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TWO NEW SPECIES OF *PYLOPAGUROPSIS* ALCOCK (CRUSTACEA: DECAPODA: ANOMURA: PAGURIDAE) FROM THE PHILIPPINES

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ABSTRACT. — Two new species of the pagurid genus *Pylopaguropsis* Alcock, 1905 are described and illustrated from the Bohol Sea, the Philippines. *Pylopaguropsis pygmaeus*, new species, resembles *P. keijii* McLaughlin & Haig, 1989, *P. lemaitrei* Asakura & Pauly, 2003, *P. lewinsohni* McLaughlin & Haig, 1989 and *P. zebra* (Henderson, 1893) in sharing appreciably dissimilar third pereopods and relatively long ocular peduncles, but differs in having corneas not dilated, and fewer corneous spines on the ventral margins of the dactyls of the ambulatory legs. *Pylopaguropsis similis*, new species, differs from the closely related species *P. bellula* Osawa & Okuno, 2007, *P. furusei* Asakura, 2000, *P. laevispinosa* McLaughlin & Haig, 1989 and *P. vicina* Komai & Osawa, 2004, by the relatively long, acute spines on the right palm, the lack of additional dorsal spines or spinules on the carpi of the second pereopods and two rows (rather than one) of corneous scales on the propodal rasp of the fourth pereopod.

KEY WORDS. — Paguridae, *Pylopaguropsis*, new species, the Philippines

INTRODUCTION

Thanks to the revision by McLaughlin & Haig (1989), the pagurid hermit crab species of the genus *Pylopaguropsis* Alcock, 1905 have been fairly well studied, with several new species subsequently described (Asakura, 2000, 2010; Asakura & Pauly, 2003; Komai & Osawa, 2004; Osawa & Okuno, 2007). The genus is characterised by the possession of 13 pairs of biserial gills and the presence of paired first pleopods in the female, but most species are easily recognised by their brilliant colour in life and the massive, operculiform or suboperculiform right cheliped. Currently, the genus contains 17 species (Asakura, 2010; McLaughlin et al., 2010), mostly occurring in the Indo-Pacific; two species [*P. teevana* (Boone, 1932) and *P. garciai* McLaughlin & Haig, 1989] are found in the eastern Pacific, and one species (*P. atlantica* Wass, 1963) is in the western Atlantic.

During the PANGLAO 2004 Expedition in Bohol, the Philippines, several specimens of *Pylopaguropsis* were collected and sent to Akira Asakura (currently Seto Marine Bological Laboratory, Kyoto University) for study, and one new species, *P. rahayuae* Asakura, 2010, was described (Asakura, 2010). However, some specimens were left behind unintentionally, and found to consist of two undescribed species. In this study, we describe these two new species, *P. pygmaeus* and *P. similis*. *Pylopaguropsis pygmaeus*, new species, is assigned to the *P. magnimanus* (Henderson, 1896) species group, characterised by the appreciably dissimilar third pereopods (McLaughlin & Haig, 1989); and *P. similis*, new species, is referred to the *P. teevana* (Boone, 1932) species group, characterised by the generally similar third pereopods. The present paper discusses the differentiating characters between these two new species and closely related congeners. An identification key to species of the genus *Pylopaguropsis*, emended from the key provided by Komai & Osawa (2004) and Asakura (2010), is presented.

The specimens used in this study are deposited in the National Museum of the Philippines, Manila (NMCR), the Zoological Reference Collection (ZRC), the Raffles Museum of Biodiversity Research, National University of Singapore, and Museum national d'Histoire naturelle (MNHN), Paris. The terminology used in the description generally follows McLaughlin et al. (2007). Shield length (sl), measured from the tip of the rostrum to the midpoint of the posterior margin of the shield, indicates specimen size.

TAXONOMY

Pylopaguropsis Alcock, 1905

Pylopaguropsis pygmaeus, new species
(Figs. 1–3)

Material examined. — Holotype: ovigerous female (1.5 mm) (NMCR-39095), PANGLAO 2004, Stn. T36, West Pamilacan Island, Cervera shoal, 9°29.3'N, 123°51.5'E, sand on echinoderms bed, 95–128 m, 4 Jul.2004.
Paratypes: 1 male (1.1 mm), 1 ovigerous female (1.2 mm) (MNHN); 1 male, (1.4 mm), 1 ovigerous female (1.5 mm) (ZRC.2013.0866), same data as holotype; 1 ovigerous female (1.4 mm), Stn. L42, Balicasag Island, 9°31.2'N, 123°40.7'E, 80–90 m, 2 Jul.2004 (ZRC.2013.0867).

Description. — Thirteen pairs of biserial gills.

Shield as long as broad (Figs.1, 2A); anterolateral margins sloping; anterior margin between rostrum and lateral projections weakly concave; posterior margin slightly emarginate medially; dorsal surface smooth. Rostrum prominent, moderately broadly triangular, terminating in spinule, overreaching lateral projections. Lateral projections obtusely triangular, each with small marginal spine.

Fig. 1. *Pylopaguropsis pygmaeus*, new species, paratypes. A, female (sl 1.2 mm), PANGLAO 2004, stn T 36, MNHN; B, female (sl 1.5 mm), PANGLAO 2004, stn T 36, ZRC 2013.0866.

Ocular peduncles (Fig. 2A) stout, 0.9 length of shield, slightly inflated proximally, with row of sparse setae on dorsal surface; corneas not dilated, width about 0.2 of peduncular length. Ocular acicles triangular, terminating acutely; separated basally by 0.7 basal width of 1 acicle.

Antennular peduncles (Fig. 2A), when fully extended, overreaching distal corneal margins by about half length of ultimate peduncular segment. Ultimate segment slightly widened in dorsal view, with 3 lateral setae on distal 0.2. Penultimate segment glabrous, much shorter than ultimate segment. Basal segment with prominent spine on dorsolateral margin of statocyst lobe.

Antennal peduncles (Fig. 2A), when fully extended, reaching distal corneal margins. Fifth and fourth segments with few scattered setae. Third segment with prominent spine at ventromedial distal angle and few setae distally. Second segment with dorsolateral distal angle strongly produced, terminating in strong spine; dorsomesial distal angle with small spine. First segment unarmed. Antennal acicle barely reaching base of cornea or proximal third of fifth peduncular segment, slightly arcuate; terminating acutely, with row of individual or tufts of long setae. Antennal flagellum far overreaching tips of dactyls of outstretched ambulatory legs; most articles each with several short and moderately long setae.

