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Two new species of the freshwater crab genus *Sundathelphusa* Bott, 1969 (Crustacea: Brachyura: Gecarcinucidae) from Negros Island, Philippines

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Abstract. Two new, long-legged species of the freshwater crab genus *Sundathelphusa* Bott, 1969, are described from the island of Negros in the central Philippines. These are *Sundathelphusa orsoni*, new species, from the forested foothills of Mount Kanlaon in the northern region of the island, and *S. niwangtiil*, new species, a troglophilic species from the hilly southern region. These two species are similar to Philippine congeners such as *S. longipes* (Balss, 1937), *S. wolterecki* Balss, (1937), *S. sutteri* (Bott, 1970), *S. celer* (Ng, 1991), and *S. holthuisi* Ng, 2010, but can be distinguished from these, and from each other, by the morphology of the carapace, pereopods, male thoracic sternum, pleon, and gonopods.

Keywords. Decapoda, Gecarcinucoidea, new species, Mambukal, Mambaho cave, Negros Island, Philippines.

INTRODUCTION

There are currently 25 known species of the gecarcinucid freshwater crab genus *Sundathelphusa* Bott, 1969, found in the Philippines (Bott, 1970; Ng, 1991, 2010; Ng & Sket, 1996; Husana et al. 2009, 2014; Mendoza & Naruse, 2010). The Philippines have the greatest number of species of *Sundathelphusa* throughout the latter's known range, possibly due to the country's archipelagic geography. Furthermore, the discovery of more new species can be expected if one considers the number of unexplored habitats (Chia & Ng, 2006) and the cryptic diversity in certain habitats (e.g., caves) due to the selection of similar specialised morphologies or adaptations (Klaus et al., 2013). The known species of Philippine *Sundathelphusa* inhabit diverse habitats ranging from hypogean or groundwater ecosystems to mountain streams and tree holes; most of these species occur on the islands of Luzon, Mindanao, Bohol, and Samar (see Bürger, 1894; Rathbun, 1904; Takeda, 1983; Ng, 1991; Ng & Sket, 1996; Takeda & Ng, 2001; Husana et al., 2009, 2014; Mendoza & Naruse, 2010). Furthermore, extensive fieldwork by the authors has revealed the presence of known and undescribed species of *Sundathelphusa* in a wide variety of suitable habitats and in many other islands in the Philippines, which suggests that this genus is the most widespread and successful coloniser in this archipelagic country.

Many of the previously described *Sundathelphusa* species from the Philippines remain poorly understood, partly due to the lack of specimens available for examination, the lack of clear and detailed type locality data, and also partly due to the confused treatment of their taxonomy. The contributions of recent workers, notably Peter K. L. Ng (National University of Singapore) (see Ng 1991, 2010; Ng & Sket, 1996), have rectified some of the taxonomic uncertainties and identified existing problems that need to be addressed. Ng (1991) commented on the lack of clarity in the taxonomy of the genus *Archipelothelphusa* Bott, 1970 — in particular, the type species, *Thelphusa grapsoides* H. Milne Edwards, 1853, under which some species had been previously synonymised without an exhaustive examination of the relevant type material (see Bott, 1970). Ng (1991) thus considered *Thelphusa jagori* von Martens, 1868, *Thelphusa philippina* von Martens, 1868, and *Potamon* (*Potamon*) *antipoloensis* Rathbun, 1904, as separate and valid species until a proper examination of their types can be done. Furthermore, Ng (1991) considered *Archipelothelphusa longipes* (Balss, 1937) a valid species, and gave a detailed diagnosis and illustrations based on two specimens (1 male, 1 female) from Quezon Province, Luzon. He also described a similar, but new, species, *A. celer*, from Los Baños, Laguna Province, Luzon. Later, Ng & Sket (1996) considered *Archipelothelphusa* Bott, 1970, a junior synonym of *Sundathelphusa* Bott, 1969, explaining that the two taxa did not have enough morphological differences to merit their separation. Ng (2010) stabilised the taxonomy of *Sundathelphusa longipes* (Balss, 1937) by selecting a lectotype from among the syntypes deposited in the Museum für Naturkunde der Humboldt-Universität, Berlin (ZMB). He illustrated and re-described the lectotype, and

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re-assigned the specimens he had previously referred to (in Ng, 1991) as "*Archipelothelphusa longipes*" to a new species, *Sundathelphusa holthuisi*, citing mainly the differences in the G1 morphology. Ng (2010) further commented that the other juvenile specimens listed by Balss (1937: 156), from "Balinsayo, Negros" and from "Cabagan, Bergdistrikt des Rio Agno, Luzon" are unlikely to be conspecific with the lectotype (male, ZMB 10074a) and paralectotypes (2 males, 2 females; ZMB 10074b) of *S. longipes*. It bears noting that the type locality of the lectotype and paralectotypes is merely stated as "Philippines" and nothing more specific has been determined thus far (Balss, 1937; Ng, 2010). However, Ng (2010) did comment on the similarity between *S. longipes* and *S. celer* (from Luzon), suggesting that they could be conspecific, and that the type locality of *S. longipes* could be narrowed down to Luzon. The present authors believe that the only way this problem can be resolved is by having more specimens from many different Philippine localities available for examination. Tracing the itinerary of malacologist, Otto Franz von Möllendorf, identified by Balss (1937) as collector of the present lectotype and paralectotypes of *S. longipes*, and who visited the Philippines in the late 19th century, could also prove helpful.

The island of Negros is one of the major islands of the Visayas region, in the central Philippines (together with Panay, Cebu, Bohol, Leyte, and Samar). To date, there has been only one dubious record of *Sundathelphusa* from Negros Island. Balss (1937) had one specimen among the material examined for a new subspecies he was describing, *Para-Bary-thelphusa grapsoides longipes* (= *Sundathelphusa longipes*), for which he wrote: "Mehrere juv. Balinsayo, Negros. Woltereck leg. Mus. München." (Balss, 1937: 156). The locality, "Balinsayo", could be present-day Lake Balinsasayao, which is in the southern part of the island, in Negros Oriental province. At present, the identity of Balss' Negros specimen cannot be ascertained as it has not been examined for the present work. The possibility that it is conspecific with *S. longipes* sensu stricto (viz. Ng, 2010) cannot be completely discounted owing to the uncertainty over the exact type locality of that species. In this paper, two new species of *Sundathelphusa* from the northern and southern regions of Negros Island are described. The two new species closely resemble other long-legged species found in the Philippines such as *S. longipes* (Balss, 1937), *S. wolterecki* Balss, (1937), *S. sutteri* (Bott, 1970), *S. celer* (Ng, 1991), and *S. holthuisi* Ng, 2010, but a differential diagnosis will be given in the remarks for each of the new species.

