RAFFLES BULLETIN OF ZOOLOGY **71**: 377–386
Date of publication: 31 May 2023
DOI: 10.26107/RBZ-2023-0028
http://zoobank.org/urn:lsid:zoobank.org:pub:3A0D5828-C26B-41D8-899B-7C3D8A20E8DC

Demanietta sunthorni, a new species of freshwater crab (Crustacea: Decapoda: Brachyura: Potamidae) from Adang-Rawi Island Group, Andaman Sea, south Thailand

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Abstract. A new species of a potamid crab belonging to the genus *Demanietta* Bott, 1966, is described from Adang Island, Andaman Sea, off Satun, south Thailand. *Demanietta sunthorni*, new species, belongs to a group of *Demanietta* species which has a distinct epibranchial tooth, and strong epigastric and postorbital cristae on the carapace. It can be distinguished from all congeners most easily by the form of the male first gonopod which is slender, with the terminal segment sinuous, upcurved and possessing a large dorsal fold. This is the southernmost record of the genus.

Key words. Satun Province, Tarutao National Park, Isthmus of Kra, Potamoidea, taxonomy, new species

INTRODUCTION

Between 1999 and 2015, the Plant Genetic Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn, and supported by the Royal Thai Navy, conducted several scientific expeditions to explore the flora and fauna in various Thai islands. During 18–26 October 2008, an expedition was organised to survey the poorly explored Adang-Rawi Island Group off Satun Province in the Andaman Sea (Fig. 1) and made preliminary descriptions of the fauna and flora present there and in the surrounding areas. These islands are under the jurisdiction of the Tarutao National Park. Specimens of an unidentified potamid crab of the genus *Demanietta* Bott, 1966, were collected. They are here described as a new species.

Bott (1966) established *Demanietta* as a subgenus of *Potamiscus* Alcock, 1909, for a group of freshwater potamid crabs, mainly characterised by a slender G1 with a neck-like subterminal segment, and a long tapering terminal segment which has a well-developed dorsal fold (Ng & Naiyanetr, 1993). Yeo et al. (1999) revised *Demanietta* and recorded 10 species from Thailand and Myanmar: *D. huahin* Yeo, Naiyanetr & Ng, 1999, *D. khirikhan* Yeo, Naiyanetr & Ng, 1999, *D. lansak* Yeo, Naiyanetr & Ng, 1999, *D. manii* (Rathbun, 1904) (type species), *D. merguensis* (Bott, 1966), *D. nakhonsi* Yeo, Naiyanetr & Ng, 1999, *D. renongensis* (Rathbun, 1904), *D. suanphung* Yeo, Naiyanetr & Ng, 1999, *D. thagatensis* (Rathbun, 1904), and *D. tritrungensis* (Naiyanetr, 1986) (see Ng et al., 2008). Three more species have since been described from southern Myanmar: *D. burmanica* Ng, 2018, *D. lenya* Shi, Chen & Sun, 2020, and *D. liui* Shi, Chen & Sun, 2020 (Ng, 2018; Shi et al., 2020).

The new *Demanietta* from the Adang-Rawi Islands belongs to the group of Myanmarese species in which the epibranchial tooth is distinct but differs markedly by the armature on the carapace and structure of the male first gonopod.

MATERIAL AND METHODS

The terminology used follows Ng (1988) and Davie et al. (2015). Measurements provided (in millimetres) are of the maximum carapace width and length, respectively. The specimens examined are deposited in the Zoological Reference Collection (ZRC), Lee Kong Chian Natural History Museum, National University of Singapore; and Prince of Songkla University Zoological Collection (PSUZC), Princess Maha Chakri Sirindhorn Natural History Museum, Prince of Songkla University in Hat Yai, Songkhla, Thailand. The following abbreviations are used: amsl = above mean sea level; CL = carapace length; CW = carapace width; coll. = collected by; G1= male first gonopod; G2 = male second gonopod. Thai words used in the text are Ajarn [= teacher], Ao [= Bay], Ban [= village], Khao [= hill], Klong [= stream], Ko [= island], Nam Tok [= waterfall], and Talo (Malay word) [= Ao].

Accepted by: Lee Bee Yan

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ISSN 2345-7600 (electronic) | ISSN 0217-2445 (print)

