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Tropodiaptomus sirindhornae sp. nov., A New Diaptomid Copepod (Copepoda: Calanoida) from Thailand

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ABSTRACT.– *Tropodiaptomus sirindhornae* sp. nov. is described and illustrated based on materials collected from both permanent and temporary habitats across several regions of Thailand. This new species can be distinguished from its congeners by the following morphological characters of adult male antennule and fifth leg: the antepenultimate segment of right antennule with straight spinous process reaching between 1/2 and 3/4 of next segment; the inner margin of exopodal segment of left fifth leg with two lobes, and with uniform serration; the basis of right fifth leg has one triangular process and one longitudinal hyaline lamella; and second exopodal segment of right fifth leg is rectangular, posterior surface ornamented with one semicircular hyaline knob on middle close to inner margin and one triangular apophysis on distal outer margin. This species is widely distributed both spatially and temporally.

KEYWORDS: diversity, Diaptomidae, cryptic species, new species, Southeast Asia

INTRODUCTION

To date, more than 170 copepod species have been recorded from freshwater habitats in Thailand (Saetang and Maiphae, 2023; Saetang et al., 2020, 2024; Sanoamuang and Dabseepai, 2021; Watiroyram and Koompoot, 2024; Koompoot and Sanoamuang, 2025). The genus *Tropodiaptomus* Kiefer, 1932, is among the most speciose genera of freshwater calanoid copepods in the family Diaptomidae, with 66 valid species reported worldwide, primarily in tropical and subtropical regions of Africa and Asia (Koompoot and Sanoamuang, 2025; Walter and Boxshall, 2025). In Thailand, however, it is comparatively less diverse and exhibits a patchy distribution, typically occurring in temporary or semi-permanent water bodies at low population densities. Scarcity of specimens and subtle interspecific morphological differences have long hindered accurate identification, leading to historical underestimation of its diversity.

Since 2021, integrative taxonomic studies combining detailed morphology with molecular analyses have improved species delimitation and clarified relationships in Thailand (Saetang and Maiphae, 2023; Saetang et al., 2021, 2022), raising the number of recorded species to 12. These include *T. doriai*, *T. hebereri*, *T. lanaonus*, *T.* cf. *lanaonus*, *T. oryzanus*, *T. ruttneri*, *T. vicinus*, *Tropodiaptomus* sp. 1, *Tropodiaptomus* sp. 2, and three species recently described from the country: *T. megahyaline* Saetang, Sanoamuang & Maiphae, 2021; *T. longiprocessus* Saetang & Maiphae, 2023; and *T. pedecrassum* Saetang & Maiphae, 2023.

Despite more intensively systematic study, unresolved taxonomic issues remain. Some populations exhibit high genetic divergence within species, suggesting the presence of cryptic taxa. Saetang et al. (2022) detected one such lineage, provisionally designated as *T.* cf. *lanaonus*, which showed substantial mitochondrial DNA divergence from *T. lanaonus* Kiefer, 1982. Furthermore, detailed morphological examinations of specimens from six locations in Northeastern, Eastern, and Southern Thailand revealed clear diagnostic traits distinguishing them from the true *T. lanaonus*, strongly supporting its recognition as a distinct taxon.

Hence, in this study, we aim to describe this lineage as *Tropodiaptomus sirindhornae* sp. nov., providing detailed morphological descriptions and illustrations for both sexes, supported by molecular evidence. We also present updated information on its ecological and geographical distribution in Thailand. This work not only adds to the known biodiversity of *Tropodiaptomus* in Southeast Asia but also highlights the necessity of integrative approaches in revealing hidden diversity within morphologically challenging copepod groups.

MATERIALS AND METHODS

Copepod samples were qualitatively collected from rice fields, river and swamps in Bueng Kan and Surin Province (Northeastern Thailand), Chachoengsao and Trat Province (Eastern Thailand), and Songkhla Province (Southern Thailand) during September 2017 and June 2019 (Fig. 1). The copepods were sampled with a plankton net with a mesh size of 60 µm and immediately preserved in 70% ethanol.

All adult males and females were sorted using an Olympus SZ40 stereo microscope, and each specimen was dissected and mounted on a slide in glycerine and then sealed using nail varnish. The morphological characteristics were examined and identified using an Olympus CH2 compound microscope, and drawings were made from both complete and dissected specimens using a camera lucida connected to the microscope. The digital versions of the drawings were made using Adobe Illustrator CS5 program (version 28.5). The specimens were identified to species level according to Lai et al. (1979a, 1979b), Lai and Fernando (1981), Kiefer (1982), Sanoamuang (2002), Saetang et al. (2021), and Saetang and Maiphae (2023).

The descriptive terminology proposed by Huys and Boxshall (1991) was adopted. Abbreviations used in the text and figures are: A1, antennule; ae, aesthetasc; s, spine; sp, spinous process; A2, antenna; P1–P5, legs 1–5; Exp-1 (2, 3), first (second and third) segment of exopod; Enp-1 (2, 3), first (second and third) segment of endopod.

All type specimens were deposited in the reference collection of the Princess Maha Chakri Sirindhorn National History Museum, Prince of Songkla University, Songkhla, Thailand (PSUNHM).

