tumtip *et al.* 1♂ (MCZ 31456), Parachuab Khiri Khan Prov., Khao Sam Roi Yot NP, nursery, 12°45.48'N, 99°57.478'E, 2 July 2008, leg. Amend, Yai *et al.*

Diagnosis: Similar to *E. pseudovatia* but can be separated by the longer RTA (well-developed, extends up to the height of the tegulum, apical portion serrated) in *E. ornatissima* **sp. nov.** (Figs. 3C, I, J). Further, the dorsal arm of the RTA is longer than the ventral arm of the RTA in *E. pseudovatia* (Figs. 3F, E). Both arms are subequal in *E. concinna* (Fig 3H).

Additionally, the VTA is flat in *E. pseudovatia* (Fig. 3D), the VTA it is pointed and curved towards the tegulum in *E. ornatissima* **sp. nov.** (Figs. 3C, I, J). Male palps are similar to those of *E. sufflava* but can be separated by the non-pointed RTA. Females of the new species can be separated from *E. tricuspidata* by the presence of an anterior hood and from *E. concinna* by the bell-shaped anterior hood (Fig 4A).

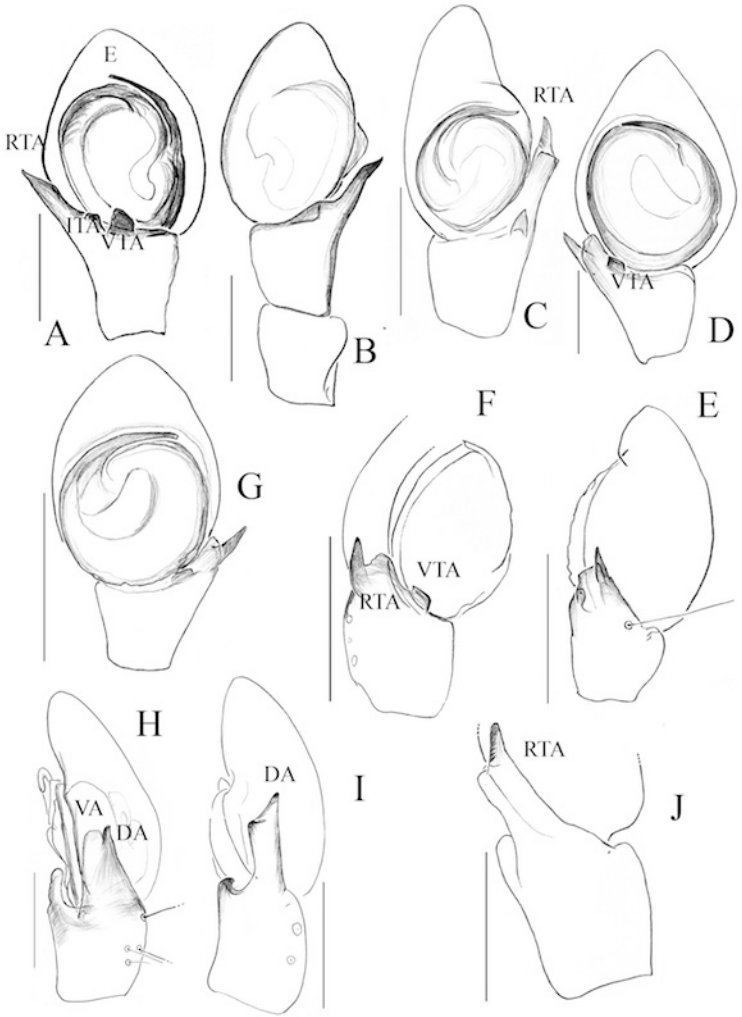

Fig. 3: A male palp of *E. nigripuncta* **sp. nov.** (RMNH.ARA.17906); B *E. nigripuncta* **sp. nov.** (RMNH.ARA.17906); C *E. ornatissima* **sp. nov.** from Thailand, Parachuab Khiri khan (MCZ31456); D *E. pseudovatia* (RMNH.ARA.17904); E *E. pseudovatia* from Philippines (RMNH.ARA.17892); F *E. pseudovatia* (RMNH.ARA.17904); G *E. pseudovatia* (RMNH.ARA.17892); H *E. concinna* (17894); I *E. ornatissima* **sp. nov.