Maxillule with external lobe of endopod very weakly developed, not recurved. Third maxilliped with carpus and merus unarmed; crista dentata and 1 accessory tooth on ischium. Basis with 2 spinules on mesial margin.

Right cheliped (Fig. 2B, C) much stronger than left (Fig. 2D, E), operculiform. Chela about 1.4 times as long as broad measured at bases of fingers. Dactyl slightly longer than palm, much longer than fixed finger, articulating strongly obliquely**;** dorsomesial margin with row of large spines, slightly decreasing in size distally; dorsal surface slightly convex, row of spinules in proximal half adjacent to dorsomesial margin, remaining of dorsal surface with few scattered tubercles and tufts of sparse short setae; ventral surface with scattered tubercles and few tufts of short setae; cutting edge with 2 calcareous teeth in proximal half, and 1 subdistal tooth, terminating in small corneous claw. Palm as long as or slightly shorter than carpus; dorsomesial margin with row of small spines; dorsal surface slightly convex, irregular row of moderately large spines adjacent to dorsomesial margin, scattered small spinules and sparse setae on remaining surface; dorsolateral margin delimited by row of small spines, extending onto fixed finger, increasing in size distally. Fixed finger with scattered tiny tubercles and sparse setae on dorsal surface; ventral surface with scattered tubercles and few short setae; cutting edge with 1 large calcareous tooth proximally, 1 large calcareous tooth subdistally, row of calcareous denticles distally, terminating in tiny corneous claw. Carpus (Fig. 2B, C) slightly longer than merus, somewhat convex ventrally, distal width about 1.4 of proximal width; dorsodistal margin with row of large spines, dorsal surface slightly convex, with irregular rows

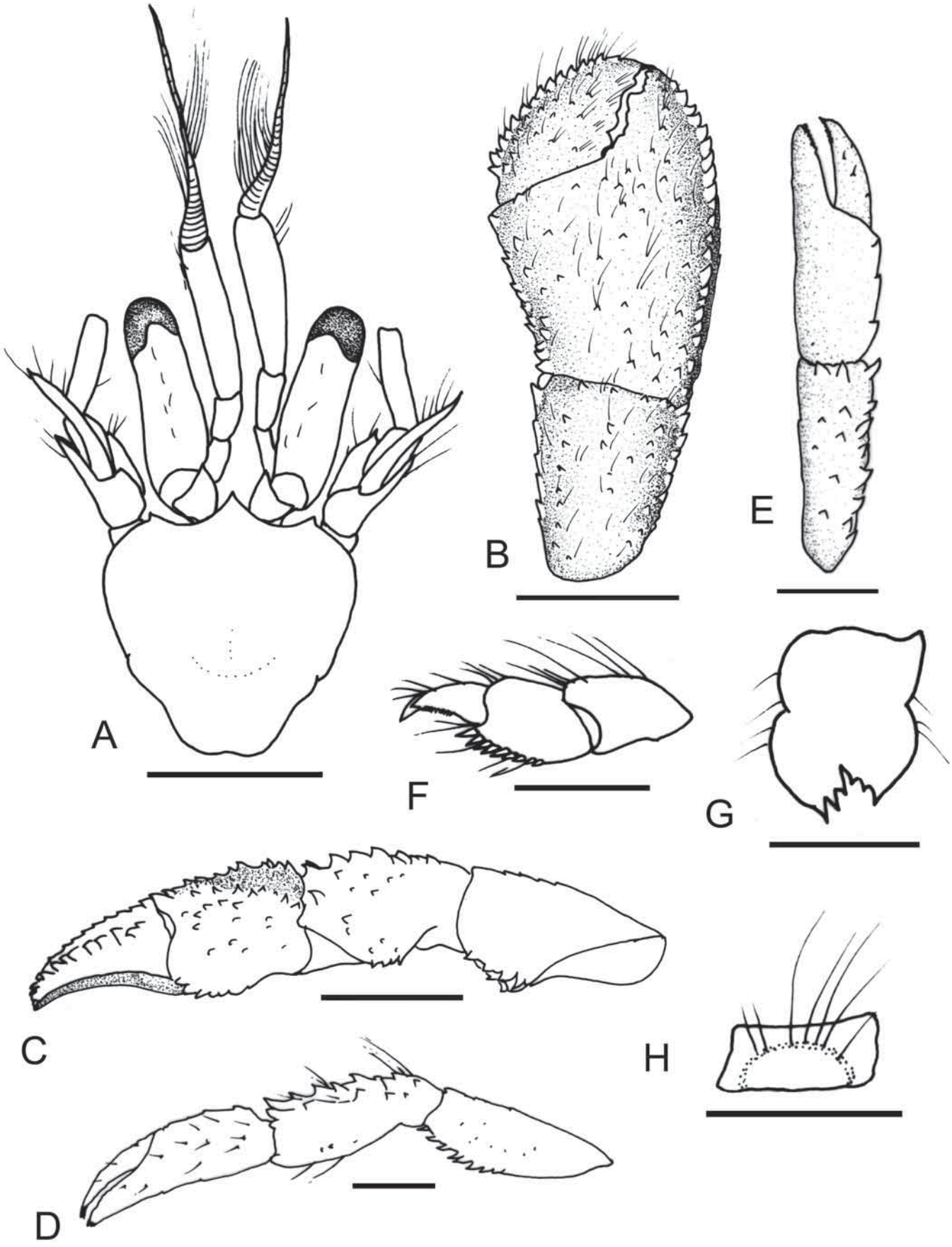

Fig. 2. *Pylopaguropsis pygmaeus*, new species, holotype, female (sl 1.5 mm), PANGLAO 2004, stn T 36, NMCR. A, shield and cephalic appendages, dorsal view; B, right cheliped, dorsal view; C, right cheliped, mesial view; D, left cheliped lateral view; E, left cheliped dorsal view; F, left fourth pereopod, lateral view; G, telson, dorsal view; H, anterior lobe of sternite of third pereopod. Scale bars = 1 mm (A–C), 0.5 mm (D–H). Setae partially omitted.

of spinules and few setae; dorsomesial margin with row of moderately strong spines; dorsolateral margin with row of spines, smaller, blunt spines proximally; mesial face with sparse tubercles, ventromesial margin with row of spines; ventral surface with acute spines. Merus (Fig. 2C) triangular; dorsal surface with row of low tubercles or protuberances in distal half, dorsodistal margin unarmed; lateral surface with scattered small tubercles, ventrolateral margin with row of tubercles; mesial surface smooth, ventromesial margin with row of acute spines; ventral surface weakly tuberculate. Ischium unarmed.