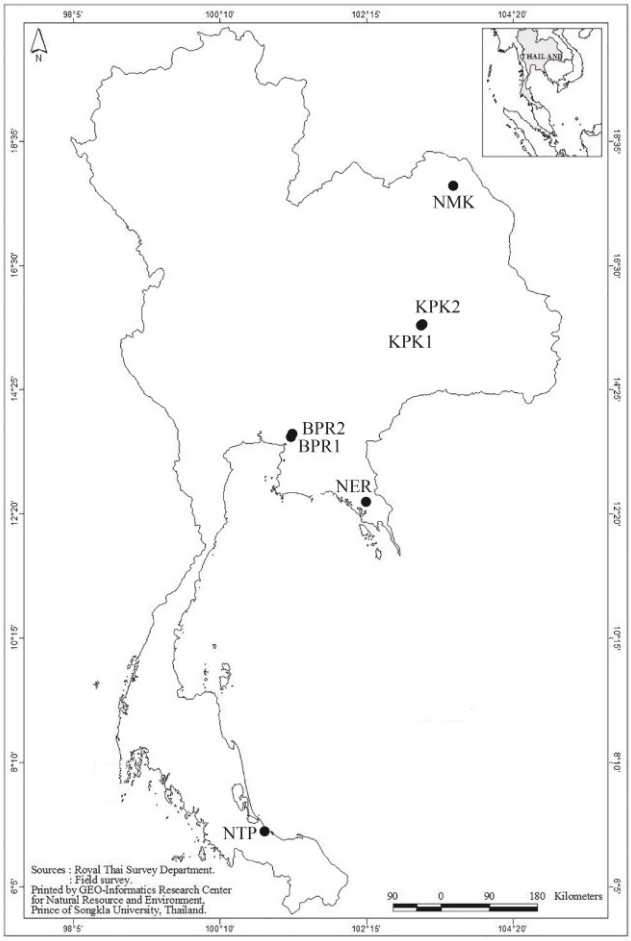

FIGURE 1. Sampling sites. Black circles indicate the presence of *Tropodiaptomus sirindhornae* sp. nov. Sample codes are given in the locality information within the species description.

RESULTS

Taxonomy

Order Calanoida Sars G.O., 1903
Family Diaptomidae Baird, 1850

Genus *Tropodiaptomus* Kiefer, 1932

Type species.– *Tropodiaptomus orientalis* (Brady, 1886)

Tropodiaptomus sirindhornae sp. nov.

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(Figs 2–5)

Type locality.– Roadside canal (KPK1), Phrai Kla Subdistrict, Chumphon District, Surin Province, northeastern Thailand, 15°20′38.2″ N 103°32′18.7″ E. 13 October 2017, 26 October 2018, and 03 June 2019. Permanent habitat with aquatic plants. Water temperature 31.16–34.92 °C, conductivity 117.6–581.6 µs cm^{-1}, salinity 0.05–0.23 ppt, total dissolved solids 68–318 mg L^{-1}, pH 6.54–6.84, dissolved oxygen 1.82–7.95 mg L^{-1}.

Other localities.–

(i) Bang Pakong River (BPR1), Bang Pakong District, Chachoengsao Province, Eastern Thailand, 13°35′ 58.7″ N 101°04′40.4″ E. 22 September 2018. Permanent habitat with aquatic plants. Water temperature 31.30 °C, conductivity 213.9 µs cm^{-1}, salinity 0.09 ppt, total dissolved solids 124 mg L^{-1}, pH 7.24, dissolved oxygen 3.75 mg L^{-1}.

(ii) Rice field near Bang Pakong River (BPR2), Bang Pakong District, Chachoengsao Province, Eastern Thailand, 13°35′55.0″ N 101°04′06.7″ E. 22 Sep-

tember 2018. Plantation period. Water temperature 31.29 °C, conductivity 291.7 μs cm^{-1}, salinity 0.12 ppt, total dissolved solids 169 mg L^{-1}, pH 6.96, dissolved oxygen 4.35 mg L^{-1}.

(iii) Rice field near Songkhram River Basin (NMK), Seka District, Bueng Kan Province, Northeastern Thailand, 17°49′23.5″ N 103°55′19.4″ E. 03 June 2019. Plantation period. Water temperature 34.92 °C, conductivity 422.2 μs cm^{-1}, salinity 0.17 ppt, total dissolved solids 231 mg L^{-1}, pH 5.87, dissolved oxygen 6.07 mg L^{-1}.

(iv) Rice field (KPK2), Phrai Kla, Chumphon District, Surin Province, Northeastern Thailand, 15° 20′37.5″ N 103°32′18.7″ E. 13 October 2017, 24 May 2018, 26 October 2018, and 03 June 2019. Temporary habitat with aquatic plants. Water temperature 25.10–34.31°C, conductivity 191.8–275.7 μs cm^{-1}, salinity ppt, total dissolved solids 124–152 mg L^{-1}, pH 6.61–7.48, dissolved oxygen 3.53–8.02 mg L^{-1}.