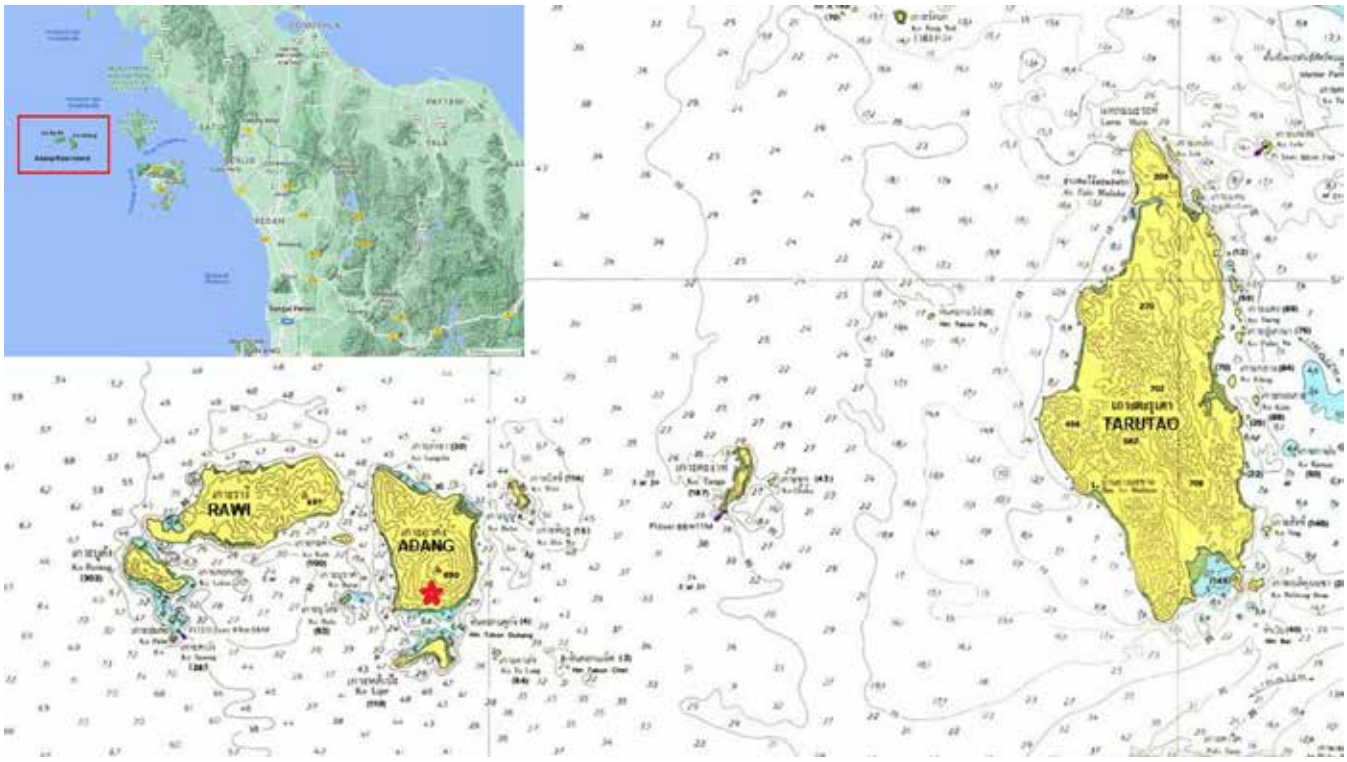

Fig. 1. Map of the the Adang-Rawi Island group, Tarutao National Park, Thailand. Main map modified from Marine Chart No 309 Ko Rawi to Satun, Hydrographic Department (1994); inset adapted from Google Maps.

TAXONOMY

Family Potamidae Ortmann, 1896

Subfamily Potamiscinae Bott, 1970 sensu Yeo & Ng (2004)

Demanietta Bott, 1966

Type species. *Potamon* (*Potamon*) *manii* Rathbun, 1904, by original designation.

Demanietta sunthorni, new species
(Figs. 2–6)

Material examined. Thailand: off Satun Province, Adang Island, Langu District: holotype: male (36.6 × 27.7 mm) (ZRC 2022.0826), unnamed creek, Ao Dan, south of Adang Island, 6°30.732′N 99°18.226′E, 35 m amsl, coll. V. Lheknim & P. Leelawathanagoon, 20 October 2008. Paratypes: 1 male (33.5 × 26.3 mm), 1 female (38.5 × 29.4 mm) (PSUZC 20081020-01.01), 1 male (18.2 × 15.5 mm), 1 female (33.2 × 26.4 mm) (ZRC 2022.0827), same as holotype; 2 males (27.3 × 21.2 mm, 35.1 × 26.7 mm) (ZRC 2022.0828), 2 males (25.9 × 19.7 mm, 36.1 × 27.6 mm) (PSUZC 20081023-01.01), Klong Samed Daeng, NE of Adang Island in the vicinity of Ban Ko Adang, Ao Talo Lae Lae, 6°32.987′N 99°18.780′E, 50 m amsl, coll. V. Lheknim & P. Leelawathanagoon, 23 October 2008.

Comparative material. ***Demanietta khirikhan* Yeo, Naiyanetr & Ng, 1999**: 1 male (PSUZC-20041126-01.01), unnamed creek in karst sinkhole NE of Rajjaprabha Reservoir, Tapi River Basin, Ban Khao Phang, Ban Ta Khun District, Surat Thani Province, 9°5.4960′N 98°41.9810′E, 60 m amsl, Thailand, coll. V. Lheknim & P. Leelawathanagoon, 26 November 2004. ***Demanietta nakhonsi* Yeo, Naiyanetr & Ng, 1999**: 1 male (52.3 × 39.4 mm) (PSUZC 20020922-01.02), stream around CH7 Telecommunication Station, Khao Ram Rom, Ron Phibon District, Nakhon Sri Thammarath Province, Thailand, 8°14.320′N 99°48.850′E, 920 m amsl, coll. V. Lheknim & P. Leelawathanagoon, 22 September 2002; 1 male (45.1 × 34.9 mm) (PSUZC 20020614-02.05), stream at Lalana Waterfall, Khao Ram Rom, Ron Phibon District, Nakhon Sri Thammarath Province, Thailand, 8°13.450′N 99°48.310′E, 365 m amsl, coll. V. Lheknim & P. Leelawathanagoon, 14 June 2002; 1 male (36.8 × 27.5 mm) (PSUZC 20020616-05.01), stream at Namtok Yong, Klong Yong, Trang River Basin, Ban Sai Yai, Thung Song District, Nakhon Sri Thammarath Province, Thailand, 8°10.205′N 99°44.175′E, 105 m amsl, coll. V. Lheknim & P. Leelawathanagoon, 16 June 2002 [Topotype]. ***Demanietta renongensis* (Rathbun, 1904)**: 1 male (45.3 × 34.1 mm) (PSUZC 19870310-01.01), Klong Had Som Pan, upper western river basin, Muang Ranong District, Ranong Province, 9°51.059′N 98°41.617′E, 15 m amsl, Thailand, coll. V. Lheknim & P. Leelawathanagoon, 10 March 1987; 1 female (52.9 × 40.9 mm) (PSUZC 19980423-05.03), Nam Tok Ngao, Ban Ngao, Muang Ranong District, Ranong Province, 9°51.341′N 98°37.745′E, 45 m amsl, Thailand, coll. V. Lheknim & P. Leelawathanagoon, 23 April 1998; 2 males (40.4 × 31.3 mm, 50.9 × 40.3 mm) (PSUZC 20010520-05.11), Klong Bang Yang, Lung Suan river basin, Ban Bang Yang, Patao District, Chumphon Province, 9°45.171′N 98°40.667′E, 140 m amsl, Thailand, coll. V. Lheknim & P. Leelawathanagoon, 20 May 2001; 1 male (31.0 × 21.0

