

BIRDOTANAIS SONGKHLAENSIS, A NEW GENUS AND SPECIES OF NOTOTANAIDAE (CRUSTACEA: TANAIDACEA) FROM THAILAND

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ABSTRACT. — We establish the new genus *Birdotanais*, based on the new species *B. songkhlaensis* collected from brackish Songkhla Lagoon in Thailand. *Birdotanais* shows close similarity to members of Families Nototanaidae and Tanaissuidae; we place it in former based on the type species having black eyes and the mandibular molar bearing a broad masticatory region. *Birdotanais* differs from confamilial genera in having an oval pleopodal endopod with one mid-inner plumose seta, and a nearly straight dactylus-unguis bearing a tiny unguis, on pereopods 4–6. We present a key to genera in Families Nototanaidae and Tanaissuidae.

KEY WORDS. — *Birdotanais songkhlaensis*, new genus, new species, Tanaidacea, brackish water, Thailand

INTRODUCTION

Order Tanaidacea has 244 living genera (Anderson, 2012), only 14 of which include non-marine members (Mañé-Garzón, 1949; Shiino, 1965; Băcescu, 1981; Bamber et al., 1996; Kakui et al., 2010). Although they also contain a species regarded as cosmopolitan [*Sinelobus stanfordi* (Richardson, 1901)] and taxa principally appearing in the sea, such as species in *Leptocheilia*, most non-marine species are restricted to non-marine environments and have narrow distributional ranges.

Songkhla Lagoon is a large, brackish body of water in southern Thailand, comprising upper, middle, and lower parts, with the last connecting to the Gulf of Thailand (Fig. 1). This area shows the highest species richness of non-marine tanaidaceans in the world: seven species in six genera have been reported there (Table 1; Angsupanich, 2001, 2004; Angsupanich et al., 2005). Field studies conducted by the second author and colleagues have shown the distribution patterns of these species, which vary considerably. For example, *Ctenapseudes sapensis* (Chilton, 1926) is distributed throughout Songkhla Lagoon, whereas *Pagurapseudopsis thailandica* Angsupanich, 2001, and *Longiflagrum koyonense* Angsupanich, 2004, are restricted to the lower part (Table 1; Angsupanich et al., 2010).

In 2009, fieldwork in lower Songkhla Lagoon yielded an undescribed paratanaoid species. This species appeared to be closely related to representatives of genera in families Nototanaidae Sieg, 1976 and Tanaissuidae Bird & Larsen, 2009, but it did not belong to any known genus. In this paper, we describe the species as new and establish a new genus for it. In addition, we present a key to the genera in families Nototanaidae and Tanaissuidae.

MATERIAL AND METHODS

Material examined in this study is deposited in the Zoological Reference Collection of the Raffles Museum of Biodiversity Research, National University of Singapore (ZRC); the Zoological Institute, Faculty of Science, Hokkaido University, Japan (ZIHU); and the National Museum of Nature and Science, Tokyo, Japan (NSMT). Specimens were fixed in 10% buffered formalin and then transferred to 99% ethanol; selected specimens were subsequently dissected with chemically sharpened tungsten wire needles under a Nikon SMZ 1500 microscope. Appendages were mounted on glass slides in glycerin and observed with an Olympus BX51 microscope; after observation, preparations were sealed with Canada balsam. Illustrations were prepared with Adobe Illustrator CS5 from draft line drawings made with

Table 1. List of tanaidacean species recorded in Songkhla Lagoon, Thailand. The distribution data are based on Angsupanich et al. (2005, 2010) (+) and S. Angsupanich's unpublished data (*).

Taxon	Distribution		
	Upper	Middle	Lower
SUBORDER APSEUDOMORPHA			
Family Pagurapseudopsidae			
<i>Pagurapseudopsis thailandica</i> Angsupanich, 2001			+
Family Parapseudidae			
<i>Ctenapseudes sapensis</i> (Chilton, 1926)	+	+	+
<i>Longiflagrum koyonense</i> Angsupanich, 2004			+
SUBORDER TANAIDOMORPHA			
Family Tanaidae			
<i>Sinelobus</i> aff. <i>stanfordi</i> (Richardson, 1901)	*	+	*
Family Leptocheiliidae			
<i>Leptocheilia itoi</i> Ishimaru, 1985		+	
Family Nototanaidae			
<i>Nesotanais lacustris</i> Shiino, 1968		+	
<i>Nesotanais rugula</i> Bamber et al., 2003		+	

a camera lucida and/or from digital micrograph images. Selected specimens were treated with hexamethyldisilazane (Nation, 1983) and observed at 15 kV accelerating voltage with a Hitachi S-3000N scanning electron microscope (SEM). The SEM images were processed with Adobe Photoshop CS5. Morphological terminology is as in Larsen (2003). Measurements were made axially: dorsally on the body, antennules, antennae, and uropods; laterally on pereopods and pleopods.

TAXONOMY

Nototanaidae Sieg, 1976 *Birdotanis*, new genus

Type species. — *Birdotanis songkhlaensis* new species, by monotypy

Etymology. — The genus name (masculine) is from Dr. Graham Bird in recognition of his great contributions to the knowledge of Tanaidacea.

Diagnosis. — Cephalothorax strongly dorsoventrally flattened and elongate in males. Eyes present, black. Pereonite 6 with one genital cone in males. Antennule with three articles in females, four articles in males; article 3 shorter than article 2 in females. Antennal article 5 shorter than article 2. Female mandible with incisor and lacinia mobilis facing inward; molar well developed, bearing broad masticatory region with several teeth; left incisor and lacinia mobilis with six and five teeth, respectively. Female maxillular endite with nine spiniform setae. Female maxillipedal bases fused; endites fused, triangular, widest anteriorly (or “flared”), without distal tubercles, each with one subdistal simple seta. Male maxilliped with small, fused endite and simpler 4-articulate palp. Cheliped articulates with cephalothorax via triangular sclerite. Cheliped propodal palm and dactylus smooth on dorsal margin; subchelate in males. Pereopods 1–3 with

coxa. Pereopod 1 merus with oblique articulation with carpus; dactylus-unguis long; unguis longer than dactylus. Pereopods 2 and 3 with carpus bearing two ventral spiniform setae. Pereopods 4–6 without coxa or clinging apparatus; carpus with two outer and two inner spiniform setae in distal region; propodus with one (on pereopods 4 and 5) or three (on