(v) Swamp (NER), Nong E-ruem, Khao Saming District, Trat Province, Eastern Thailand, 12°31′27.2″ N 102°20′12.6″ E. 07 September 2017. Permanent habitat with aquatic plants. Water temperature 33.71 °C, conductivity 27.9 μs cm^{-1}, salinity 0.01 ppt, total dissolved solids 16 mg L^{-1}, pH 7.20, dissolved oxygen 5.78 mg L^{-1}.

(vi) Swamp (NTP), Na Thap Subdistrict, Chana District, Songkhla Province, Southern Thailand, 7°00′ 49.8″ N 100°41′44.5″ E. 12 November 2017 and 21 June 2018. Temporary habitat with aquatic plants. Water temperature 30.42–30.62 °C, conductivity 157.9–173.3 μs cm^{-1}, salinity 0.07 ppt, total dissolved solids 93–102 mg L^{-1}, pH 6.15–6.19ppt, dissolved oxygen 1.85–4.38 mg L^{-1}.

Etymology.– The specific name '*sirindhornae*' is dedicated to Her Royal Highness Princess Maha Chakri Sirindhorn of the Kingdom of Thailand.

Material examined.– Holotype, one adult male, dissected and mounted onto three slides, Phrai Kla Subdistrict, Chumphon District, Surin Province, northeastern Thailand, 15°20′38.2″ N 103°32′18.7″ E. 13 October 2017. Thanida Saetang and Supiyanit Maiphae; PSUZC-PK2011-01–PSUZC-PK2011-03. Allotype, one adult female, dissected and mounted onto three slides, Na Thap Subdistrict, Chana District, Songkhla Province, southern Thailand, 7°00′49.8″ N 100°41′44.5″ E. 21 June 2018. Thanida Saetang and Supiyanit Maiphae; PSUZC-PK2011-04–PSUZC-PK 2011-06. Paratype, one adult male, dissected and mounted onto two slides, collected with holotype; PSUZC-PK2011-07–PSUZC-PK2011-08.

Differential diagnosis.– *Tropodiaptomus sirindhornae* sp. nov. differs from its congeners by the following characters: (i) antepenultimate segment of the adult male right antennule with straight spinous process reaching 1/2 and 3/4 of next segment; (ii) inner margin of exopodal segment of the adult male left P5 with two lobes, and with uniform serration; (iii) basis of the adult male right P5 with one triangular process and one longitudinal hyaline lamella; (iv) Exp-2 of the adult male right P5 rectangular, posterior surface with one semicircular hyaline knob in middle close to inner margin, and one triangular apophysis on distal outer margin.

Description of the holotype.–

Body (Fig. 2A, B). Total body length about 0.8 mm (measured from anterior margin of rostrum to posterior margin of caudal rami). Prosome length about 2.4 times as long as urosome (including caudal rami). Fourth and fifth pedigers separated by distinct septum. Fifth pediger produced into small asymmetrical posterolateral wings (left wing shorter than right wing), each distal end with spine. Urosome 5-segmented, fourth somite with expanded right corner. Anal somite with deep cleft, length about 0.7 times as long as wide. Caudal rami parallel, symmetrical, length about 1.8 times as long as wide, with setules on inner margin. Each ramus with six setae.

Rostrum (Fig. 2C). Two rostral elements on anterior margin.

A1 (Fig. 2D–G). Asymmetrical. **Left A1** non-geniculate, 25-segmented. Armature formula of each segment as follows: 1+ae, 3+ae, 1+ae, 1, 1+ae, 1, 1+ae, 1+s, 2+ae, 1, 1, 1+ae+s, 1, 1+ae, 1, 1+ae, 1, 1, 1+ae, 1, 1, 2, 2, 2, 5+ae. **Right A1** transformed and geniculate, 22-segmented. Strongly dilated between segment 13 and segment 18. Segment 13 with one triangular hyaline process. Spinous process on segment 20 (antepenultimate) straight and bent at distal end, reaching 3/4 next segment. Armature formula of each segment as follows: 1+ae, 3+ae, 1+ae, 1, 1+ae, 1, 1+ae, 1+s, 2+ae, 1+sp, 1+sp, 1+ae+s, 1+ae+sp, 2+ae, 2+ae+sp, 2+ae+sp, 1+s, s, 1+3s, 4+sp, 2, 5+ae.

A2 (Fig. 3A). Coxa with one inner seta on distal corner. Basis with two inner setae on distal corner. Exopod 7-segmented, Exp-1–6 with 1, 3, 1, 1, 1, and 1 inner setae, respectively, and Exp-7 with one inner and three apical setae. Endopod 2-segmented, Enp-1 with two inner setae and one longitudinal row of outer spinules, Enp-2 with nine inner and seven apical setae; and one group of outer spinules.

Mandible (Fig. 3B). Coxa with eight strongly chitinised teeth and one unipinnate seta on gnathobase.