Fig. 2. Colour in life. A, B, *Demanietta sunthorni*, new species, holotype male (36.6 × 27.7 mm) (ZRC 2022.0826), Thailand.

mm), 1 female (44.9 × 33.4 mm) (PSUZC 20010521-06.06), Klong Kapao, Klong Tha Taphao river basin, Ban Yai-Tai, Tha Sae District, Chumphon Province, 10°44.625′N 99°12.494′E, 140 m amsl, Thailand, coll. V. Lheknim & P. Leelawathanagoon, 2 May 2001; 2 males (25.8 × 20.6 mm, 35.9 × 26.4 mm) (PSUZC 20060902-05.03), Nam Tok Pak Cham, Trang River Basin, Ban Pak Cham, Huey Yod District, Trang Province, 7°44.919′N 99°41.701′E, 382 m amsl, Thailand, coll. V. Lheknim & P. Leelawathanagoon, 2 September 2006.

Diagnosis. Carapace subquadrate, width to length ratio 1.26–1.32; dorsal surface relatively low, not inflated; frontal region with numerous blunt granules (Figs. 2, 3A–D); epigastric cristae clearly demarcated, area with mix of granules and rows of transverse striae; postorbital cristae distinct, sharp, separated from epigastric cristae by distinct gap; postorbital cristae joining epibranchial tooth by uneven granulated ridge; external orbital tooth triangular with outer margin longer than inner margin, clearly separated from epibranchial tooth by small cleft; epibranchial tooth distinct, triangular (Fig. 3B); posterior part of anterolateral region and posterolateral region with distinct transverse striae; subhepatic, suborbital and pterygostomial regions with distinct striae and granules (Fig. 3C); posterior margin of epistome with distinct acutely triangular median tooth (Fig. 3C, D); third maxilliped ischium subrectangular, approximately 1.7 times longer than wide (Fig. 3E); pleonal locking tubercle on median part of sternite 5 (Fig. 5A); male telson triangular with lateral margins concave (Fig. 4C, D); G1 slender, sinuous (Fig. 6A, B); subterminal segment relatively slender, with basal part not wide, gradually tapering to neck-like structure just before it joins terminal segment, with concavity on inner margin (Fig. 6A, B); terminal segment about 0.35 times length of

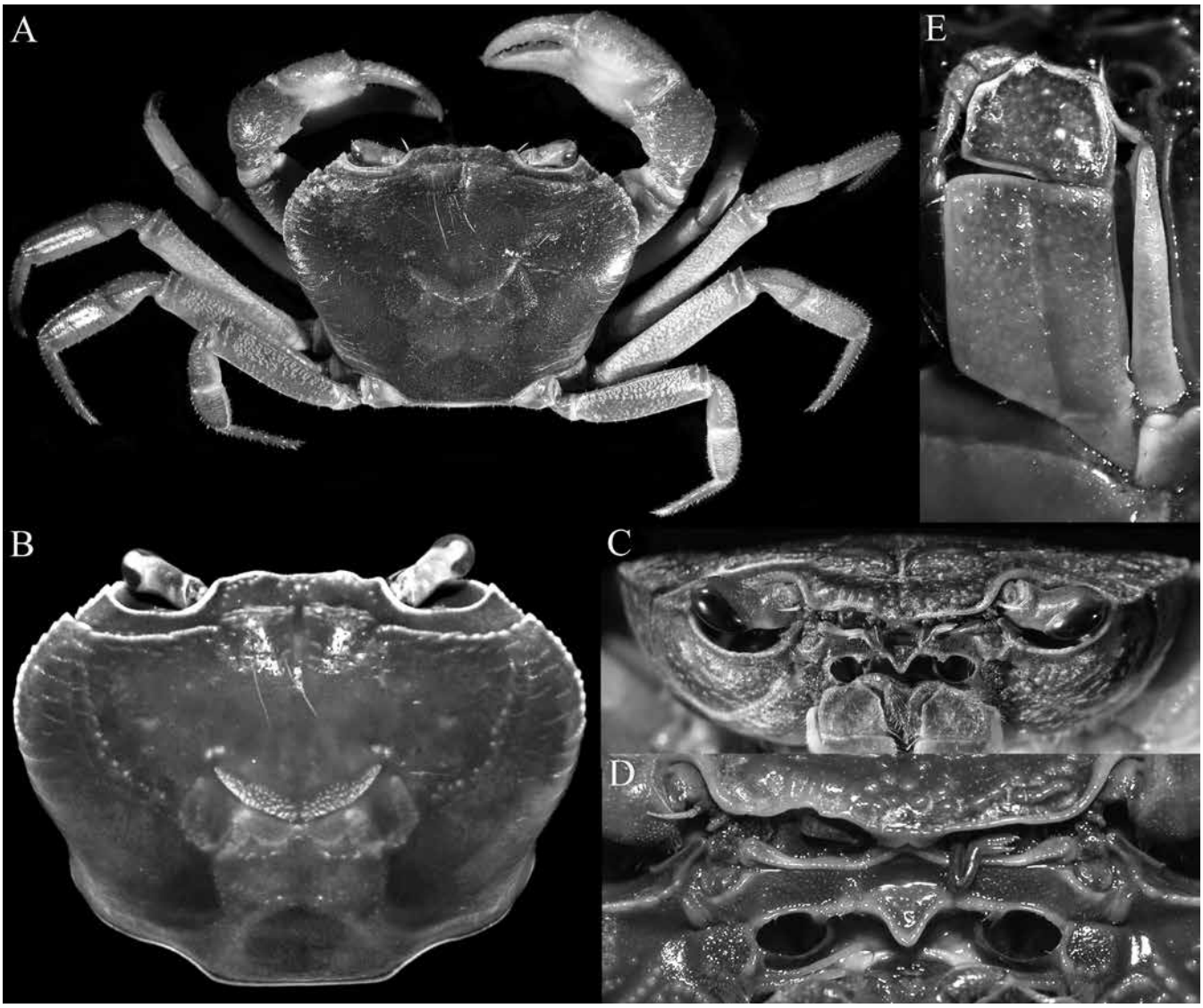

Fig. 3. *Demanietta sunthorni*, new species, holotype male (36.6 × 27.7 mm) (ZRC 2022.0826), Thailand. A, overall dorsal habitus; B, dorsal view of carapace; C, frontal view of cephalothorax; D, antennae, antennules and epistome; E, left third maxilliped.

subterminal segment (from ventral view), relatively long, sinuous, strongly bent at angle of 90–100° to longitudinal axis of subterminal segment, with broad semicircular dorsal fold, extending to tip of terminal segment, distal part distinctly curved upwards, sharply tapered towards sharp tip (Fig. 6C, D); G2 relatively long, longer than G1 (Fig. 6E).

