



Research article

[urn:lsid:zoobank.org:pub:60478ED2-613B-4A66-B26A-46DB50930A69](https://zoobank.org/pub:60478ED2-613B-4A66-B26A-46DB50930A69)

Five new species of the spider genus *Heteropoda* Latreille, 1804 (Araneae: Sparassidae) from China

Shakal Khan KORAI^{1,*} & Peter JÄGER²

¹The State Key Laboratory of Biocatalysis and Enzyme Engineering of China,
School of Life Sciences, Hubei University, Wuhan 430062, Hubei, China.

²Senckenberg Research Institute, Arachnology, Mertonstraße 17-21,
60325 Frankfurt am Main, Germany.

* Corresponding author: khanshakal7@gmail.com

² Email: peter.jaeger@senckenberg.de

¹ [urn:lsid:zoobank.org:author:94C6881E-AEEE-4FD6-8FE3-041815CA1F66](https://zoobank.org/author:94C6881E-AEEE-4FD6-8FE3-041815CA1F66)

² [urn:lsid:zoobank.org:author:A79CD670-BC87-4A1B-8EDF-B391514CCB2A](https://zoobank.org/author:A79CD670-BC87-4A1B-8EDF-B391514CCB2A)

Abstract. Five new species of *Heteropoda* (Araneae, Sparassidae, Heteropodinae) are described from China: *H. bawanglingensis* sp. nov. (female; Hainan), *H. dulongensis* sp. nov. (male, female; Yunnan), *H. hainanensis* sp. nov. (male, female; Hainan), *H. longa* sp. nov. (female; Guizhou), and *H. vaginalis* sp. nov. (female; Yunnan). We provide descriptions and illustrations for each species as well as a distribution map in the current paper.

Keywords. Taxonomy, biodiversity, new species, sympatry, huntsman spiders.

Korai S.K. & Jäger P. 2024. Five new species of *Heteropoda* Latreille, 1804 spiders (Araneae: Sparassidae) from China. *European Journal of Taxonomy* 947: 109–129. <https://doi.org/10.5852/ejt.2024.947.2623>

Introduction

The genus *Heteropoda* Latreille, 1804 was established by Latreille (1804), with *Heteropoda venatoria* (Linnaeus, 1767) as the type species. It is the second largest genus of both, the family Sparassidae Bertkau, 1872, and the subfamily Heteropodinae Thorell, 1873, with 199 valid species known worldwide, of which fifteen species are reported from China (World Spider Catalog 2024). *Heteropoda* species are distributed in South, East and Southeast Asia as well as in Australasia in tropical to subtropical areas, living on tree trunks, in the foliage, in leaf litter, under rocks, in caves and in houses or buildings (Jäger & Yin 2001; Jäger 2002, 2008; Jäger & Vedel 2005; Korai & Wang 2023). An exception is *H. venatoria*, which is known from tropical environments in Africa and the Americas as well as from warm houses in temperate regions.

The highest diversity of this huge genus is assumed to be present in tropical Southeast Asia, but it is also distributed in Oceania, South Asia, and East Asia. So far one species *H. variegata* Simon, 1874 is reported from the eastern Mediterranean. Two cave-dwelling species of *Heteropoda* (*H. steineri* Bayer & Jäger,

2009 and *H. simoneallmannae* Jäger, 2018) show apparent troglomorphic features including reduced eyes, while one swimming species of *Heteropoda* (*H. natans* Jäger, 2002) was reported from Borneo (Jäger 2005b).

China is a large country with two major zoogeographical zones: the relatively species-poor Palearctic zone in northern China and the species-rich Oriental zone in southwestern, south-central and eastern China. Over the past decade, a series of surveys of Chinese *Heteropoda* spiders have been carried out by colleagues at the Hubei University in China, and have yielded five new species, which are described in this paper.

Material and methods

Taxonomic description

The specimens were stored in 75% ethanol and examined with an Olympus SZX16 stereo microscope. After dissection from the spider body, male palps and female copulatory organs were examined and illustrated. The latter were cleaned in proteinase K at 56°C to dissolve soft tissues. Photos were taken with a Leica 205C stereo microscope and Olympus BX51 equipped with a Micropublisher 3.3 RTV camera (QImaging, Surrey, BC, Canada). Leg formula: total length (femur, patella, tibia, metatarsus, tarsus). Number of spines are listed per segment in the following order: prolateral, dorsal, retrolateral, ventral (in femora and patellae, ventral spines are absent and the fourth digit is omitted in the spination formula). Terminology follows that used in Li *et al.* (2013). All measurements are in millimetres.

Abbreviations used in text

Repository institution

CBEE = Centre for Behavioural Ecology and Evolution, College of Life Sciences, Hubei University, Wuhan, China

Somatic morphology

ALE = anterior lateral eyes
AME = anterior median eyes
AW = anterior width of prosoma
BL = body length
CH = clypeus height
dRTA = dorsal part of RTA
Fe = femur
IDS = internal duct system
Mt = metatarsus
OL = opisthosoma length
OW = opisthosoma width
Pa = patella
PLE = posterior lateral eyes
PME = posterior median eyes
PL = prosoma length
PW = prosoma width
RTA = retrolateral tibial apophysis
Ti = tibia
vRTA = ventral part of RTA
I, II, III, IV = legs I to IV

Results

Descriptions of new species

Class Arachnida Cuvier, 1812
Order Araneae Clerck, 1757
Family Sparassidae Bertkau, 1872
Subfamily Heteropodinae Thorell, 1873
Genus *Heteropoda* Latreille, 1804

Heteropoda bawanglingensis sp. nov.

[urn:lsid:zoobank.org:act:9AA229CC-E7AE-46EF-87C3-0DA291058959](https://zoobank.org/act:9AA229CC-E7AE-46EF-87C3-0DA291058959)

Figs 1, 10

Diagnosis

This new species is similar to *H. longa* sp. nov. (Fig. 8A–C) and *H. strasseni* Strand, 1915 (Jäger 2014: figs 130–135) in having a freely visible median septum, i.e., lateral lobes distinctly separated from each other and IDS with more than two windings up to the turning points, but can be distinguished from both species by: (1) glandular pores of IDS mediad in ventral view (anteriad in *H. longa*, posteriad in *H. strasseni*); additionally, it can be distinguished from *H. strasseni* by (1) anterior bands distinctly separated from epigynal field and from each other (fused to epigynal field and closer together in *H. strasseni*) and (2) anterior part of IDS almost completely covering posterior part, with two windings up to the turning point (only partly covering posterior part, with only one winding in *H. strasseni*) (Fig. 1A–C). Males are unknown.

Etymology

The specific name is derived from the type locality; adjective.

Type material

Holotype

CHINA • ♀; Hainan Province, Danzhou City, Changjiang Lizu County, Qicha Town, Bawangling National Nature Reserve; [19°06'00" N, 109°10'48" E]; [1000 m a.s.l.]; 17 Apr. 2013; Y. Zhong and F.X. Liu leg.; CBEE.

Description

Female (holotype)

MEASUREMENTS. BL 17.5; PL 8.4, PW 7.00; AW 3.4; OL 9.00, OW 6.00. Eyes: AME 0.27, ALE 0.49, PME 0.41, PLE 0.48, AME–AME 0.25, AME–ALE 0.13, PME–PME 0.31, PME–PLE 0.50, AME–PME 0.45, ALE–PLE 0.51, CH AME 0.46, CH ALE 0.38. Spination: (legs missing) Palp 131, 101, 2121, 1014; Fe II 323, IV 331, I–, III–; Pa II, IV 101, I–, III–; Ti II 1018, IV 2026, I–, III–; Mt II 1014, IV 3036, I–, III–. Measurements of palp and legs: Palp 11.9 (3.8, 1.8, 2.4, –, 3.9); I missing; II 29.2 (8.3, 3.3, 8.0, 7.3, 2.2); III missing; IV 25.7 (6.9, 2.5, 6.8, 7.3, 2.1). Leg formula: II–IV–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 37 intermarginal denticles.

COPULATORY ORGAN. As in diagnosis. Epigynal field as long as wide. Anterior bands short (max. 1/3 of epigyne length), distinctly separated from each other, i.e., by twice their length. Slit sensilla (2 right, 1 left) located outside of epigynal field laterally of anterior bands. Median septum relatively narrow and partly covered by lateral lobes, especially in the middle part. Median margins of lateral lobes curving. Fertilization ducts located posteriorly, their tips dorso-anteriad (Fig. 1A–C).