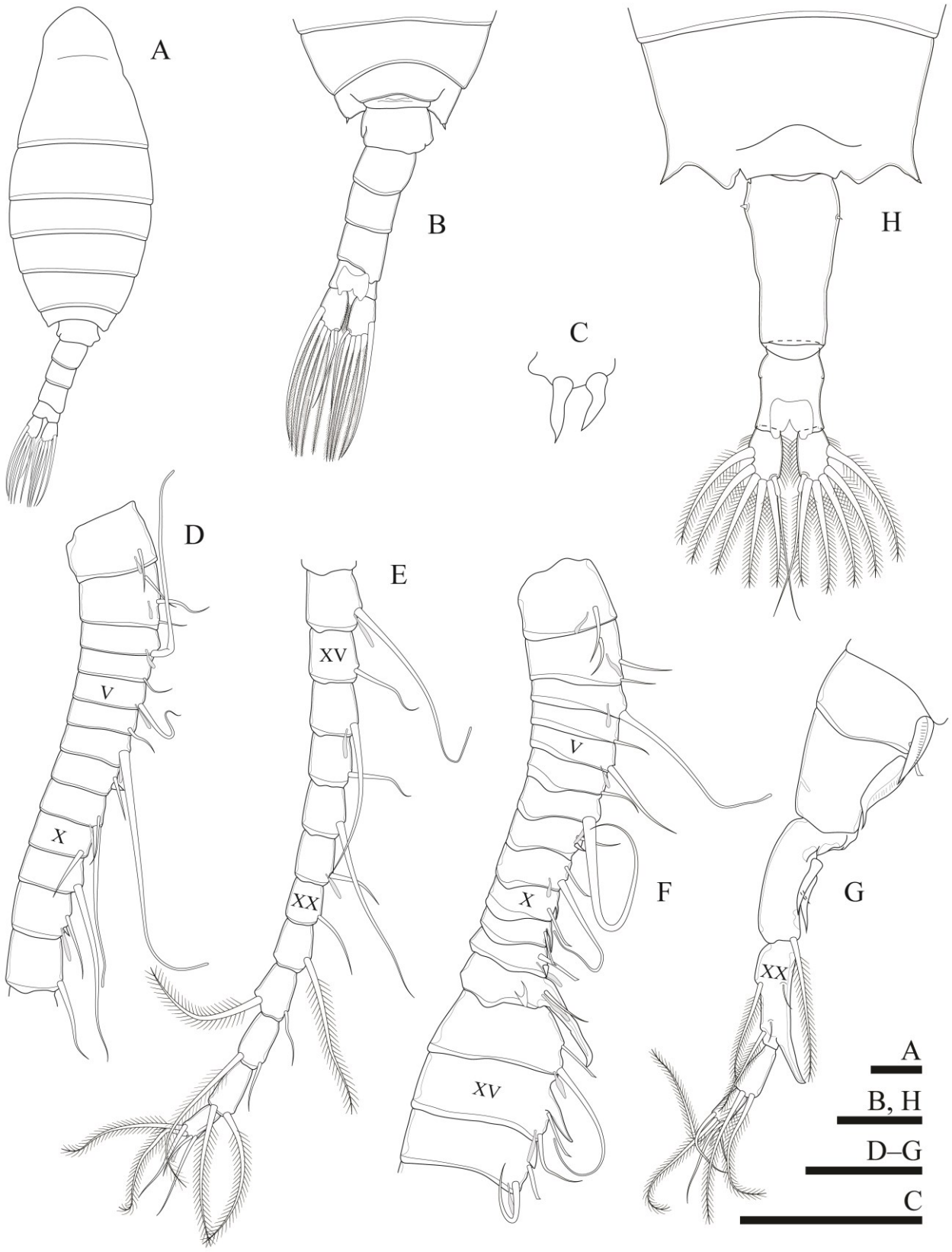

FIGURE 2. *Tropodiaptomus sirindhornae* sp. nov. **A–G.** male holotype: **A.** habitus, dorsal view; **B.** urosome, dorsal view; **C.** rostrum; **D.** left antennule, segment 1–13; **E.** left antennule, segment 14–25; **F.** right antennule, segment 1–16; **G.** right antennule, segment 17–22. **H.** female allotype, urosome, dorsal view. Scale bars = 100 µm.

FIGURE 3. *Tropodiaptomus sirindhornae* sp. nov., male holotype: **A.** antenna; **B.** mandible; **C.** maxillule; **D.** maxilla; **E.** maxilliped. Scale bar = 100 μm.

TABLE 1. Armature formula of P1–P4 in *T. sirindhornae* sp. nov. (Arabic numerals representing setae and Roman numerals representing spine from outer-inner or outer-apical-inner margins).

Swimming legs	Coxa	Basis	Exp			Enp		
			1	2	3	1	2	3
P1	0–1	0–0	I–1	0–1	I,3,2	0–1	1,2,3	-
P2	0–1	1–0	I–1	I–1	I,3,3	0–1	0–2	2,2,3
P3	0–1	1–0	I–1	I–1	I,3,3	0–1	0–2	2,2,3
P4	0–1	1–0	I–1	I–1	I,3,3	0–1	0–2	2,2,3

Basis with four inner setae. Exopod 4-segmented with 1, 1, 1, and 3 setae, respectively. Endopod 2-segmented, Enp-1 with four inner setae, Enp-2 with nine apical setae, two horizontal rows of outer spinules, and one horizontal row of inner spinules.