For the material examined the measurements provided are of the carapace width and length, respectively, in millimeters. For locality data, the term "barangay" (village) refers to the smallest civil administrative unit in the Philippines, where the municipalities and cities are each subdivided into several barangays. The carcinological terminology essentially follows that of Ng (1988) and Ng & Sket (1996). Specimens examined are deposited in the Crustacean Reference Collection, National Museum of the Philippines, Manila (NMCR); the Zoological Reference Collection, Lee Kong Chian Natural History Museum (formerly Raffles Museum of Biodiversity Research), Singapore (ZRC); and, the National Museum of Nature and Science, Tokyo (NSMT). The following abbreviations are used: P1–P5 = pereiopod 1–5; a.s.l. = above sea level; coll. = collected by; G1, G2 = male first and second pleopods, respectively; and I. = island.

TAXONOMY

Superfamily GECARCINUCOIDEA Rathbun, 1904

Family GECARCINUCIDAE Rathbun, 1904

Subfamily Parathelphusinae Alcock, 1910

Genus *Sundathelphusa* Bott, 1969

Sundathelphusa orsoni, new species
(Figs. 1–4)

Material examined. Holotype, ♂ (16.7×14.2 mm) (NMCR 39110), under rocks, near first cataract, 366 m a.s.l., Mambukal Mountain Resort, barangay Minoyan, Murcia town, Negros Occidental province, Negros I., Philippines, 10° 30.729'N, 123° 06.162'E, coll. JCE Mendoza, 26 December 2010. Paratypes: 1 ♂ (15.0×12.5 mm) (NMCR 39111), same data as holotype; 10 ♂ (8.8×7.8 mm – 16.0×13.5 mm), 5 ♀ (13.0×11.0 mm – 20.3×16.9 mm) (ZRC 2014.0238), under rocks, along banks and shallows, upstream of sixth cataract, 462 m a.s.l., Mambukal Mountain Resort, barangay Minoyan, Murcia town, Negros Occidental province, Negros I., Philippines, 10°30'20.9"N 123°06'28.1"E, coll. JCE Mendoza, 29 December 2011.

Description. Carapace (Figs. 1A, 2A) subquadrate in outline, about 1.1–1.2 times wider than long, widest at level of mesobranchial region; dorsal surface flattened longitudinally, transversely; branchial region moderately inflated, cardiac, intestinal regions flat; epigastric, postorbital cristae distinct, sharp, confluent; lateral regions with strong striae; distinct median groove between epigastric regions, cervical groove moderately deep, H-shaped gastric groove distinct. Front moderately broad, about 0.26–0.27 times greatest carapace width, gently deflexed ventrally; anterior margin with broad, shallow, median concavity in dorsal view; frontal median triangle (Fig. 3D) distinct, dorsal margin convex dorsally, lateral ends completely fusing with lateral margins. External orbital angle acutely triangular, external margin cristate, almost straight, distinctly longer than internal margin; epibranchial tooth small but distinct, triangular, well separated from external orbital tooth by V-shaped notch. Anterolateral margin cristate, gently convex, slightly serrated; posterolateral margin nearly straight, converging gradually towards posterior margin of carapace; central region of posterior margin slightly concave. Orbital margins cristate, supraorbital margin smooth, infraorbital margin serrated. Suborbital, sub-branchial, pterygostomial regions rugose, with several, prominent rows of small granules. Posterior margin of epistome (Fig. 3E) with protruding, triangular median lobe with rounded tip, separated from sinuous lateral lobes by distinct clefts.

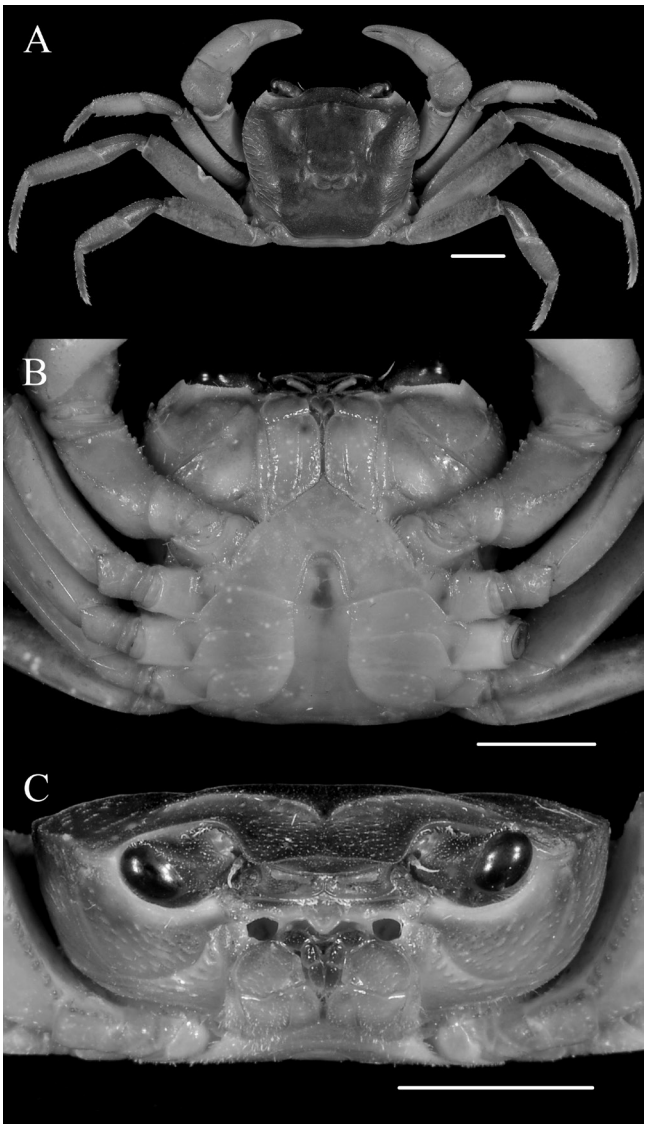

Fig. 1. *Sundathelphusa orsoni*, new species, holotype, ♂, 16.7×14.2 mm (NMCR 39110), Minoyan, Murcia, Negros Occidental. A, dorsal view; B, ventral view; C, anterior view. Scale bars: A–C = 5.0 mm.

Eyes (Figs. 1C, 2B) large, occupying almost entire orbit, corneas well developed. Third maxilliped (Figs. 1C, 2B, 3B) sparsely setose; ischium subrectangular, with distinct, oblique, submedian sulcus closer to mesial margin; merus subquadrate, anterior margin gently concave, lateral margin convex; exopod slender, tapering distally, external margin slightly sinuous, distal tip reaching level of mid-length of merus, flagellum well-developed, reaching slightly beyond mesial margin of merus.

Male thoracic sternum (Fig. 1B, 3F) broad, generally smooth except for slightly granular anterior region; sternites 1–4 fused, traces of sutures between sternites 2, 3 and 3, 4 as shallow depressions; sternite 4 with convex lateral margins, slightly raised area around anterior portion of sterno-abdominal cavity. Sterno-abdominal cavity deep; press-button on sternite 5, midway between sutures.

