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Review of the Flat Back Millipede Genus *Yuennanina* Attems, 1936 (Polydesmida: Paradoxosomatidae), with the Description of a New Species from Thailand

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ABSTRACT.– The millipede genus *Yuennanina* Attems, 1936 has been known so far only from Yunnan Province, southwestern China. Currently, it comprises three species: *Y. ceratogaster* Attems, 1936, *Y. aceratogaster* Zhang & Li, 1977, and *Y. petalolobodes* Chang & Zhang, 1989. Herein, we describe *Y. sirindhornae* sp. nov., from Huai Nam Dang, Chiang Mai Province, northern Thailand, representing the first formal record of this genus not only from Thailand, but also from entire Southeast Asia. The new species is characterized by its unique gonopodal solenophore the shape of which resembles a young fern frond with fimbriate edges. A detailed redescription of the type species, *Y. ceratogaster*, is provided based on a revision of type material. An updated identification key to all four presently known *Yuennanina* species is also provided.

KEYWORDS: arthropod, taxonomy, key

INTRODUCTION

The family Paradoxosomatidae represents the most diverse and very extensively distributed group of millipedes within the Oriental Region, including Thailand, where it comprises about half of the currently recognized diplopod list (Nguyen and Sierwald, 2013; Sierwald and Spelda, 2025). To date, 278 nominal species belonging to 58 genera, 18 families, and ten orders of Diplopoda have been recorded from Thailand, 107 of which (approximately 38.5%) belong to Paradoxosomatidae (Likhitrakarn et al., 2023, 2024; Huynh et al., 2023; Srisonchai et al., 2023, 2024a, 2024b; Pimvichai et al., 2023).

The Paradoxosomatidae is divided into three subfamilies; two of which are represented in the Thai fauna: Paradoxosomatinae and Alogolykinae. The Paradoxosomatinae is particularly diverse, whereas the Alogolykinae is currently represented by a single species, *Tetracentrosternus theelorsuensis* Likhitrakarn, Golovatch & Panha, 2013, from Tak Province in the lower northern part of Thailand (Likhitrakarn et al., 2013).

The present study puts on record a second Alogolykinae species from Thailand, simultaneously the first formal report of the genus *Yuennanina* Attems, 1936 from the country and entire Southeast Asia. The genus has been restricted so far to Yunnan Province, southwestern China, and comprising only three species: *Y. ceratogaster* Attems, 1936 (the type species), *Y. aceratogaster* Zhang & Li, 1977, and *Y. petalolobodes* Chang & Zhang, 1989. Here we present a comprehensive review of *Yuennanina*, including the description of a new species, *Y. sirindhornae* sp. nov., from Chiang Mai Province, Thailand, along with an updated identification key. Furthermore, we provide a redescription of the type species, *Y. ceratogaster*, based on an examination of type material housed at the Vienna Museum of Natural History. This work aims to improve our understanding of the diversity and distribution of *Yuennanina* in the context of the Southeast Asian diplopod fauna.

MATERIALS AND METHODS

Specimens of the new species were gathered during a field expedition undertaken in July 2019 at Huai Nam Dang, Mae Taeng District, Chiang Mai Province, Thailand. The specimens were collected manually, and some were photographed on the spot. After collecting, material was stored in 75% ethanol for later morphological analysis. The Animal Care and Use Protocol Review No. 1723018 was implemented to ensure that all activities were conducted in accordance with ethical standards. Permission for specimen collection in protected areas was granted by the Department of National Parks, Wildlife and Plant Conservation, under protocol no. 03/020/21Oct2024. Latitude, longitude, and elevation were recorded with a Garmin GPSMAP 60 CSx set to the WGS84 datum. The coordinates were verified using Google Earth Pro version 7.3.6 to ensure accuracy.

Specimens were examined, measured, and photographed using a Nikon SMZ 745T trinocular stereo microscope paired with a Canon EOS 5DS R digital SLR camera. Line drawings were produced based on