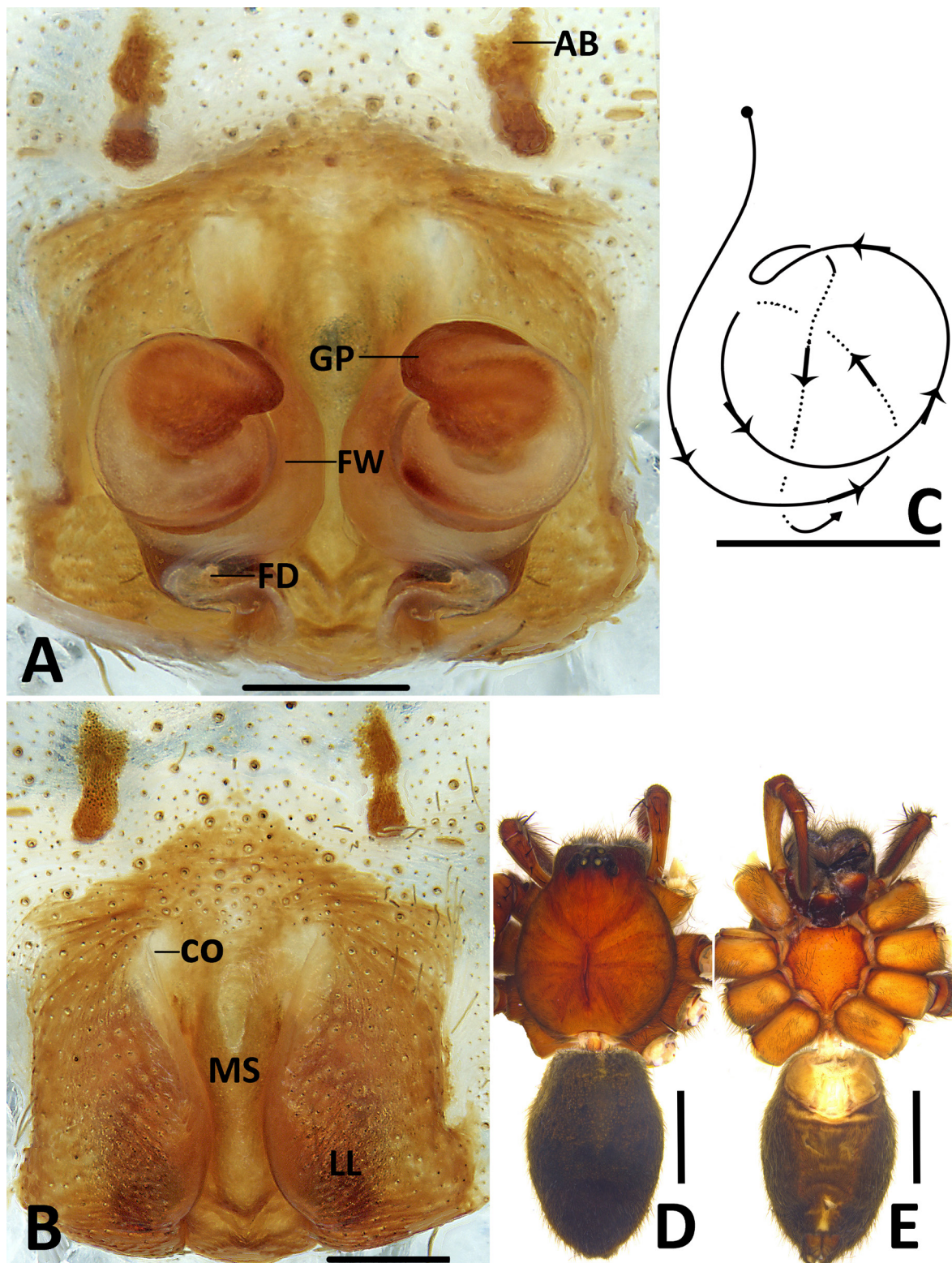


Fig. 1. *Heteropoda bawanglingensis* sp. nov., holotype female from Bawangling National Nature Reserve (CBEE). **A.** Vulva, dorsal view. **B.** Epigyne, ventral view. **C.** Schematic course of internal duct system, dorsal view. **D.** Habitus, dorsal view. **E.** Habitus, ventral view. Abbreviations: AB = anterior bands; CO = copulatory opening; FD = fertilization duct; FW = first winding; GP = glandular pores; LL = lateral lobes; MS = median septum. Scale bars: A–C = 0.5 mm; D–E = 4 mm.

COLOURATION IN ETHANOL. Dorsal shield of prosoma yellowish- to reddish-brown, with V-shaped slightly darker marking in front of fovea, striae inconspicuous, with dark-brown lateral margins. Sternum reddish-brown in ventral view. Chelicerae and labium deep reddish-brown. Opisthosoma with very tiny yellow dots, dorsally dark-brown and ventrally slightly lighter brown without pattern (Fig. 1D–E).

Distribution

China (Hainan Province) (Fig. 10).

Heteropoda dulongensis sp. nov.

[urn:lsid:zoobank.org:act:ECD0481B-78AA-4852-A36D-EE795E976A6B](https://doi.org/10.21203/rs.3.rs-10000000)

Figs 2–4, 10

Diagnosis

This new species is similar to *Heteropoda simplex* Jäger & Ono, 2000 (Bayer & Jäger 2009: figs 73–111) in having a distinctly S-shaped sperm duct in the male palps, a distinct short septal pocket in the median septum of the female epigyne, but can be distinguished from the latter by the following characters: male: (1) conductor elongated, with sharp tip extending retrolaterally beyond cymbial margin (more sabre-like, not extending beyond cymbial margin in *H. simplex*); (2) embolus apically curved in ventral view (straight in *H. simplex*); (3) dRTA distinctly thick, with bird claw tip (relatively narrow, with simple tip in *H. simplex*); (4) vRTA with simple outline (with distinct small hump in *H. simplex*); (5) spermophor with distinctly “U”-shaped winding in ventral view (without such deep “U”-shaped winding in *H. simplex*). Female: (1) anterior part of IDS with more than three windings up to the turning point (with about one and half winding in *H. simplex*); (2) glandular pores antero-laterad (posteriad to latero-posteriad in *H. simplex*) (Figs 2–3).

Etymology

The specific name is derived from the type locality of this species, Dulongjiang Township; adjective.

Type material

Holotype

CHINA • ♂; Yunnan Province, Nujiang Lisu Autonomous Prefecture, Gongshan County, Dulongjiang Township, Kongdang Village; [27°52'12" N, 98°20'24" E]; [1742 m a.s.l.]; 5 Jun. 2014; Y. Zhu and Y. Zhong leg.; CBEE.

Paratypes

CHINA • 3 ♀♀; same data as for holotype; CBEE.

Description

Male (holotype)

MEASUREMENTS. BL 17.6; PL 8.30, PW 7.50; AW 3.80; OL 9.20, OW 5.00. Eyes: AME 0.30, ALE 0.55, PME 0.50, PLE 0.65, AME–AME 0.25, AME–ALE 0.10, PME–PME 0.30, PME–PLE 0.50, AME–PME 0.50, ALE–PLE 0.60, CH AME 0.90, CH ALE 0.60. Spination: Palp 131, 101, 2121, 1014; Fe I 323, II 320, III 333, IV 331; Pa I–IV 101; Ti I–II 2028, III–IV 2126; Mt I–II 1014, III 2014, IV 3036. Measurements of palp and legs: Palp 16.5 (4.6, 1.7, 4.2, –, 5.9); I 47.5 (13.3, 6.2, 12.7, 12.8, 2.3); II 48.1 (13.9, 5.9, 12.8, 11.6, 3.7); III 39.4 (10.8, 5.7, 10.2, 9.0, 3.5); IV 39.9 (11.3, 4.9, 10.2, 9.8, 3.5). Leg formula: II–I–IV–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 39 intermarginal denticles.

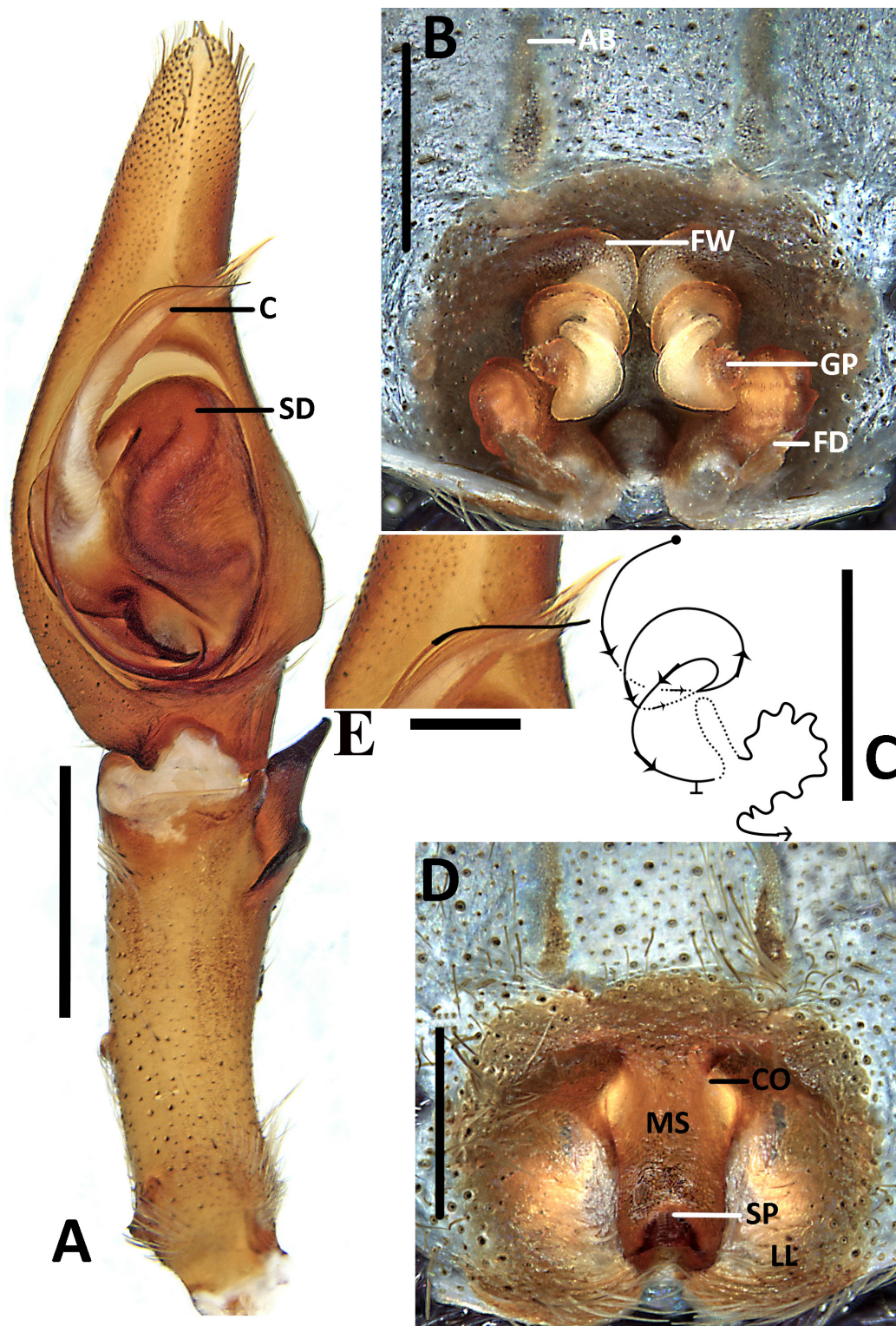


Fig. 2. *Heteropoda dulongensis* sp. nov., holotype male (A, E) and paratype female (B–D) from Kongdang Village (CBEE). A. Left male palp, ventral view. B. Vulva, dorsal view. C. Schematic course of internal duct system, dorsal view. D. Epigyne, ventral view. E. Embolus. Abbreviations: AB = anterior bands; C = conductor; CO = copulatory opening; FD = fertilization duct; FW = first winding; GP = glandular pores; LL = lateral lobes; MS = median septum; SD = sperm duct; SP = septal pocket. Scale bars: A = 2 mm; B–D= 1 mm; E = 0.8 mm.