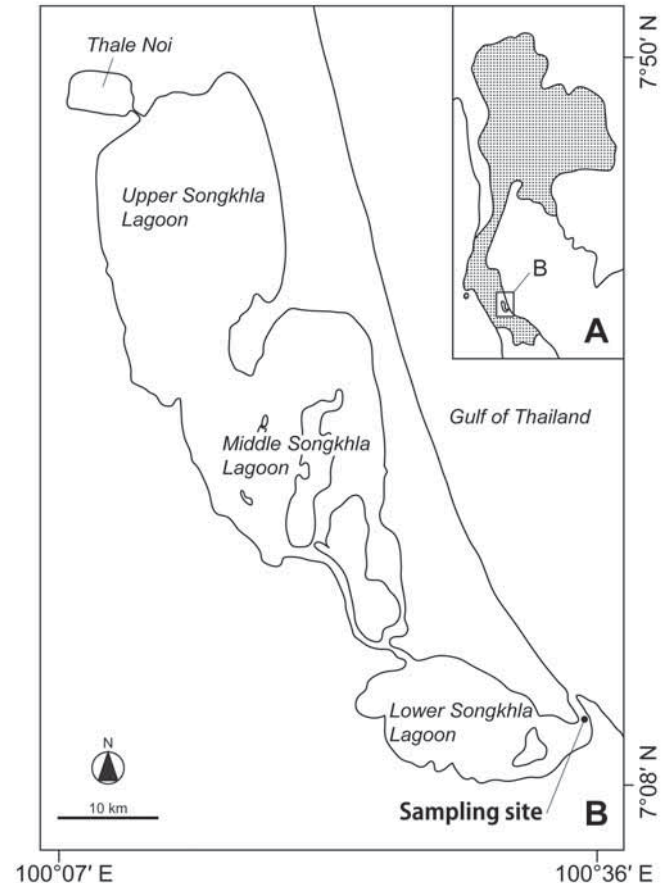


Fig. 1. Maps showing the sampling site. A, location of Songkhla Lagoon (B) in Thailand (shaded); B, location of sampling site within Songkhla Lagoon.

pereopod 6) long dorsodistal setae, without ventrodistal seta being longer than dactylus-unguis in pereopod 6; dactylus-unguis not fused, nearly straight; unguis tiny. Pleopods biramous, in five pairs, all similar in shape; endopod with one mid-inner plumose seta. Uropodal exopod with two articles; article 1 subequal in length to endopodal article 1. Marsupium consists of four pairs of flat oostegites.

***Birdotanaia songkhlaensis*, new species**
(Figs. 2–7)

Etymology. — The specific name is an adjective referring to the type locality.

Holotype. — Male (ZRC 2012.0137, length 2.15 mm, 4 slides and 1 vial), Lower Songkhla Lagoon (07°11.83'N 100°35.11'E), Thailand, 0.7 m depth, salinity 30 psu, clay bottom, 0.05 m² Tamura grab, coll. S. Angsupanich, 7 Feb.2009.

Paratypes. — 2 males (ZIHU-4132, length 2.14 mm, 2 slides and 1 SEM stub; ZIHU-4133, 1.86 mm, 1 vial) and 7 females (ZIHU-4134, 2.03 mm, with oostegites, 6 slides and 1 vial; ZIHU-4135, 1.97 mm, with oostegites, 3 slides, 2 SEM stubs, and 1 vial; ZIHU-4136, 1.73 mm, without oostegites, 5 slides and 1 vial; ZIHU-4137, 1.91 mm, with 4 eggs, 5 slides and 1 vial; ZIHU-4138, 2.06 mm, without oostegites, 1 slide and 1 vial; ZIHU-4139, 1.86 mm, with oostegites, 1 vial; NSMT-Cr 21981, 1.77 mm, 1 vial), same data as for holotype.

Description. — Holotype male. Body (Fig. 2A, C) cylindrical but slightly flattened dorsoventrally, 7.8 times as long as wide. Cephalothorax 0.27 times total body length, nearly twice as long as wide, with one pair of lateral setae posterior to eyes; dorsal region smooth. Pereonites each with one pair of lateral setae. Pereonite 1 rectangular, wider than long, with one pair of dorsolateral setae. Pereonites 2–6 almost square; pereonite 4 with one pair of dorsolateral simple setae. Pleon 0.21 times total body length. Pleonites as wide as pereon; all similar in shape, without epimeral setae. Pleotelson slightly narrower than pleonites, wider than long, with round end, one pair each of lateral and posterolateral simple setae, and two pairs of simple setae at posterior tip.

Antennule (Fig. 3A, a1) 0.70 times cephalothorax length. Article 1 with one mid-outer, one disto-outer, and one disto-inner simple setae, and several broom setae. Article 2 0.28 times as long as article 1, with one outer and one inner simple setae and one broom seta in distal region. Article 3 0.73 times article 2 length, with four distal aesthetascs. Article 4 0.45 times article 3 length, with five simple setae, two broom setae, and three aesthetascs.

Antenna (Fig. 3B, b1) 0.75 times length of antennule, with six articles. Article 1 naked. Articles 2 and 3 each with one dorsodistal simple seta; article 2 at least twice as long as article 3. Article 4 longest, longer than articles 1–3 combined, with one middle and several distal broom setae. Article 5

0.6 times article 2 length, 0.3 times article 4 length, with one distal seta. Article 6 0.1 times article 5 length, with six simple setae.

Mouthparts reduced. Maxilliped (Fig. 3C) bases completely fused, each with one ventrodistal simple seta at insertion of palp. Endites completely fused, naked. Palp with four articles; article 4 with four simple setae at tip. Maxillular palp (Fig. 3D) located posterolateral to maxilliped, with two simple setae at tip. Epignath (Fig. 3E) narrow, curved; tip setulate.

Cheliped (Fig. 3F, f1) basis with free posterior portion, and one outer simple seta. Merus triangular, with one ventral simple seta. Carpus rectangular, almost twice as long as wide, with one dorsodistal and two ventral simple setae. Chela subchelate. Propodal palm with five inner setae at insertion of dactylus, two simple setae on ventral margin, and two distal triangular processes, bearing one and three simple setae, respectively. Fixed finger developed from subdistal region of propodal palm, without claw. Dactylus about 3.2 times as long as fixed finger, with one inner proximal seta; cutting surface with two proximal spiniform setae and two proximal processes.