Description of male holotype. Carapace subquadrate, width to length ratio 1.32; anterior half wider than posterior half, slightly convex, dorsal surface relatively low, not inflated, smooth except for frontal and lateral regions (Figs. 2, 3A, B); frontal region with numerous blunt granules (Fig. 3B–D); epigastric cristae clearly demarcated, area with mix of granules and rows of transverse striae, medially separated by distinct V-shaped furrow; postorbital cristae distinct, sharp, separated from epigastric cristae by distinct gaps; postorbital cristae joining epibranchial tooth by uneven granulated ridge; external orbital tooth triangular with outer margin longer than inner margin, clearly separated from epibranchial tooth by small cleft; epibranchial tooth distinct, triangular (Fig. 3B); anterolateral margins strongly convex, serrate, lateral serrae distinct; anterior part of anterolateral region with some disperse granules, posterior part of anterolateral region with distinct transverse striae; posterolateral margins sinuous, convergent posteriorly (Figs. 3A, B); branchial, gastric and cardiac regions almost smooth, slightly convex, not distinctly inflated (Fig. 3B, C); orbital region with dispersed granules (Fig. 3C); subhepatic, suborbital and pterygostomial regions with distinct striae and granules (Fig. 3C). Cervical grooves distinct, relatively broad, joining prominent H-shaped median gastric groove (Fig. 3B). Frontal margin divided into 2 broad, subtruncate lobes, separated by shallow concavity; margin of each lobe slightly convex, separated from supraorbital margin by distinct rounded angle (Fig. 3B). Orbits subovate in anterior view; eye filling most of orbital space; eye short, peduncle stout; cornea large, pigmented (Fig. 3B, C). Supraorbital margins distinctly concave at inner margin, entire, lined with round granules (Fig. 3B). Suborbital margins concave, complete, lined with round granules (Fig. 3C). Posterior margin of epistome gently sinuous, with distinct acutely triangular median tooth, lateral margins with small submedian fissure (Fig. 3C, D).

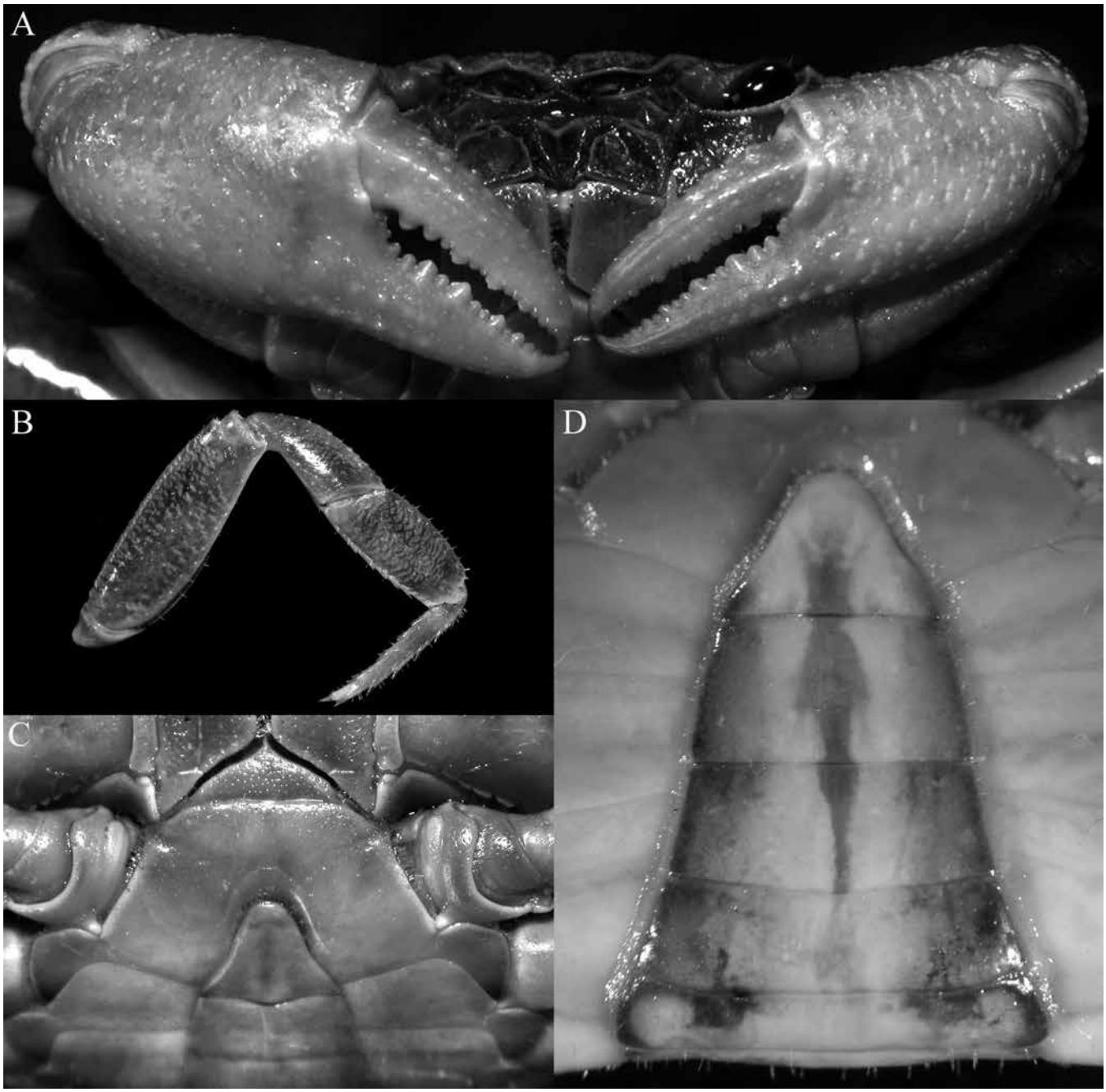

Fig. 4. *Demanietta sunthorni*, new species, holotype male (36.6 × 27.7 mm) (ZRC 2022.0826), Thailand. A, outer view of chelae; B, right fourth ambulatory leg; C, anterior thoracic sternum, telson and pleonal somite 6; D, pleon.