** (MCZ31456); J *E. ornatissima* **sp. nov.** (MCZ31456). Abbreviations: DA—dorsal arm of the RTA, E—embolus, ITA— intermediate-apical tibial apophysis, RTA— retrolateral tibial apophysis, VA—ventral arm of the RTA, VTA— ventral-apical tibial apophysis. Scale lines = 0.2 mm.

Etymology: The specific name refers to the ornate markings and coloration of the opisthosoma (Figs.1F–G).

Description of holotype male: Total length: 3.4; prosoma length: 1.6, width: 1.6. Prosoma dark brown, yellow hourglass-shaped midline, roundish, marginally longer than wide, black patches. Eyes in two recurved rows, ALE = PLE > AME = PME. Maxillae, labium and sternum light yellow, without pattern, with dense setae. Chelicerae yellow, Leg I: 7.1 (2.1, 0.7, 2.0, 1.5, 0.8). Femur, patella tibia and metatarsus darker than tarsus. Femur I bearing 4 dorsal spines. Opisthosoma dorsally yellow brown with black and white mottles, sides frilled,

darker in colour. Posterior ⅓ tapered backwards, frilled, furnished with setae. Ventral side lighter than dorsal in colour. Palp as in Figs 2A, C, 3C, I, J, 5A, B, RTA bifurcated, tip pointed, VTA short, pointed.

Female: Unknown.

Distribution: Thailand (Chaiyaphum, Loei, and Parachuab Khiri Khan provinces) (Fig. 6).