Chelipeds, P1 (Figs. 1A, 2A), subequal, slender but relatively more robust in males; merus external (ventral) surface rugose

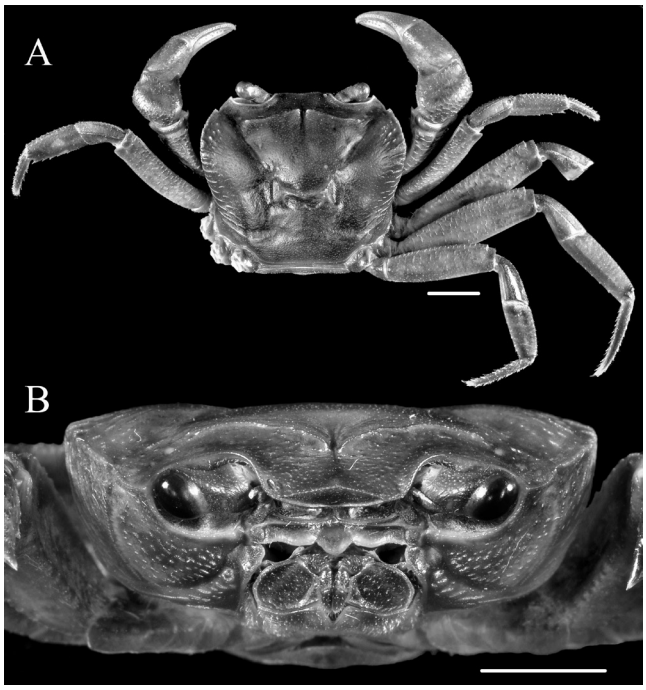

Fig. 2. *Sundathelphusa orsoni*, new species, paratype, ♀, 20.3×16.9 mm (ZRC 2014.0238), Minoyan, Murcia, Negros Occidental. A, dorsal view; B, anterior view. Scale bars: A, B = 5.0 mm.

with granular rows continuing onto posterior margin, anterior margin lined with large, conical granules; carpus (Fig. 3C) rugose with prominent rows of granules, inner angle with strong, sharply pointed tooth, followed by two smaller teeth posteriorly; palm slightly inflated, with minutely granular dorsal, external, internal surfaces; fingers granular, slender, cutting edges armed with several small teeth interspersed with slightly larger teeth, no molariform teeth, dactylus longer than superior margin of palm.

Ambulatory legs, P2–P5 (Figs. 1A, 2A, 3H, I), long, slender, P3 longest, total length (coxa-dactylus) about 1.8 times maximum carapace width, P5 shortest, total length (coxa-dactylus) about 1.6 times maximum carapace width; anterior margins of meri distinctly serrated, with low subdistal tooth, posterior margins smooth, cristate on all legs; carpi short, with longitudinal submedian ridge on dorsal surface except for P5, widened distally; propodi flattened, margins, particularly posterior, serrated with spiniform setae; dactyli slender, subequal in length to propodi, with several short, spiniform, marginal setae.

Male pleon (Figs. 1B, 3G) inverted T-shaped, relatively narrow for the genus; somite 1 thin, sinuous; somites 2–5 subtrapezoidal, progressively narrowing distally; somite 6 subrectangular, distal width slightly greater than proximal, median length greater than maximum width (distal end), lateral margins slightly concave subproximally; telson subtriangular, apex rounded, lateral margins concave, basal width equal to median length, distal tip reaching to level of posterior quarter of P1 coxae in ventral view.

G1 (Figs. 4A, B, D, E) moderately slender, tapering slightly, subterminal segment generally straight, mesial margin nearly

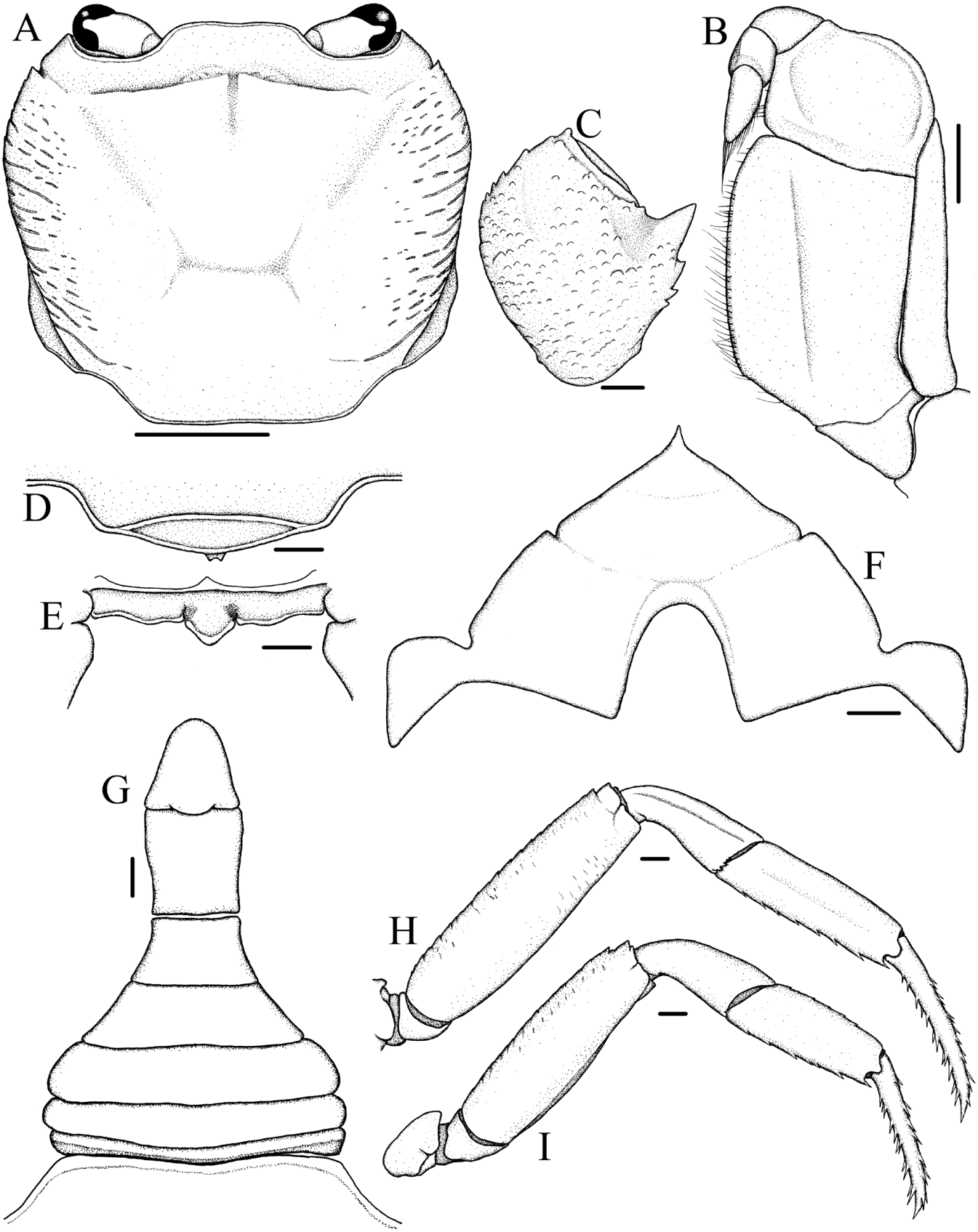

Fig. 3. *Sundathelphusa orsoni*, new species, holotype, ♂, 16.7×14.2 mm (NMCR 39110). A, carapace, dorsal view; B, left third maxilliped, external view; C, left P1 carpus, dorsal view; D, front, anterior view; E, epistome, anterior view; F, anterior thoracic sternum, ventral view; G, pleon, ventral view; H, right P3, dorsal view; I, right P5, dorsal view. Scale bars: A = 5.0 mm; B–I = 1.0 mm.