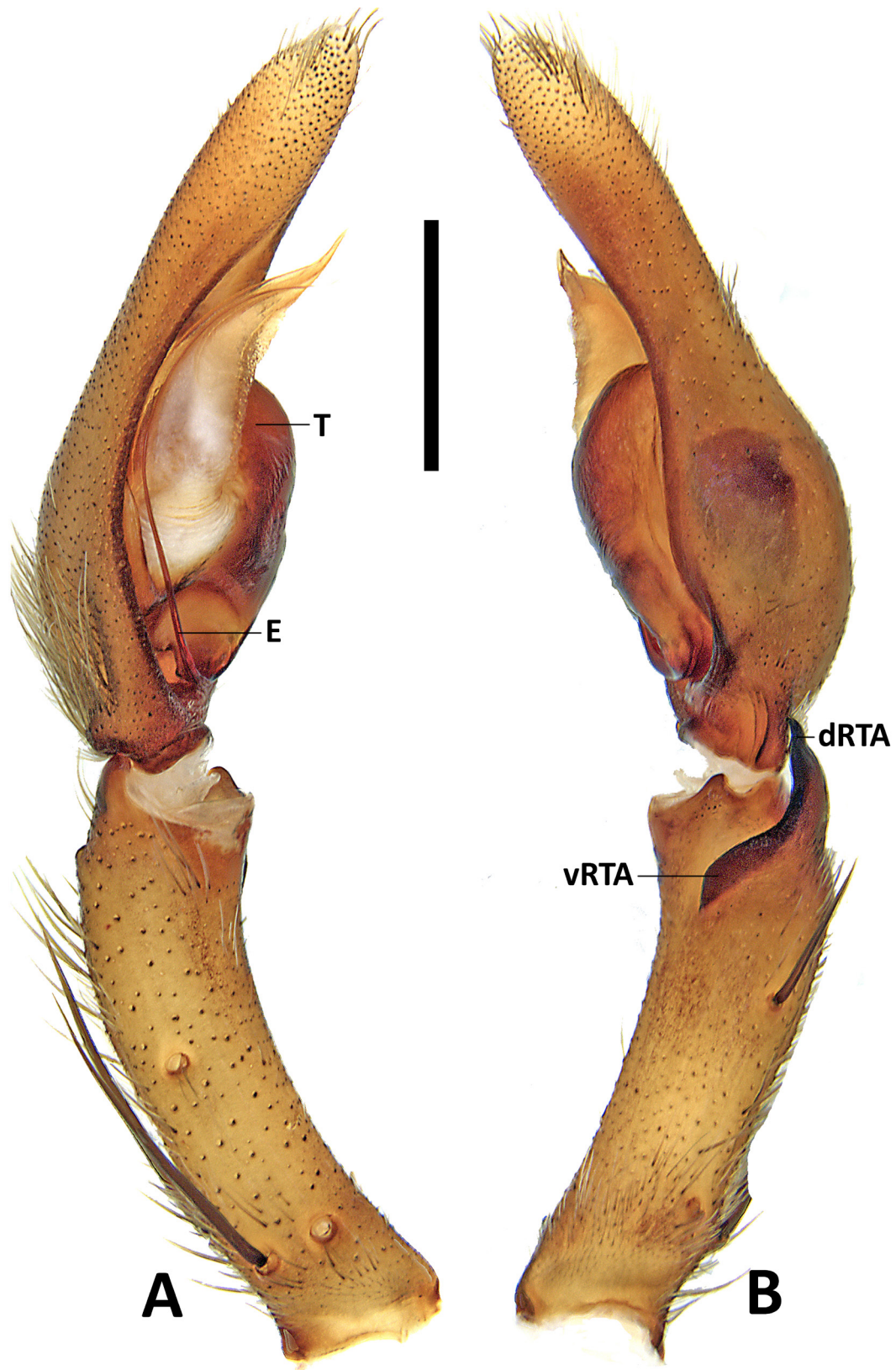


Fig. 3. *Heteropoda dulongensis* sp. nov., holotype male from Kongdang Village (CBEE), left palp. **A.** Prolateral view. **B.** Retrolateral view. Abbreviations: dRTA = dorsal part of retrolateral tibial apophysis; E = embolus; T = tegulum; vRTA = ventral part of retrolateral tibial apophysis. Scale bar = 2 mm.

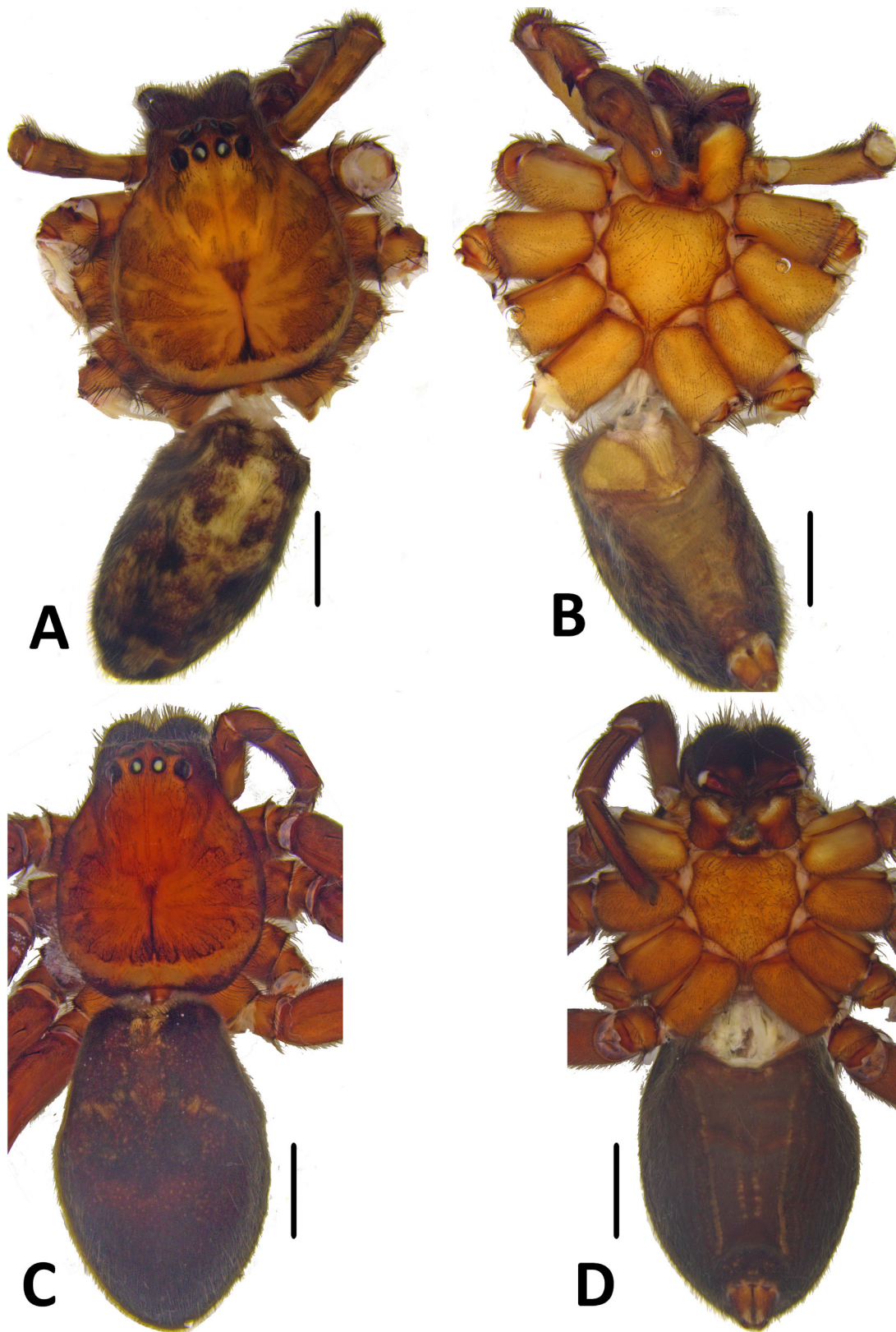


Fig. 4. *Heteropoda dulongensis* sp. nov., holotype male (A–B) and paratype female (C–D) from Kongdang Village (CBEE). **A.** Male habitus, dorsal view. **B.** Male habitus, ventral view. **C.** Female habitus, dorsal view. **D.** Female habitus, ventral view. Scale bars = 3 mm.

PALP. As in diagnosis. RTA arising distally on tibia. Conductor arising in a 9- to 9:30-o'clock-position from tegulum, distinctly extending beyond cymbial margin. Cymbium elongated, at least more than two times as long as tegulum. Tegulum slightly elongated (Figs 2A, 3).