Third maxilliped covering most of buccal cavity when closed; ischium subrectangular, approximately 1.7 times longer than wide, with distinct longitudinal submedian sulcus, subparallel to inner margin; merus subquadrate with anterior margin slightly projecting medially, anteroexternal angle rounded, wider than long, with concave outer surface, surface slightly rugose; exopod relatively slender with prominent anterointernal margin tooth, reaching beyond upper edge of ischium, to approximately one-third length of merus, with distinct flagellum that is subequal to or as long as width of merus, about one-third exopod length (Fig. 3E).

Cheliped slightly asymmetrical, relatively stout, outer surface covered with low tubercles, with larger tubercles especially on upper parts (Figs. 3A, 4A); fingers gently curved, gaping, relatively longer than palm; posterodorsal margin of dactylus serrate, outer surface with 2 long rows of pits, outer surface of pollex with 2 long rows of pits, cutting edges of both fingers with various sized teeth and denticles; carpus with sharp spine on inner angle, with low basal spiniform tubercle below main spine, outer surface of distal part distinctly rugose, granulated, with proximal transverse striae (Figs. 3A, 4A); merus with 2 rows of sharp tubercles, upper margin with progressively larger tubercles, subdistal margin with low spines, outer surface of merus covered with low transverse striae; anterior margin of ischium with prominent sharp tubercles; basal part smooth.

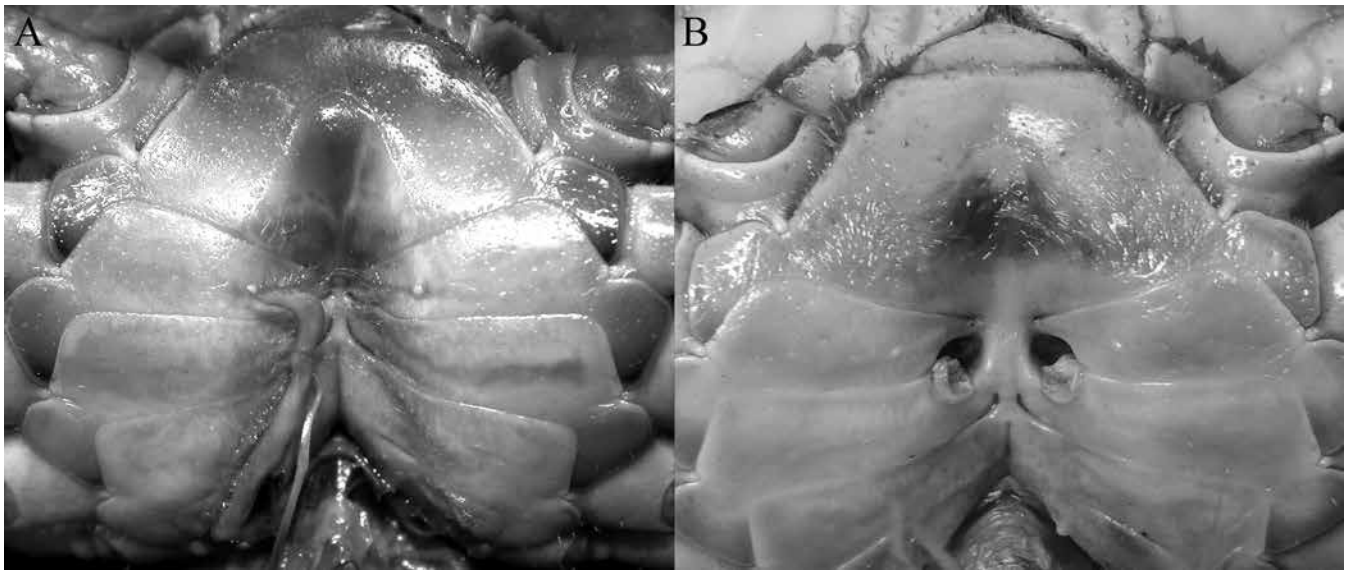

Fig. 5. *Demanietta sunthorni*, new species. A, holotype male (36.6 × 27.7 mm) (ZRC 2022.0826), Thailand; B, paratype female (38.5 × 29.4 mm) (PSUZC 20081020-01.01), Thailand. A, male sternopleonal cavity with right G1 and G2 in situ; B, female sternopleonal cavity and vulvae.

Ambulatory legs not elongated, second pair longest, last pair shortest (Fig. 3A). Outer surface of merus relatively smooth with low transverse striae, dorsal margin slightly serrate, subdistal angle distinct, without distal tooth; carpus nearly smooth with low transverse striae, dorsal margin subcristate, outer surface of carpus of ambulatory legs 1–3 with distinct submedian ridge, absent on that of ambulatory leg 4; propodus with low transverse striae, both dorsal and ventral ridges lined with small sharp spines; dactylus lightly curved, compress in cross section, dorsal ridge covered with row of short sharp spines (Figs. 3A, 4B).

Thoracic sternum relatively narrow transversely, surface slightly pitted but smooth with lateral margins slightly setose (Fig. 4C). Sternites 1, 2 completely fused to form triangular plate, lateral margin distinctly convex, separated from sternite 3 by deep, sinuous, complete suture, median part shallower (Fig. 4C); sternites 3 and 4 completely fused except for lateral suture (Fig. 4C). Sternopleonal cavity reaching to imaginary line connecting median point of coxae of chelipeds (Figs. 4C, 5A); pleonal locking tubercle low, rounded, on median part of sternite 5 (Fig. 5A).