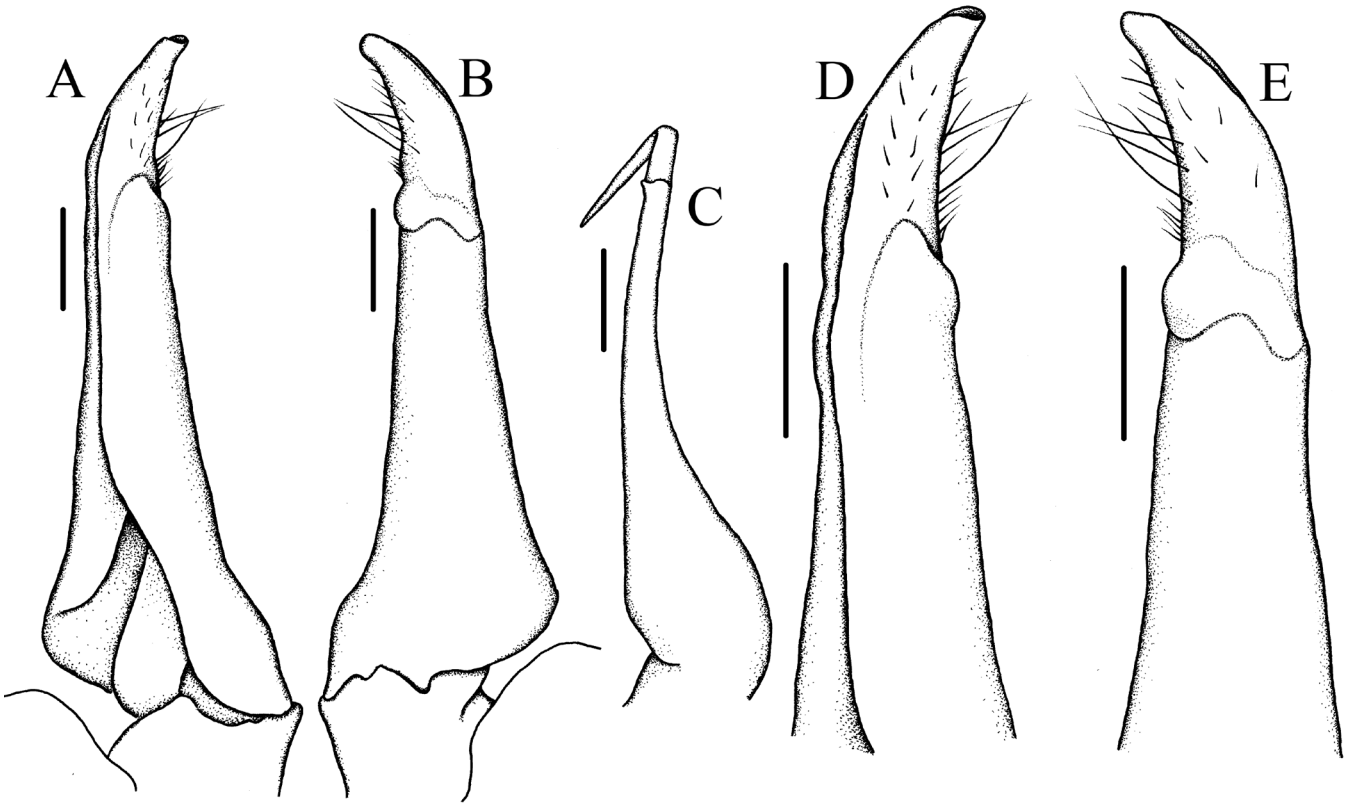

Fig. 4. *Sundathelphusa orsoni*, new species, holotype, ♂, 16.7×14.2 mm (NMCR 39110), male pleopods. A, left G1, external view; B, left G1, internal view; C, left G2, external view; D, distal tip of left G1, external view; E, distal tip of left G1, internal view. Scale bars: A–C = 1.0 mm; D, E = 0.5 mm.

straight, lateral margin straight, steeply oblique; terminal segment distinctly curving laterally, about 0.43 times length of subterminal segment, subconical, distal tip moderately broad. G2 (Fig. 4C) slender, tapering distally; terminal segment long, about 0.38 times length of subterminal segment.

Colouration. The live colouration of *Sundathelphusa orsoni*, new species, is dark brown to brownish black on the dorsal carapace and ambulatory legs. The orbital margins and posterior margin of the epistome are yellow-orange, and stand out distinctly. The suborbital and pterygostomian regions, as well as the merus of the third maxilliped are similar in colour to the dorsal regions. The ischium of the third maxilliped, the sternum and pleon are pinkish gray. The chelipeds appear reddish brown throughout their entire length.

Etymology. The new species is named after Mr. Orson Ong, for the support and hospitality he extended to the third author on his visits to Negros, and whose help has been instrumental in the discovery of this new species.

Remarks. *Sundathelphusa orsoni*, new species, is counted among those Philippine species of *Sundathelphusa* which have a relatively narrow, subquadrate carapace and long, slender ambulatory legs, such as *S. longipes* (Balss, 1937), *S. celer* (Ng, 1991) and *S. holthuisi* Ng, 2010, from Luzon, and *S. wolterecki* (Balss, 1937) from Mindanao.