Left cheliped (Fig. 2D, E) slender, propodal-carpal articulation twisted. Dactyl approximately as long as palm; dorsal surface with sparse setae, tiny spine proximally adjacent to dorsolateral margin; cutting edge with row of small calcareous teeth distally, terminating in small corneous claw. Palm about 0.7 length of carpus; dorsal surface with sparse tubercles and setae, dorsomesial margin with row of small spines. Fixed finger with sparse setae on dorsal surface; cutting edge with small calcareous teeth, terminating in small, bifid, corneous claw. Carpus about as long as merus; dorsomesial margin with row of strong spines and few setae; dorsal surface with irregular row of small spines and scattered setae, dorsodistal margin with moderately large spines; dorsolateral margin unarmed. Merus with low protuberances on dorsal surface, dorsodistal margin unarmed; lateral surface smooth, with few short setae, ventrolateral margin with row of moderately strong spines; mesial surface with few short setae, ventromesial margin with row of slightly smaller spines. Ischium unarmed.

Second and left third pereopods generally similar, right third pereopod slightly larger than left. Second pereopods (Figs. 3A–D) with dactyli about 1.4 length of propodi; dorsal margins each with row of long stiff setae, becoming bristle in right second pereopod, ventral margins each with 6 corneous spines, terminating in moderately large claw; mesial surfaces each with 2 corneous spines distally; shallow, narrow median sulcus on right pereopod. Propodi each with small corneous ventrodistal spine, dorsal margins each with sparse long setae. Carpi each with dorsodistal spine and 2 proximal spines, and sparse long setae. Meri each with 2 subdistal spines on ventral margin.

Left third pereopod (Fig. 3E, F) with dactyl 1.2 length of propodus, slightly twisted in dorsal view; dorsal margin with row of sparse long stiff setae, becoming bristle distally; ventral margin with row of 6 corneous spines, terminating in large corneous claw; lateral face with row of setae on midline, mesial face with median row of corneous spines and setae. Propodus with 1 corneous spine on ventrodistal margin, dorsal and ventral margins each with row of sparse long setae. Carpus with small dorsodistal spine and few setae on dorsal margin. Merus unarmed, with sparse setae on dorsal and ventral margins.

Right third pereopod (Fig. 3G, H) with dactyl about 1.5 length of propodus**,** slightly twisted in dorsal view; dorsal margin with row of long setae, becoming bristles distally; lateral face with wide, shallow longitudinal sulcus; mesial face with median row of corneous spines in distal half; ventral margin with row of 7 corneous spines. Propodus with row of long setae on dorsal margin; ventrodistal margin with 2 strong and 1 weak corneous spines; lateral face concave with low, narrow longitudinal ridge on midline; mesial face with median row of setae. Carpus with 2 small dorsodistal spines and sparse long setae on dorsal margin. Merus unarmed, with sparse setae on dorsal and ventral margins. Ischium unarmed.

Fourth pereopods (Fig. 2F) semichelate, lacking preungual process on dactyl. Dactyl with row of minute denticles on ventral margin. Propodal rasp consisting of 1 row of scales. Fifth pereopods chelate.

Sternite of third pereopod (sixth thoracomere) with anterior lobe subrectangular (Fig. 2H).

Telson (Fig. 2G) with very shallow lateral indentations; posterior lobe divided by shallow median cleft, left lobe slightly longer than right; terminal margins oblique, each with 4 prominent spines and few long setae.

Colouration in life. — (See Fig. 1). Shield cream or whitish, with several red spots on rostrum and dorsal surface; ocular peduncle, with longitudinal red stripes mesially and laterally on cream background, dorsal surface with slightly wider reddish orange longitudinal stripe. Antennular peduncle pinkish. Right cheliped generally cream with few red dots on dactyl and fixed finger proximally, and on outer surface of palm. Left cheliped also generally cream with longitudinal red stripes on dorsal surface of fixed finger and dorsodistal margin of palm extending onto carpus and merus. Second and third pereopods generally cream, with red longitudinal stripes, continuing or interrupted, on dorsal, lateral and mesial faces of dactyli to meri.

Etymology. — From the Latin *pygmaeus*, (= small, little), alluding to the small size of the individuals of this species. Used as a noun in apposition.

Remarks. — *Pylopaguropsis pygmaeus*, new species, is assigned to the *P. magnimanus* (Henderson, 1896) species group (cf. McLaughlin & Haig, 1989) based on the appreciably dissimilar third pereopods with the right propodus and dactyl being appreciably broader than the left and sculptured on the lateral faces. Morphologically, it appears close to *P. keijii* McLaughlin & Haig, 1989, *P. lemaitrei* Asakura & Pauly, 2003, *P. lewinsoni* McLaughlin & Haig, 1989 and *P. zebra* (Henderson, 1893). *Pylopaguropsis pygmaeus*, new species, differs from the latter four species in the non-dilated cornea and the different armature of the left chela. In *P. keijii*, *P. lemaitrei*, *P. lewinsohni* and *P. zebra*, the cornea is slightly dilated. The left chela is armed with a dorsomesial row of tiny spines in *P. pygmaeus*; it is devoid of armature in *P. keijii*, *P. lemaitrei*, and *P. zebra*; in *P. lewinsohni*, there are a few minute spinulose tubercles on the dorsal surface of the palm. The appreciably basally inflated ocular peduncles immediately distinguish *P. keijii* and *P. lemaitrei* from the new species, as well as *P. lewinsohni* and *P. zebra*. The