COLOURATION IN ETHANOL. Dorsal shield of prosoma yellowish-brown, with bright transversal crescent submarginally on posterior part, and radially arranged patches covered by hairs around fovea. Fovea distinctly darker, pattern converging anteriorly and posteriorly. Chelicerae deep reddish-brown. Labium, sternum, and gnathocoxae yellowish-brown to slightly reddish-brown, the former with lateral brown margins. Opisthosoma dorsally yellowish-brown, with distinct dark patches and a light patch in dark posterior half; ventrally yellowish-brown to reddish-brown, with small light marking anterior to spinnerets (Fig. 4A–B).

Female (paratype)

MEASUREMENTS. BL 18.4; PL 7.90, PW 7.00; AW 3.85; OL 10.50, OW 6.90. Eyes: AME 0.30, ALE 0.55, PME 0.50, PLE 0.65, AME–AME 0.26, AME–ALE 0.12, PME–PME 0.34, PME–PLE 0.53, AME–PME 0.54, ALE–PLE 0.59, CH AME 0.90, CH ALE 0.60. Spination: Palp 131, 101, 2121, 1014; Fe I 323, II 320, III 333, IV 331; Pa I–IV 101; Ti I–II 2028, III–IV 2126; Mt I–II 1014, III 2014, IV 3036. Measurements of palp and legs: Palp 14.1 (4.7, 1.5, 2.9, –, 4.9); I 42.1 (14.8, 7.2, 13.3, 3.8, 2.7); II 51.3 (14.7, 6.2, 13.9, 12.4, 3.9); III 39.8 (11.1, 5.7, 10.2, 9.2, 3.5); IV 41.1 (12.1, 4.9, 9.8, 9.9, 4.1). Leg formula: II–I–IV–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 39 intermarginal denticles.

COPULATORY ORGAN. As in diagnosis. Epigynal field slightly wider than long, with one slit sensillum on each side, situated laterally of the base of anterior bands. Median septum freely visible, just slightly covered by lateral lobes, mainly in the posterior part. Septal pocket slightly rounded. Anterior part of IDS barely covering the posterior part, three coils extending in posterior half. Fertilization ducts wider than their arising point (Fig. 2B–D).

COLOURATION IN ETHANOL. Dorsal shield of prosoma reddish-brown to yellowish-brown, with bright transversal crescent submarginally on posterior part, and a large darker patch centrally with serrated lateral margins, with dark lateral margins. Chelicerae deep reddish-brown, with denser bunches of setae. Labium, sternum, and gnathocoxae yellowish-brown to reddish-brown, the former with lateral brown margins. Opisthosoma dorsally deep reddish-brown to slightly yellowish-brown with some light patches and tiny dots, ventrally yellowish-brown to reddish-brown, with two long and two short longitudinal lines (Fig. 4C–D).

Distribution

China (Yunnan Province) (Fig. 10)

Heteropoda hainanensis sp. nov.

[urn:lsid:zoobank.org:act:001373A2-6850-4B44-8D12-20BBD1EF0C71](https://doi.org/10.21203/rs.3.rs-1013732/v1)

Figs 5–7, 10

Diagnosis

Males of this new species similar to those of *H. helge* Jäger, 2008 (Jäger 2008: figs 22–38) and *H. nyalama* Hu & Li, 1987 (Hu & Li 1987: figs 36–37) in having reduced vRTA, conductor short and almost running straight with acuminate tip, arising from nearly 11-o'clock-position on tegulum, but can be distinguished from the latter by the following characters: (1) embolus arising from 4-o'clock position (arising from 6-o'clock-position in *H. helge* and *H. nyalama*); (2) spermophor with acute angle in distal tegular half, distinctly undulating at retrolateral tegular margin (with obtuse angle in distal tegular half and only slightly

curved in proximal half of tegulum in *H. helge* and *H. nyalama*); (3) dRTA distally sharply pointed in retrolateral view (with blunt distal tip in *H. helge* and *H. nyalama*). Males are also similar to those of *H. belua* Jäger, 2005a, *H. cece* Jäger, 2014, *H. gyirongensis* Hu & Li, 1987, *H. hildebrandti* Jäger, 2008 and *H. mecistopus* Pocock, 1898 in having a similarly shaped spermophor, but can be distinguished by (1) embolus smooth (with basal or sub-basal outgrowth in *H. belua* and *H. hildebrandti*); (2) vRTA simple, flat (with distinct hump in *H. belua*, *H. cece*, *H. gyirongensis*, *H. hildebrandti* and *H. mecistopus*); (3) dRTA simple (with bifurcate tip in *H. hildebrandti*). Females of this new species similar to those of *H. helge* (Jäger 2008: figs 22–38) in having disk-shaped first windings, glandular pores situated medially on the centre of first windings and an upside-down bottleneck-shaped median septum, but can be distinguished from the latter by the following characters: (1) median septum relatively longer, i.e., ca 3 times as long as wide at its narrowest part (median septum stouter, i.e., at most 2 times as long as wide at its narrowest part in *H. helge*); (2) subseptal pocket absent (present and strongly sclerotised in *H. helge*); (3) posterior part of IDS kidney-shaped (roughly rounded in *H. helge*) (Figs 5–6).

Etymology

The specific epithet refers to the type locality of this species, Hainan Island; adjective.

Type material

Holotype

CHINA • ♂; Hainan Province, Lingshui Li Autonomous County, Zuguan Town, Diaoluo Mountain; [18°40'01" N, 109°55'32" E]; [316 m a.s.l.]; 20 Apr. 2009; F.X. Liu leg.; CBEE.

Paratypes

CHINA • 1 ♀; same data as for holotype; CBEE • 1 ♂; Hainan Province, Danzhou City, Changjiang Lizu County, Qicha Town, Bawangling National Nature Reserve; [19°60'21" N, 109°10'22" E]; [1000 m a.s.l.]; 17 Apr. 2013; Y. Zhong and F.X. Liu leg.; CBEE • 2 ♀♀; Hainan Province, Wuzhishan City, Qiongzong County, Tongshi Town, Wuzhi Mountain; [18°89'01" N, 109°70'11" E]; [2502 m a.s.l.]; 26 Jul. 2020; J. Liu leg.; CBEE.

Description

Male (holotype)

MEASUREMENTS. BL 10.0; PL 5.3, PW 5.8; AW 2.0; OL 4.7, OW 3.7. Eyes: AME 0.26, ALE 0.34, PME 0.27, PLE 0.44, AME–AME 0.15, AME–ALE 0.08, PME–PME 0.27, PME–PLE 0.38, AME–PME 0.34, ALE–PLE 0.27, CH AME 0.33, CH ALE 0.30. Spination: Palp 131, 101, 2121; Fe I–II 323, III 322, IV 321; Pa I 101, II 100, III–IV 101; Ti I –, II–IV 2126; Mt I –, II 0004, III 1024, IV 3136. Measurements of palp and legs: Palp 7.9 (2.3, 1.2, 1.8, –, 2.6); I – (–, 2.2, –, –, –); II 24.3 (5.9, 2.5, 6.6, 6.9, 2.3); III 18.8 (4.6, 2.3, 4.8, 5.3, 1.5); IV 21.6 (5.3, 2.2, 5.4, 6.6, 2.0). Leg formula: II–IV–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 29 intermarginal denticles.

PALP. As in diagnosis. RTA arising distally from tibia, vRTA short with straight distal margin. Cymbium elongated, at least more than twice as long as tegulum. Conductor running almost straight distally, extending slightly beyond cymbial margin, with acuminate tip in ventral view. Embolus filiform and almost running semicircular in ventral view (Figs 5A, 6).

COLOURATION IN ETHANOL. Dorsal shield of prosoma yellowish- to slightly reddish-brown, with distinct striae. Fovea distinctly darker. Chelicerae yellowish-brown, with two longitudinal lines of light brown spots. Sternum, labium and gnathocoxae pale yellowish to yellowish-brown, the former with brown margins. Opisthosoma dorsally yellow to yellowish-brown, with two pairs of dots, and a transversal darker marking in front of spinnerets with distal light vertical markings; ventrally yellowish-brown, with irregular markings and a single tiny V-shaped marking close to spinnerets (Fig. 7A–B).