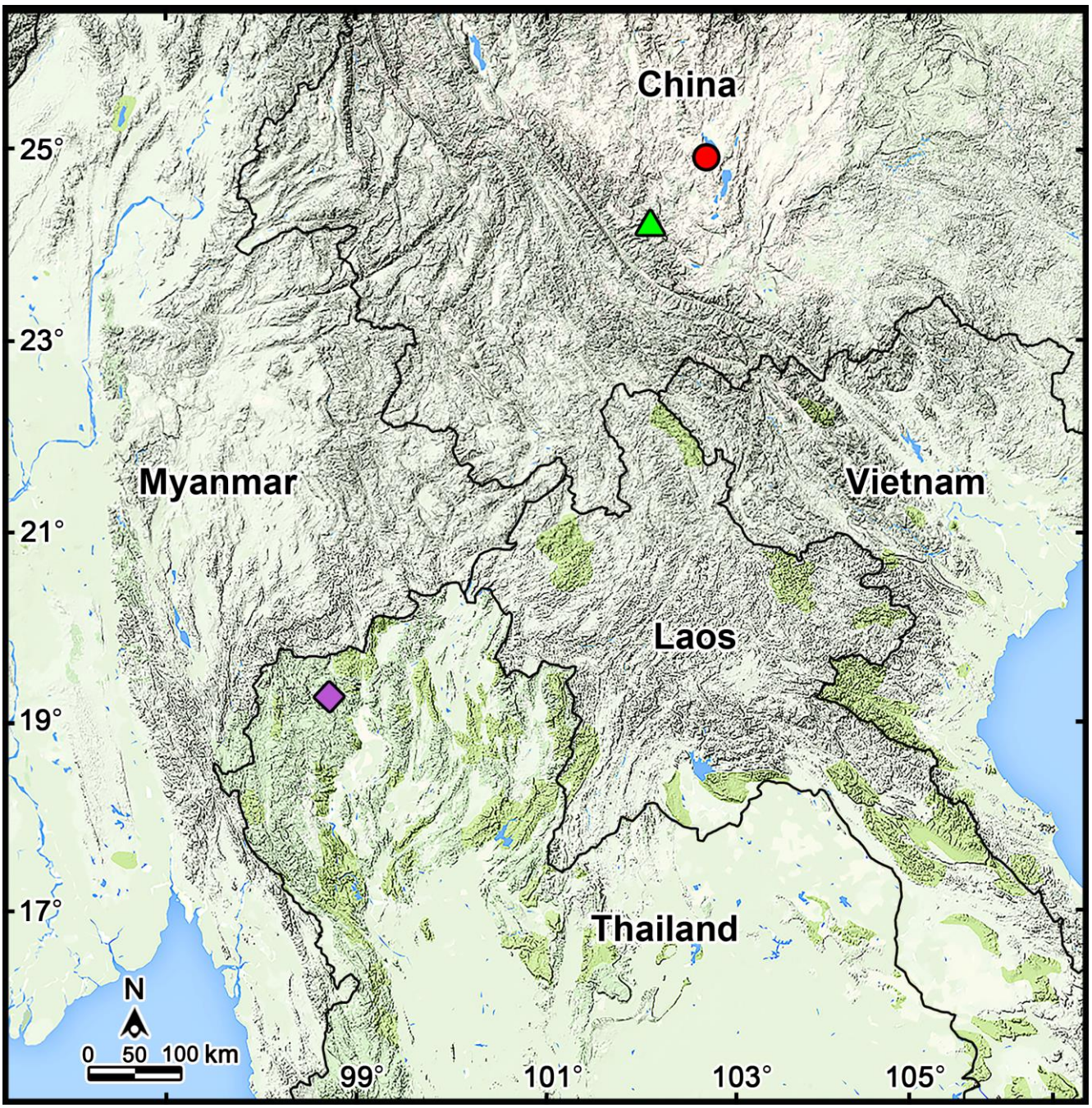

FIGURE 1. Distribution of the genus *Yuennanina* Attems, 1936. Red circle: *Y. ceratogaster* Attems, 1936 and *Y. aceratogaster* Zhang & Li, 1977. Green triangle: *Y. petalolobodes* Chang & Zhang, 1989. Purple square: *Y. sirindhornae* sp. nov.

photographs and detailed observations under the stereo microscope. For scanning electron microscopy (SEM), the gonopods were detached and coated with an 8 nm gold layer using a CCU-010 high vacuum sputter and a carbon coater (Safematic). The coated specimens were examined using a TESCAN VEGA3 scanning electron microscope operating at an acceleration voltage of 5 keV. After SEM examination, the specimens were returned to 70% ethanol.

The holotype of *Y. ceratogaster* Attems 1936, housed at the Naturhistorisches Museum Wien, Austria (NHMW), was revised for comparative purposes. The gonopod and the first pair of legs were captured with a Dino-Eye AM423Z USB camera, digitally compiled through automated editing software, and subsequently redrawn. The type specimens of the new species have been deposited in the Museum of Zoology, Chulalongkorn University (CUMZ), Bangkok, Thailand, ensuring their availability for future study.

The terminology related to gonopodal and somatic structures primarily follows that by Likhitrakarn et al. (2013), Golovatch (2016), Golovatch and Semenyuk (2018) and Nyugen et al. (2023). The abbreviations used for specific gonopodal structures are as follows:

a = process a,
b = process b,
c = process c,
cx = coxa,
d = process d,
fe = femoral part,
pfe = prefemoral part,
sl = solenomere,
sph = solenophore.

In the synonymy sections, D stands for the original description and/or subsequent descriptive notes, K for the appearance in a key, L for the appearance in a species list, while M for a mere mention.

RESULTS

Taxonomy

Order Polydesmida Pocock, 1887
Family Paradoxosomatidae Daday, 1889
Subfamily Alogolykinae Hoffman, 1963
Tribe Alogolykini Hoffman, 1963

Genus *Yuennanina* Attems, 1936

Yünnanina Attems 1936: 234 (D).
Yünnanina—Attems 1937: 259 (D).
Yuennanina Jeekel 1965: 127 (L, K), nomen correctum.
Yuennanina—Jeekel 1968: 76 (L); 1971: 238 (L); Hoffman 1980: 167 (L); Nguyen and Siewald 2013*:* 1180 (L); Golovatch and Liu 2020: 172 (L).
Yunnanina [sic!] Chang and Zhang 1989: 415 (L, K).

Type species.− *Yuennanina ceratogaster* Attems, 1936, by original designation.

Diagnosis.− Body medium-sized (ca 16–22 mm long, ca 1.3–2.5 mm wide), with 20 rings including telson. Paraterga moderately developed. Sternal process or cone(s) present between ♂ coxae 4 or also on coxae 6. First pair of ♂ with femoral tubercles (= adenostyles). Other legs with neither modifications nor adenostyles. Transverse metatergal sulci distinct.

Gonopod consisting of a subcylindrical coxite (cx) with a thumb-like process in anterior part. Prefemoral part short, about 0.2–0.3 times as long as acropodite (femoral part+ postfemoral part = solenophore). Femoral part (fe) strongly reduced, about 0.2–0.3 times as long as solenophore. Solenomere long, flagelliform, distinctly branching from the middle of femoral part, sheathed distally by solenophore. Solenophore (sph) curved or rolled up, distal half with evident processes, and its tip expanded and clearly fimbriate and/or denticulate, often serrate as well.

Other species included. *Yuennanina aceratogaster* Zhang & Li, 1977, *Y. petalolobodes* Chang & Zhang, 1989, and *Y. sirindhornae* sp. nov.

Remarks.− The genus *Yuennanina* was established by Attems (1936), with the type species, *Y. ceratogaster*, described based on a single male holotype collected by J. W. Gregory at an unprecised locality in Yunnan, southwestern China (Attems, 1936).

Attems (1937) supplied the new species with a fairly complete description accompanied by line drawings, which he further elaborated the following year with additional illustrations of a gonopod and sternal process. Despite this, the original illustrations of the gonopod remained quite schematic, simply showing a rough outline of the structural characteristics.

Yuennanina had remained monotypic for over four decades until Zhang and Li (1977) described *Y. aceratogaster* from the same region (Yunnan). It was distinguished primarily by its peculiar gonopodal structure, especially its distal part, and the absence of a sternal process on male ring 6. Subsequently, a third species was discovered in Chenggong County, near Kunming, Yunnan Province (Chang and Zhang, 1989). That discovery was accompanied by the first key to all three species. Furthermore, the distribution of *Yuennanina* seemed to be restricted to the Yunnan region (Fig. 1), but its potential presence in neighboring regions, including Southeast Asia, has not been adequately explored.

Yuennanina ceratogaster Attems, 1936
(Fig. 2)

Yünnanina ceratogaster Attems, 1936*:* 234 (D).
Yünnanina ceratogaster—Attems 1937*:* 259 (D).
Yuennanina ceratogaster—Jeekel 1965: 127 (L, K).
Yuennanina ceratogaster—Jeekel 1968: 76 (L); Zhang and Li, 1977: 358 (D); Wang and Mauriès 1996: 86 (L); Nguyen and Siewald 2013*:* 1180 (L); Golovatch and Liu 2020: 172 (L).
Yunnanina [sic!] *ceratogaster* Chang and Zhang 1989: 415 (D, K).

Material examined.− Holotype ♂ (NHMW-4305), "Western China, Yunnan", leg. Prof. J.W. Gregory.