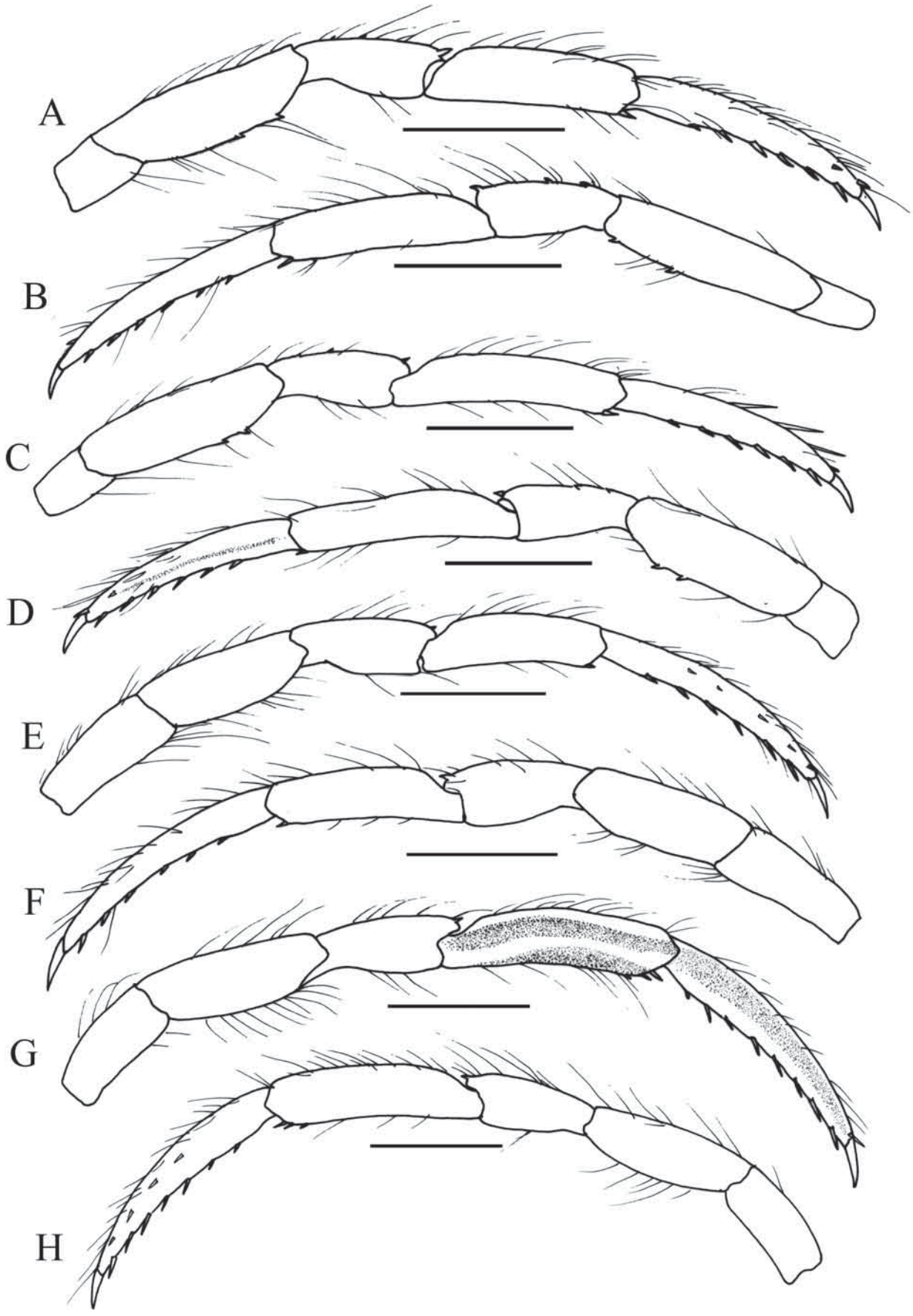

Fig. 3. *Pylopaguropsis pygmaeus*, new species, holotype, female (sl 1.5 mm), PANGLAO 2004, stn T39, NMCR. A, left second pereopod, mesial view; B, left second pereopod, lateral view; C, right second pereopod, lateral view; D, right second pereopod, mesial view; E, left third pereopod, mesial view; F, left third pereopod, lateral view; G, right third pereopod, lateral view; H, right third pereopod, mesial view. Scale bars = 1 mm. Setae partially omitted.

sculpture of the lateral surface of the propodus of the right third pereopod is most pronounced in *P. lewinsohni* and *P. lemaitrei* and has three longitudinal sulci. In *P. pygmaeus*, new species, *P. keijii*, and *P. zebra*, there is only one longitudinal sulcus or concavity on the lateral surface of the propodus of the right third pereopod. The carpus of the left cheliped is armed at least with a dorsomesial row of spines in *P. lewinsohni*, *P. pygmaeus*, new species, and *P. zebra*, whereas it bears only a dorsodistal spine in *P. keijii* and *P. lemaitrei*. The dactyli of the ambulatory legs bear fewer ventral spines in *P. pygmaeus* than in the other four species (six or seven versus seven to 12). The terminal margins of the telson are oblique and armed with three or four prominent spines in *P. pygmaeus*, new species, whereas they are nearly horizontal or slightly oblique in *P. lewinsohni* and *P. zebra*, and similarly oblique, but having more numerous spines (five or more) on the left margin in *P. keijii* and *P. lemaitrei*. Furthermore, *P. pygmaeus* is one of the smallest species in the genus. The largest specimen examined, an ovigerous female, measures 1.5 mm in shield length. The other four species mentioned herein attain at least 3.0 mm in shield length.

Although the presence of a preungual process on the dactyl of the fourth pereopod has been described in many species of *Pylopaguropsis* (McLaughlin & Haig, 1989; Asakura, 2000), we confirmed that the preungual process is absent in *P. pygmaeus*, new species. In *P. keijii* and *P. zebra* the fourth pereopod has a preungual process (McLaughlin & Haig, 1989). Although Asakura (2000) stated that there was a small preungual process in *P. keijii*, but his figure does not show the presence of such a process (Asakura, 2000: Fig. 7J). In describing *P. lemaitrei* Asakura & Pauly (2003) stated that there was no preungual process on its fourth pereopod. However, considering the close resemblance between *P. keijii* and *P. lemaitrei*, it is advisable to reexamine if the preungual process is really absent in *P. lemaitrei*.