Maxillule (Fig. 3C). Precoxal arthrite with four setae and eleven spiniform setae. Coxal endite with four setae and coxal epipodite with nine setae. Basis with two endites; the proximal with three setae and the distal with seven setae. Exp 1-segmented with six setae and one longitudinal row of inner setules on distal margin. Enp 1-segmented with four setae and one group of spinules on middle of segment.

Maxilla (Fig. 3D). Proximal praecoxal endite with four setae, distal praecoxal endite with three setae. Proximal and distal coxal endites with three setae each. Allobasis protruding into endite with three setae. Endopod reduced to two segments, Enp-1 with three setae and Enp-2 with three setae.

Maxilliped (Fig. 3E). Praecoxal endite with one seta. Coxal endites with 2, 3, and 3 setae, respectively. Distal corner of coxa produced into rounded lobe with spinules on inner margin. Basis with three setae on distal third, and one row of setules and one row of spinules on inner margin. Endopod 6-segmented; with 2, 3, 2, 2, 1+1, and 4 setae, respectively.

P1–P4 (Fig. 4A–D). Biramous. Intercoxal sclerite naked. Coxa with one inner seta. Basis of P1 with lateral setules close to outer margin (Fig. 4A, arrowhead), and P2–P4 with one outer seta. P1 with 3-segmented exopod and 2-segmented endopod, P2–P4 with 3-segmented exopod and endopod, endopod reaching middle length of Exp-3. **P1** (Fig. 4A). Exp-1 with one longitudinal row of inner setules. Exp-2 with one longitudinal row of outer and inner setules. Exp-3 with one longitudinal row of outer and inner setules, and one row of spinules close to distal end. Enp-1 with one longitudinal row of outer setules. Enp-2 with one longitudinal row of outer and inner setules, and one row of spinules close to distal end. **P2**–**P4** (Fig. 4B–D). Exp-1 with one longitudinal row of inner setules. Exp-2 with one longitudinal row of outer and inner setules. Exp-3 with one longitudinal row of outer and inner setules, and one row of spinules close to distal end. Enp-1 with one longitudinal row of outer setules. Enp-2 with one longitudinal row of outer and inner setules, Enp-2 of P2 with Schmeil's organ. Enp-3 with one longitudinal row of outer and inner setules, and one row of spinules close to distal end. Armature formula of P1–P4 as in Table 1.

P5 (Fig. 5A). Asymmetrical. **Left leg**, reaching slightly beyond middle margin of exp-2 of right P5. Coxa length about 1.5 times as long as wide, with spine inserted on outer lobe. Basis cylindrical, about 1.7 times as long as wide, with one distal outer smooth seta. Exopod flattened, about 2.2 times as long as wide, inner margin two lobes with uniform serration. Apex of exopod with usual 'finger-and-thumb' combination, 'finger' slim, and set with radiant, hair-like 'thumb' sphere, anterior surface of exopod with two hairy pads. Endopod 1-segmented, conical, reaching beyond middle of Exp-1, rounded distally with one row of setules. **Right leg**, coxa length about as long as wide, with spine inserted on outer lobe. Basis cylindrical, about 1.6 times as long as wide, three structures occurring on posterior surface: (i) one triangular process on proximal third close to inner margin, (ii) one longitudinal hyaline lamella inserted in middle close to inner margin, and (iii) one distal outer smooth seta. Exopod 2-segmented. Exp-1 small, about 0.8 times as long as wide, with circular hyaline lobe on inner margin, distal outer corner produced into acute spinous process. Exp-2 rectangular, about 1.5 times as long as wide, posterior surface with one semicircular hyaline knob in middle close to inner margin, and one triangular apophysis on distal outer margin. Lateral spine nearly straight, acutely pointed, about 1.7 times as long as Exp-2, inserted on distal outer corner of Exp-2. End claw curved and gradually tapering to acuminate tip, about 2.8 times as long as Exp-2, inner margin with spinules distally. Endopod 1-segmented, conical, reaching distal end of Exp-1, and distal end with one row of setules.

Description of the adult female

Body. Total body length about 1.4 mm (measured from anterior margin of rostrum to posterior margin of caudal rami). Prosome length about 2.4 times as long as urosome (including caudal rami), and bearing sensilla on dorsal surface. Fourth and fifth pedigers