Redescription.– Gonopods (Fig. 2A–C) with subcylindrical coxites (cx) a little curved caudad, rather densely setose distodorsally and with a thumb-like process

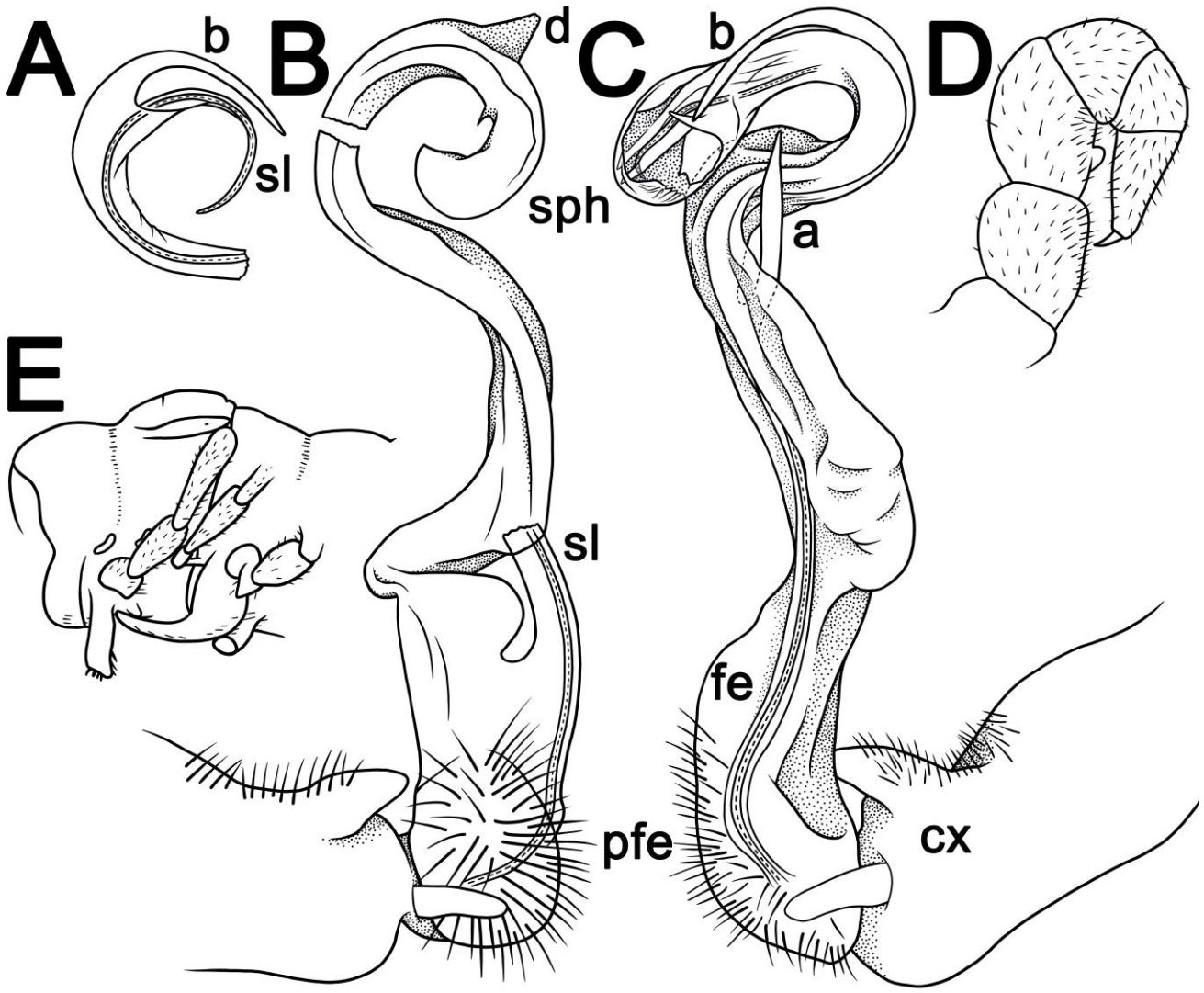

FIGURE 2. *Yuennanina ceratogaster* Attems, 1936, ♂ holotype (NHMW-4305). **A, B.** left gonopod. **C.** right gonopod. **A.** tip of solenomere, lateral view. **B, C.** right gonopods, lateral and mesal views, respectively. **D.** 1st leg E rings 4 and 5, lateral view (after Attems 1937, modified). No scale bar. Abbreviations: a = process a, b = process b, cx = coxa, fe = femoral part, pfe = prefemoral part, sl = solenomere, sph = solenophore.

(Fig. 2B, C). Prefemoral part(pfe) short, about 0.25 times as long as acropodite. Femoral part (fe) strongly reduced, about 0.3 times as long as solenophore (sph) (Fig. 2B, C). Solenomere (sl) long and slender, clearly branching from the middle of femoral part, sheathed distally by solenophore. Solenomere long and flagelliform, clearly bifid at tip, with a curved, elongated and acuminate process b distally (Fig. 2A, C). Solenophore (sph) rather complex, elongated, but stout, clearly curved distally, middle part with a distinct, long, sharp tip and an erect process a laterally (Fig. 2C); distal part with a subtriangular process d (Fig. 2C). Tip of solenophore curved, expanded, apical spoon-shaped (Fig. 2).

Remarks.− The original description mentioned only Yunnan, West-China [= Yunnan, Kunming City] (Attems, 1936; Golovatch and Liu, 2020). The species was only based on a single male specimen (Attems, 1936). In this work, we observed a slide borrowed from the Vienna Museum which contained two gonopods (Fig. 2A–C) and the first pair of legs (Fig. 2D). Unfortunately, the holotype torso was absent from the collection, making it impossible to provide further morphological information concerning this species.

Yuennanina aceratogaster Zhang & Li, 1977
(Fig. 3A–C)

Yunnanina [sic!] *aceratogaster* Zhang & Li, 1977: 357 (D).

Yunnanina [sic!] *aceratogaster*—Chang and Zhang 1989: 415 (K).