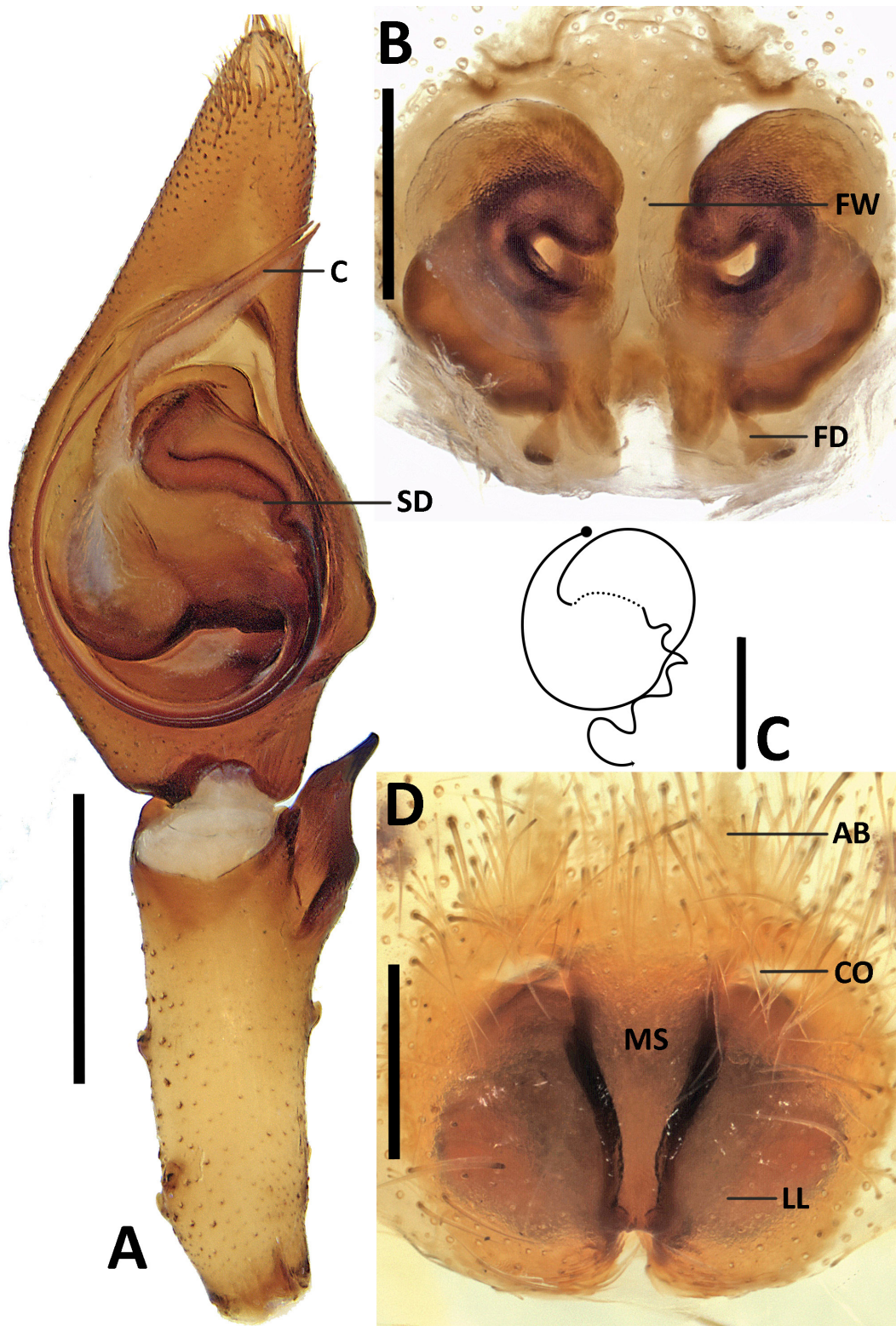


Fig. 5. *Heteropoda hainanensis* sp. nov., holotype male (A) and paratype female (B–D) from Diaoluo Mountain (CBEE). A. Left male palp, ventral view. B. Vulva, dorsal view. C. Schematic course of internal duct system, dorsal view. D. Epigyne, ventral view. Abbreviations: AB = anterior bands; C = conductor; CO = copulatory opening; FD = fertilization duct; FW = first winding; LL = lateral lobes; MS = median septum; SD = sperm duct. Scale bars: A = 1 mm; B–D = 0.8 mm.

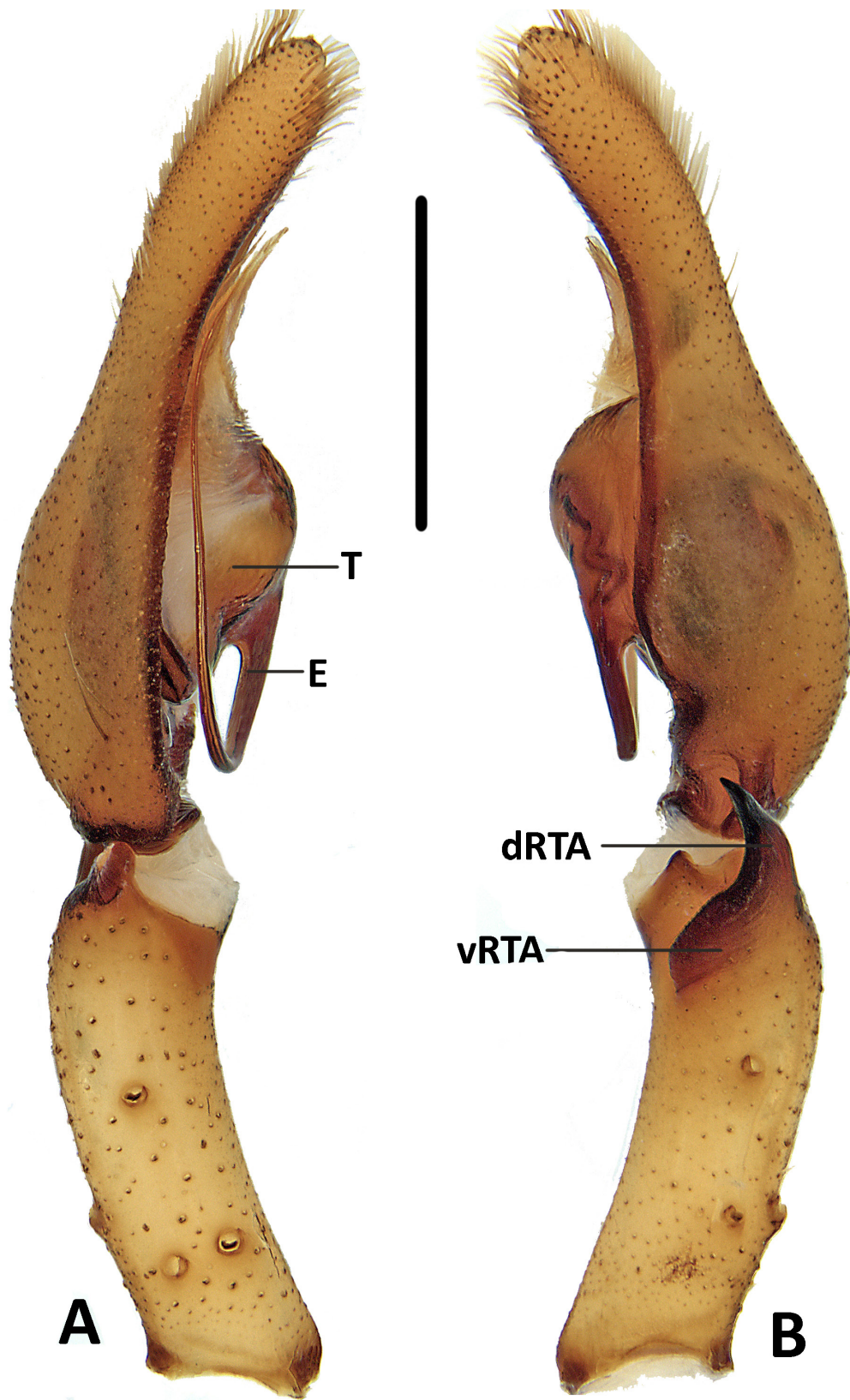


Fig. 6. *Heteropoda hainanensis* sp. nov., holotype male from Diaoluo Mountain (CBEE), left palp. **A.** Prolateral view. **B.** Retrolateral view. Abbreviations: dRTA = dorsal part of retrolateral tibial apophysis; E = embolus; T = tegulum; vRTA = ventral part of retrolateral tibial apophysis. Scale bar = 1 mm.

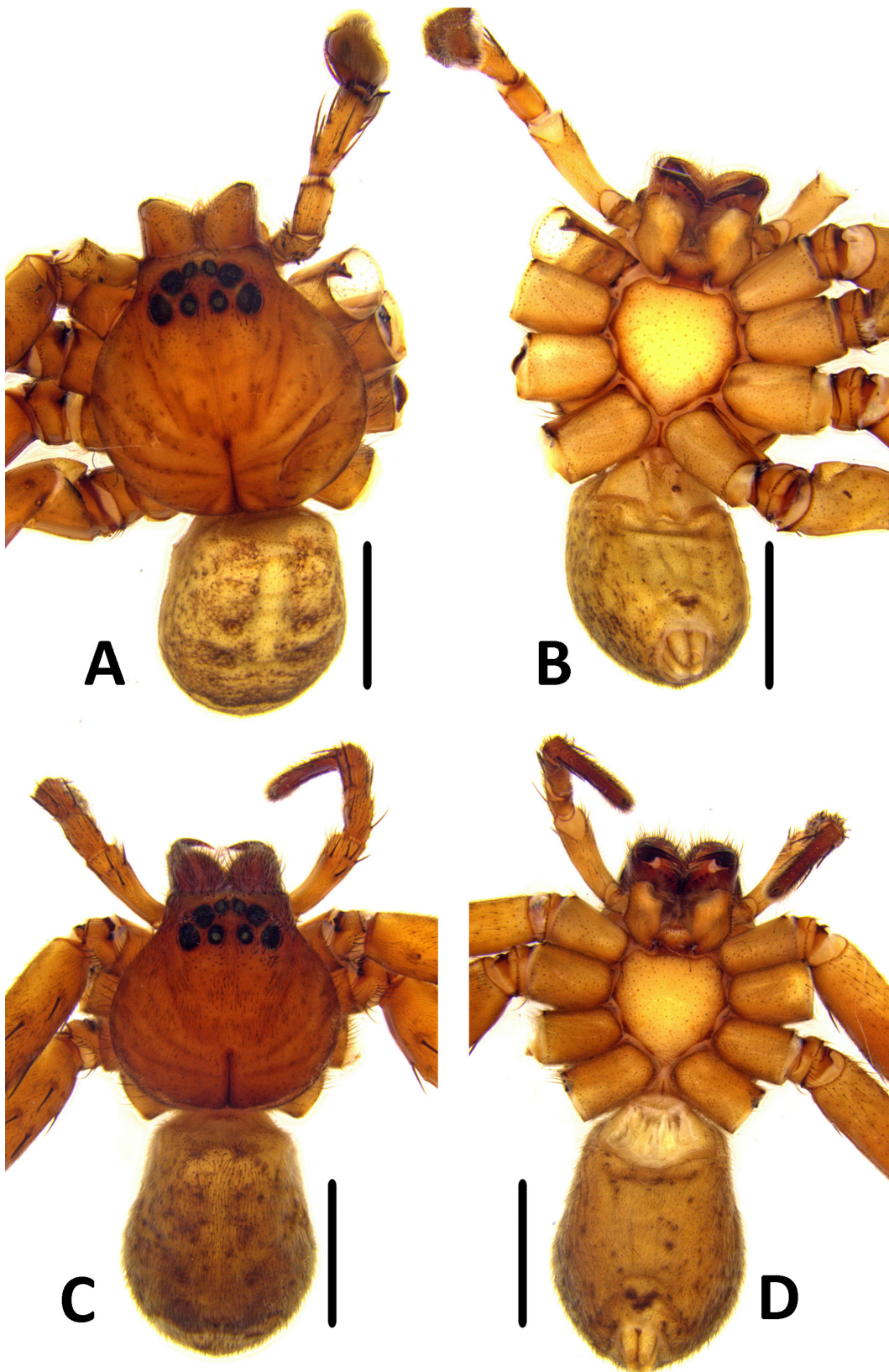


Fig. 7. *Heteropoda hainanensis* sp. nov., holotype male (A–B) and paratype female (C–D) from Diaoluo Mountain (CBEE). A. Male habitus, dorsal view. B. Male habitus, ventral view. C. Female habitus, dorsal view. D. Female habitus, ventral view. Scale bars = 3 mm.