Pleon triangular, all somites and telson free, surface slightly pitted but smooth (Fig. 4C, D); somites 1, 2 subrectangular, wide, sinuous medially, reaching to bases of coxae of fourth ambulatory legs; somites 1 and 2, 2 and 3 separated by deep, sinuous groove medially; somites 3–6 trapezoidal, gradually convergent, lateral margin setose; somite 6 with length more than half width, lateral margins gently convex; telson triangular with rounded tip, lateral margin concave; sternite 8 not visible when pleon closed (Fig. 4C, D).

G1 slender, sinuous, inner margin and groove for G2 lined with setae (Fig. 6A, B); subterminal segment relatively slender, with basal part not wide, gradually tapering to neck-like structure just before it joins terminal segment, with concavity on outer margin (Fig. 6A, B); terminal segment clearly separated from subterminal segment by suture; terminal segment about 0.35 times length of subterminal segment (from ventral view), relatively long, sinuous, strongly bent at angle of 90–100° to longitudinal axis of subterminal segment, with broad semicircular dorsal fold, extending to tip of terminal segment, distal part distinctly curved upwards, sharply tapered towards tip, tip sharp (Fig. 6C, D). G2 long, longer than G1, distal segment about 0.75 times length of basal segment (Fig. 6E).

Variation and females. The smaller paratype male specimens agree very well with the holotype male, including in the structure of the G1. The smallest male (18.2 × 15.5 mm, ZRC 2022.0827) is a subadult, and while the gonopods are visible, they are poorly developed, being soft and without the dorsal flap. The female paratypes (PSUZC 20081020-01.01, ZRC 2022.0827) are adults and slightly larger than the male holotype. Their carapace, however, is relatively broader, CW/CL = 1.3, like that of the male paratype and subquadrate in general shape. Females have proportionately smaller and subequal chelipeds. The female pleonal somites and telson are longitudinally ovate in shape and cover most of the thoracic sternum except for lateral edges when closed; their pleonal somite 1 is the shortest, with somites 2–5 progressively longer; pleonal somite 6 is the longest, much broader than long, subequal in length to the telson, with the convex lateral margins. The female telson is broadly triangular, much broader than long, with convex lateral margins and narrow apex. The vulva is crescent-shaped, large, occupying two-thirds of the posterior two-thirds of sternite 5, pushing prominently into suture with sternite 6, opening large, directed obliquely inwards towards median line of sternum, without operculum or vulvar cover, vulvae positioned close to each other (Fig. 5B).

Life colouration. The cephalothorax is dark purple; the frontal margin, supra- and infraorbital margins, epibranchial tooth and postorbital crista are reddish brown; the chelipeds