Sundathelphusa orsoni is most similar to *S. holthuisi* (type locality: Atimonan, Quezon, Luzon I.) in the general outline of the carapace and the G1. (cf. Ng, 1991: 15, figs. 1, 3A, B, 4; Ng, 2010: 569, figs. 2B, C, 3B, 4B, D, J–N). The two species can be distinguished, however, by the following morphological features: 1) the carapace is relatively narrower, with the lateral margins less convex, in *S. orsoni* (Figs. 1A, 2A, 3A) (relatively wider, lateral margins more convex, in *S. holthuisi*; cf. Ng, 2010: fig. 2B, C); 2) the lateral margins and branchial regions of the carapace, as well as the suborbital and pterygostomian regions, are prominently striated with granular rows in *S. orsoni* (Figs. 1A, 2A, 3A) (much less striated in *S. holthuisi*; cf. Ng, 2010: fig. 2C); 3) the notch separating the epibranchial tooth from the external orbital tooth is deeper and much more pronounced in *S. orsoni* (Fig. 3A) (shallower, hardly indenting the carapace anterolateral margin in *S. holthuisi*; cf. Ng, 2010: fig. 2C); 4) the epigastric and postorbital cristae are sharper and better developed in *S. orsoni* (Figs. 1A, B, 2A, B, 3A) (weaker, lower in *S. holthuisi*; cf. Ng, 2010: fig. 2C, 3B); 5) the ambulatory legs are relatively shorter and stouter in *S. orsoni* (Figs. 1A, 2A, 3H, I) (relatively longer and more slender in *S. holthuisi*; cf. Ng, 2010: fig. 2B); 6) in the male pleon of *S. orsoni*, the lateral margins of the telson tend to converge distally, giving it a more tapered shape, and the sixth somite is longer, narrower with sinuous lateral margins (Figs. 1C, 3G) (telson relatively broader, lateral margins mostly parallel, sixth somite broader, lateral margins straight in *S. holthuisi*; cf. Ng. 1991: fig. 4A; Ng, 2010: fig. 4D); and 7) the G1 is generally stouter, mostly straight, except for the strongly curved terminal segment which is also much shorter, in *S. orsoni* (Fig. 4A, B, D, E) (more slender, curving evenly from

base to tip, terminal segment longer in *S. holthuisi*; cf. Ng, 1991: fig.4B–E; Ng, 2010: fig. 4J–L, M). Furthermore, the two species differ in the live colouration. Whereas *S. orsoni* is mostly dark brown (JCEM, pers. obs.), *S. holthuisi* has been described to have a light-red or orange-red carapace and purple or red pereiopods (Ng, 1991: 16).

Sundathelphusa orsoni, new species, can be readily separated from *S. longipes* (Balss, 1937) (type locality: Philippines) and *S. celer* (Ng, 1991) (type locality: Los Baños, Laguna, Luzon I.) by the morphology of the G1. The terminal segments of the G1 of the latter two species are not distinctly curved, as in *S. orsoni*. Also, there is a distinct hump or convexity on the lateral (external) margin, at the level of the joint between the terminal and subterminal segments, in both *S. longipes* and *S. celer*, which is absent in *S. orsoni* (cf. *S. celer* – Ng, 1991: figs. 5B–E; Ng, 2010: fig. 4E – G, H; and *S. longipes* – Ng, 2010: fig. 1H, I, J, K). As for the epibranchial tooth, in the male lectotype (cf. Ng, 2010: fig. 1A) and the female paralectotype (cf. Balss, 1937: fig. 15) of *S. longipes* and in the male holotype of *S. celer* (Ng, 2010: fig. 2A) it is not as clearly separated from the external orbital tooth by a U-shaped notch, as it is in *S. orsoni*.

Sundathelphusa orsoni, new species, can also be distinguished from *S. wolterecki* (Balss, 1937) (type locality: Lake Lanao, western Mindanao) primarily by the condition of the external orbital and epibranchial teeth. In *S. wolterecki*, both are strongly projecting straight and towards the anterior and their tips are much more acute, whereas in *S. orsoni*, they are smaller, less projecting, and relatively more obtuse. Also, the ambulatory legs of *S. wolterecki* are relatively more slender than those of *S. orsoni* (cf. Balss, 1937: figs. 17, 18).

The type series were collected from a large stream winding through a forested area, which the local populace have turned into a resort and tourist area owing to the presence of hot springs (it is located at the northwestern foot of an active volcano, Mount Kanlaon). The area is also popular for its scenic waterfalls, of which there are several along the main stream. The holotype and one paratype were collected from under rocks in a small rivulet on a steep bank, which drains into the main stream located downstream from the first cataract. More specimens were collected further upstream in higher altitude beyond the sixth cataract under rocks in the shallow, riffle area of the stream, where some rocks were partly above the waterline. Little else is known about the biology of this species and more studies are warranted for its better understanding, especially considering the highly threatened status of much of the native fauna and flora of Negros Island due to extensive deforestation (see Heaney & Regalado, 1998).

Sundathelphusa niwangtiil, **new species**
Figs. 5–8

Material examined. Holotype, ♂ (16.6×13.5 mm) (NMCR 39112), Mambaho Cave, Mabinay town, Negros Oriental province, Negros I., Philippines, 09°40.157'N, 122°59.122'E, coll. DEM Husana, 26 August 2009. Paratypes: 1 ♂ (19.3×15.5 mm), 1 ♀ (23.0×17.6 mm, with 33 juveniles in brood cavity) (ZRC 2014.0239), same data as holotype; 6 ♀ (16.6×13.7 mm – 24.5×19.2 mm) (NSMT-Cr 22936), same data as holotype

Description. Carapace (Figs. 5A, 6A, 7A, H) subquadrate to cardioid in outline, about 1.2–1.3 times broader than long, widest at level of mesobranchial region; dorsal surface gently convex longitudinally, transversely; branchial region moderately inflated, cardiac, intestinal regions flat; epigastric, postorbital cristae low but distinct, more-or-less confluent; lateral regions with weak striae; distinct median groove between epigastric regions, cervical groove shallow, H-shaped gastric groove distinct. Front moderately broad, about 0.23–0.26 times greatest carapace width, gently deflexed ventrally; anterior margin with broad median concavity in dorsal view; frontal median triangle (Fig. 7D) distinct, but in holotype, nearly-straight dorsal margin not completely fusing with lateral margins. External orbital angle triangular, external margin cristate, almost straight, distinctly longer than internal margin; epibranchial tooth small but distinct, triangular, well separated from external orbital tooth by U-shaped notch. Anterolateral margin cristate, gently convex, slightly serrated; posterolateral margin nearly straight, converging gradually towards posterior margin of carapace; central region of posterior margin slightly concave. Orbital margins cristate, supraorbital margin smooth, infraorbital margin slightly serrated. Suborbital, subbranchial, pterygostomial regions moderately rugose, with scattered, varied rows of small granules. Posterior margin of epistome (Fig. 7E) with protruding, sharply triangular median lobe, separated from sinuous lateral lobes by distinct clefts.

Eyes (Figs. 5C, 6B) large, occupying almost entire orbit, corneas well developed. Third maxilliped (Figs. 5B, C, 6B, 7B) sparsely setose; ischium subrectangular, with distinct, oblique, submedian sulcus closer to mesial margin; merus subquadrate, anterior margin gently concave, lateral margin convex; exopod slender, tapering distally, external margin slightly sinuous, distal tip reaching level of mid-length of merus, flagellum well-developed, reaching slightly beyond mesial margin of merus.

Male thoracic sternum (Fig. 5B, 7F) broad, generally smooth except for slightly granular anterior region; sternites 1–4 fused, traces of sutures between sternites 2, 3 and 3, 4 as shallow depressions; sternite 4 lateral margins straight, slightly raised area around anterior portion of sterno-abdominal cavity. Sterno-abdominal cavity deep; press-button on sternite 5, midway between sutures.