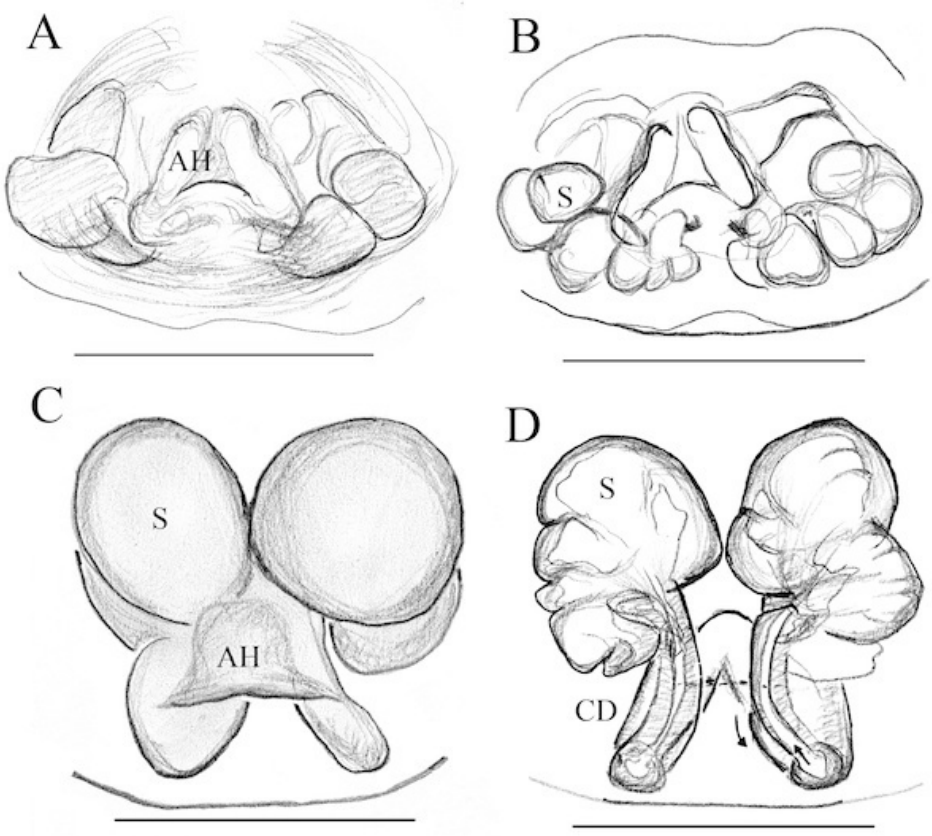

Fig. 4: A Epigyne of *Ebrechtella concinna* (RMNH.ARA.17895), ventral; view; B same, vulva, ventral view; C, D *E. nigripuncta* **sp. nov.** (RMNH.ARA.17903), Banda Islands. D ventral view, E dorsal view. Abbreviations: AH—anterior hood, CD—copulatory duct, S—spermatheca. Scale lines = 0.2 mm.

***Ebrechtella pseudovatia* (Schenkel, 1936) (Figs 1H, I, 2B, D, E, 3D–G, 5C, D)**
Misumena pseudovatia Schenkel, 1936: 132, fig. 48.
Misumenops pseudovatius Zhu & Shi, 1985: 173, figs154a–d.
Misumenops pseudovatius Zhao, 1993: 361, figs 179a–b.
Misumenops wenensis Zhu, Song & Tang, in Tang, Song & Zhu, 1995: 20, figs 5a–b.
Misumenops pseudovatius Zhao, 1995: 1078, figs 520a–b.
Misumenops pseudovatius Song & Zhu, 1997: 141, figs 101a–d.
Misumenops pseudovatius Song, Zhu & Chen, 1999: 483, figs 279c, k.
Misumenops pseudovatius Song, Zhu & Chen, 2001: 393, figs 259a–d.
Ebrechtella pseudovatia Lehtinen, 2004: 165.
Ebrechtella pseudovatia Zhu & Zhang, 2011: 440, figs 315a–d.
Ebrechtella pseudovatia Zhang, Peng & Zhang, 2022: 278, figs 212a–f.

Type material (not examined): Holotype of *Misumena pseudovatia* Schenkel, 1936 from China – ♂, depository unknown (World Spider Catalog, 2025). Holotype of *Misumenops*

wenensis Zhu, Song & Tang, in Tang, Song & Zhu, 1995 from China – ♂ in Institute of Zoology, Chinese Academy of Sciences, Beijing.