The colour in life is also quite different among the five species. In *P. pygmaeus*, the ocular peduncles are cream with red longitudinal stripes; the left cheliped and ambulatory legs are whitish cream with red longitudinal stripes. In *P. keijii*, the ocular peduncles are light purple with dark purple longitudinal stripes on the dorsal surfaces; the chelipeds and ambulatory legs are deep magenta (Asakura, 2000). In *P. lemaitrei*, the ocular peduncles are purple or magenta, without distinct longitudinal stripes; the left chelipeds and ambulatory legs are purple or deep magenta, being devoid of longitudinal stripes (Asakura, 2003). In *P. lewinsohni*, the ocular peduncles are purple, without distinct longitudinal stripes; the left chelipeds and ambulatory legs have reddish purple and thin white longitudinal stripes (Okuno &Arima, 2004; Okuno et al., 2006). In *P. zebra*, the ocular peduncles are purplish, without longitudinal stripes; the carpi and meri of the chelipeds and ambulatory legs have red and white longitudinal stripes (McLaughlin et al., 2007).

***Distribution*.** — Pamilacan and Balicasag Islands, Bohol, the Philippines; 80–128 m.

***Pylopaguropsis similis*, new species**
(Figs. 4, 5)

***Material examined*.** — Holotype, male (4.3 mm) (NMCR-39096), Balicasag Island , Philippines, coll. local fisherman, Jul.2003.
Paratypes: 1 female (8.2 mm) (MNHN), same data as holotype; 1 female (7.4 mm) (ZRC.2013.0868) Pamilacan Island, Stn. P5, 9°30.0'N, 123°54.6'E, tangle nets from local fishermen, ca. 100 m, 3 Jun.2004.

***Description*.** — Thirteen pairs of biserial gills.

Shield approximately as long as broad (Fig. 4A); anterolateral margins sloping; anterior margin between rostrum and lateral projections weakly concave; posterior margin faintly emarginate medially; dorsal surface smooth. Rostrum prominent, triangular, terminating in spinule, overreaching lateral projections. Lateral projections prominent, each with small marginal spine.

Ocular peduncles (Fig. 4A) about 0.9 length of shield; corneas very slightly dilated, width about 0.2 of peduncular length. Ocular acicles triangular, terminating acutely; separated basally by 0.7 basal width of 1 acicle.

Antennular peduncles (Fig. 4A), when fully extended, overreaching distal corneal margins by about 0.2 length of ultimate peduncular segment. Ultimate segment with few setae on dorsal surface. Penultimate segment glabrous, much shorter than ultimate segment. Basal segment with prominent spine on dorsolateral margin of statocyst lobe.

Antennal peduncles (Fig. 4A), when fully extended, reaching distal corneal margins. Fifth and fourth segments with few setae. Third segment with spinule at ventromedial distal angle, few setae distally. Second segment with dorsolateral distal angle strongly produced, terminating in strong spine; dorsomesial distal angle with small spine. First segment unarmed. Antennal acicle not reaching base of cornea, or reaching midlength of fifth peduncular segment; terminating acutely, with row of tufts of long setae mesially. Antennal flagellum far overreaching tips of dactyls of outstretched ambulatory legs; most articles with several short and moderately long setae.

Maxillule with external lobe of endopod weakly developed, not recurved. Third maxilliped with carpus and merus unarmed. Ischium with crista dentata and 1 accessory tooth. Basis with 2 spinules on mesial margin.

Right cheliped (Fig. 4B, C) much stronger than left (Fig. 4D, E), propodal-carpal articulation slightly twisted. Chela non-operculiform. Dactyl slightly shorter than palm, longer than fixed finger, articulating slightly obliquely**;** dorsomesial margin with row of prominent, corneous-tipped spines and few long setae; dorsal surface slightly convex, row of corneous-tipped spines in proximal half adjacent to dorsomesial margin, remaining dorsal surface smooth; ventral surfaces with row of strong spines; cutting edge with strong calcareous tooth medially, corneous teeth distally, terminating in corneous claw. Palm shorter than carpus;