Pereopod 1 (Fig. 4A) 0.28 times total body length, longest among pereopods. Coxa with one simple seta. Basis 0.32 times total pereopod 1 length, cylindrical, slightly arched, narrow (4.7 times as long as wide), with one broom seta. Ischium and merus with one ventral seta. Carpus 1.3 times as long as merus, with four distal simple setae. Propodus as long as carpus, with one ventral simple seta. Dactylus-unguis 1.43 times as long as propodus, naked. Unguis 1.64 times as long as dactylus. Pereopod 2 (Fig. 4B) 0.7 times as long as pereopod 1. Coxa and ischium like those of pereopod 1. Basis cylindrical, narrow (3.1 times as long as wide), with two dorsal broom setae. Merus with one simple and one spiniform setae in ventrodistal region. Carpus 1.62 times as long as merus, with one dorsodistal and one ventrodistal simple setae. Propodus 0.65 times as long as carpus, with one ventral spiniform seta. Dactylus-unguis 1.2 times as long as propodus, naked. Unguis 1.5 times as long as dactylus. Pereopod 3 (Fig. 4C) similar to pereopod 2, except that basis has one additional outer broom seta. Pereopod 4 (Fig. 4D) shortest among pereopods. Basis thick (twice as long as wide), with two dorsal and two ventral broom setae. Ischium wider than long, with two ventrodistal simple setae. Merus with two ventrodistal spiniform setae. Carpus as long as merus, with one dorsodistal simple seta in inner region. Propodus slightly longer than carpus, with two ventrodistal spiniform setae, and dorsodistal serration. Dactylus-unguis 0.65 times as long as propodus, nearly straight. Unguis tiny, 0.15 times as long as dactylus. Pereopod 5 (Fig. 4E) slightly longer than but otherwise similar to pereopod 4, except for basis having one ventral broom seta, and carpus with one additional inner simple seta on dorsodistal margin. Pereopod 6 (Fig. 4F) similar to pereopod 4, except for basis having one dorsal broom seta and propodus with two additional dorsodistal long setae (one of them broken).

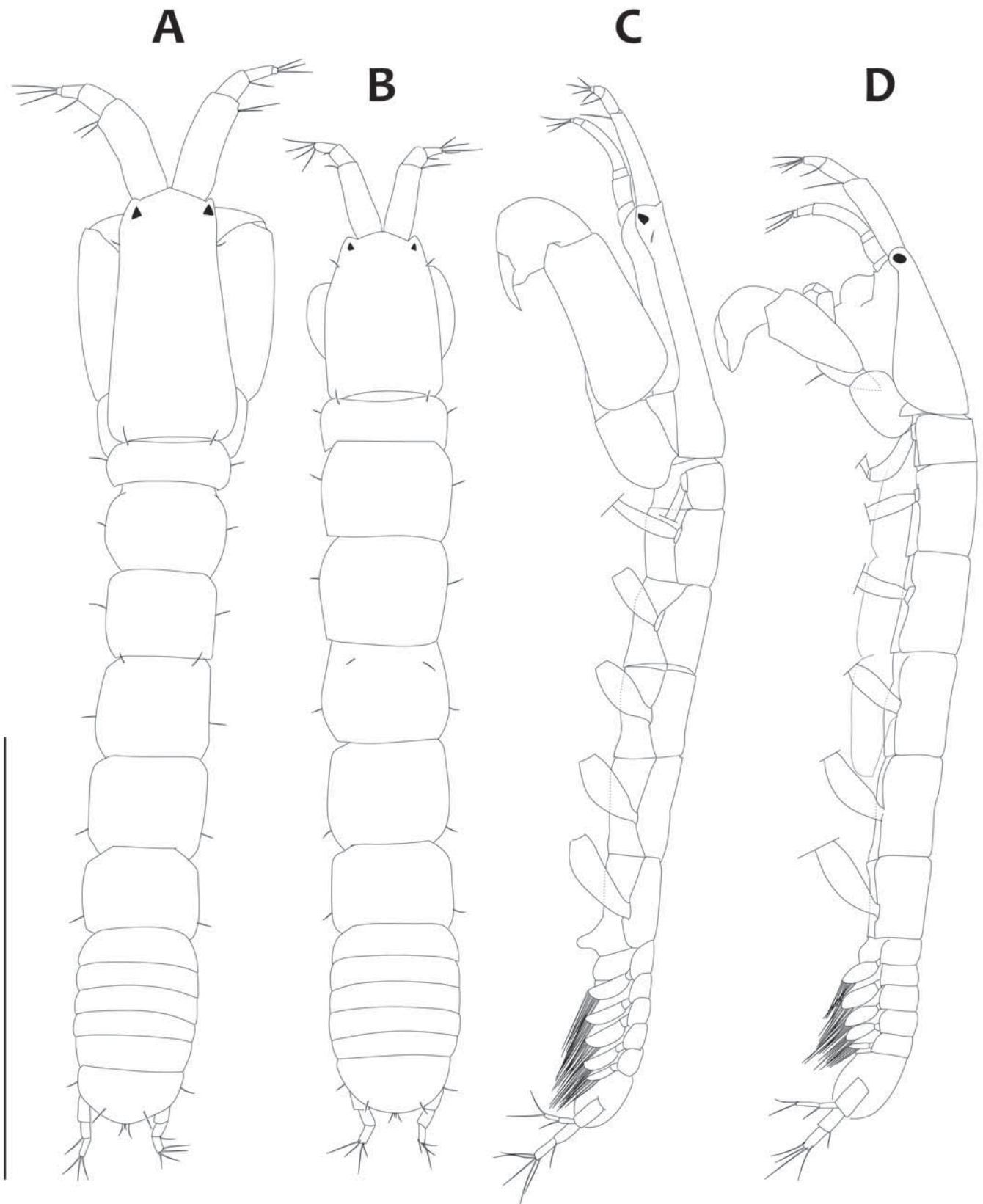


Fig. 2. *Birdotanais songkhlaensis* new species: A, C, holotype male (ZRC 2012.0137); B, D, paratype female (ZIHU-4134). A, B, body, dorsal view; C, D, body, lateral view. Scale bar = 1 mm.