Female (paratype)

MEASUREMENTS. BL 9.8; PL 4.5, PW 4.2; AW 2.0; OL 5.3, OW 3.7. Eyes: AME 0.22, ALE 0.34, PME 0.25, PLE 0.34, AME–AME 0.14, AME–ALE 0.10, PME–PME 0.32, PME–PLE 0.42, AME–PME 0.36, ALE–PLE 0.30, CH AME 0.20, CH ALE 0.22. Spination: Palp 131, 101, 2121, 1014; Fe I–II 323, III 322, IV 321; Pa I–IV 101; Ti I–II 1018, III–IV 2026; Mt I–II 0004, III 1024, IV 3036. Measurements of palp and legs: Palp 5.9 (1.6, 1.0, 1.3, –, 1.9); I 15.0 (4.1, 2.2, 3.5, 3.7, 1.3); II 17.9 (4.8, 2.3, 4.2, 4.2, 1.60); III 13.2 (4.0, 1.7, 3.1, 3.3, 1.0); IV 15.3 (4.3, 1.8, 3.6, 4.3, 1.2). Leg formula: II–IV–I–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 31 intermarginal denticles.

COPULATORY ORGAN. As in diagnosis. Epigynal field slightly wider than long, with distinct anterior bands attached to field. Median septum relatively long, narrower at its posterior part, i.e., partly covered by lateral lobes. Median margins of lateral lobes gently curved, in ventral view. First winding of IDS membranous, touching each other medially. Fertilization ducts extending posteriorly distinctly beyond rests of IDS, their tips dorsad (Fig. 5B–D).

COLOURATION IN ETHANOL. Same as in male, but slightly darker with longitudinal lines on frontal chelicerae solid (Fig. 7C–D).

Distribution

China (Hainan) (Fig. 10).

Heteropoda longa sp. nov.

[urn:lsid:zoobank.org:act:BEE34CCA-AEDA-4A73-AB21-CCCF9EB52C8F](https://doi.org/10.21203/rs.3.rs-3811111/v1)

Figs 8, 10

Diagnosis

This new species is similar to *H. bawanglingensis* sp. nov. (Fig. 1A–C) and *H. strasseni* Strand, 1915 (Jäger 2014: figs 130–135) in having a freely median septum and an anterior part of IDS with more than two windings up to the turning point, but can be distinguished from the latter by the following characters: (1) anterior bands indistinct (distinct in *H. bawanglingensis*, and integrated in *H. strasseni*); (2) median septum almost as long as epigynal field (two thirds in length of epigynal field in *H. bawanglingensis* and *H. strasseni*); (3) median margins of lateral lobes only gently curved (distinctly curved in *H. bawanglingensis* and *H. strasseni*); (4) parts of IDS with glandular pores anteriorly (mediad in *H. bawanglingensis*, posteriorly in *H. strasseni*) (Fig. 8A–C).

Etymology

The specific name is derived from the Latin adjective, ‘*longus*’ (-a, -um), meaning long, referring to the median septum of epigyne in ventral view.

Type material

Holotype

CHINA • ♀; Guizhou Province, Tongren City, Jiangkou County, Taiping Township, Fanjing Mountain; [27°51'04" N, 108°46'40" E]; [579 m a.s.l.]; 20 May 2015; F.X. Liu, Z.Q. Li and M. Yan leg.; CBEE.

Description

Female (holotype)

MEASUREMENTS. BL 14.1; PL 6.0, PW 5.7; AW 2.5; OL 8.1, OW 6.0. Eyes: AME 0.24, ALE 0.25, PME 0.24, PLE 0.28, AME–AME 0.22, AME–ALE 0.12, PME–PME 0.24, PME–PLE 0.47, AME–PME 0.26, ALE–PLE 0.37, CH AME 0.32, CH ALE 0.45. Spination: Palp 131, 101, 1212, 1010; Fe I–III 323, IV 321

Pa I –, II –, III 111, IV 101; Ti I 2228, II 2128, III 2026, IV 2226; Mt I–IV 3036. Measurements of palp and legs: Palp 7.0 (2.0, 1.2, 1.3, –, 2.4); I 26.8 (7.0, 2.9, 7.0, 7.2, 2.4); II 28.4 (7.5, 2.7, 7.7, 7.8, 2.5); III 24.0 (6.6, 2.5, 6.0, 6.4, 2.2); IV 26.8 (7.2, 2.5, 6.7, 7.7, 2.6). Leg formula: II–IV–I–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 28 intermarginal denticles.

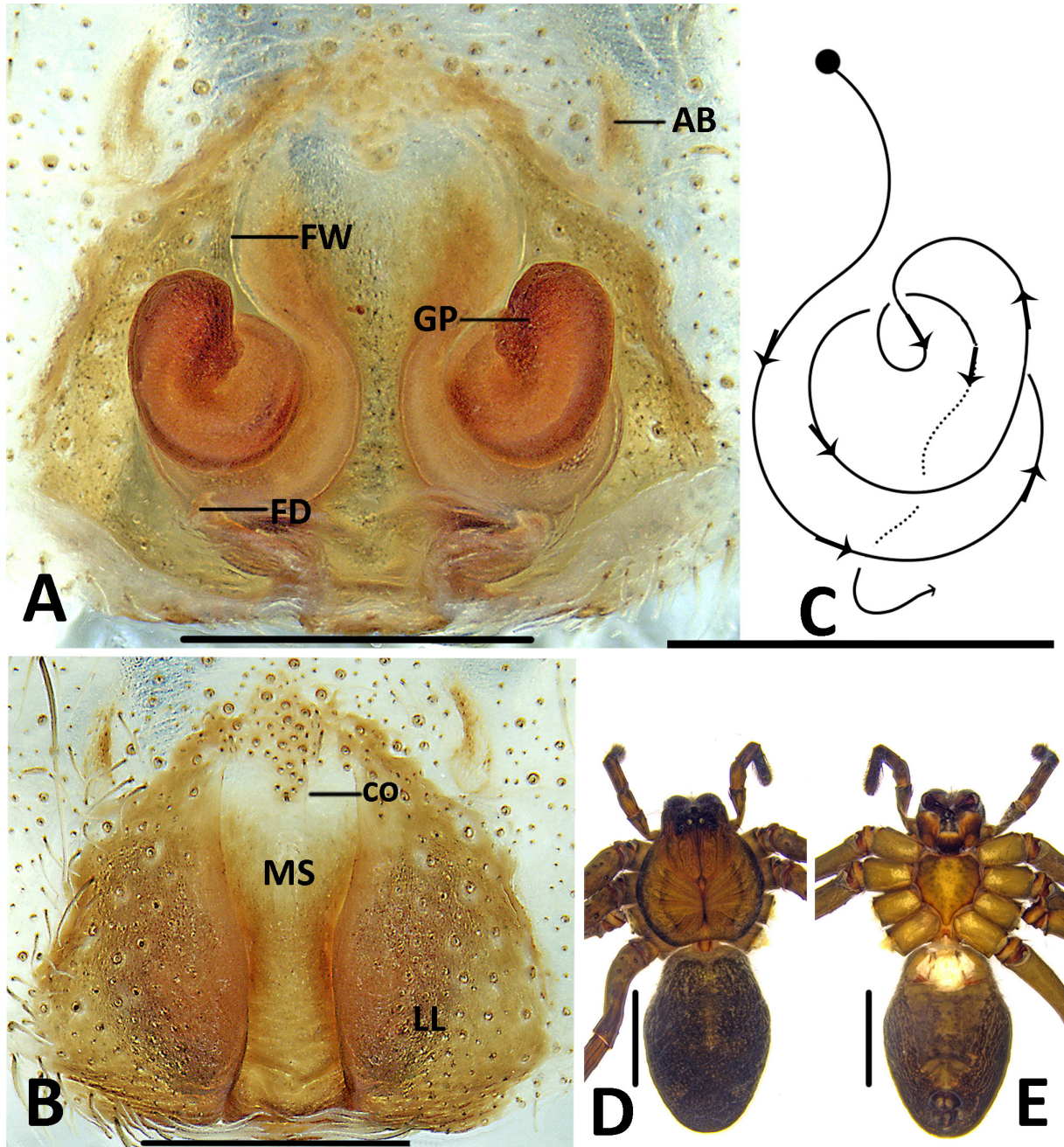


Fig. 8. *Heteropoda longa* sp. nov., holotype female from Fanjing Mountain (CBEE). **A.** Vulva, dorsal view. **B.** Epigyne, ventral view. **C.** Schematic course of internal duct system, dorsal view. **D.** Female habitus, dorsal view. **E.** Female habitus, ventral view. Abbreviations: AB = anterior bands; CO = copulatory opening; FD = fertilization duct; FW = first winding; GP = glandular pores; LL = lateral lobes; MS = median septum. Scale bars: A–C = 1 mm; D–E = 4 mm.