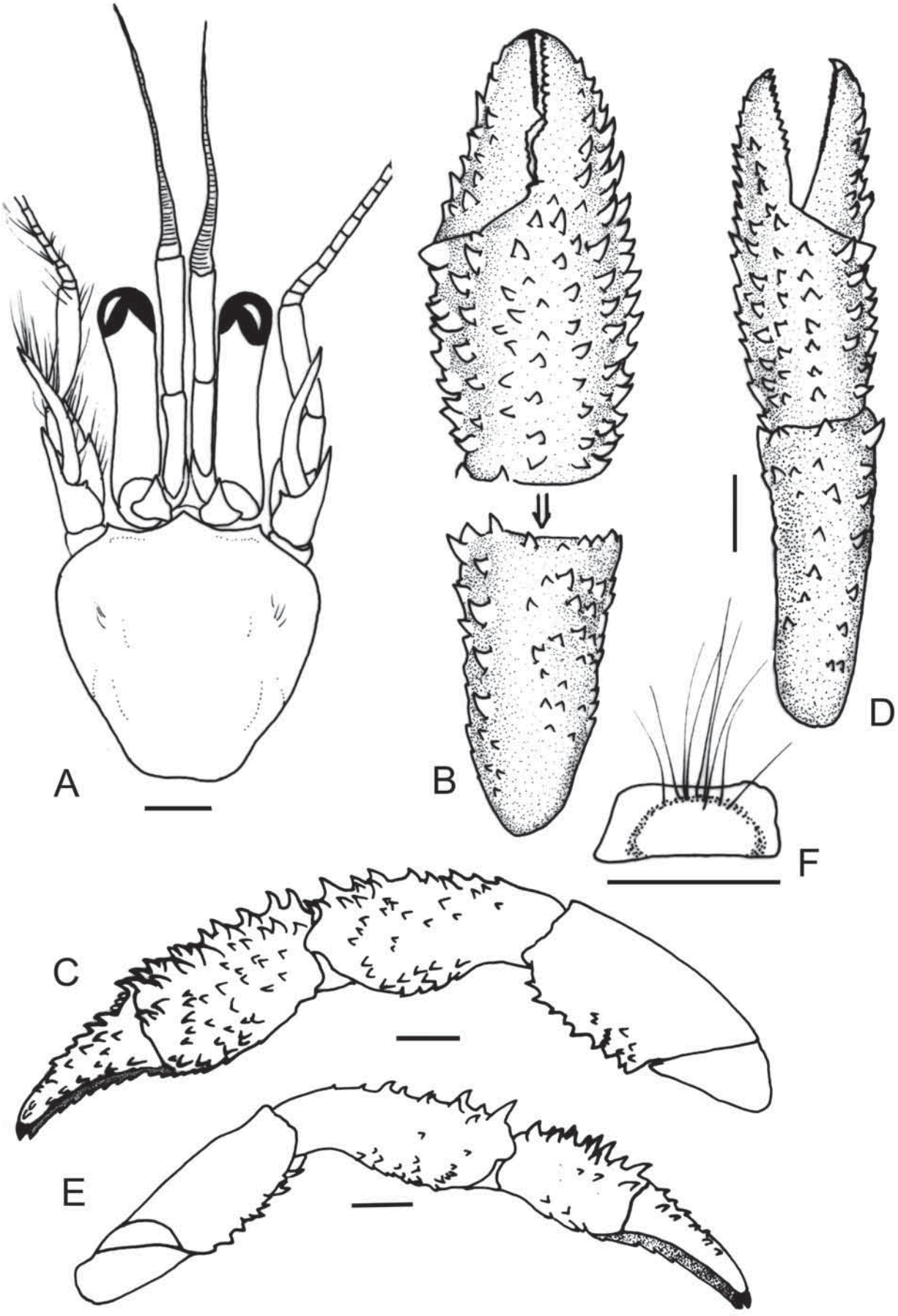

Fig. 4. *Pylopaguropsis similis*, new species, holotype, male (sl 4.3 mm), PANGLAO 2004, Balicasag, NMCR. A, shield and cephalic appendages, dorsal view; B, right cheliped, dorsal view; C, right cheliped, mesial view; D, left cheliped dorsal view; E, left cheliped, mesial view; F, anterior lobe of sternite of third pereopod. Scale bars = 1 mm. Setae partially omitted.

dorsomesial margin with row of strong, corneous-tipped spines and few long setae; dorsal surface with rows of strong, sometimes corneous-tipped spines, stronger and denser near dorsolateral margin; dorsolateral margin delimited by row of strong, sometimes corneous-tipped spines and few long setae, extending onto fixed finger. Fixed finger with row of spines on dorsal surface adjacent to dorsomesial margin, otherwise mostly smooth; ventral surface with rows of smaller, sometimes corneous-tipped spines; cutting edge with 1 large calcareous teeth proximally, row of calcareous denticles distally, terminating in bifid corneous claw. Carpus slightly longer than merus, somewhat convex ventrally, distal width about twice of proximal width; dorsodistal margin with row of strong spines, dorsal surface slightly convex, with row of strong, sometimes corneous-tipped spines adjacent to dorsomesial margin, irregular rows of slightly smaller spines adjacent to dorsolateral margin; dorsomesial margin with row of strong spines; dorsolateral margin with row of small spines; lateral, mesial and ventral faces each with scattered tubercles. Merus triangular; dorsal, lateral and mesial faces weakly tuberculate; ventromesial and ventrolateral margins each with row of acute spines; ventral surface tuberculate. Ischium with 2 distal spinules on ventromesial margin.

Left cheliped (Fig. 4D, E) slender, propodal-carpal articulation twisted. Dactylus approximately as long as palm; dorsomesial margin with double row of strong spines and few long setae, dorsal surface smooth; cutting edges with row of corneous teeth, terminating in small corneous claw. Palm about half length of carpus; dorsomesial margin with row of strong corneous-tipped spines and few long setae, dorsal surface with rows of strong corneous-tipped spines and few long setae, dorsolateral margin delimited by row of strong spines extending onto fixed finger; ventral surface with scattered tubercles. Fixed finger with row of strong spines on dorsal surface not reaching to tip; cutting edge with row of small calcareous teeth terminating in small, bifid corneous claw. Carpus approximately as long as merus; dorsomesial margin with row of moderately strong spines and few long setae; dorsal surface with row of spines; lateral face slightly concave with scattered tubercle and few setae; mesial face with scattered tubercles. Dorsal margin of merus smooth, unarmed, dorsodistal margin unarmed; lateral and mesial surfaces with few tubercles, ventrolateral and ventromesial margins each with row of strong spines. Ischium with row of spinule on ventromesial margin.

Second and third pereopods (Fig. 5A–D) similar from right to left. Dactyli slightly twisted in dorsal view, about 1.5 length (second) or 1.6 length (third) of propodi; dorsal margins each with row of sparse long setae, lateral faces each with shallow longitudinal sulcus medially; mesial face with row of 9–10 (16–17 in paratypes) corneous spines dorsally, shallow longitudinal sulcus medially; ventral margins each with row of 10–12 (14–16 in paratypes) corneous spines. Propodi each with sparse row of long setae on dorsal margin; ventral margins each with 1–4 small spinules. Carpi each with small dorsodistal spine and tuft of long setae on dorsal margin, dorsal surfaces otherwise unarmed. Meri unarmed, with sparse setae on dorsal and ventral margins. Ischia unarmed.

Fourth pereopods (Fig. 5E) semichelate, dactyli bearing row of minute denticles on ventral margin, lacking preungual process; propodal rasp consisting of 2 rows of scales. Fifth pereopods chelate.

Sternite of third pereopod (sixth thoracomere) (Fig. 4F) with anterior lobe subrectangular.

Pleon of male with 2 unpaired, unequally biramous pleopods (left third and fifth pleopods), fourth pleopod absent.

Telson (Fig. 5F) with shallow but distinct lateral indentations; posterior lobe divided by shallow median cleft, left lobe longer than right; terminal margins oblique, left lobe with 2–6 spinules, right lobe with 4–6 spinules.

Colouration in life. — Not known.

Etymology. — From the Latin *similis* (= similar), in reference to the superficial similarity to several members of the genus *Pagurus*.

Remarks. — Without examining the gill formula and the first pleopods in female specimens, this new species can be easily mistaken for species of the genus *Pagurus* Fabricius, 1775 because of the non-operculiform, spinose chelipeds.