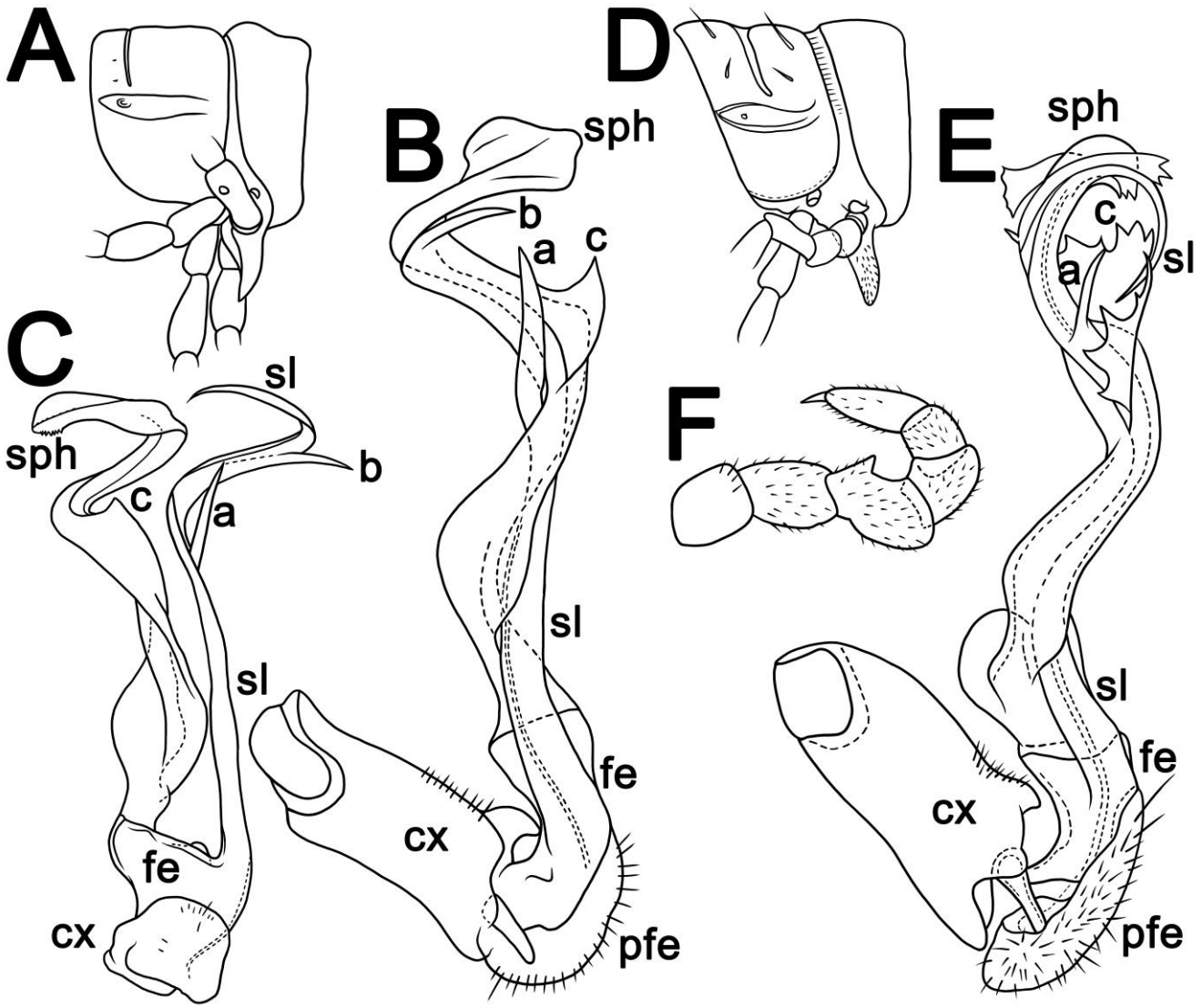

FIGURE 3. A–C. *Yuennanina aceratogaster* Zhang & Li, 1977, ♂. **D–F.** *Yuennanina petalolobodes* Chang & Zhang, 1989, **D, E** ♂ and **F** ♀. **A, D.** ring 5, lateral views. **B, C, F.** left gonopod, mesal, suboral and mesal views, respectively. **F.** 2nd leg. No scale bar (modified from Zhang and Li, 1977; Chang and Zhang, 1989). Abbreviations: a = process a, b = process b, c = process c, cx = coxa, fe = femoral part, pfe = prefemoral part, sl = solenomere, sph = solenophore.

TABLE 1. Comparison of all four known *Yuennanina* species; n/a = No information available

Characters/Species	***Y. ceratogaster***	***Y. aceratogaster***	***Y. petalolobodes***	***Y. sirindhornae* sp. nov.**
Body length (mm)	n/a	16–20 (♂, ♀)	20–21 (♂, ♀)	19.6–21.8 (♂)
Body width (mm)	2.0	1.5–2.0 (♂, ♀)	2.5 (♂, ♀)	1.3–1.7 (♂)
Body color in alcohol	black	chestnut-brown to blackish brown	brownish yellow to blackish brown	reddish-brown to light brown
Paraterga and legs color	bright yellowish-brown.	yellowish-brown.	yellowish-brown.	contrasting light yellow-yellowish-brown
Transverse sulcus	incomplete on ring 2, complete on ring 3–18	starting from ring 2	distinct	incomplete on ring 4, complete on ring 5–18
Adenostyle on ♂ femur 1	with a femoral tubercle	with a femoral tubercle	with a femoral tubercle	with a femoral tubercle
♂ tarsal brushes	present	n/a	present all legs	present until ring 7
Sternum 5	with a long, ventral process	with an entire, linguiform lobe	with an entire, densely setose, linguiform lobe	with an entire, densely setose, linguiform lobe
Sternum 6	with a prominent median hook-shaped process	absent	absent	absent
Gonopods				
Solenophore (sph)	curved, expanded apical laminae, spoon-like	curved, expanded apical laminae, smooth edge	curved, expanded apical laminae, serrated edge	circinate vernation shape, evident serrated edge
Process a	long and pointed	long and pointed	long and pointed	short and tongue-like
Process c	absent	triangular lamina	serrated lamina	rounded prominence