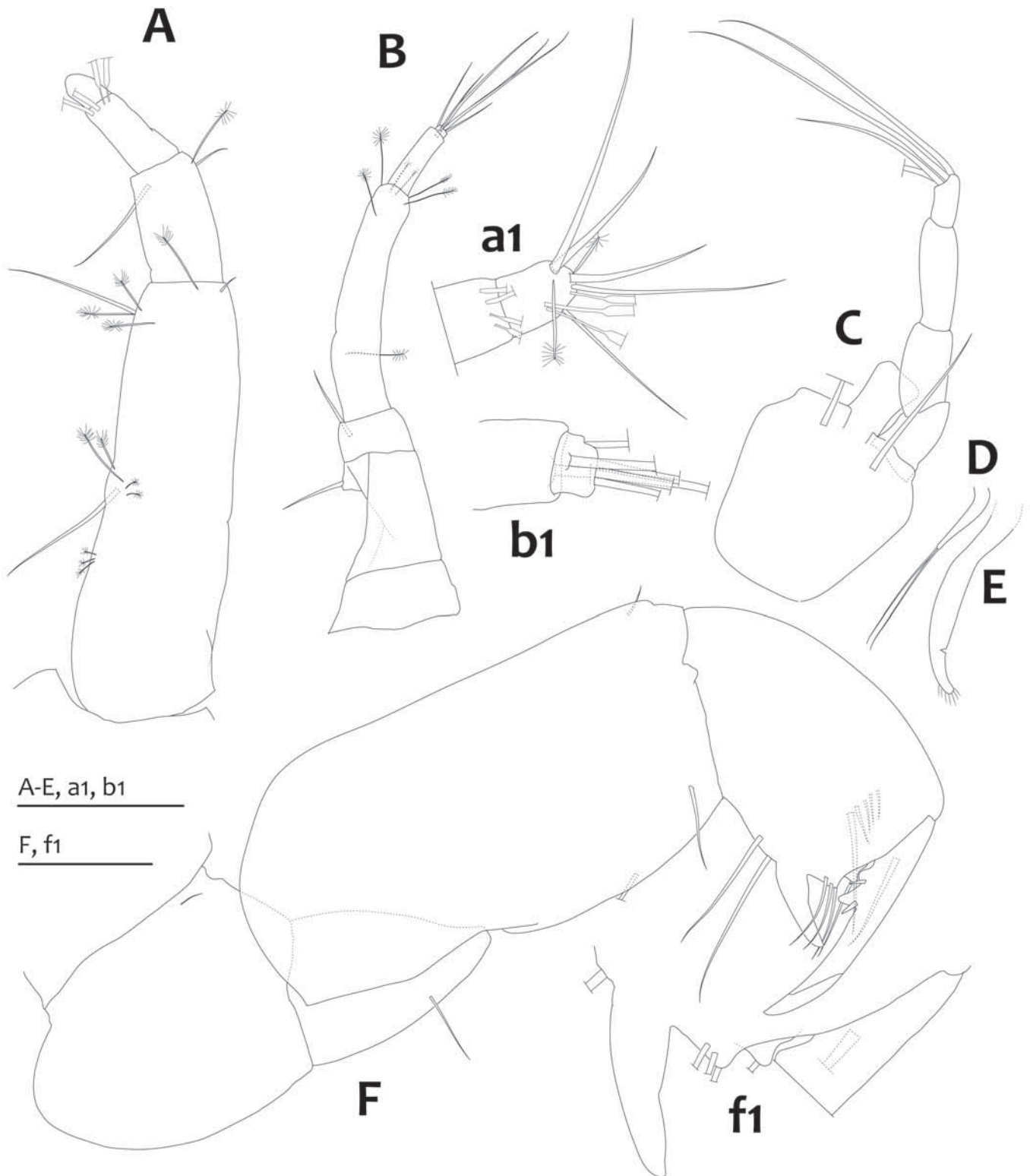


Fig. 3. *Birdotanis songkhlaensis* new species, holotype male (ZRC 2012.0137). A, right antennule; a1, same, article 4 and distal portion of article 3; B, right antenna, with partly broken article 2; b1, same, article 6 and distal portion of article 5; C, maxilliped, right palp not shown, ventral view; D, left maxillular palp; E, left epignath; F, right cheliped; f1, same, distal portion of propodus and proximal portion of dactylus. Scale bars = 0.1 mm for A–F; 0.05 mm for a1, b1, f1.

Table 2. Summary of differences between Nototanaidae and Tanaissuidae suggested by Bird & Larsen (2009).

Characters	Nototanaidae	Tanaissuidae
Mandibular molars	Broad, with heavy chitinised grinding surface	Acuminate or not, but never “crushing”
Left mandible incisor and lacinia mobilis	Face inward	Face ventrally [“anterior” in Bird & Larsen (2009)]
Pereopod 6 propodus	With at least 3 dorsodistal setae (although 2 or 3 in <i>N. dimorphus</i>)	With 1 or 2 dorsodistal setae (although 3 in <i>T. danica</i>)

Pleopods (Fig. 4G, H) with basal article uniarticulate, naked. Endopod (Fig. 4G) uniarticulate, with one proximal and six plumose setae on outer margin, and one mid-inner plumose seta and one inner subdistal “step-tipped plumose seta” (see Kakui et al., 2010: Fig. 5j2). Exopod (Fig. 4H) uniarticulate, longer than endopod, with 19 or 20 outer plumose setae.

Uropod (Fig. 4I) with basal article naked. Endopod article 1 with one simple and two broom setae; article 2 with five simple and two broom setae. Exopod article 1 subequal to endopod article 1 in length, with one simple seta; article 2 with two simple setae.

Variation observed among males: antennular article 3 with three aesthetascs, and pereopod 5 carpus with one dorsodistal simple seta in inner region.

Females. Body (Fig. 2B, D) about 7.1 times as long as wide. Otherwise similar to males, except cephalothorax not strongly dorsoventrally flattened, 0.19 times total body length, about 1.5 times as long as wide.

Antennule (Fig. 5A) about 0.8 times cephalothorax length. Article 1 similar to that of male. Article 2 0.35 times article 1 length, with one outer simple and two broom setae in distal region. Article 3 0.65 times article 2 length, with five simple and one broom setae, and one aesthetasc. Antenna (Fig. 5B) length 0.85 times antennule length, similar to that of male.

Labrum (Fig. 5C) uniarticulate, rounded; distal region setulate. Mandibles (Figs. 5D, d1, E, 7A, B) with molar process well developed, with broad masticatory region bearing several teeth. Left mandible (Figs. 5D, d1, 7A) incisor with four small and two large teeth; lacinia mobilis with three small and two large teeth. Right mandible (Figs. 5E, 7B) incisor with two asymmetric teeth. Labium (Fig. 5F) with inner lobe rounded, setulate distally; outer lobe rounded, naked. Maxillule (Fig. 5G, g1) not setulate; palp with two setae at tip. Maxilla (Fig. 5H) subovate, naked. Maxilliped (Figs. 5I, 7C) bases fused, together ovoid, each with one short ventrodistal simple seta at insertion of palp. Endites fused (Fig. 7C); anterolateral region setulate. Palp article 1 naked; article 2 with one outer and three inner setae in distal region; article 3 with one dorsal and three inner setae; article 4 with one simple and five pinnate setae. Epignath (Fig. 5J) similar to that of male.