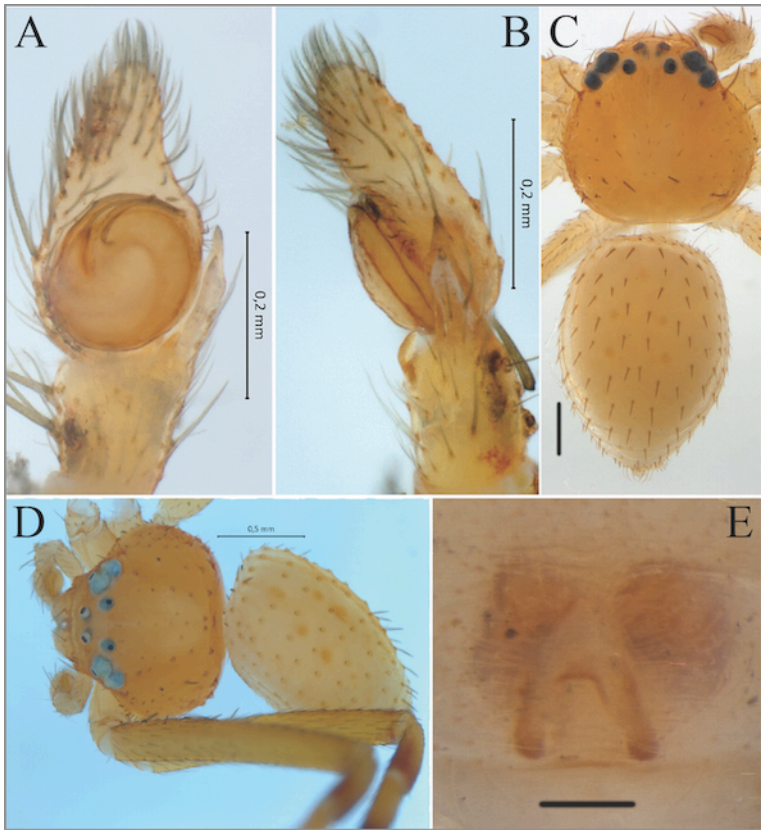

Fig. 5: A, B *Ebrechtella ornatissima* **sp. nov.** male holotype; C, D *E. pseudovatia* (C RMNH.ARA.17904 from Indonesia, Sulawesi; D MCZ 96642 from Thailand). E *E. nigripuncta* **sp. nov.**, epigyne, ventral view. A, B male palp, (A ventral, B retrolateral view); C, D male, habitus dorsal view; E epigyne of *E. nigripuncta* **sp. nov.** (RMNH.ARA.17903), ventral view. Abbreviations: AH—anterior hood of the epigyne. Scale lines = 0.1 mm (E), 0.2 mm (A, B, C), 0.5 mm (D).

Material examined: 1♂ (RMNH.ARA.17904), Indonesia, Sulawesi, Dumoga Watershed Protection, nr. Doloduo, primary forest, nr. border, sweeping and beating, 30 January–July 1982, leg. P.R. & C.L. Deeleman. 1♂ (RMNH.ARA.17892), Philippines, Negros Island, Tiranbulo inland resort park, hand collecting, 1 January 1990, leg. Theo van Es. 1♂ (CASENT_9045620), Luzon Isl., Laguna Prov, grassland on, Mt Makiling, 5.78 km, WSW Los Banos, 241 m, 14°08.924'N, 121°09.991'E, grassland & degraded forest, beating and sweeping vegetation, 25 May 2011, leg. H. Wood & Griswold. 1♂ (MCZ 128266), Thailand, Chaiyaphum Prov.: Pha Hin Nagam NP, Car park at Tung Dok Grajeaw, 15°38.438'N 101°23.576'E, 780 m, 19–24 July 2006. Leg. Katae Sa.nog *et al.*; 1♂ (MCZ 22443), same locality, mixed deciduous/dry dipterocarpu forest, 15 34.913'N 101 25.658'E, 444 m, 28 November – 4 December 2006, leg.Katae Sa Nog *et al.* 1♂ (MCZ 96642), same locality, Tat Tone NP, entrance to Pha Eang waterfall, 297 m, 9–10 April 2007, leg, Tawit Jarupan, 15°57.52'N 101°54.442'E.; 1♂ (MCZ 33220), Loei Province, Phu Ruea NP, Suan hin Palee, 17°29.863'N 101°20.554'E, 1178 m, 19–24 October 2006. Leg. Nukonchai Jaroenohai *et al.*; 1♂ (MCZ 96585), Parachuab Khiri khan Province, Khao Sam Roi Yot, NP. Khao Look Glang, Nursary, 12°6.414'N 99°57.292'E, 14–21 December 2008. Leg. Amend, Yai *et al.*

Diagnosis: Similar to *E. ornatissima* **sp. nov.** but can be separated by the longer RTA in *E. ornatissima* **sp. nov.** Further, the dorsal arm of the RTA is longer than the ventral arm of the

RTA in *E. pseudovatia* (Figs. 3F, E). Both arms are subequal in *E. concinna* (Fig 3H). The VTA is flat in *E. pseudovatia* (Fig. 3D) and it is pointed and curved towards the tegulum in *E. ornatissima* **sp. nov.** (Figs. 3C, I, J). Females separated from *E. tricuspidata* by the presence of an anterior hood and from *E. concinna* by the bell-shaped anterior hood.