COPULATORY ORGAN. As in diagnosis. Epigynal field roughly triangular, slightly rounded on antero-lateral sides. Anterior bands touching epigynal field, short and slightly curved. Slit sensilla situated outside of epigynal field beside anterior bands. Lateral lobes distinctly separated from each other, only partly covering median septum, especially the middle part. First winding of IDS slightly S-shaped in dorsal view. Fertilization ducts located posteriorly, their tips dorso-mediad (Fig. 8A–C).

COLOURATION IN ETHANOL. Dorsal shield of prosoma dark yellowish-brown, with distinct striae, and slightly V-shaped marking located between fovea and posterior eyes (this latter area slightly more intensely reddish brown), with black lateral margins and additional submarginal narrow band on each side. Sternum yellowish-brown, with light yellowish lanceolate patch medially; ventral coxae yellowish-brown with each one lighter patch in proximal half. Labium and gnathocoxae deep brown with yellowish distal tip. Chelicerae dark brown, slightly bulged frontally, best seen in dorsal view. Opisthosoma dorsally, dark brown, with some irregular yellow pattern especially in anterior half; ventrally yellowish-brown with indistinct irregular tiny dots anteriorly to medially (Fig. 8D–E).

Distribution

China (Guizhou Province) (Fig. 10).

Heteropoda vaginalis sp. nov.

[urn:lsid:zoobank.org:act:78B1A7DB-58CE-453E-BB64-7C5B5A3918DC](https://zoobank.org/act:78B1A7DB-58CE-453E-BB64-7C5B5A3918DC)

Figs 9–10

Diagnosis

This new species is similar to *Heteropoda amphora* Fox, 1936 (Jäger 2001: fig. 16H–J) in having a freely median septum, anterior part of IDS not covering posterior part, but can be distinguished from the latter by the following characters: (1) posterior part of lateral lobes strongly developed and bulged (not strongly developed and not bulged in *H. amphora*); (2) median part of IDS windings distinctly curved, laterad (straight, anteriad in *H. amphora*); (3) anterior part of IDS with more than two windings (only one winding in *H. amphora*) (Fig. 9A–C). Males are unknown.

Etymology

The specific name is derived from the Latin adjective, ‘*vaginalis*’ (-is, -e), which by itself is derived from the Latin noun ‘*vagina*’ (-ae), meaning sheath, and it refers to the median septum and median margins of lateral lobes resembling a sheath in ventral view.

Type material

Holotype

CHINA • ♀; Yunnan Province, Xishuangbanna Dai Autonomous Prefecture, Mengla County, Menlun Town, Tropical Botanical Garden; [21°55′12″ N, 101°16′12″ E]; [587 m a.s.l.]; 6 Nov. 2015; Y. Zhu and Y. Zhong leg.; CBEE.

Description

Female (holotype)

MEASUREMENTS. BL 15.7; PL 7.2, PW 6.3; AW 3.5; OL 8.5, OW 6.0. Eyes: AME 0.33, ALE 0.48, PME 0.35, PLE 0.49, AME–AME 0.25, AME–ALE 0.11, PME–PME 0.35, PME–PLE 0.62, AME–PME 0.48, ALE–PLE 0.52, CH AME 0.62, CH ALE 0.52. Spination: Palp 131, 101, 2121, 1014; Fe I–III 323, IV 331; Pa I–IV 101; Ti I–II 1018, III 2026, IV 2126; Mt I–III 1014, IV 3036. Measurements of palp and legs: Palp 10.5 (2.9, 1.6, 2.3, –, 3.6); I 29.0 (8.0, 3.7, 7.6, 7.2, 2.4); II 30.7 (8.8, 3.5, 8.4, 7.5, 2.3); III

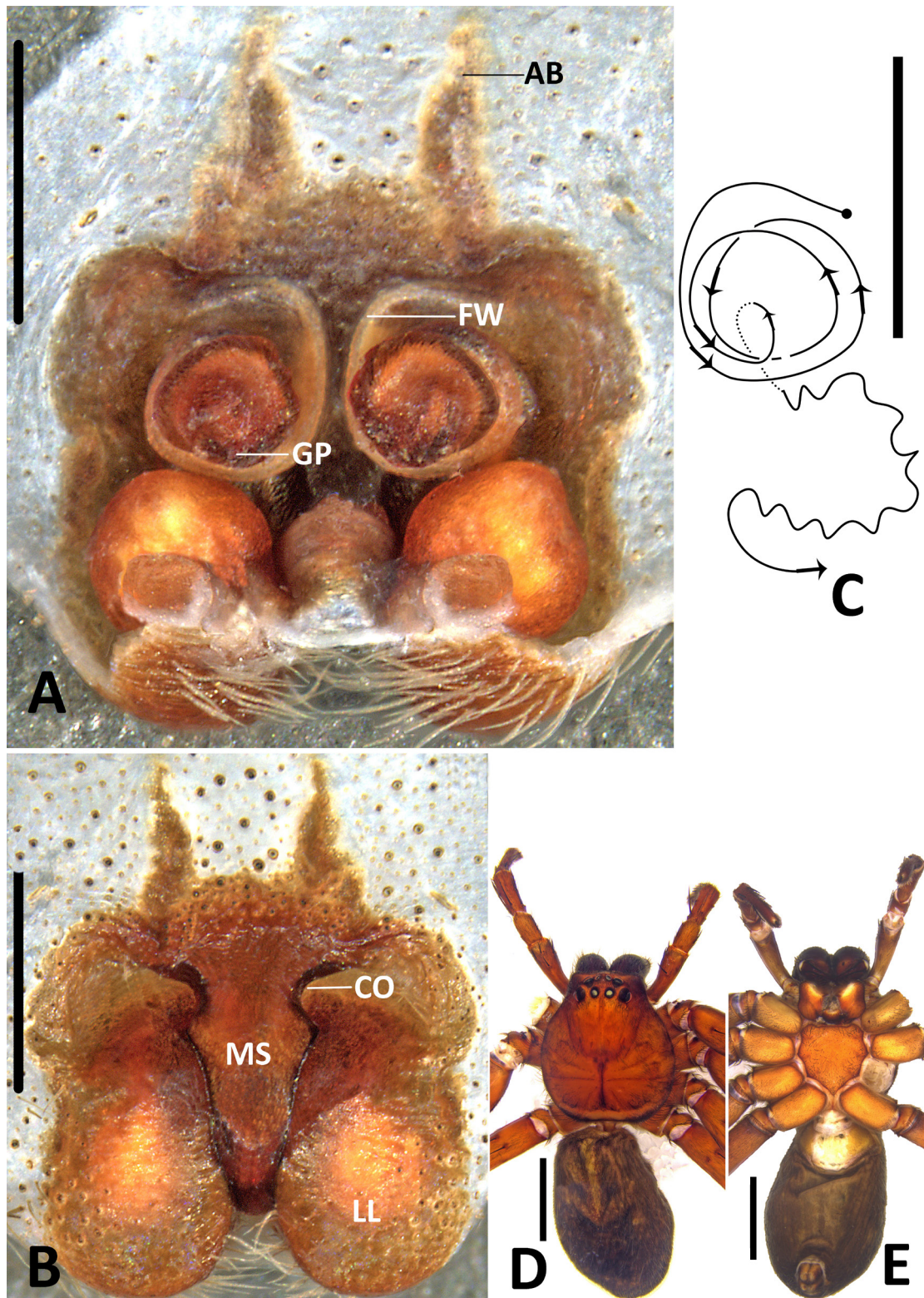


Fig. 9. *Heteropoda vaginalis* sp. nov., holotype female from Tropical Botanical Garden (CBEE). **A.** Vulva, dorsal view. **B.** Epigyne, ventral view. **C.** Schematic course of internal duct system, dorsal view. **D.** Female habitus, dorsal view. **E.** Female habitus, ventral view. Abbreviations: AB = anterior bands; CO = copulatory opening; FW = first winding; GP = glandular pores; LL = lateral lobes; MS = median septum. Scale bars: A–C = 1 mm; D–E = 4 mm.

25.1 (7.3, 3.0, 6.6, 5.9, 2.0); IV 28.3 (8.0, 2.7, 7.4, 7.6, 2.4). Leg formula: II–I–IV–III. Cheliceral furrow with 3 anterior, 4 posterior teeth and ca 28 intermarginal denticles.

COPULATORY ORGAN. As in diagnosis. Epigynal field as long as wide, with moderately long anterior bands attached to the field. Slit sensilla located outside of epigynal field. Median margins of lateral lobes diverging and exposing sheath-like structure in ventral view. Lateral lobes situated very close to each other in its posterior part. Glandular pores anteriorad, but covered by lateral lobes in dorsal view (Fig. 9A–C).

COLOURATION IN ETHANOL. Dorsal shield of prosoma reddish-brown to yellowish-brown, with bright transversal crescent submarginally located at posterior part, and longitudinal stripes covered by hairs around fovea. Fovea a bit darker. Chelicerae deep reddish-brown. Labium, sternum, and gnathocoxae are yellowish-brown to reddish-brown. Opisthosoma dorsally brown with yellowish-brown cardiac marking; ventrally yellowish-brown to brown, with light-dark patches located mostly in the center (Fig. 9D–E).

Distribution

China (Yunnan) (Fig. 10)



Fig. 10. Locality records for five new species of *Heteropoda* Latreille, 1804 from China: 1. *Heteropoda bawanglingensis* sp. nov. (♀, Hainan); 2. *H. dulongensis* sp. nov. (♂♀, Yunnan); 3. *H. hainanensis* sp. nov. (♂♀, Hainan); 4. *H. longa* sp. nov. (♀, Guizhou); and 5. *H. vaginalis* sp. nov. (♀, Yunnan).