Cheliped (Fig. 5K, k1) basis slightly longer than wide, with small free posterior portion, and one outer simple seta. Merus similar to that of male. Carpus similar to that of male but

1.85 times as long as wide. Propodal palm with five inner setae and one row of minute setae at insertion of dactylus. Fixed finger with claw; ventral margin with two simple setae; cutting surface with one proximal and three middle simple setae, and two distal small processes. Dactylus about 1.3 times as long as fixed finger, with one inner proximal seta; cutting surface smooth.

Pereopods (Fig. 6A–F), pleopods (Fig. 6G), and uropod (Fig. 6H) generally similar to those of male.

DISCUSSION

In a phylogenetic analysis based on morphology, Bird & Larsen (2009) established family Tanaissuidae for three genera previously belonging to family Nototanaidae: *Bathytanaissus* Bird & Holdich, 1989; *Protanaissus* Sieg, 1982; and *Tanaissus* Norman & Scott, 1906. Several other genera were also transferred from Nototanaidae, leaving this family with four genera: *Nesotanaeis* Shiino, 1968; *Nototanaeis* Richardson, 1906; *Nototanooides* Sieg & Heard, 1985; and *Paranesotanaeis* Larsen & Shimomura, 2008. Members of Tanaissuidae and Nototanaidae can be distinguished from other paratanoids by the following combination of character states: 1) pereonites 1–3 not reduced, 2) female antennule with three articles, 3) male mouthparts reduced, 4) female right mandible with subdistal crenulation, 5) chelipedal attachment via a triangular sclerite, 6) pereopods 4–6 without a clinging apparatus (see Błażewicz-Paszkowycz, 2007: pl. 1A), and 7) uropodal endopod with two articles. Between these two families, Bird & Larsen (2009: 158) suggested that there are diagnostic character states in 1) the mandibular molars, 2) the incisor and lacinia mobilis of the left mandible, and 3) the propodus of pereopod 6 (Table 2). For the last character, conflicting diagnostic states have been reported for some species; for example, the tanaissuid *Tanaissus danica* (Hansen, 1910) in Bird (2002: Fig. 6F) has three dorsodistal long setae on the pereopod 6 propodus, whereas the nototanaid *Nototanaeis dimorphus* (Beddard, 1886) in Shiino (1970: 89) has only two.

For some species, the generic or even familial affiliation is not clear. For instance, Bird & Larsen (2009) noted that the tanaissuid *Protanaissus floridensis* Larsen & Heard, 2004 shows many differences from congeneric or confamilial species: 1) the pereopod 1 dactylus-unguis is short; 2) black eyes are present; 3) the carpi of pereopods 4–6 have zero, one, and one distal spiniform setae, respectively; and 4) the stout uropod has a uniarticulate exopod. These differences suggest that *P. floridensis* requires a new genus or should be

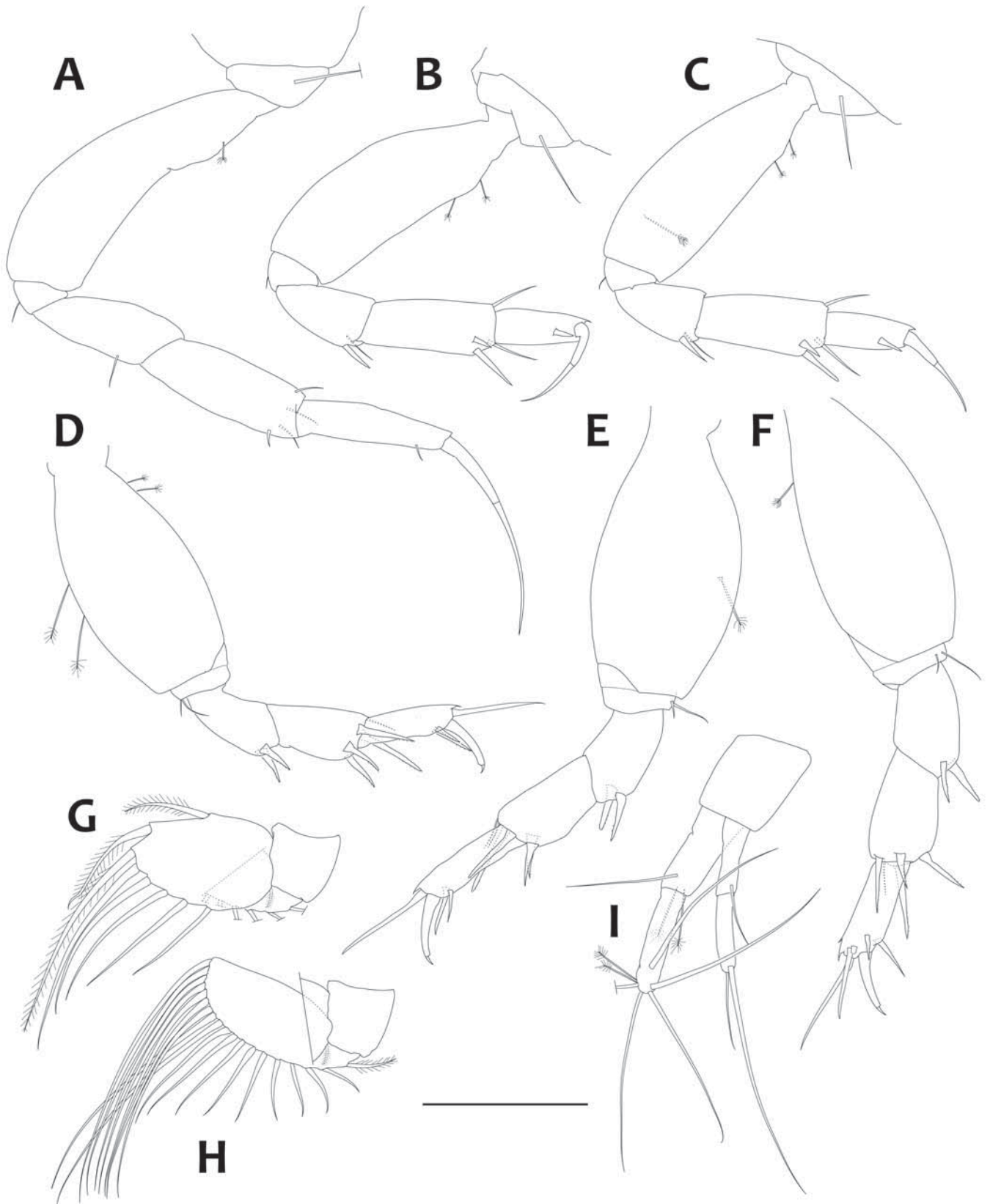


Fig. 4. *Birdotanais songkhlaensis* new species, holotype male (ZRC 2012.0137). A–C, E, F, right pereopods 1–3, 5, 6, outer view; D, left pereopod 4, outer view; G, right pleopod 1, exopod not shown; H, same, endopod not shown; I, right uropod. Scale bar = 0.1 mm.