Remarks: Identification is based on figures of the copulatory organs published by Song *et al.* (1999) and Zhang *et al.* (2022). It is also noted that figure 33 in Lehtinen (2004) of a specimen attributed to *Henriksenia hilaris* (Thorell, 1877) is strikingly similar to illustrations of this species given here and in Song *et al.* (1999) and Zhang *et al.* (2022). Further, figure 83 in Lehtinen (2004) of a specimen attributed to *Henriksenia* sp. is also *E. pseudovatia*. Since, *H. hilaris* is the type species of *Henriksenia* Lehtinen, 2004, *Henriksenia* may be a junior subjective synonymy of *Ebrechtella* but this requires further work to confirm.

Description of non-type male: Total length: 2.4; prosoma length: 1.1, width: 1.1. Prosoma yellow, roundish, marginally longer than wide, no markings or defined bands. Leg I: femur 1. 5, patella 0.5, tibia 1.4, metatarsus 1.1, tarsus 0.7. Tibia (distal half), metatarsus and tarsus darker than femur and patella. Eyes in two rows, both recurved. Eyes on tubercles, tubercles white, not touching. ALE > PLE > AME > PME. Maxillae, labium and sternum light yellow, without pattern, with observable dense setae. Chelicerae yellow, without teeth. Legs 1 apically with 4 spines in a single row. Legs 1, 2 considerably longer than 3, 4. Leg formula 1234. Opisthosoma, without markings, supination as in Fig 1H, I. Opisthosoma, sides frilled, lighter in colour, Rectangular, anterior end wider than posterior end. Palp as in Figs 2B, D, E, 3D–G, RTA bifurcated, VTA stout.

Distribution: Bhutan, China, Indonesia, Philippines, Taiwan, and Thailand (World Spider Catalog, 2025).

DISCUSSION

The primary objective of this submission is to formally describe two newly discovered species and to document new locality records for already known species. *Ebrechtella fruhstorferi* and *E. concinna* have been determined to refer to the same species, a conclusion that consolidates taxonomic understanding within the genus *Ebrechtella* (Lehtinen, 2004). However, questions arise regarding the treatment of other related species, particularly *E. gamma*, originally described as *Misumena gamma* by Chrysanthus (1964). *Ebrechtella gamma* was synonymized with *E. concinna* by Lehtinen (2004), a decision that warrants further scrutiny. The rationale behind this synonymy prompts critical examination, especially considering that *Misumena gamma* was described alongside two other species in the same paper by Chrysanthus (1964). If *E. gamma* was synonymised with *E. concinna*, why were the other three species not transferred to *Ebrechtella*? This inconsistency suggests the need for a thorough review of original descriptions and the subsequent Lehtinen's (2004) taxonomic decisions. One possible explanation for this selective synonymy could be differences in morphological traits or geographical distribution that may have influenced Lehtinen's decision. However, this does not seem to be the case. Thus, without a comprehensive analysis of all four species, it remains unclear whether the synonymy of *E. gamma* was fully justified or if similar taxonomic actions should be considered for the other two *Misumena* species described by Chrysanthus.