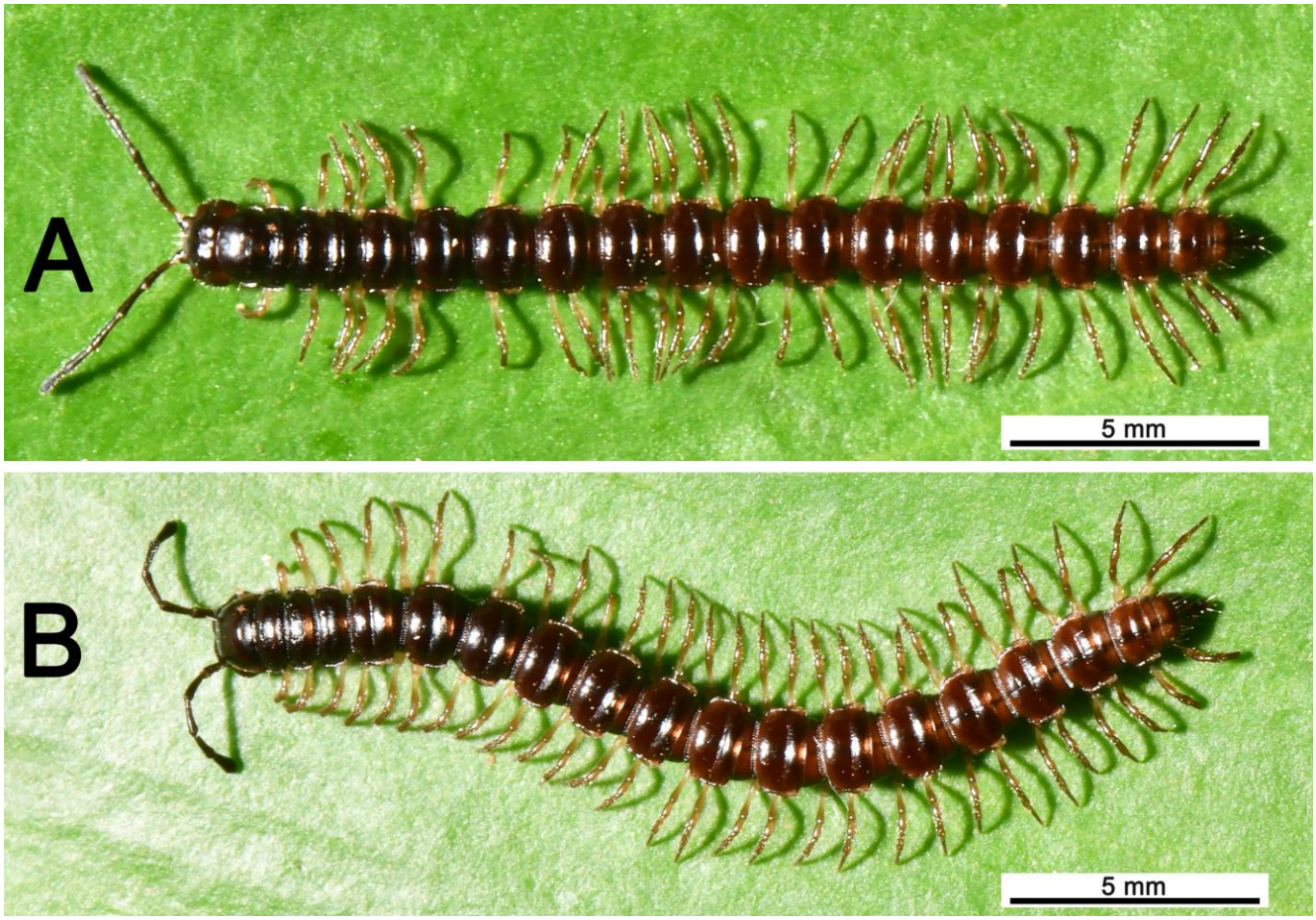

FIGURE 4. *Yuennanina sirindhornae* sp. nov., ♂ holotype. **A, B.** habitus, live coloration.

Yuennanina aceratogaster—Wang and Mauriès 1996: 86 (L); Nguyen and Siewald 2013*:* 1180 (L); Golovatch and Liu 2020: 172 (L).

Remarks.– The original description again mentioned only Yunnan Province, southwestern China [=Yunnan, Kunming City] (Zhang and Li, 1977; Golovatch and Liu, 2020).

***Yuennanina petalolobodes* Chang & Zhang, 1989**

(Fig. 3D–F)

Yunnanina [sic!] *petalolobodes* Chang & Zhang 1989: 415 (D).

Yuennanina petalolobodes—Wang and Mauriès 1996: 86 (L); Nguyen and Siewald 2013: 1180 (L); Golovatch and Liu 2020: 172 (L).

Remarks.– The original description mentioned Chenggong County (24°9’N, 102°8’E), Kunming, Yunnan Province (Chang and Zhang, 1989).

***Yuennanina sirindhornae* sp. nov.**

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(Figs 4–7)

Type material.– Holotype ♂ (CUMZ-PD0038), Thailand, Chiang Mai Province, Mae Taeng District, Huai Nam Dang, deciduous forest, ca 1420 m, 19°18’25” N, 98°35’40” E, 18.07.2019, leg. N. Likhitrakarn.

Paratype: ♂ (CUMZ-PD0038), same locality, together with holotype.

Etymology.– The specific epithet is chosen to honour Her Royal Highness Princess Maha Chakri of Thailand for her dedication to science and the encouragement of nature conservation in Thailand.

Diagnosis.– Distinguished from congeners by its reddish brown to light brown body with contrasting light yellow to yellowish brown markings (Figs 4, 5A–H). The gonopodal solenophore is unique, elongated, with laminae rolled inward in a circular formation and showing fimbriate edges starting from the middle (Figs 6A–F, 7B–E). The base of the solenophore bears a rounded prominent process c (Figs 6A–F, 7B–E) and a