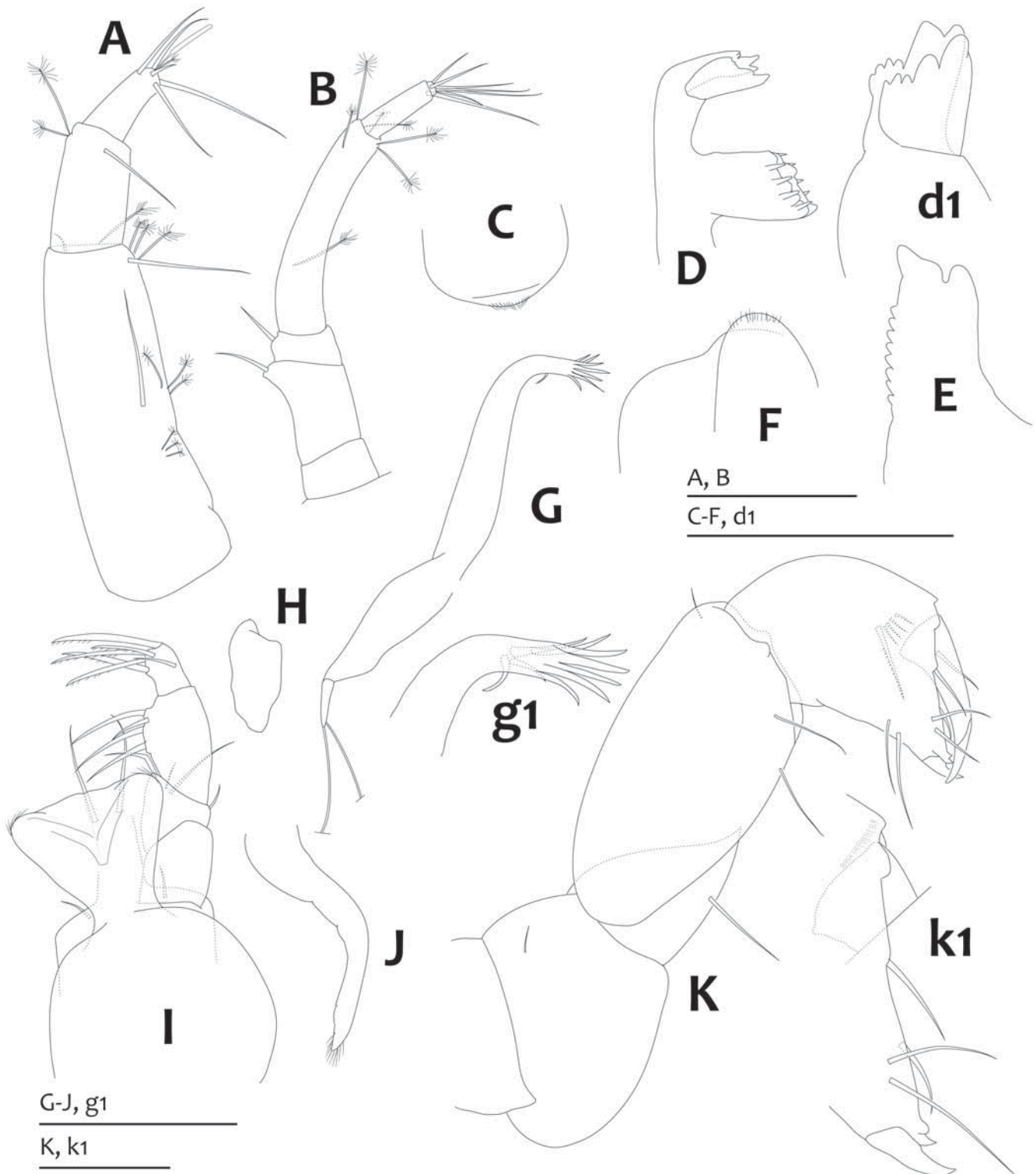


Fig. 5. *Birdotanais songkhlaensis* new species: A–C, F, I–K, paratype female (ZIHU-4134); D, E, paratype female (ZIHU-4136); G, paratype female (ZIHU-4135); H, paratype female (ZIHU-4138). A, right antennule; B, right antenna; C, labrum; D, left mandible, anterior view; d1, same, incisor and lacinia mobilis, dorsal view; E, right mandible, distal portion, ventral view; F, labium, part; G, right maxillule; g1, same, endite; H, left maxilla; I, maxilliped, left palp not shown, dorsal view; J, epignath; K, right cheliped; k1, same, fixed finger and proximal portion of dactylus. Scale bars = 0.1 mm for A–D, F–K; 0.05 mm for E, d1, g1, k1.