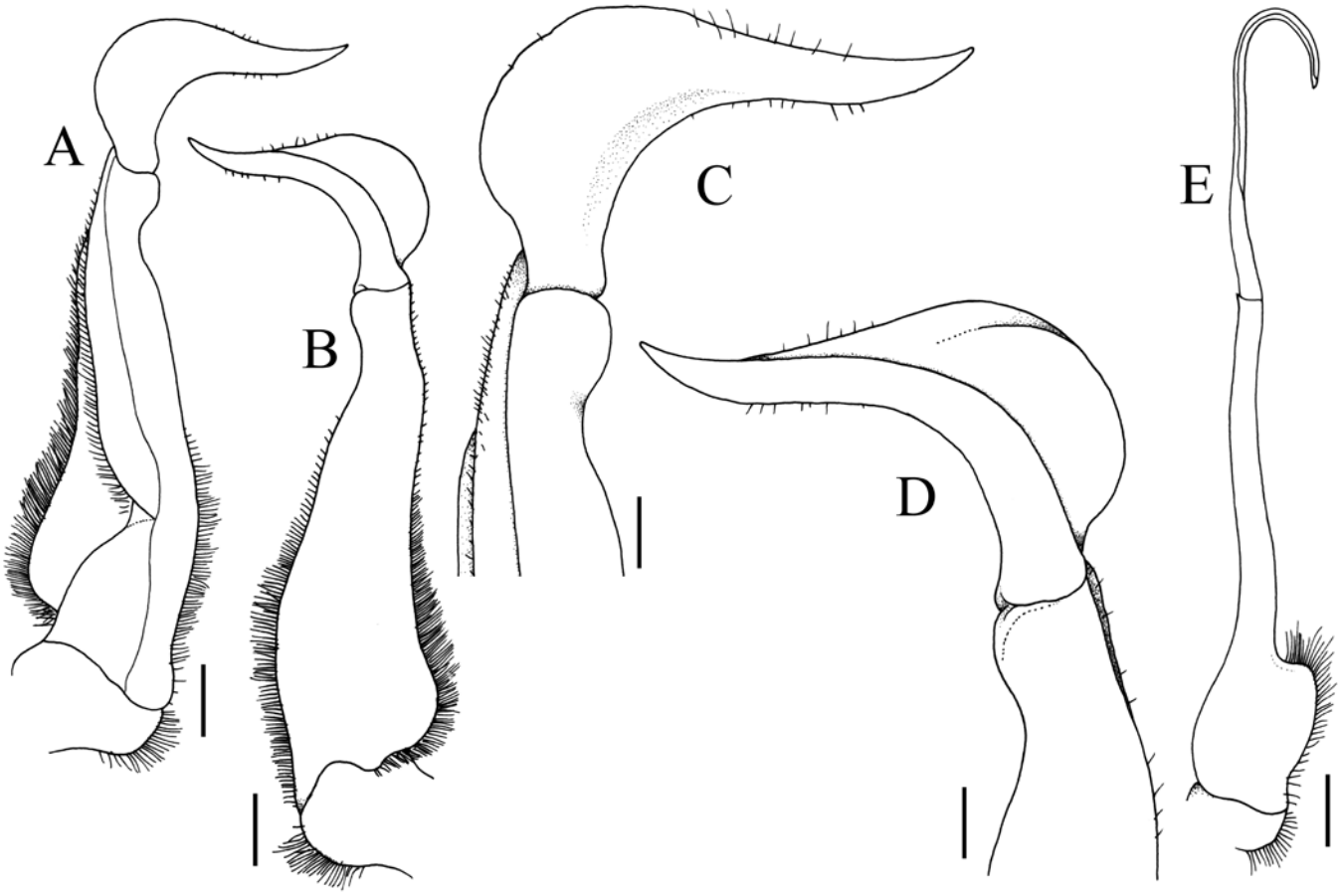

Fig. 6. *Demanietta sunthorni*, new species, holotype male (36.6 × 27.7 mm) (ZRC 2022.0826), Thailand. A, left G1 (ventral view); B, left G1 (dorsal view); C, distal part of left G1 (ventral view); D, distal part of left G1 (dorsal view); E, left G2. Scales: A, B, E = 1.0 mm; C, D = 0.5 mm.

are generally reddish brown with the upper surface dark purplish-brown, the tips of the spines on the chelipeds are reddish brown; and the ambulatory legs are purple (Fig. 2).

Etymology. The species is named after the late Assoc. Prof. Sunthorn Sotthibandhu, an eminent entomologist of the Biology Department, Faculty of Science, Prince of Songkla University (PSU). He used to be the head of the Department of Biology, as well as PSU President, and President of Songkhla Rajabhat University. The first author has known Ajarn Sunthorn for nearly 40 years, since he was an undergraduate student in his class. He was the first one who taught the first author the beauty of science and how it works. He has been an excellent colleague and a wonderful collaborator on teaching and science, and the many insightful discussions with him will be missed. After his retirement, he continued with research on the philosophy of science and kept working on this topic to his last day. He will be sorely missed. The specific epithet is derived from his first name, Sunthorn.

Remarks. Ng (2018: 189) noted that the species of *Demanietta* can easily be placed into two groups. One group has the epibranchial tooth large and prominent, and the epigastric and postorbital cristae are very sharp and confluent; while the other group has a low epibranchial tooth that is almost confluent with the rest of the margin and the epigastric and postorbital cristae are separated by a short groove (see also Yeo et al., 1999: 532). *Demanietta sunthorni*, new species, belongs to the first group of species, which also includes *D. merguensis* (Bott, 1966), *D. thagatensis* (Rathbun, 1904), and *D. liui* Shi, Chen & Sun, 2020; all from southern Myanmar.

Of the four species in the first group of species, the carapace of *D. sunthorni* is proportionately the lowest, with the dorsal surface flattest (Fig. 3B, C) (cf. Yeo et al., 1999: fig. 6E, F; Shi et al., 2020: fig. 2A, C). In addition, the frontal region of *D. sunthorni* has relatively numerous blunt granules and the striae on the anterolateral margins are very strong (Fig. 3A, B) (versus granules and striae in the other species are distinctly lower and smoother; Yeo et al., 1999: fig. 6E, F; Shi et al., 2020: fig. 2A, C); the subhepatic, suborbital and pterygostomial regions are densely covered with distinct striae and granules (Fig. 3C) (versus smooth to weakly granulated in the other species; e.g., Shi et al., 2020: fig. 2C); the epigastric cristae are strongly granulated with the postorbital cristae joining the anterolateral margin as a series of strong granules (Fig. 3B) (versus epigastric cristae are sharp but smooth and the postorbital crista joins the anterolateral margin smoothly as a sharp ridge; Yeo et al., 1999: fig. 6E, F; Shi et al., 2020: fig. 2A); the external orbital tooth is more acutely triangular (Fig. 3B) (versus tooth more obtuse and wider; Yeo et al., 1999: fig. 6E, F; Shi et al., 2020: fig. 2A); the ischium of the third maxilliped is proportionately shorter (Fig. 3E) (versus distinctly more elongate; e.g., Shi et al., 2020: fig. 3C); the G1 is proportionately more slender

Fig. 7. A, closest stream adjacent to locality of holotype, Adang Island, Langu District, off Satun Province, south Thailand; B, digging up the burrow of the holotype male.

with the basal part of the subterminal segment appearing less wide (Fig. 6A, B) (versus overall G1 stouter, with the basal part of the subterminal segment distinctly wider; Yeo et al., 1999: fig. 3A, B, E, F; Shi et al., 2020: fig. 3D, E); and the dorsal fold on the G1 terminal segment is higher and semicircular in shape (Fig. 6D, E) (versus dorsal fold is distinctly lower; Yeo et al., 1999: fig. 3C, D, G, H; Shi et al., 2020: fig. 3D, E).

In *D. sunthorni*, the epigastric and postorbital cristae are separated by a distinct space (Fig. 3B), and in this feature, agrees with *D. thagatensis* and *D. liui* (cf. Yeo et al., 1999: fig. 6F; Shi et al., 2020: fig. 2A); although in *D. thagatensis*, the epigastric cristae protrude more anteriorly toward the frontal margin than the other species (Yeo et al., 1999: fig. 6F). The G1 structure of *D. sunthorni* (Fig. 6D, E) is most similar to that of *D. liui* in that the terminal segment is distinctly sinuous, bent at an angle of about 90° to the longitudinal axis with the tip slender, tapering and curned upwards. In *D. liui*, however, in addition to the earlier carapace differences listed between species, the distal part is more strongly upcurved and the dorsal flap is low (Shi et al., 2020: fig. 3D, E). In addition, the median lobe of the posterior margin of the epistome is acutely triangular (Fig. 3C, D) (the median lobe is proportionately wider in *D. liui*; Shi et al., 2020: fig. 2C, D); the tubercles of the male pleonal locking mechanism in *D. sunthorni* is positioned on the posterior third of sternite 5 (Fig. 5A) (the tubercles are submedian in position in *D. liui*; Shi et al., 2020: fig. 2F); the male telson has the lateral margins distinctly concave (Fig. 4C, D) (margins gently convex in *D. liui*; Shi et al., 2020: fig. 2E); and the vulvae are proportionately much larger in size (Fig. 5B) (distinctly smaller in *D. liui*; Shi et al., 2020: fig. 2H). The G1 terminal segment of *D. sunthorni* also resembles that of *D. thagatensis* but in the latter species, the terminal segment is not sharply bent at right angles, being more gradually angled and the dorsal fold is also low (Yeo et al., 1999: fig. 3G, H).