Chelipeds, P1 (Figs. 5A, 6A), subequal, noticeably elongated, more robust in males; anterior margin of merus lined with large, conical granules; carpus (Fig. 7C) slightly rugose with rows of low granules, inner angle with strong, sharply pointed tooth, followed by two smaller teeth posteriorly; palm slightly inflated, with minutely granular outer surface; fingers slender, cutting edges armed with many sharp teeth with large tooth at some intervals.

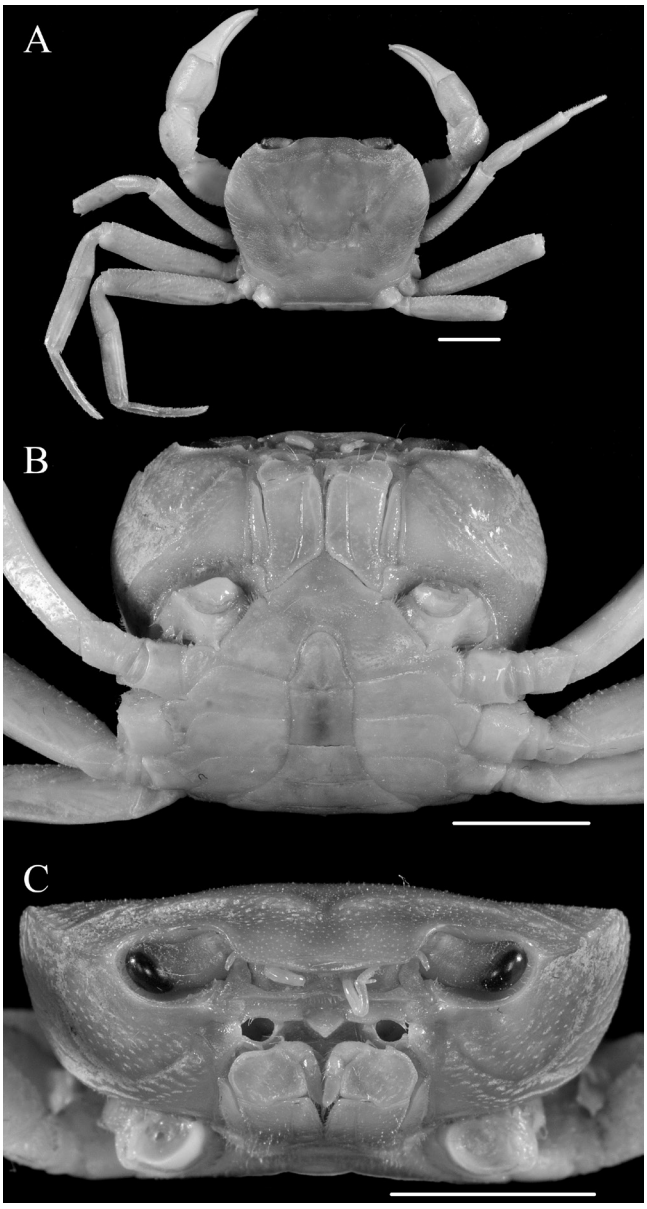

Fig. 5. *Sundathelphusa niwangtiil*, new species, holotype, ♂, 16.6×13.5 mm (NMCR 39112), Mambaho Cave, Mabinay, Negros Oriental. A, dorsal view; B, ventral view; C, anterior view. Scale bars: A–C = 5.0 mm.

Ambulatory legs, P2–P5 (Figs. 5A, 6A, 7I, J), long, slender, P3 longest, total length (coxa-dactylus) about 1.7 times maximum carapace width, P5 shortest, total length (coxa-dactylus) about 1.4 times maximum carapace width; anterior margins of meri distinctly serrated, with low subdistal tooth, posterior margins smooth on all legs; carpi short, with longitudinal submedian ridge on dorsal surface except for P5, widened distally; propodi flattened, margins serrated; dactyli slender, subequal in length to propodi, spiniform, marginal setae short.

Male pleon (Fig. 5B, 7G) inverted T-shaped, relatively broad for the genus; somite 1 thin, sinuous; somites 2–5 subtrapezoidal, progressively narrowing distally; somite 6 subquadrate, median length subequal to greatest width (distal end), lateral margins slightly concave; telson subtriangular, apex rounded, lateral margins concave, basal width about 1.2

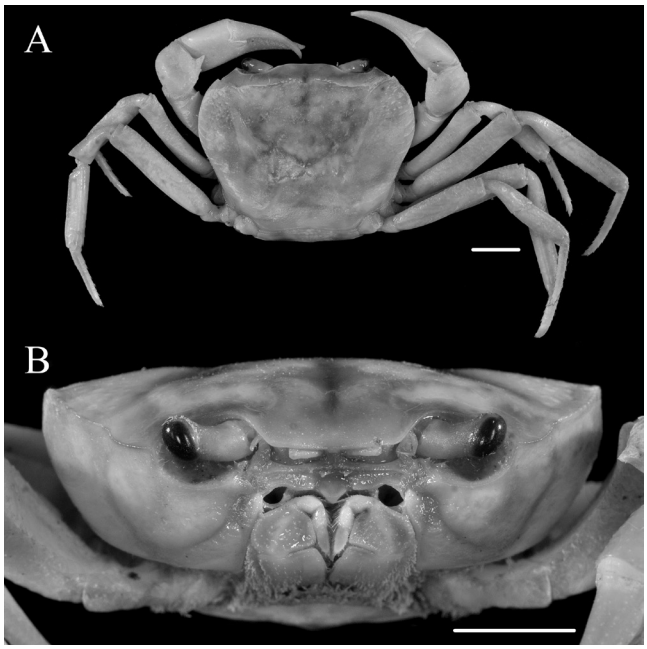

Fig. 6. *Sundathelphusa niwangtiil*, new species, paratype, ♀, 22.0×17.0 mm (NMST-Cr 22936), Mambaho Cave, Mabinay, Negros Oriental. A, dorsal view; B, anterior view. Scale bars: A, B = 5.0 mm.

times median length, distal tip reaching to level of posterior quarter of P1 coxae in ventral view.

G1 (Figs. 8A, B, D–I) moderately stout, tapering distally, straight to slightly curved laterally, mesial margin nearly straight, lateral margin concave; terminal segment about 0.43 times length of subterminal segment, subconical, distal tip narrow. G2 (Fig. 8C) slender, tapering distally; terminal segment long, about 0.41 times length of subterminal segment.

Variation. The type series consists of two males and seven females, with the holotype (NMCR 39112) being the smaller of the two males. The larger specimens tend to have more laterally expanded carapaces (Figs. 6, 7H), and a more complete frontal triangle (Fig. 6B), with the dorsal margin dorsally convex and meeting the lateral margins, compared to those of the holotype. The larger male paratype (ZRC 2014.0239) also has a much broader pleon, a more curved G1 than seen in the holotype, and an extra pair of pleopods (on pleonal somite 3) that resemble the G2 in form. As such, it was not selected as the holotype despite its larger size, and is deemed to be an aberrant form of this species. Other than this, the females vary from the males in the usual sexually dimorphic characters (e.g., chelipeds, pleon, genitalia).