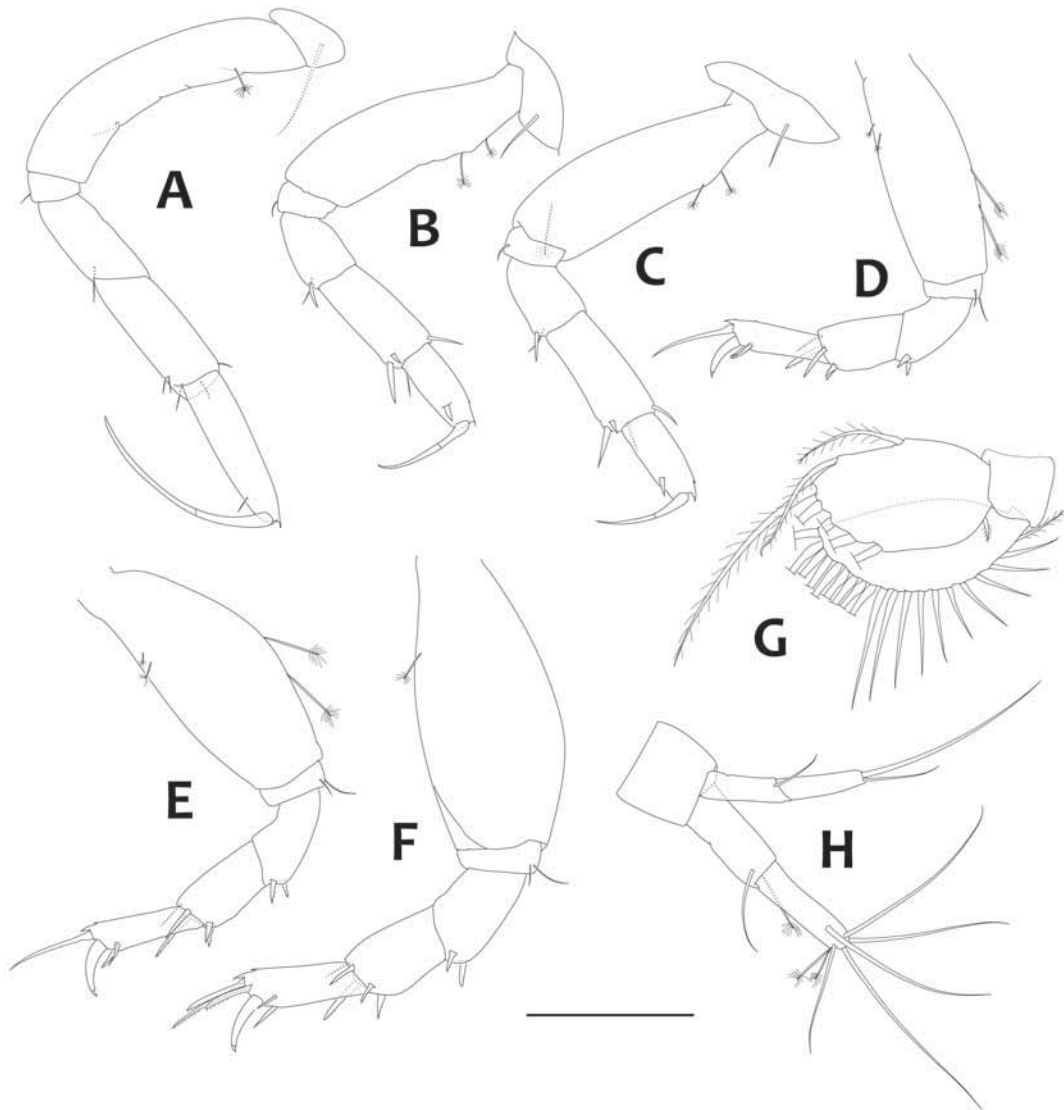


Fig. 6. *Birdotanais songkhlaensis* new species, paratype female (ZIHU-4134). A–F, right pereopods 1–6, outer view; G, right pleopod 1; H, right uropod. Scale bar = 0.1 mm.

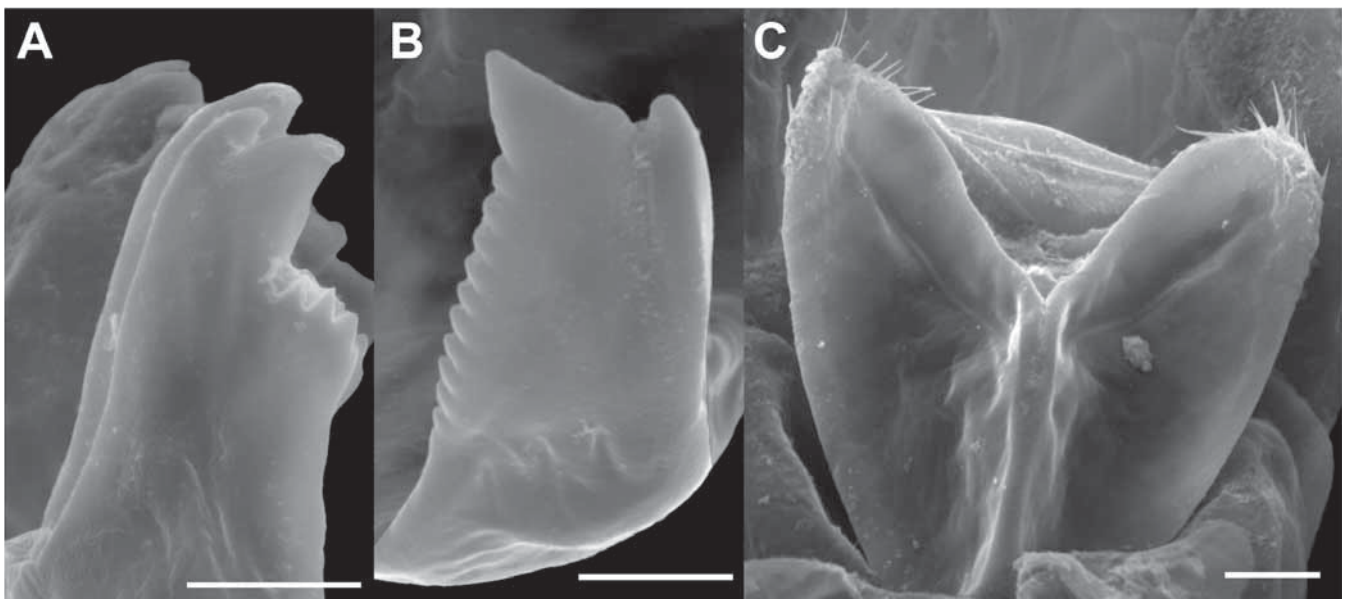


Fig. 7. *Birdotanais songkhlaensis* new species, paratype female (ZIHU-4135). A, incisor and lacinia mobilis of left mandible, ventral view; B, incisor of right mandible, ventral view; C, maxillipedal endites, dorsal view. Scale bars = 10 μ m.

Table 3. Comparison of key characters among five nototanaid genera.

Characters	<i>Birdotanis</i>	<i>Nesotanais</i>	<i>Nototanais</i>	<i>Nototanoides</i>	<i>Paranesotanais</i>
Mid-inner plumose seta on pleopodal endopod	1	0	0	0	0
Dactylus-unguis of pereopods 4-6	Nearly straight, with tiny unguis 4 articles	Strongly curved, with normal unguis 4 articles	Strongly curved, with normal unguis 5 articles	Strongly curved, with normal unguis 4 articles	Nearly straight, with bifurcate tip 4 articles
Male antennule	With aesthetascs	Naked	With aesthetascs	With aesthetasc	With aesthetascs
Male antennular article 3	Strong; normal direction; subchelate	Strong; twisted inward; flange present	Strong; normal direction; chelate	Weak; normal direction	Strong; twisted inward; flange absent
Male maxilliped	Palp with 4 articles; endite reduced	Palp with 2 articles; endite reduced	Palp with 4 articles; endite reduced	Palp lacking; endite reduced	Palp with 2(?) articles; endite condition unknown
Female maxillular endite	With 9 spiniform setae	With 8 or 9 spiniform setae	With 10 spiniform setae	With 9 spiniform setae	With 10 spiniform setae
Female antennular article 2	Without aesthetascs	Without aesthetascs	Without aesthetascs	With aesthetascs	With aesthetascs
Female maxillipedal endites	Fused, with 2 setae	Partly fused or not fused, with 2 setae and 4 tubercles	Fused or not fused, with 2 setae	Partly fused, with 4 setae and 4 tubercles	Fused, with 4 setae

transferred to some other genus or family; for this reason, we omit this species from the following discussion.