This new species is referred to the *P. teevana* species group in having similar third pereopods, and most closely resembles *P. bellula* Osawa & Okuno, 2007, *P. furusei* Asakura, 2000, *P. laevispinosa* McLaughlin & Haig, 1989, and *P. vicina* Komai & Osawa, 2004 in having non-operculiform, spinose or tuberculate chelae. Nevertheless, acute, corneous-tipped spines on the right chela, the absence of additional dorsal spines or spinules on the carpi of the second pereopods, and the possession of two rows of corneous scales in the propodal rasp of the fourth pereopod immediately distinguish *P. similis*, new species, from those four species. In those four species, the armature on the dorsal surface of the right palm consists of blunt tubercles (*P. bellula* and *P. vicina*) or subacute, non-corneous-tipped spines (*P. furusei* and *P. laevispinosa*); the carpi of the second pereopods bear one to three dorsal spines or spinules in addition to the dorsodistal spine; and the propodal rasp of the fourth pereopod consists only of a partial row of corneous scales. Furthermore, the absence of a longitudinal groove on the right chela adjacent to the dorsolateral margin differentiates the new species from *P. bellula*, *P. laevispinosa*, and *P. vicina*.

In having a spinose chela of the left cheliped, *P. rahayuae* is also comparable with the present new species and the four above mentioned species. However, *P. rahayuae* is immediately distinguished from the present new species in having blunt, various-sized tubercles on the right chela and the possession of a dorsal row of strong spines on the carpi of the second pereopods.

As only one male specimen is present, it is not clear if the lack of the fourth pleopod is normal or aberrant. Nevertheless, it is possible that the missing pleopod is a result of damage or poor preservation condition of the specimen.

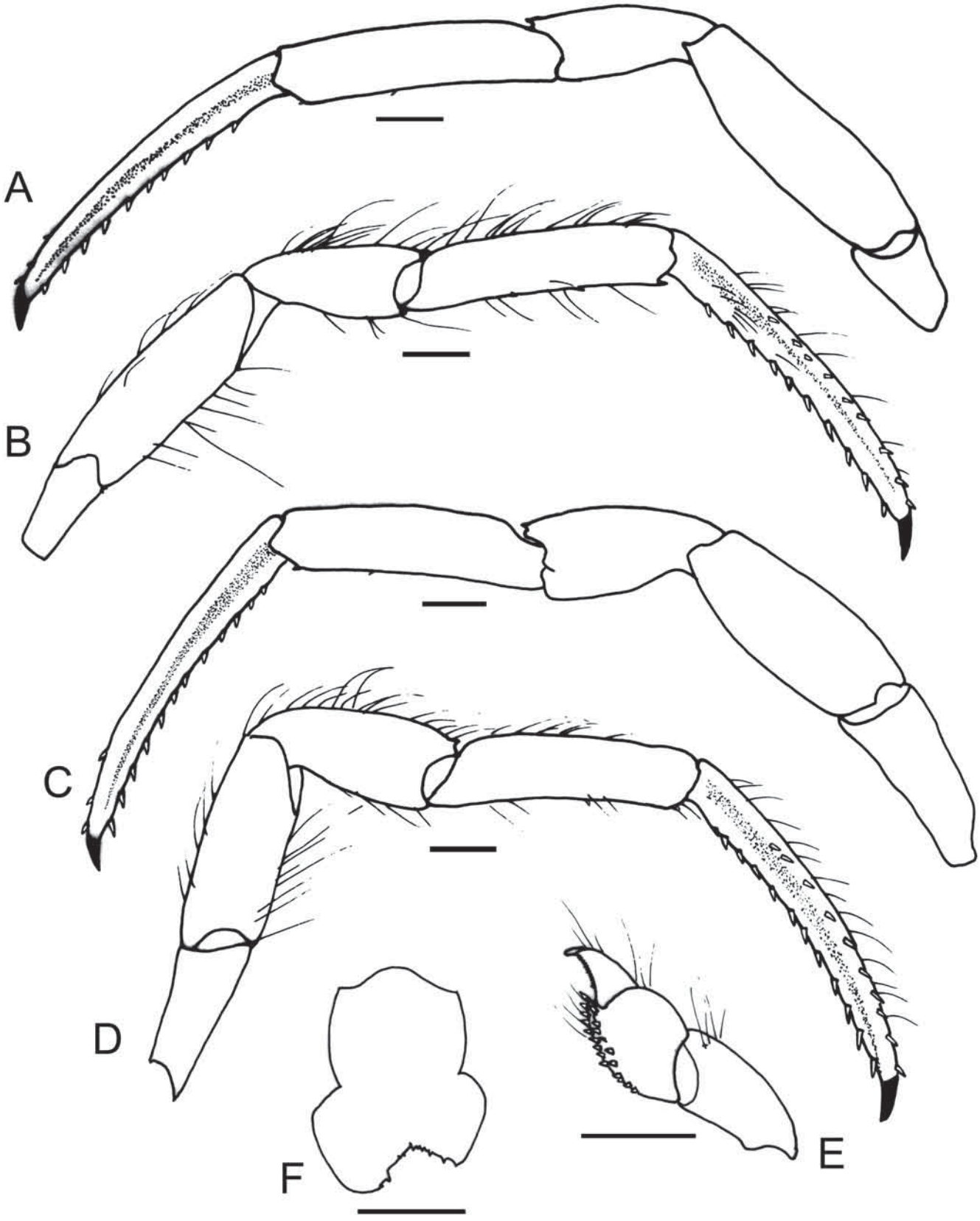

Fig. 5. *Pylopaguropsis similis*, new species, holotype, fmale (sl 4.3 mm), PANGLAO 2004, Balicasag, NMCR. A, left second pereopod, lateral view; B, left second pereopod, mesial view; C, left third pereopod, lateral view; D, right third pereopod, mesial view; E, left fourth pereopod, lateral view; F, telson. Scale bars = 1 mm. Setae partially omitted.

Distribution. — So far known only from the Philippines; about 100 m deep.