Discussion

In this paper we describe five new species of *Heteropoda* from China. The genus comprises now 204 species worldwide. Studies of this genus in China are of particular interest because the northern limit of the range is located in central China (Fig. 11). It can be better defined by describing current diversity and showing all distribution records (Figs 10–11). In addition, China has a gradient from tropical (south) via subtropical (central) to temperate regions (north). It is interesting to see how the diversity of the genus *Heteropoda* changes. In southern Laos, for example, one can find five to six species of *Heteropoda* sympatrically (Jäger, unpublished observation), whereas in central China only two or even one species can be found in one habitat.

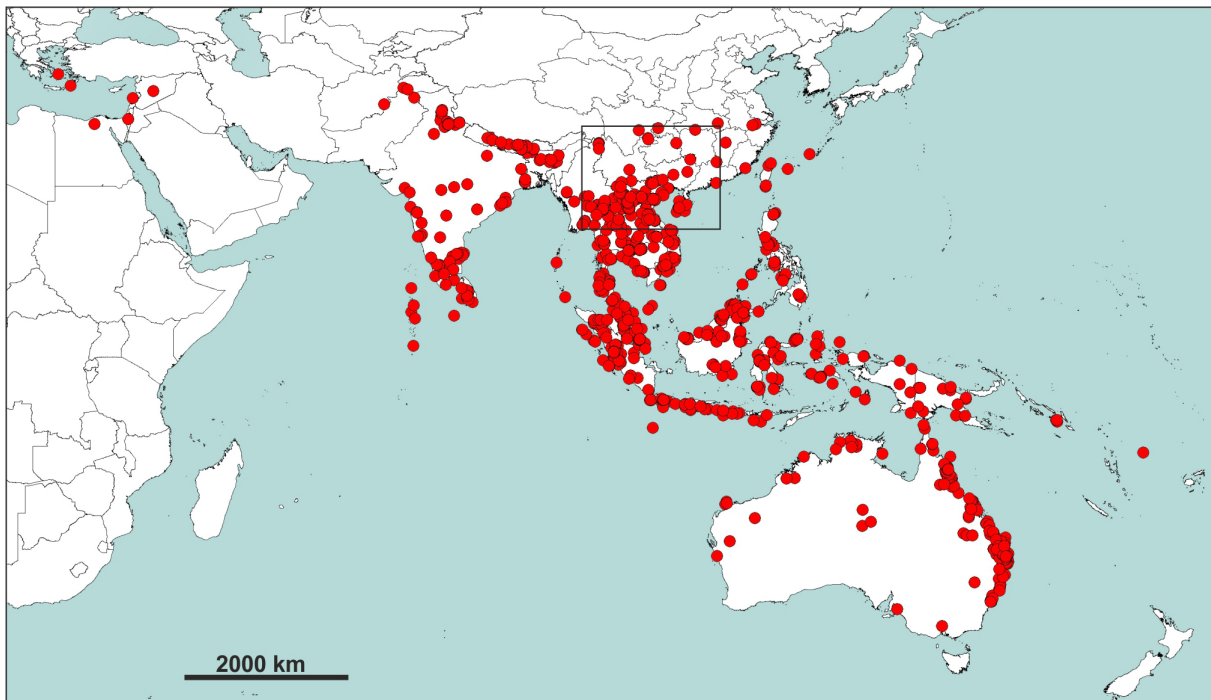


Fig. 11. Distributional records of the genus *Heteropoda* Latreille, 1804 excluding those of *H. venatoria* (Linnaeus, 1767). The frame indicates the area shown in Fig. 10.

Acknowledgements

This study was financially supported by CAS Key Laboratory of Tropical Forest Ecology, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (19CAS-TFE-3) and the National Natural Sciences Foundation of China (NSFC-31573236/31273268/ 31772420).

References

- Bayer S. & Jäger P. 2009. *Heteropoda* species from limestone caves in Laos (Araneae: Sparassidae: Heteropodinae). *Zootaxa* 2143 (1): 1–23. <https://doi.org/10.11646/zootaxa.2143.1.1>
- Bertkau P. 1872. Über die Respirationsorgane der Araneen. *Archiv für Naturgeschichte* 38: 208–233.
- Fox I. 1936. Chinese spiders of the families Agelenidae, Pisauridae and Sparassidae. *Journal of the Washington Academy of Sciences* 26: 121–128.

- Hu J.L. & Li A.H. 1987. The spiders collected from the fields and the forests of Xizang Autonomous Region, China. (1). *Agricultural Insects, Spiders, Plant Diseases and Weeds of Xizang* 1: 315–392.
- Jäger P. 2001. Diversität der Riesenkrabbenspinnen im Himalaya-die Radiation zweier Gattungen in den Schneetropen. (Araneae: Sparassidae: Heteropodinae). *Courier Forschungsinstitut Senckenberg* 232: 1–136.
- Jäger P. 2002. Heteropodinae: transfers and synonymies (Arachnida: Araneae: Sparassidae). *Acta Arachnologica* 51: 33–61. <https://doi.org/10.2476/asjaa.51.33>
- Jäger P. 2005a. New large-sized cave-dwelling *Heteropoda* species from Asia, with notes on their relationships (Araneae: Sparassidae: Heteropodinae). *Revue Suisse de Zoologie* 112: 87–114. <https://doi.org/10.5962/bhl.part.80288>
- Jäger P. 2005b. A ‘swimming’ *Heteropoda* species from Borneo (Araneae: Sparassidae: Heteropodinae). *Journal of Arachnology* 33: 715–718. <https://doi.org/10.1636/H04-9.1>
- Jäger P. 2008. Revision of the huntsman spider genus *Heteropoda* Latreille 1804: species with exceptional male palpal conformations (Araneae: Sparassidae: Heteropodinae). *Senckenbergiana Biologica* 88: 239–310.
- Jäger P. 2014. *Heteropoda* Latreille, 1804: new species, synonymies, transfers and records (Araneae: Sparassidae: Heteropodinae). *Arthropoda Selecta* 23: 145–188. <https://doi.org/10.15298/arthsel.23.2.06>
- Jäger P. 2018. The second true troglobiont *Heteropoda* species from a limestone cave system in Palawan, Philippines (Araneae: Sparassidae: Heteropodinae). *Arachnology* 17 (8): 427–431. <https://doi.org/10.13156/arac.2017.17.8.427>
- Jäger P. & Ono H. 2000. Sparassidae of Japan. I. New species of *Olios*, *Heteropoda*, and *Sinopoda*, with notes on some known species (Araneae: Sparassidae: Sparassinae and Heteropodinae). *Acta Arachnologica* 49: 41–60. <https://doi.org/10.2476/asjaa.49.41>
- Jäger P. & Vedel V. 2005. *Heteropoda dagmarae* sp. nov. from Laos – a close relative of *Heteropoda javana* (Simon 1880) from Indonesia (Arachnida: Araneae: Sparassidae). *Zootaxa* 1044 (1): 17–26. <https://doi.org/10.11646/zootaxa.1044.1.2>
- Jäger P. & Yin C.-M. 2001. Sparassidae in China. 1. Revised list of known species with new transfers, new synonymies and type designations (Arachnida: Araneae). *Acta arachnologica* 50: 123–134. <https://doi.org/10.2476/asjaa.50.123>
- Korai S.K. & Wang K. 2023. Six *Heteropoda* spiders (Araneae: Sparassidae) from Xishuangbanna Dai Autonomous Prefecture, China. *Plant Protection* 7: 33–52. <https://doi.org/10.33804/pp.007.01.4452>
- Latreille P.A. 1804. Tableau méthodique des insectes. *Nouveau Dictionnaire d’Histoire naturelle, Paris* 24: 129–295.
- Li J.L., Jäger P. & Liu J. 2013. The female of *Heteropoda schwalbachorum* Jäger, 2008 (Araneae: Sparassidae). *Zootaxa* 3750 (2): 185–188. <https://doi.org/10.11646/zootaxa.3750.2.6>
- Linnaeus C. 1767. *Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Editio duodecima, reformata. Vol. 1, Part 2.* Laurentius Salvius, Holmiae [Stockholm]. <https://doi.org/10.5962/bhl.title.156772>
- Pocock R.I. 1898. Scorpions, Pedipalpi and spiders from the Solomon Islands. *Annals and Magazine of Natural History* 1: 457–475. <https://doi.org/10.1080/00222939808678002>
- Strand E. 1915. Indoaustralische, papuanische und polynesische Spinnen des Senckenbergischen Museums, gesammelt von Dr E. Wolf, Dr J. Elbert u. a. In: Wissenschaftliche Ergebnisse der Hanseatischen Südsee-Expedition 1909. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 36: 179–274.

Thorell T. 1873. *Remarks on Synonyms of European Spiders. Part IV.* C.J. Lundström, Uppsala.
<https://doi.org/10.5962/bhl.title.69282>

World Spider Catalog 2024. World Spider Catalog. Version 25.0. Natural History Museum Bern. Available from <https://wsc.nmbe.ch> [accessed Jan. 2024]. <https://doi.org/10.24436/2>

Manuscript received: 20 December 2023

Manuscript accepted: 10 June 2024

Published on: 2 August 2024

Topic editor: Magalie Castelin

Section editor: Arnaud Henrard

Printed versions of all papers are deposited in the libraries of four of the institutes that are members of the *EJT* consortium: Muséum national d'Histoire naturelle, Paris, France; Meise Botanic Garden, Belgium; Royal Museum for Central Africa, Tervuren, Belgium; Royal Belgian Institute of Natural Sciences, Brussels, Belgium. The other members of the consortium are: Natural History Museum of Denmark, Copenhagen, Denmark; Naturalis Biodiversity Center, Leiden, the Netherlands; Museo Nacional de Ciencias Naturales-CSIC, Madrid, Spain; Leibniz Institute for the Analysis of Biodiversity Change, Bonn – Hamburg, Germany; National Museum of the Czech Republic, Prague, Czech Republic; The Steinhardt Museum of Natural History, Tel Aviv, Israël.