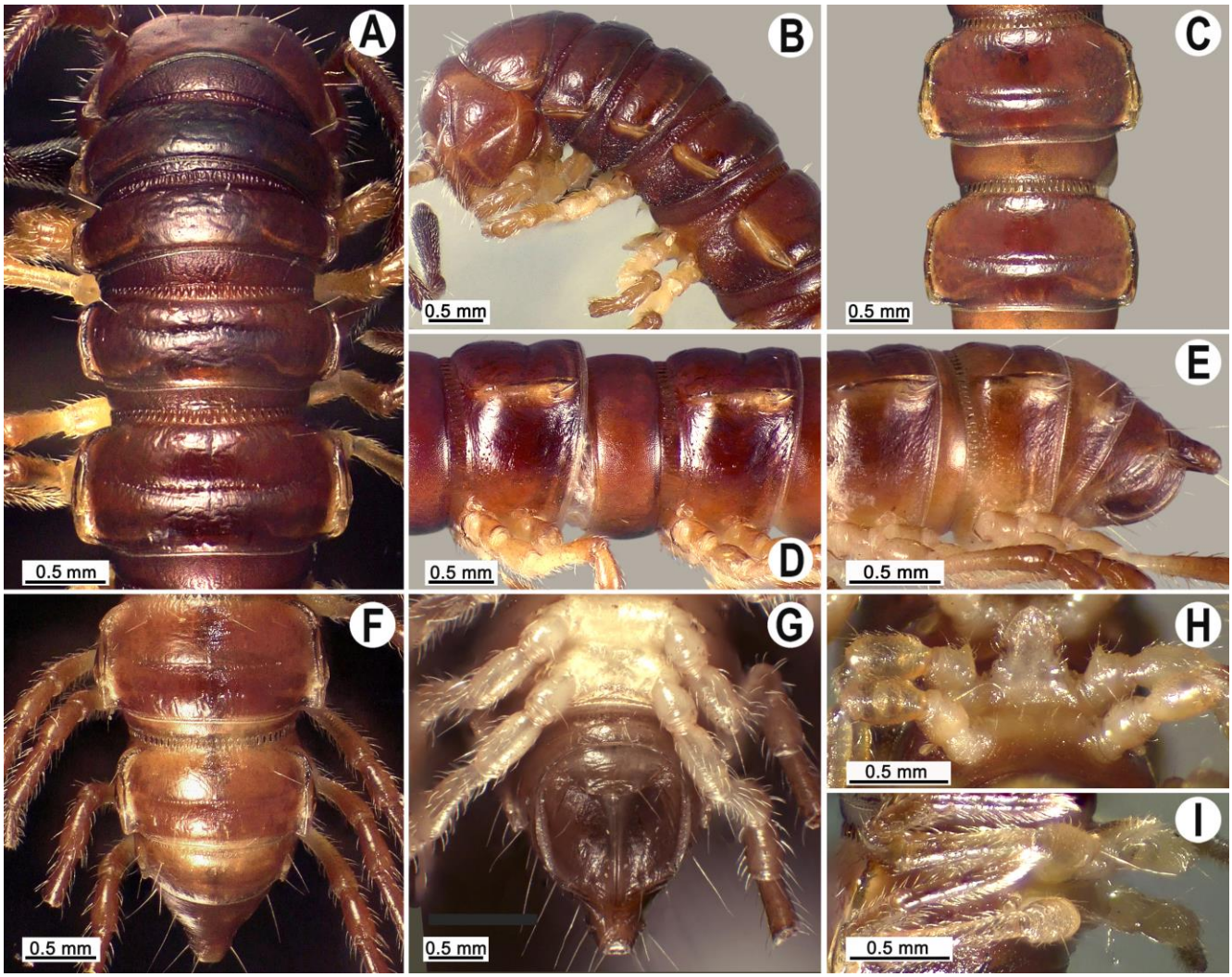

FIGURE 5. *Yuennanina sirindhornae* sp. nov., ♂ holotype. **A.** habitus, live coloration. **B, D.** anterior part of body, dorsal and lateral views, respectively. **C, E, G.** rings 10 and 11, dorsal, venter and lateral views, respectively. **F, H.** posterior part of body, dorsal and lateral views, respectively. **I, J.** sternal cones between coxae 4, sublateral and subcaudal views, respectively.

short, tongue-shaped process a (Figs 6E, F, 7C–E). The middle part is characterized by a hammer-shaped process d (Figs 6A–F, 7C–E). Further details concerning the comparison of the four species within this genus are provided in Table 1 and the identification key below.

Description.– Length of holotype, 21.8 mm; ♂ paratype, 19.6 mm, width of midbody pro- and metazona of holotype, 1.3 and 1.7 mm, respectively; ♂ paratype, 1.1 and 1.6 mm, respectively.

Coloration of live animals reddish brown (Fig. 4A, B); edges of paraterga and legs light brown to yellowish brown; Coloration in alcohol after five years of preservation faded to red-brown to light brown (Fig. 5A–F); edges of paraterga light brown to yellowish, head and antennae red-brown, legs, venter and a few basal antennomeres contrasting light yellow (Fig. 5A–H).

Clypeolabral region and vertex densely setose, epicranial suture distinct. Antennae moderately long (Fig. 4A, B), reaching until ring 4 dorsally. In width, head < ring 4 < 3 < collum < ring 2 < 5 < 6 < 7 < 8–16; thereafter body gently and gradually tapering (Fig. 5A, F). Collum with three transverse rows of setae: 4+4 anterior, 2+2 intermediate, and 3+3 posterior; a very faint incision laterally in posterior 1/3; caudal corner of paraterga rounded, slightly declined ventrad, not projecting past rear tergal margin (Fig. 5A, B).

Tegument smooth and shining, prozona very finely shagreened, metaterga smooth and delicately rugulose, leathery; surface below paraterga finely microgranulate. Postcollum metaterga with a transverse anterior row of 2+2 setae, a posterior row of 4+4 setae traceable at least as insertion points. Tergal setae long, rather thick, but slender, about 1/3 metatergal length (Fig. 5A). Axial line visible on metazona, barely traceable on prozona.