Colouration. The live colouration of the carapace of *Sundathelphusa niwangtiil*, new species, ranges from pale yellow to pale brown. Legs and ventral surface of the body are lighter in colour on all specimens.

Etymology. The specific epithet is derived from the arbitrary combination of two words in the Visayan language, "nīwáng" (adj., slender) and "tiíl" (n., leg), in allusion to the long and slender legs of this species. Used as a noun in apposition.

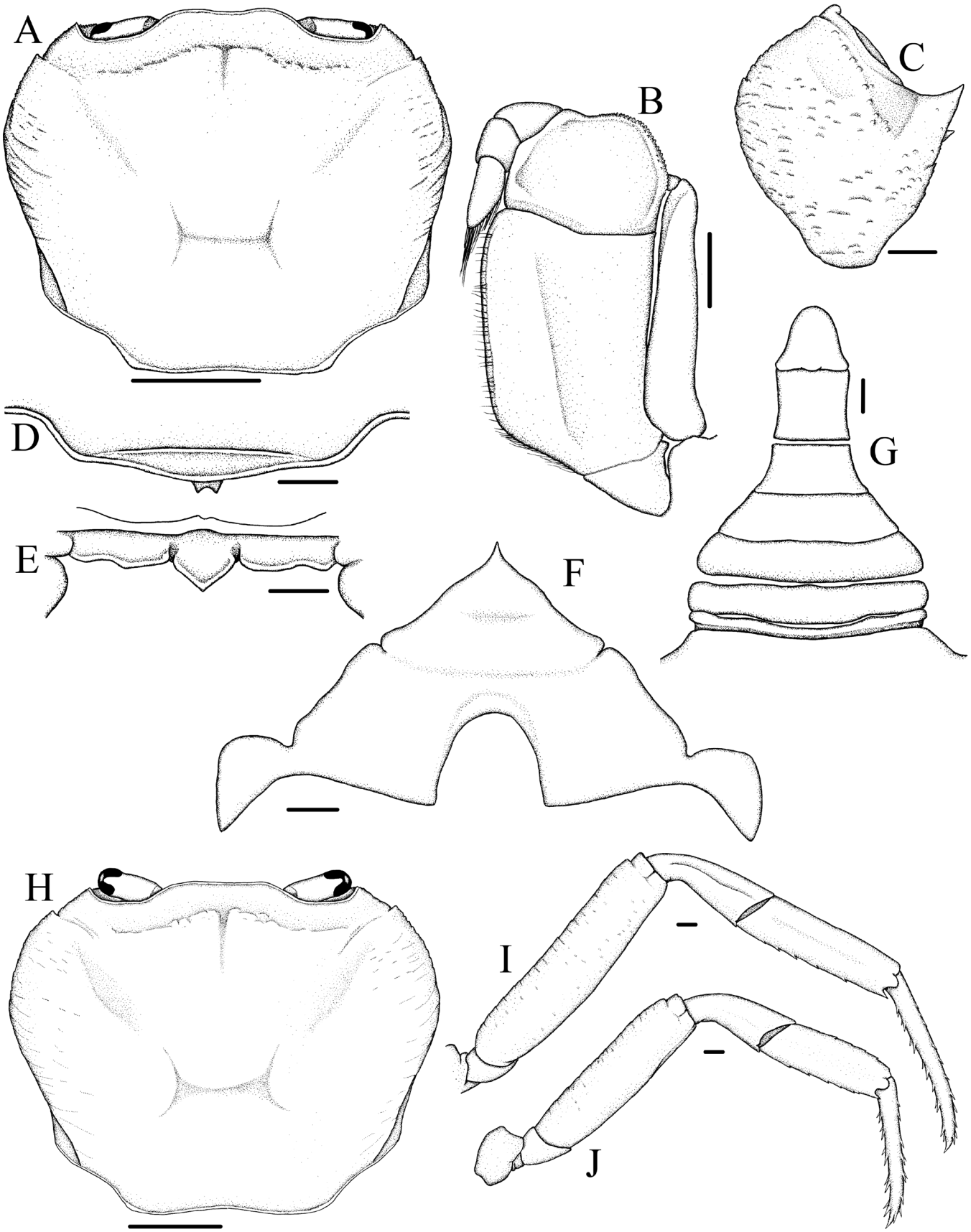

Fig. 7. *Sundathelphusa niwangtiil*, new species, holotype, ♂, 16.6×13.5 mm (NMCR 39112) (A–G), paratype, ♀, 22.0×17.0 mm (NMST-Cr 22936) (H–J). A, H, carapace, dorsal view; B, left third maxilliped, external view; C, left P1 carpus, dorsal view; D, front, anterior view; E, epistome, anterior view; F, anterior thoracic sternum, ventral view; G, pleon, ventral view; I, right P3, dorsal view; J, right P5, dorsal view. Scale bars: A, H = 5.0 mm; B–G, I, J = 1.0 mm.