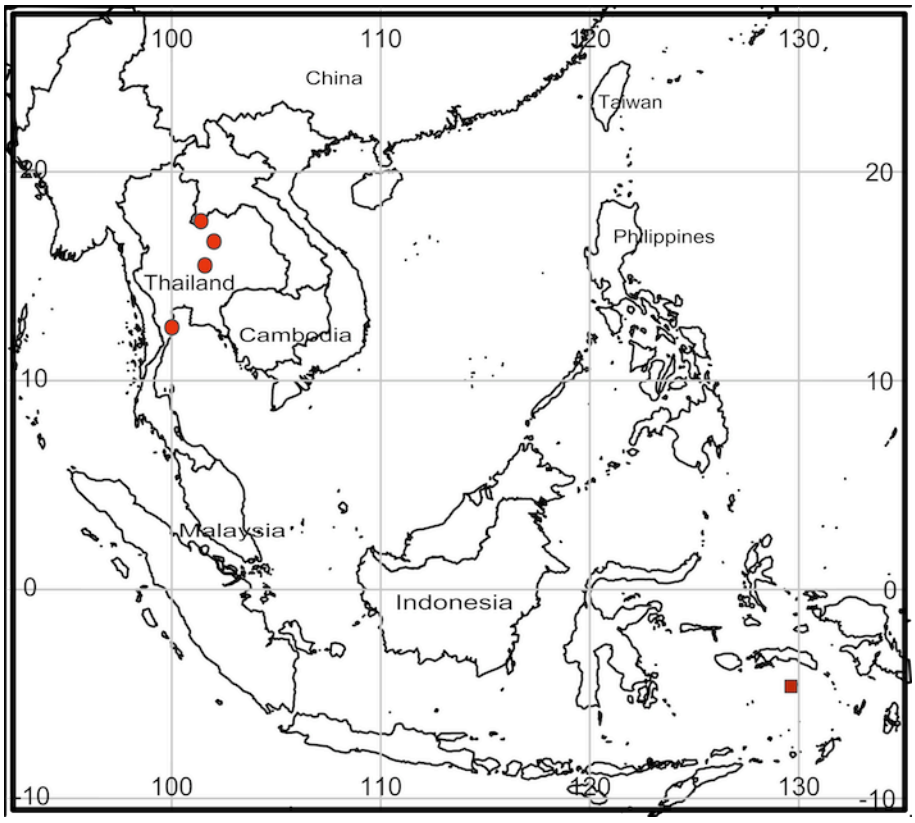

Fig. 6: Distribution map of *Ebrechtella ornatissima* **sp. nov.** (circles) and *Ebrechtella nigripuncta* **sp. nov.** (square).

This situation highlights the importance of revisiting historical taxonomic decisions with modern tools and methods, such as molecular phylogenetics and detailed morphological comparisons. By doing so, researchers can ensure that synonymies are based on robust evidence, leading to more accurate and stable classifications. This re-evaluation is particularly crucial for genera like *Ebrechtella*, where historical taxonomic practices may have led to unresolved or questionable species delineations.

Further, without a comprehensive phylogenetic framework, the evolutionary relationships and broader taxonomic placement of these species remain uncertain. A phylogeny would provide critical insights into their lineage, divergence, and evolutionary history, enabling a more informed classification. In its absence, any discussion regarding their interrelationships remains speculative and cannot be substantiated with robust evolutionary or genetic evidence. Future research incorporating molecular and morphological phylogenetic analyses will be essential to resolve these relationships and place these species within a well-supported evolutionary context.

All species discussed here, except for *Ebrechtella ornatissima* **sp. nov.**, possess a ventral tibial apophysis (VTA) with a flattened apical surface. Most known thomisids, informally referred to as "higher thomisids" or the *Thomisus*-clade (Benjamin, 2011; Ramírez, 2014), represent the majority of the family's species diversity. These higher thomisids exhibit a distinct male palpal morphology, characterised by a disk-shaped tegulum (character 11 in Benjamin, 2011) and a hook-shaped VTA, which appears to function as a guiding mechanism during hematodochal expansion and rotation (Huber, 1994; character 320). However, it

remains uncertain whether the species discussed here actually undergo hematodochal expansion and rotation, suggesting that variations in the palpal mechanism may exist.

ACKNOWLEDGEMENTS

This study was funded by the Alexander von Humboldt Foundation and the National Institute of Fundamental Studies. Thanks to Christa L. Deeleman-Reinhold for letting us study her collection of canopy spiders. Thanks to the following curators for granting access to collections under their care: Charles Griswold and Anthea Carmichael (CAS), Karen van Dorp (RMNH), and Gonzalo Giribet and Laura Leibensperger (MCZ). Bernhard Huber and Dirk Ahrens were of great assistance to me during my time in Bonn. Thanks to two anonymous reviewers for their helpful comments.

REFERENCES

Barrion, A.T. & Litsinger, J.A. 1995. *Riceland spiders of South and Southeast Asia.* CAB International, Wallingford, UK, 700 pp.