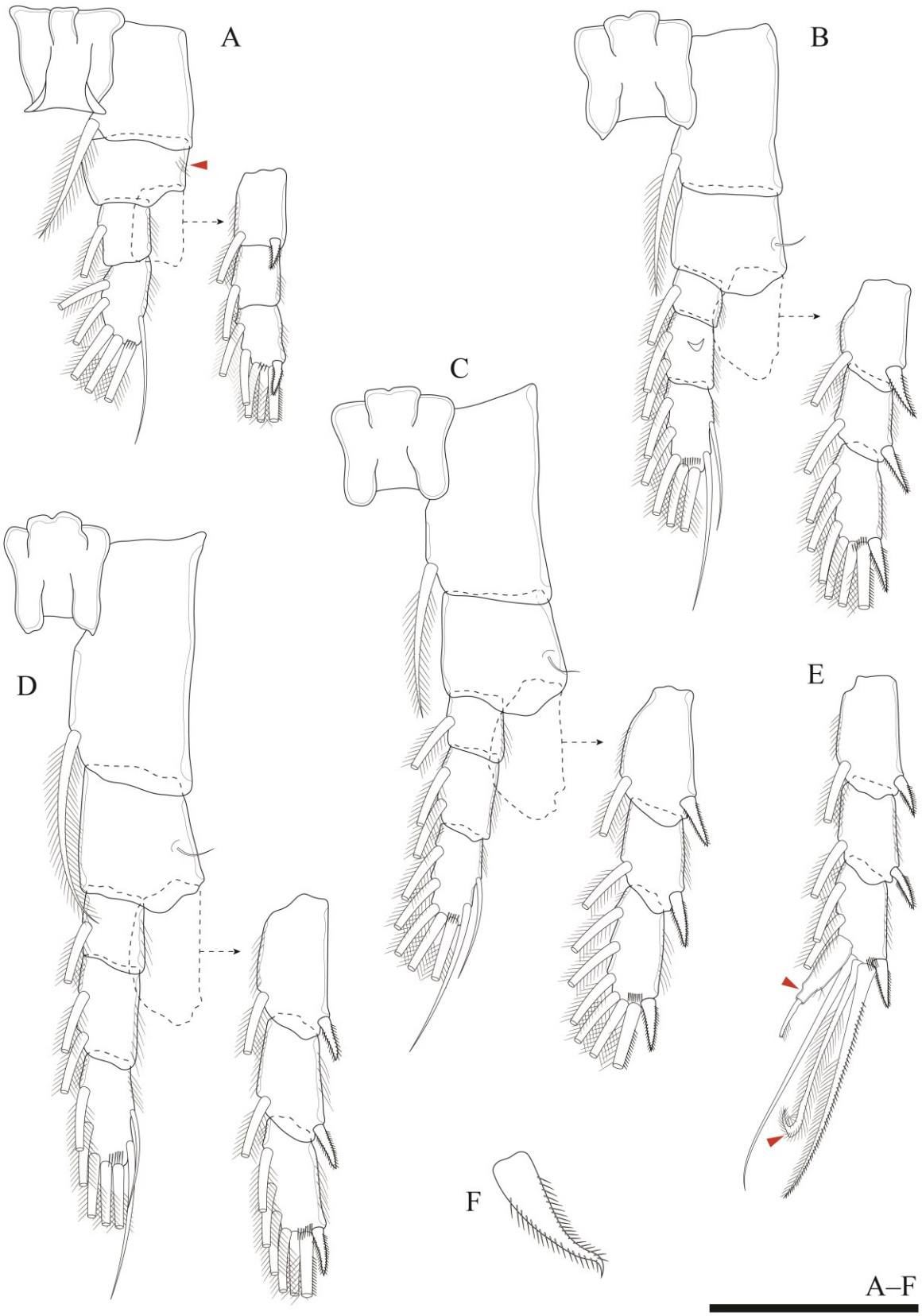

FIGURE 4. *Tropodiaptomus sirindhornae* sp. nov., adult male. **A–D.** Holotype: **A.** P1 (arrowhead indicates lateral setules close to outer margin); **B.** P2; **C.** P3; **D.** P4. **E, F.** paratype from the type locality: **E.** exopodal segments of P4 (arrowheads indicate the variation of setae); **F.** spine of P2 exp-1. Scale bar = 100 µm.