In addition, while known species of *Demanietta* are generally aquatic (cf. Yeo et al., 1999), *D. sunthorni* appears to have more semiterrestrial habits.

Notes on habitat. Large specimens of *D. sunthorni*, new species, were found in deep burrows beneath large rocks about 20 m from the nearest stream (Fig. 7B). Smaller specimens inhabit banks near large streams which were in pristine tropical rain forest, less than 100 m amsl. The stream bed consisted of stones and rocks, the water flow being moderate (Fig. 7A). In the stream, small specimens of the palaemonid prawn *Macrobrachium neglectum* (De Man, 1905) (cf. Wowor & Ng, 2010) were collected as well as juveniles of the fighting fish *Betta* cf. *pugnax* (Cantor, 1850) (Anabantidae) and *Channa* cf. *gachua* (Hamilton-Buchanan, 1822).

Distribution. *Demanietta sunthorni* is currently known only in the vicinity of a freshwater creek on Adang Island, Tarutao National Park.

DISCUSSION

With the discovery of the present new species, *Demanietta* is now known to have 14 species. As for Thailand, Yeo et al. (1999) reported only *D. nakhonsi* and *D. renongensis* from below the Isthmus of Kra in south Thailand. We now add two species of *Demanietta* to the fauna south of the Isthmus of Kra: *D. khirikhan* and *D. sunthorni,* new species. *Demanietta khirikhan* was previously only known from the type locality in Prachuab Khirikhan Province (Yeo et al., 1999). In 2004, we had a chance to visit the karst formation and a large sink hole adjacent to Rajjaprabha reservoir in Surat Thani, and the species was collected there. This site is 380–400 km south of the type locality of the species. It is interesting to note that *D. khirikhan* sheltered under rocks and crevices, venturing out only at twilight to forage. *Demanietta renongensis* is the most widely distributed species in the area, occurring in Trang, Krabi, Surat Thani, Phuket, Phangnga, Ranong, and Chumphon provinces; while *D. nakhonsi* has also been found in Phatthalung, Nakhon Si Thammarat, and Surat Thani provinces (present data). *Demanietta sunthorni*, however, represents the southernmost limit of the known range of *Demanietta* and is the first record of this genus from a remote Thai island in the Andaman Sea.

The Adang-Rawi Islands are on the edge of the continental shelf, approximately 75 km from Satun Province off the west coast of peninsular Thailand, some 40 km west of the

Tarutao Islands (Fig. 1) and north of the Malaysian border at 6°31.805′N 99°15.450′E. The surrounding depths are greater than 40 m at about 150–800 m from the shoreline. The terrestrial part of the island is covered with tropical rain forest, with a hill about 690 m in height, and a narrow zone of beach forest in the sheltered area of the leeward sides of the island. The mature primary forest is 20–50 m from the shoreline. There are several small temporary and permanent freshwater creeks draining to the beach. The main substrate is granite with soil covered with dried leaves. Knowledge regarding the freshwater life present on the islands is very poor due to its remote location.

The Adang-Rawi islands are only about 40 km northwest of the Malaysian island of Langkawi, which is only 20 km south of Tarutao (Fig. 1). The potamid fauna between the Thai islands and Langkawi, however, is quite different. While Adang Island has *Demanietta sunthorni*, new species, Langkawi has *Stoliczia bella* Ng & Ng, 1987. These two genera are very different in morphology, with different G1 and G2 structures, and the exopod of the third maxilliped of *Stoliczia* has almost no flagellum (cf. Ng & Ng, 1987). No potamid is known from Tarutao which is about 40 km east of Adang Island. On the Thai mainland at Satun (about 80 km east of Adang Island), the only potamid recorded there is *Stoliczia panhai* (Ng, 1986). As for freshwater crabs of the family Gecarcinucidae Rathbun, 1904, two species, *Phricotelphusa* sp. and *Salangathelphusa* aff. *brevicarinata* (Hilgendorf, 1882) have been recorded from Tarutao (unpublished data). No gecarcinucid is known thus far from the Adang-Rawi Islands, despite searches on the island. On Langkawi, two allied species, *Phricotelphusa gracilipes* Ng & Ng, 1987 and *Salangathelphusa peractio* Ng, 2017, have been reported (Ng & Ng, 1987; Ng, 2017), but this island also has two more lowland species, *Siamthelphusa improvisa* (Lanchester, 1902) and *Sayamia sexpunctata* (Lanchester, 1906), taxa so far absent from Tarutao or Adang-Rawi. The greater distance of the Adang-Rawi islands from the mainland (and Langkawi), especially with the presence of *Demanietta* there, may suggest that the fauna present there has a different history from those closer to the mainland, reflecting biogeographical connections that are no longer obvious. This indicates that the historical connections between the Adang-Rawi Islands, Tarutao, Satun and Langkawi are more complex than the present geography shows. The rise of sea level during the last glacial maximum would have easily separated this island groups from the mainland for at least 14,000 years (Sathiamurthy & Voris, 2006), but the older history of this area is less clear.

ACKNOWLEDGEMENTS

Logistical support for transportation and working at Adang-Rawi Islands from the Naval Special Warfare Unit, Naval Fleet Command, the Royal Thai Navy and the Plant Genetic Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn is greatly appreciated. Thanks are also due to the Department of National Parks, Wildlife and Plant Conservation, Thailand and Tarutao National Park, for granting us permission to do these surveys. The first author would especially like to thank Lt. Nikorn Smathi of the Royal Thai Navy for field assistance, help with dinghies and lifeguard support; and Suebpong Sa-nguansil for his generous field assistance. Tohru Naruse and Pan Da are thanked for their various suggestions which have improved the text of the manuscript.

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