KEY TO SPECIES OF *PYLOPAGUROPSIS*

1. Palm of right chela fringed with dense long setae ....*P. fimbriata* McLaughlin & Haig, 1989 (Indonesia, east Malaysia, Guam,and Okinawa, Japan)
– Palm of right chela not fringed with long setae 2
2. Left chela with 2 or more rows of spines on dorsal surface and on fixed finger.....3
– Left chela unarmed or at most with few spinules or spinulose tubercles on dorsal surface, none on fixed finger (except for *P. atlantica*).....9
3. Right chela operculiform; dactyl of left cheliped unarmed....4
– Right chela non-operculiform; dactyl of left cheliped with 1 or more rows of spines or tubercles 5
4. Right chela with covering of small granules on dorsal surface, dorsolateral margin not delimited; dactyl of left chela unarmed .....*P. granulata* Asakura, 2000 (Kume Island, Okinawa, Japan)
– Right chela with mixture of small and large tubercles, dorsolateral margin distinctly delimited with row of blunt spines; dactyl of left chela armed with rows of spines..... .....*P. rahayuae* Asakura, 2010 (Bohol Sea, Philippines)
5. Dorsal surface of fingers and palm of right cheliped with blunt tubercles or non-corneous-tipped, subacute spines; propodal rasp of fourth pereopod with 1 partial row of corneous scales; carpi of second pereopods armed with additional spines or spinules on dorsal margin.....6
– Dorsal surface of fingers and palm with acute, corneous-tipped spines; propodal rasp of fourth pereopod with 2 rows of corneous scales; telson with terminal margin of posterior lobe slightly oblique; carpi of second pereopods armed only with dorsodistal spine; [right chela without longitudinal groove adjacent to dorsolateral margin].....*P. similis*, new species (Bohol Sea, Philippines)
6. Ocular peduncles 0.6–0.7 times as long as shield; right chela without longitudinal groove adjacent to dorsolateral margin; dactyli of second and third pereopods 1.1–1.4 times as long as propodi; propodi of third pereopods each with 5–15 corneous spines on ventral margin .....*P. furusei* Asakura, 2000 (Izu Ogasawara Arc, and Honshu to Kyushu, Japan)
– Ocular peduncles about 0.9 times as long as shield; right chela with longitudinal groove adjacent to dorsolateral margin; dactyli of second and third pereopods 1.5–1.6 times as long as propodi; propodi of third pereopods each with 1–4 corneous spines on ventral margin.....7
7. Many dorsal spines on palm of right chela with tuft of short plumose setae at base, making dorsal surface of palm setose; terminal margin of telson each with 12–16 spines extending onto lateral margin ....*P. laevispinosa* McLaughlin & Haig, 1989 (Okinawa, Japan)
– Many dorsal spines on palm of right chela with few short plumose setae at base, dorsal surface of palm not setose; terminal margin of telson each with 1–9 spines not extending onto lateral margin 8
8. Carpus of left cheliped subequal to or shorter than merus; dactyli of second and third pereopods each with row of bristle-like setae on distal half of dorsal margin..... .....*P. vicina* Komai & Osawa, 2004 (Kii Peninsula to Ryukyu Islands, Japan, and Moluccas, Indonesia)
– Carpus of left cheliped slightly longer than merus; dactyli of second and third pereopods each with row of stiff setae on dorsal margin, none bristle-like..... .....*P. bellula* Osawa & Okuno, 2007 (Ryukyu Islands, Japan)
9. Propodal rasp of fourth pereopod consisting of 3 or 4 rows of corneous scales 10
– Propodal rasp of fourth pereopod consisting of 1 partial or complete row of corneous scales 11
10. Carpus of right cheliped with dorsolateral surface weakly armed; telson with terminal margin concave ....*P. atlantica* Wass, 1963 (Southeast coast of Florida to Suriname)
– Carpus of right cheliped with dorsolateral surface moderately to strongly armed; telson with terminal margin oblique .... *P. magnimanus* Henderson, 1896 (Northern Arabian Sea to Bay of Bengal and Srilanka)
11. Dactyl of right third pereopod appreciably broader than left, with prominent longitudinal sulcus on lateral surface dorsal to midline 12
– Dactyl of right third pereopod not appreciably broader than left, lateral surface with or without shallow median sulcus..... 17
12. Dactyl of right chela with closely-spaced, low, flattened tubercles on dorsal surface, dorsomesial margin with plate-like tubercles; merus of left cheliped with prominent tubercle at ventromesial proximal angle..... *P. speciosa* McLaughlin & Haig, 1989 (Izu Islands to Ryukyu Islands, Japan)
– Dactyl of right chela with scattered, small, spinulose tubercles, dorsomesial margin with row of acute spines; merus of left cheliped with row of spines on ventromesial margin.....13
13. Cornea not dilated at all; palm of left chela with dorsomesial row of tiny spines; [carpus of left cheliped with dorsolateral and dorsomesial rows of spines].....*P. pygmaeus*, new species (Bohol Sea, Philippines)
– Cornea slightly dilated; palm of left chela unarmed or armed with few minute spinulose tubercles on dorsal surface.....14
14. Ocular peduncles appreciably broader proximally than at base of corneas; carpus of left cheliped only with dorsodistal spine ... .15
– Ocular peduncles not appreciably broader proximally than at base of corneas; carpus of left cheliped at least with dorsomesial row of spines 16
15. Propodus of left third pereopod with 1 longitudinal sulcus..... .....*P. keijii* McLaughlin & Haig, 1989 (Indo-West Pacific and Hawaii)
– Propodus of left third pereopod with 3 longitudinal sulcus..... .....*P. lemaitrei* Asakura, 2003 (French Polynesia)
16. Lateral surface of propodus of right third pereopod with longitudinal sulcus on upper half..... ..... *P. zebra* (Henderson, 1893) (Indo-West Pacific)
– Lateral surface of propodus of right third pereopod deeply concave in upper third, deep concavity in midline and small concavity near ventral margin, producing 3 prominent, longitudinal sulci. ....*P. lewinsohni* McLaughlin & Haig, 1989 (Gulf of Aqaba, Moluccas, Indonesia, and southern Japan)
17. Propodus of right third pereopod with lateral surface flattened; propodal rasp of fourth pereopod with 2 rows of corneous scales.....*P. pustulosa* McLaughlin & Haig, 1989 (Somalia and Taiwan)
– Propodus of right third pereopod with lateral surface convex; propodal rasp of fourth pereopod with 1 partial row of corneous scales.....18

18. Right chela with mesial face strongly produced ventrally in proximal half, ventral surface strongly excavated in lateral half; dactyl of right third pereopod with median longitudinal sulcus on lateral surface .....*P. teevana* (Boone, 1932) (Pacific coast of Colombia to Equador, and Galapagos)
– Right chela with mesial face not strongly produced ventrally in proximal half, ventral surface not strongly excavated in lateral half; dactyl of right third pereopod without median longitudinal sulcus on slightly convex lateral surface ....*P. garciai* McLaughlin & Haig, 1989 (Easter Island)

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