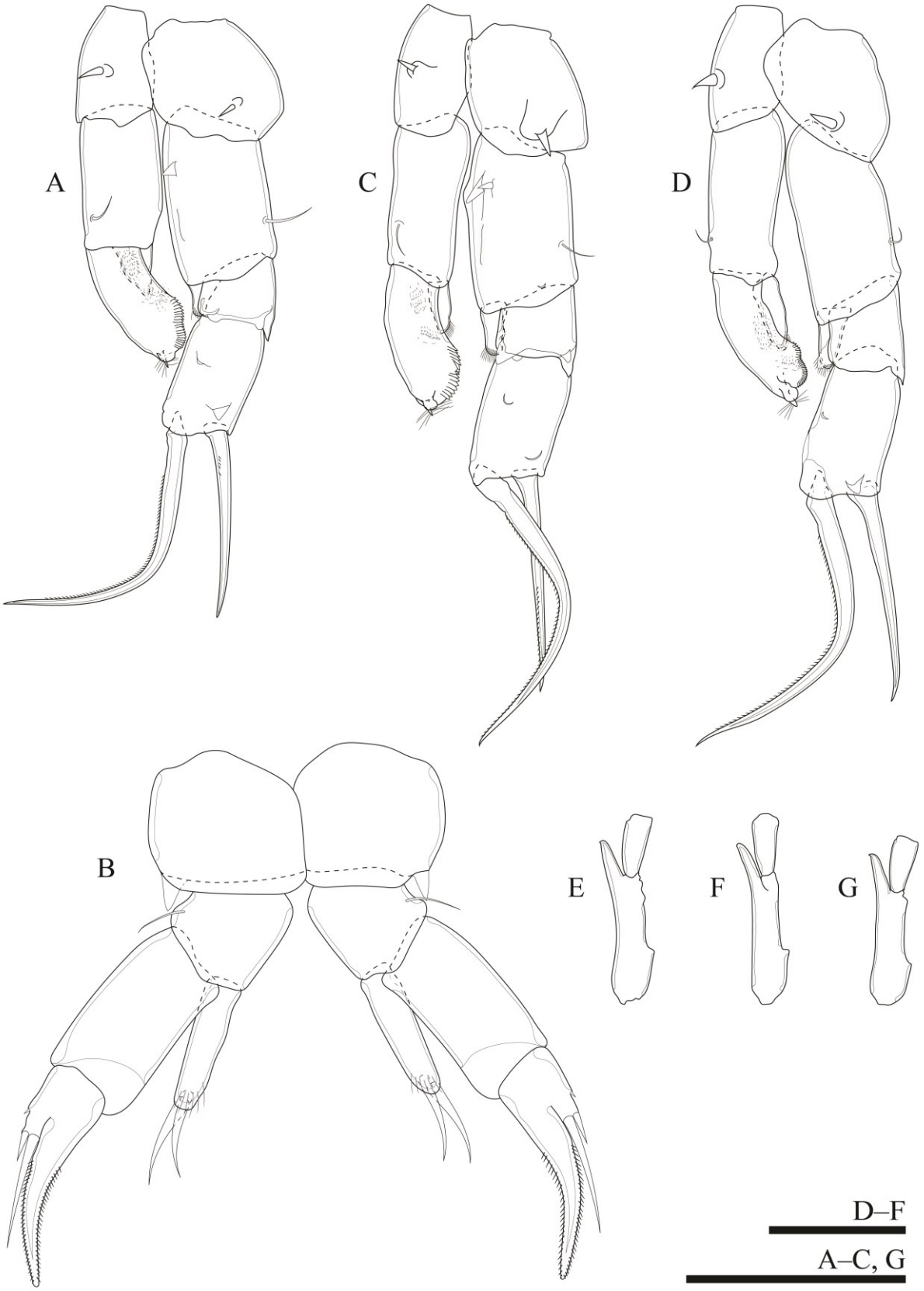

FIGURE 5. *Tropodiaptomus sirindhornae* sp. nov., **A, C–G.** adult male: **A.** P5, posterior surface, holotype; **C, D.** variation of P5 morphology; **E–G.** variation of the antepenultimate segment of right antennule. **B.** adult female allotype, P5, posterior surface. Scale bars = 100 µm

completely fused (Fig. 2H). Fifth pediger produced into symmetrical posterolateral wings, each distal end with posterior spine. Urosome 2-segmented. Genital double-somite symmetrical, with two unequal dorsolateral spines (right spine smaller than left spine) in anterior third. Anal somite about 1.4 times as long as wide. Caudal rami parallel, symmetrical, about 1.6 times as long as wide, with setules on outer and inner margins. Each ramus with six setae (Fig. 2H).

A1 (not shown), symmetrical and 25-segmented, reaching beyond end of caudal rami. Armature formula of each segment same as left A1 of male.

A2, mandible, maxillule, maxilla, maxilliped, P1–P4 and rostrum (not shown) same as male.

P5 (Fig. 5B). Symmetrical. Coxa with coxal spine on posterior lobe located on distal outer margin. Basis with one smooth outer seta on distolateral margin. Exopod 3-segmented. Exp-1 cylindrical, length about 1.9 time as long as wide. Exp-2 tapering into long claw, each side with one row of spinules starting in middle of its segment. Exp-3 fused with exp-2, with two unequal spines; inner spine about 3.4 times as long as outer spine, and with the tiny spinule on lateral margin, next to the base of Exp-3. Endopod 1-segmented, cylindrical, length about 0.7 times as long as exp-1, two unequal strong smooth spiniform setae distally, outer seta longer than inner seta, and with one row of spinules on distal end.

Variability.– Morphological variability has been observed in:

(i) the total body length (excluding the caudal setae) which ranged from 0.8 mm to 1.1 mm (mean 1.0 mm, n = 10) in the adult males, and 1.2–1.5 mm (mean 1.4 mm, n = 4) in the adult females.

(ii) the length of the spinous process on antepenultimate segment of the adult male right A1 is between 1/2 and 3/4 of segment 21 (Fig. 5E–G; see Table 2 in Saetang et al., 2022).

(iii) in one adult male, the third inner seta of P4 Exp-2 is swollen at the proximal part, and middle apical seta is bent at the distal end (Fig. 4E, indicated by arrowhead).

(iv) in one adult male, the spine of P2 Exp-1 is bent at the distal end (Fig. 4F).

(v) the basis of the adult male right P5 has one apophysis and one hyaline lamella in specimens from the roadside canal and rice field in Surin Province and the swamp in Songkhla Province, whereas studied specimens from the swamp in Trat Province and the rice field in Bueng Kan Province have only one hyaline lamella and no apophysis (Fig. 5A, C, D; see Table 2 in Saetang et al., 2022).