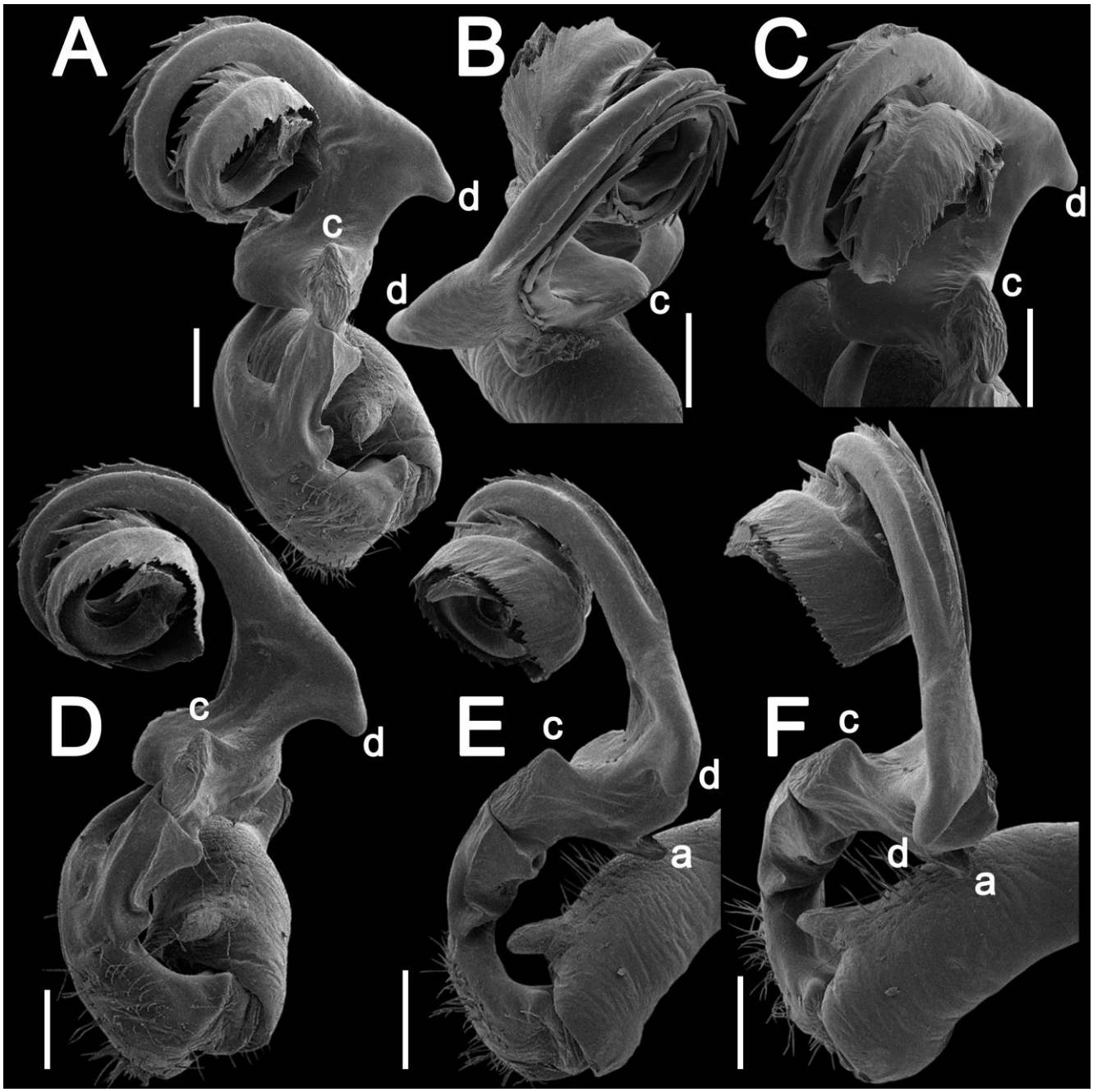

FIGURE 6. *Yuennanina sirindhornae* sp. nov., ♂ holotype. **A, B, D–F.** right gonopod, mesal, caudal, sublateral, lateral, and subcaudal views, respectively. **C.** distal part of right gonopods, submesal view.

Paraterga moderately well developed (Fig. 5A–F), mostly slightly upturned, all lying high (at about 2/3 midbody height); anterior edge rounded and narrowly bordered, fused to callus; caudal corner very narrowly rounded, lying below dorsum, posterior edge slightly concave. Calluses on paraterga delimited by a sulcus only dorsally. Paraterga 2 broad, anterior edge angular, lateral edge with three small, but evident incisions in anterior half, posterior edge clearly oblique. Paraterga 3 and 4 each with two evident incisions at lateral edge, a setigerous incision in anterior 1/3, the other incision about the middle (Fig. 5A). Lateral edge of following paraterga with an evident setigerous incision in anterior 1/3 (Fig. 5A, C, F). Ozopores evident, lateral, lying in an ovoid groove at about 1/3 in front of caudal corner.

Transverse metatergal sulci distinct (Fig. 5A–F), incomplete on ring 4, complete on metaterga 5–18, rather deep, narrow, reaching the bases of paraterga, at most faintly beaded at bottom. Stricture between pro- and metazona wide, clearly ribbed at bottom down to base of paraterga (Fig. 5A–F). Pleurosternal carinae complete crests on rings 2–4, a small, caudally granulated bulge on ring 5, thereafter an evident, protruded, sharp tooth caudally on rings 6 and 7, absent

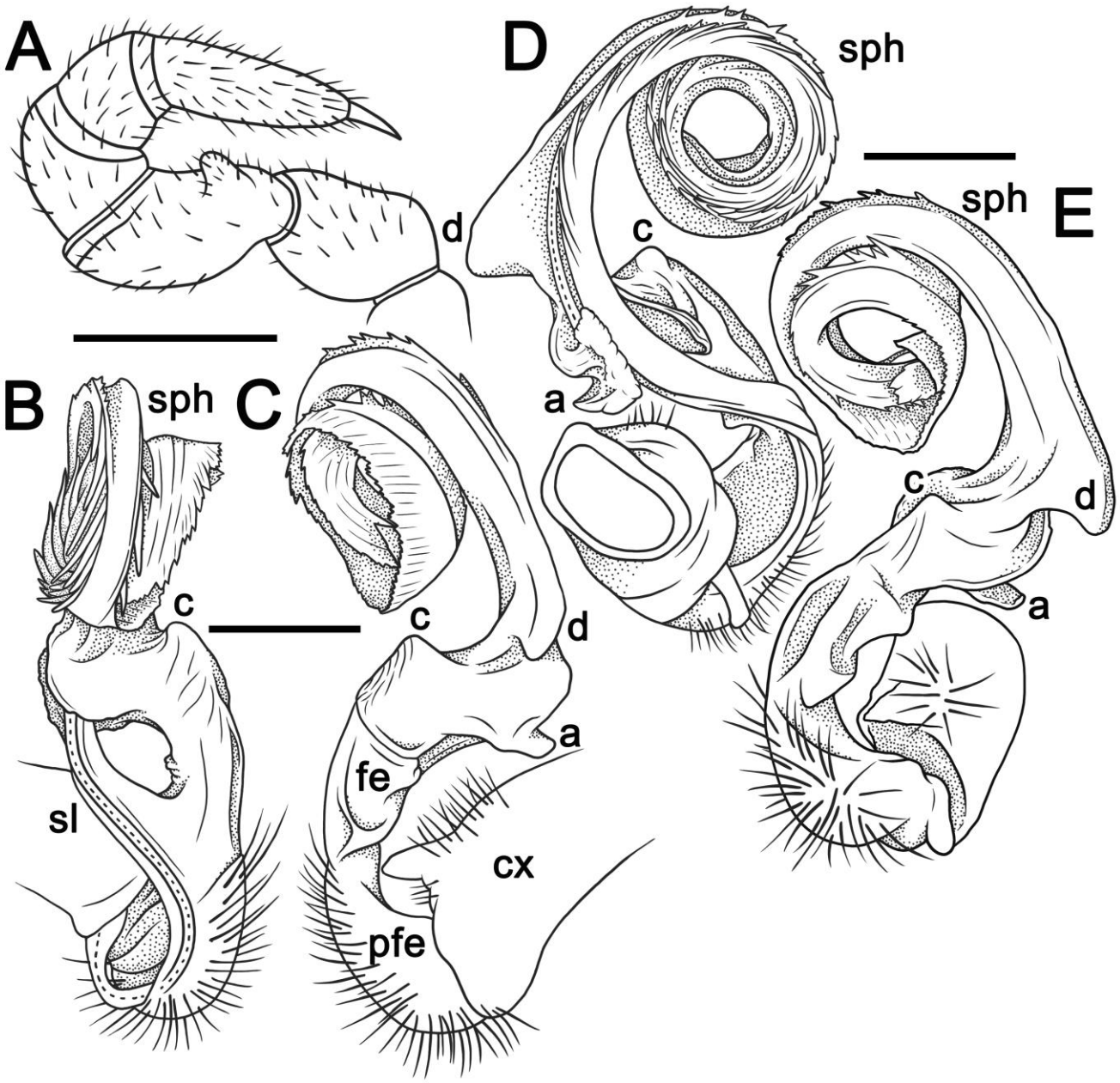

FIGURE 7. *Yuennanina sirindhornae* sp. nov., ♂ holotype. **A.** left first leg. **B–E.** right gonopod, sublateral, mesal, subcaudal and suboral views, respectively. Scale bar: 0.2 mm. Abbreviations: a = process a, c = process c, cx = coxa, d = process d, fe = femoral part, pfe = prefemoral part, sl = solenomere, sph = solenophore.

from ring 8 on (Fig. 5B, D, E). Epiproct (Fig. 5E–G) conical, rather well compressed dorsoventrally, with two small apical papillae; tip subtruncate; pre-apical papillae small, but visible, lying close to tip. Hypoproct nearly semi-circular, setiferous knobs at caudal edge well separated and evident (Fig. 5G).