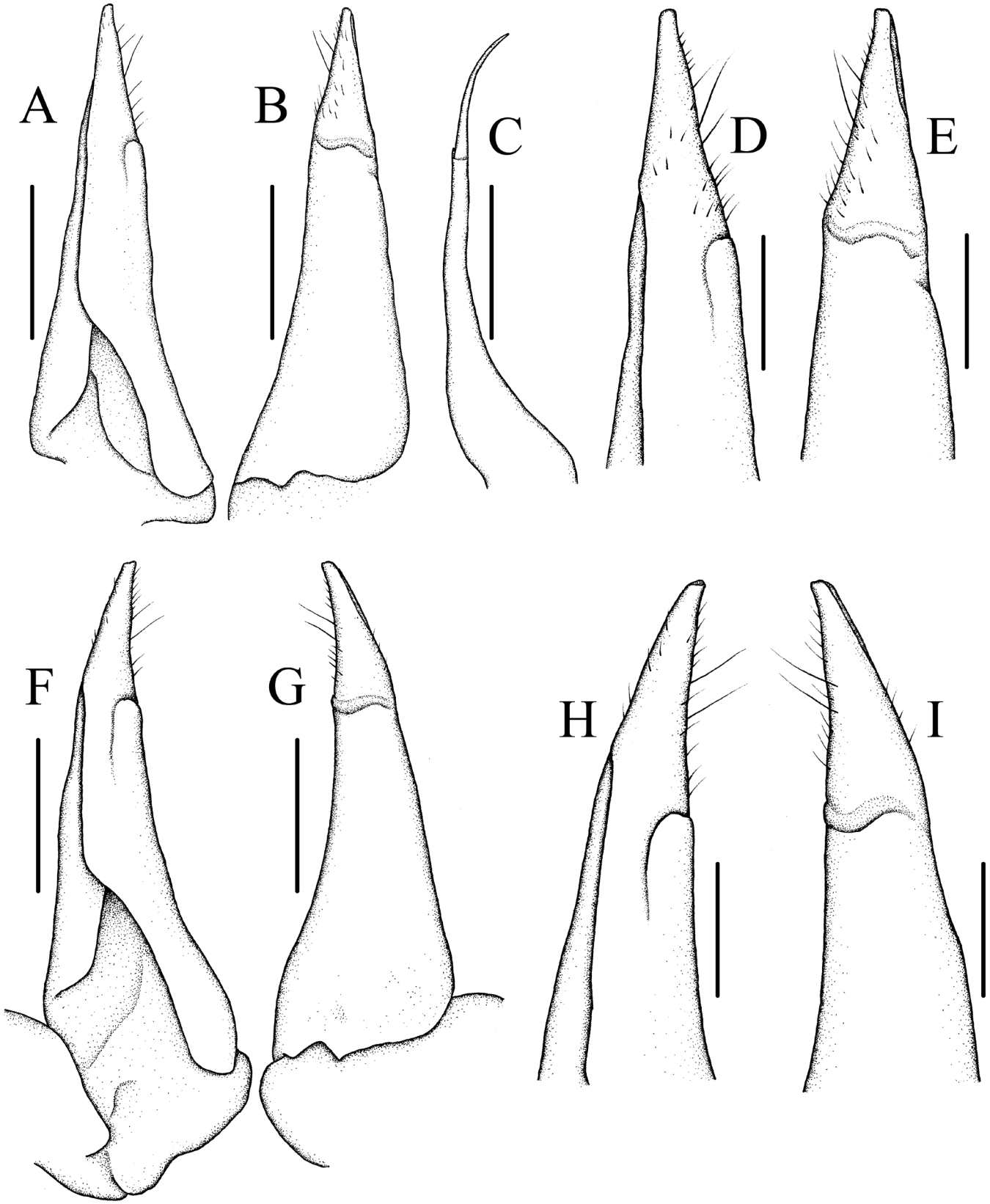

Fig. 8. *Sundathelphusa niwangtiil*, new species, holotype, ♂, 16.6×13.5 mm (NMCR 39112) (A–E), paratype, ♂, 19.3×15.5 mm (ZRC 2014.0239) (F–I), male pleopods. A, F, left G1, external view; B, G, left G1, internal view; C, left G2, external view; D, H, distal tip of left G1, external view; E, I, distal tip of left G1, internal view. Scale bars: A-C, F, G = 1.0 mm; D, E, H, I = 0.5 mm.

Remarks. *Sundathelphusa niwangtiil*, new species, is most similar to *S. holthuisi* Ng, 2010, in their general appearance, especially the shape of the carapace. They differ, however, in the following morphological features: 1) the central projection of the epistome is more pointed at the tip in *S. niwangtiil* (Figs. 5C, 6B, 7E) (more rounded in *S. holthuisi*; cf. Ng, 2010: fig. 3B); 2) the ambulatory legs of *S. niwangtiil* (Figs. 5A, 6A, 7I, J) are noticeably more slender, particularly the meri, than those of *S. holthuisi* (cf. Ng, 1991: figs. 1A, C; Ng, 2010: fig. 2B); 3) the male pleon is relatively wider and shorter in *S. niwangtiil* (Fig. 7G) (more slender and longer in *S. holthuisi*; cf. Ng, 1991: fig. 4A; Ng, 2010: fig. 4D); 4) the G1 of *S. niwangtiil* (Fig. 8A, B, D, E, F–I) is stouter, especially at the base, with the terminal segment relatively straighter and more conical (G1 more slender, with terminal segment more curved and subcylindrical in *S. holthuisi*; cf. Ng, 1991: fig. 4B–E; Ng, 2010: fig. 4J–L, M); and 5) the colouration of the live specimen of this new species ranges from uniformly pale yellow to pale brown (DEMH, pers. obs.), while *S. holthuisi* has a light red carapace and dark purple ambulatory legs (viz. Ng, 1991; Ng, 2010).

Sundathelphusa niwangtiil, new species, is also similar to *S. sutteri* (Bott, 1970) (type locality: Baguio, Luzon), in the carapace shape and proportions of the ambulatory legs, particularly when comparing the larger female paratypes of the former to the sole type specimen (a female) of the latter (cf. Bott, 1970: pl. 15 figs. 73–75; see also clarification by Ng, 1991: 5, 16). The two species can be distinguished, however, by the following: 1) in dorsal view, the frontal margin is slightly advanced or level with the tips of the external orbital tooth in *S. niwangtiil* (Figs. 5A, 6A, 7A) (tips of external orbital teeth more advanced than front in *S. sutteri*, giving the fronto-orbital margin a distinctly concave aspect; cf. Bott, 1970: pl. 15 fig. 73); and 2) the anterolateral margins of the carapace are relatively less convex and laterally less expanded in *S. niwangtiil* (Figs. 5A, 6A, 7A) (more convex and laterally more expanded in *S. sutteri* (cf. Bott, 1970: pl. 15 fig. 73).

Although the two new species are from the same island, *S. niwangtiil* can readily be distinguished from *S. orsoni* by the following: 1) the carapace is relatively broader and the branchial, suborbital and pterygostomian surfaces, as well as the external surfaces of the cheliped carpi, are distinctly less rugose in *S. niwangtiil* (Figs. 5, 6, 7A, C, H) (carapace narrower, more strongly rugose in *S. orsoni*; Figs. 1, 2, 3A, C); 2) the epigastric and postorbital cristae are relatively low, weak, and not distinctly confluent in *S. niwangtiil* (Figs. 5A, C, 6, 7A, H) (well-defined, sharp, and distinctly confluent in *S. orsoni*; Figs. 1A, C, 2, 3A); 3) the male anterior thoracic sternum is relatively broader, with the lateral margins of sternites 1–3, and 4 more sinuous in *S. niwangtiil* (Figs. 5B, 7F) (male anterior thoracic sternum narrower in *S. orsoni*, with lateral margin of sternites 1–3 straight, and of sternite 4 convex; Figs. 1B, 3F); 4) the male pleon of *S. niwangtiil* is distinctly wider (Fig. 7G) (male pleon narrower in *S. orsoni*; Fig. 3G); 5) the ambulatory legs, particularly the meri, are relatively more slender in *S. niwangtiil* (Figs. 5A, 6A, 7I, J) (stouter in *S. orsoni*; Figs. 1A, 2A, 3H, I); 5) in *S. niwangtiil* the G1 is much stouter at the base, the terminal segment is less curved and its tip is more tapered (Fig. 8A, B, D, E, F–I) (G1 more slender, terminal segment more distinctly curved, with tip broader, in *S. orsoni*; Fig. 4A, B, D, E); and 6) the live colouration of *S. niwangtiil* is pale yellow to pale brown (dark to blackish brown in *S. orsoni*).

The type specimens of *S. niwangtiil*, new species, were collected under rocks inside Mambaho Cave in the municipality of Mabinay, Negros Oriental province. The cave also has a flowing subterranean stream. The source and sink of this river were submerged in water and inaccessible at the time of collection. Aside from the cave's main entrance, the cave also has another opening at the ceiling about 100 meters from the main.

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