Benjamin, S.P. 2011. Phylogenetics and comparative morphology of crab spiders (Araneae: Dionycha, Thomisidae). *Zootaxa*, 3080: 1–108.

Dahl, F. 1907. Synaema marlothi, eine neue Laterigraden-Art und ihre Stellung in System. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 3: 369–395.

Huber, B.A. 1994. Genital bulb muscles in entelegyne spiders. *Journal of Arachnology*, 22: 75–76.

Lehtinen, P.T. 2004. Taxonomic notes on the Misumenini (Araneae: Thomisidae: Thomisinae), primarily from the Palaearctic and Oriental regions. In: Logunov, D. V. & D. Penney (eds.) European Arachnology 2003 (Proceedings of the 21st European Colloquium of Arachnology, St.-Petersburg, 4-9 August 2003). *Arthropoda Selecta*, Special Issue 1: 147–184.

Malamel, J.J. & Sebastian, P.A. 2018. On the taxonomic status of *Leucauge granulata* (Walckenaer, 1841); *Leucauge argentata* (Cambridge, 1869); *Leucauge bengalensis* Gravely, 1921; *Leucauge tuberculata* Wang, 1991: a case of synonymy (Araneae: Tetragnathidae). *Journal of Asia-Pacific Biodiversity*, 11: 408–415.

Marusik, Y. M. 1993. Re-description of spiders of the families Heteropodidae and Thomisidae (Aranei), described by O. P.-Cambridge from the material of the second Yarkand mission. *Entomologicheskoe Obozrenie*, 72: 456–468.

Ileperuma Arachchi, I.S. & Benjamin, S.P. 2019. Twigs that are not twigs: phylogenetic placement of crab spiders of the genus *Tmarus* of Sri Lanka with comments on the higher level phylogeny of Thomisidae. *Invertebrate Systematics*, 33: 575–595.

Pickard-Cambridge, O. 1885. Araneidea. *In*: *Scientific results of the second Yarkand mission; based upon the collections and notes of the late Ferdinand Stoliczka, Ph. D*. Government of India, Calcutta, 115 pp., 2 pls.

Ramírez M.J. 2014. The morphology and phylogeny of dionychan spiders (Araneae: Araneomorphae). *Bulletin of the American Museum of Natural History*, 390: 1–374.

Schenkel, E. 1936. Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas, unter Leitung von Dr. Sven Hedin und Prof. Sü Ping-chang. Araneae gesammelt vom schwedischen Arzt der Expedition Dr. David Hummel 1927–1930. *Arkiv för Zoologi*, 29: 1–314.

Song, D.X., Zhu, M.S. & Chen, J. 1999. *The spiders of China.* Hebei Science and Technology Publishing House, Shijiazhuang, 640 pp.

Sundevall, C. J. 1833. Conspectus Arachnidum. C. F. Berling, Londini Gothorum [= Lund], pp. 1–39.

Thorell, T. 1877. Studi sui Ragni Malesi e Papuani. I. Ragni di Selebes raccolti nel 1874 dal Dott. O. Beccari. *Annali del Museo Civico di Storia Naturale di Genova*, 10: 341–637.

Tikader, B.K. 1965. On some new species of spiders of the family Thomisidae from India. *Proceedings of the Indian Academy of Science*, 61: 277–289.

Tikader, B.K. 1971. Revision of Indian crab spiders (Araneae: Thomisidae). Memoirs of the *Zoological Survey of India*, 15: 1–90.

Tikader, B.K. 1980. Thomisidae (Crab-spiders). *Fauna India (Araneae)*, 1: 1–247.

World Spider Catalog 2025. *World Spider Catalog, version 26.0.* Natural History Museum Bern, online at http://wsc.nmbe.ch.

Zhang, F., Peng, J.Y. & Zhang, B.S. 2022. *Spiders of Mt. Xiaowutai*. Science Press, Beijing, 387 pp.

Submitted: 15 January 2025

Accepted for publication: 5 March 2025

Academic editor: Danniella Sherwood