We place *Birdotanis* in family Nototanaidae based on its having the above seven characters, black eyes, and mandibular molars with a broad masticatory region. *Birdotanis* differs from four confamilial genera in having one mid-inner plumose seta on the oval pleopodal endopod, and in the nearly straight dactylus-unguis bearing a tiny unguis, on pereopods 4–6. In males, *Birdotanis* is also distinguishable from other nototanoids by the number of articles in the antennule and maxillipedal palp, and by the shape of chela. Female *Birdotanis* are quite similar to female *Nototanais*, except for the number of teeth on the maxillular endite and the features of the pleopodal endopod and dactylus-unguis on pereopods 4–6 mentioned above. This may suggest a close relationship between the two genera. Female *Birdotanis* can be distinguished from the remaining three confamilial genera by the antennular article 2 lacking aesthetascs, and the armament of the maxillipedal endites. Table 3 summarises the states of key characters among the five nototanaid genera.

Birdotanis songkhlaensis shares the features of the dactylus-unguis on pereopods 4–6, mentioned above, with members of Family Tanaissuidae. However, in addition to the features of the eyes and mandibular molars, *Birdotanis* differs from the three tanaissuid genera in the following characters (character states in *Birdotanis* are indicated in parentheses): in *Bathytanaissus*, the carpi of pereopods 4–6 bear two spiniform setae (four); in *Protanaissus*, the pereopod 6 propodus has one ventrodistal seta longer than the dactylus-unguis (lacking such a seta), and article 1 of the uropodal exopod is half the length of article 1 of the endopod (subequal); and in *Tanaissus*, the pereopod 1 dactylus-unguis is shorter than the propodus (longer). A key to the genera in families Nototanaidae and Tanaissuidae is presented below.

Male *B. songkhlaensis* show two unusual features among tanaidomorphs. One is the “subchelate” chela, in which 1) the dactylus is elongate and far longer than the fixed finger, 2) the fixed finger is weakly developed, crossing the dactylus far proximal to the dactylus tip, and 3) the base of the fixed finger is distant from that of the dactylus. This type of chela has been reported from several other taxa: most species of *Pseudoleptocheilia* (e.g., Băcescu, 1977; Bamber, 2006) (Leptocheiliidae); *Parakonarus kopure* Bird, 2011 (Leptocheiliidae); *Tanaissus microthymus* Bird & Bamber, in Bamber, et al., 2009 (Tanaissuidae); *Androtanis beebei* (Van Name, 1925) [family incertae sedis, Larsen & Wilson (2002)]; and *Terebellatanais floridanus* Suárez-Morales et al., 2011 (Mirandotanaidae). Except for neuters of *T. floridanus*, the subchelate chela is known only in males, with the mouthparts simpler than those of female; this means that these should be terminal males. The taxa just mentioned, including *B. songkhlaensis*, are similar in terms of sharing the subchelate chela, but they can be distinguished by other characters such as the number of articles in the antennule and uropodal endopod/exopod. Therefore, excepting those in species in *Pseudoleptocheilia*, the subchelate chelae are probably the results of parallel evolution. Another unusual

character is the single genital cone. Although this feature is common in Suborder Apseudomorpha, within Suborder Tanaidomorpha it has been reported in only a few genera such as *Hexapleomera*, *Pancoloides*, and *Dimorphognathia* (Sieg, 1980, 1986).

Birdotanaeis songkhlaensis is the eighth tanaidacean reported from Songkhla Lagoon. It differs from other species in the lagoon in having a uniramous antennule and the uropodal endopod with only two articles (for differences with *Nesotanaeis* spp., see the preceding three paragraphs). *Birdotanaeis songkhlaensis* is presently known from only one sampling site in lower Songkhla Lagoon (Fig. 1).

Key to genera in Families Nototanaididae and Tanaissuidae, excluding *P. floridensis*

1. Eyes absent or, if present, lacking ommatidia. Mandibular molar acuminate or, if cylindrical, lacking broad masticatory region 2 (Family Tanaissuidae)
 - Eyes present, bearing ommatidia. Mandibular molar cylindrical, with broad masticatory region 4 (Family Nototanaididae)
2. Pereopod 6 carpus with two distal spiniform setae; propodus with one dorsodistal long seta *Bathytanaissus*
 - Pereopod 6 carpus with three or four distal spiniform setae; propodus with two or three dorsodistal long setae 3
3. Pereopod 1 dactylus-unguis longer than propodus. Female maxillipedal endites not fused medially *Protanaissus*
 - Pereopod 1 dactylus-unguis shorter than propodus. Female maxillipedal endites fused medially *Tanaissus*
4. Pleopodal endopod with one mid-inner plumose seta *Birdotanaeis*, new genus
 - Pleopodal endopod without mid-inner plumose seta 5
5. Fixed finger with four or more ventral setae. Female antennular article 2 with several aesthetascs 6
 - Fixed finger with two or fewer ventral setae. Female antennular article 2 without aesthetascs 7
6. Dactylus-unguis of pereopods 4–6 bifurcate; unguis fused to dactylus. Male chela twisted about 90 degrees, with dactylus inward. Male maxillipedal palpi present, simpler than those of female. Female maxillipedal endites without tubercles *Paranesotanaeis*
 - Dactylus-unguis of pereopods 4–6 not furcated; unguis not fused to dactylus. Male chela in normal direction. Male maxillipedal palpi absent. Female maxillipedal endites each with two tubercles *Nototanaoides*
7. Male antennule with five articles. Male chela in normal direction. Male maxillipedal palpi with four articles. Female maxillipedal endites without tubercles *Nototanaeis*
 - Male antennule with four articles. Male chela twisted about 90 degrees, with dactylus inward. Male maxillipedal palpi with two articles. Female maxillipedal endites each with two tubercles. *Nesotanaeis*

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