(vi) Exp-2 of the adult male right P5 has one apophysis and one hyaline lamella in specimens from the swamp in Trat Province and the rice field in Bueng Kan Province. Specimens from the swamp in Songkhla Province have only two apophyses, whereas specimens from the roadside canal and rice field in Surin Province have either one apo-physis and one hyaline lamella or two apophyses (Fig. 5A, C, D; see Table 2 in Saetang et al., 2022).

(vii) specimens from the swamp in Trat Province have one group of spinules near the inner margin lobe on the exopod of the adult male left P5. This character is not present in specimens from the roadside canal and the rice field in Surin Province, the rice field in Bueng Kan Province, and the swamp in Songkhla Province (see fig. 2 in Saetang et al., 2022).

Co-occurring species.– In our samples, the new taxon co-occurred with *Dentodiaptomus javanus* (Grochmalicki, 1915); *Eodiaptomus phuphanensis* Sanoamuang, 2001; *Eodiaptomus sanoamuangae* Ranga Reddy & Dumont, 1998; *Heliodiaptomus elegans* Kiefer, 1935; *Mongolodiaptomus botulifer* (Kiefer, 1974); *M. dumonti* Sanoamuang, 2001; *M. malaindosinensis* (Lai & Fernando, 1978); *M. pectinidactylus* (Shen & Tai, 1964); *Phyllodiaptomus christineae* Dumont, Ranga Reddy & Sanoamuang, 1996; *P. roietensis* Sanoamuang & Watiroyram, 2020; *P. surinensis* Sanoamuang & Yindee, 2001; *Tropodiaptomus megahyaline* Saetang, Sanoamuang & Maiphae, 2021; *T. vicinus* (Kiefer, 1930) and *Vietodiaptomus blachei* (Brehm, 1951)

Distribution and ecology.– *Tropodiaptomus sirindhornae* sp. nov. was found in river, rice fields, roadside canals with aquatic plants, and swamp with aquatic plants (both permanent and temporary habitats) from Chachoengsao and Trat Province (eastern Thailand), Bueng Kan and Surin Province (northeastern Thailand), and Songkhla Province (southern Thailand). It was recorded in twelve out of 471 samples collected from 206 freshwater habitats throughout Thailand between September 2017 and July 2019.

DISCUSSION

Based on morphological characteristics and molecular data recorded by Saetang et al. (2021, 2022), the species status of *Tropodiaptomus sirindhornae* sp. nov. has been confirmed. The new species is assigned to the genus *Tropodiaptomus* based on the following characteristics: (i) the process on the antepenultimate segment of the adult male right antennule is smooth; (ii) exopodal segment of the adult male left P5 is fused into flattened, exhibiting either a unilobed or bilobed struc-

TABLE 2. Comparison of two morphologically similar species of *Tropodiaptomus* (after Kiefer, 1982 and this study).

Morphological characters	*T. sirindhornae* sp. nov.	*T. lanaonus*
The adult male		
Body length, excluding the caudal setae (mm)	0.8–1.1	1.1
right A1: segment 16 with spinous process	yes	no
right A1: relative length of the spinous process of segment 20	1/2-3/4 of segment 21	longer than segment 21
right P5: basis, posterior surface	absent or occur as one or two triangular processes, and one longitudinal hyaline lamella	one triangular process, and one longitudinal hyaline lamella
right P5: Exp-2, posterior surface	one apophysis and one hyaline lamella, or two apophyses	one apophysis
right P5: length of Enp vs Exp-1 length	equal	longer
left P5: Exp, a group of spinules near the lobe on inner margin	present	absent
left P5: Enp (number of segment)	1	2
left P5: length of finger vs thumb length	longer	equal
The adult female		
Body length, excluding the caudal setae (mm)	1.2–1.5	1.2
Genital double-somite: outer distal corner with lobe	absent	small round lobe
P5: Enp, elements on distal end	spiniform smooth setae	slender smooth setae

ture, and the inner margin bearing either uniform serration or serrations of two different sizes; (iii) basis segment of the adult male right P5 with a hyaline lamella near inner margin; (iv) urosome of the adult female consists of two somites; and (v) the endopodal segment of the adult female P5 with slender setae at the distal end (Lai and Fernando 1979a, 1979b; Sanoamuang 2002; Saetang et al., 2021).

The new species is the most similar to *T. lanaonus*, but it can be distinguished by the characters listed in Table 2. However, *Tropodiaptomus sirindhornae* sp. nov. shows a high variation of the morphological characters of the adult male P5 by the following characteristics: (i) The basis of the adult male right P5 is bearing one longitudinal hyaline lamella and variable triangular processes, which may be absent or occur as one or two processes; and (ii) The exopodal segment of the adult male left P5 has one group of spinules near the lobe on the inner margin, this character appears only in specimens from the swamp in Trat Province and it has not been observed in *T. lanaonus*.

In addition, *Tropodiaptomus sirindhornae* sp. nov. is widely distributed and occurs in both permanent and temporary habitats in eastern, northeastern, and southern Thailand. It is found during both the late dry and the rainy seasons.

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