Sterna moderately setose, without modifications except for an entire, densely setose, linguiform, sternal cone between ♂ coxae 4 (Fig. 5H, I). Adenostyles present only on femora 1 (Fig. 7A). A paramedian pair of evident tubercles in front of gonopodal aperture. Legs moderately long and slender, midbody ones ca 1.3–1.5 times as long as body height, prefemora without modifications, ♂ tarsal brushes present until male ring 7.

Gonopods (Figs 6, 7) with subcylindrical coxites (cx) curved caudad, rather densely setose distodorsally and with an evident thumb-shaped process (Figs 6A, D–F, 7C). Prefemoral part (pfe) short, about 0.3 times as long as acropodite. Femoral part (fe) strongly reduced, about 0.5 times as long as solenophore (sph) (Figs 6A, D–F, 7B, C, E). Solenomere (sl) long and slender, clearly branching from the middle of femoral part, fully sheathed distally by solenophore (Figs 6A, D, 7B). Solenophore (sph) unique, complex, elongated,

laminar and evidently rolled inward in a circular formation, resembling a young fern frond with edges fimbriate starting with its middle (Figs 6A–F, 7B–E). Base of solenophore with a rounded prominent process c (Figs 6A–F, 7B–E) and a short, tongue-shaped process a (Figs 6E, F, 7C–E), while middle part with an evident hammer-shaped process d (Figs 6A–F, 7C–E).

Remarks.– *Yuennanina sirindhornae* sp. nov. represents the first formal record of the genus *Yuennanina* from Thailand, significantly expanding its known geographic range beyond its previous known distribution in Yunnan Province, China. This new species is immediately distinguished from all congeners by its unique gonopodal solenophore that resembles a young fern frond, being coiled and with fringed edges.

Key to species of *Yuennanina*

1. Body coloration reddish brown to light brown (Figs 4, 5A–H). Gonopodal solenophore resembling a young fern frond with serrated edges (Figs 6A–F, 7B–E). Chiang Mai, Thailand…… ……..…….….. *Y. sirindhornae* sp. nov.
– Body coloration black, chestnut-brown, blackish brown or brownish yellow. Gonopodal solenophore curved, with expanded apical laminae (Figs 2B, C, 3C, B, E). Yunnan, China ……..…… 2

2. Sternal lamina between ♂ coxae 6 prominent and hook-shaped (Fig. 2E). Sternal lamina between ♂ coxae 4 a long ventral process (Fig. 2E). Gonopod process d present (Fig. 2B) …..….. *Y. ceratogaster*
– Sternal lamina between ♂ coxae 6 absent. Sternal lamina between ♂ coxae 4 an entire and linguiform lobe (Figs 3A, D). Gonopod process d absent (Fig. 3B, C, E) ……..…….. 3

3. Body larger: 20–21 mm long and 2.5 mm wide. Solenophore tip with an evidently serrate edge (Fig. 3E). Gonopod process c large, with an evidently serrate lamina (Fig. 3E) ……. *Y. petalolobodes*
– Body smaller: 16–20 mm long, 1.5–2.0 mm wide. Solenophore tip almost smooth or with a very finely denticulate edge (Fig. 3B, C). Gonopod process **c** small and triangular (Fig. 3B, C) ... *Y. aceratogaster*

DISCUSSION

At present, the subfamily Alogolykinae comprises two tribes: Alogolykini and Polydrepanini. The tribe Alogolykini can be distinguished from its close and sole counterpart tribe Polydrepanini by the presence of a strong, rod-shaped solenomere, as opposed to a slender, flagelliform solenomere in Polydrepanini (Likhitrakarn et al., 2013; Golovatch et al., 2021). Currently, the tribe Alogolykini comprises seven genera: the monotypic *Alogolykus* Attems, 1936 (from Myanmar), *Yuennanina* Attems, 1936 (four species from southern China and Thailand), *Tetracentrosternus* Pocock, 1895 (four species from Myanmar, Thailand, and southern China), *Touranella* Attems, 1937 (13 species from Nepal, Laos, and Vietnam), *Singhalorthomorpha* Attems, 1914 (three species from Sri Lanka), the monotypic *Curiosoma* Golovatch, 1984 (from India), and the monotypic *Carlogonopus* Golovatch, Aswathy, Bhagirathan & Sudhikumar, 2021 (from India) (Golovatch et al., 2021; Nguyen et al., 2013, 2023; Likhitrakarn et al., 2025).

The genus *Yuennanina* is characterized by its thumb-like male leg 1, making it clearly distinguished from other genera. Three species in this genus, all previously reported from Yunnan Province, China, are here joined by a new species, *Y. sirindhornae* sp. nov., discovered in Chiang Mai, northern Thailand, approximately 650 km SW of the previous records. This discovery is the first congener outside China, significantly expanding its distribution to Southeast Asia and emphasizing the potential for a still vaster distribution of the genus (Fig. 1), particularly in the mountainous habitats of southern China, Laos, and northern Thailand.

The discovery of *Yuennanina sirindhornae* sp. nov. enhances our comprehension of the morphological diversity in this genus, especially due to its gonopod characteristics, such as its hammer-shaped solenophore and the formation of an extraordinary circular structure with a fringed margin, one similar to a youth fern frond. These unique gonopod characters not only confirm its classification as a new species, but they also suggest considerable evolutionary divergence from its Chinese congeners. Future molecular phylogenetic analyses would be valuable in elucidating the evolutionary relationships within *Yuennanina* and understanding the morphological adaptations.

The diversity of millipedes in Thailand has reportedly exploded over the past two decades, with numerous species newly identified through conventional taxonomic methods and phylogenetic analyses demonstrating their evolutionary relationships (e.g., Likhitrakarn et al., 2024; Srisonchai et al., 2024a, 2024b; Pimvichai et al., 2023). The number of millipede species currently recorded from Thailand amounts to 279. Nonetheless, numerous millipedes remain unexplored, trapped inside the severely altered natural and anthropogenic environments. This requires further intense studies. Currently, advancements in

molecular-based techniques facilitate more precise and comprehensive classifications, offering new opportunities and challenges for ongoing taxonomic studies in this area.

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