



## A new genus of Paguridae (Crustacea: Decapoda: Anomura) for a new species from the tropical eastern Pacific and *Pagurus longimanus* Wass, 1963 from the tropical western Atlantic

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### Abstract

A new genus, *Spathapagurus*, is described for *S. collinae* n. sp. from the tropical eastern Pacific and its geminate species *Pagurus longimanus* Wass, 1963 from the tropical western Atlantic. These congeners share grossly unequal chelipeds, the right being narrowly spatulate and up to four times longer than the left. The males have short sexual tubes consisting of slight extrusions of the vas deferens from the gonopores, though these short tubes are masked by long, forwardly directed setae. The females lack first pleopods and have unpaired left second to fifth pleopods. The new species is fully described, illustrated, and compared to *P. longimanus*, herein placed in the new genus. The diagnosis of the latter species is emended and its distribution expanded to include the Caribbean coast of Panama in Central America.

**Key words:** Crustacea, Decapoda, Anomura, Paguridae, new genus, *Spathapagurus*, new species, *Spathapagurus collinae*, geminate species, tropical eastern Pacific

### Introduction

Over recent decades, collections of eastern Pacific decapod crustaceans near the Panamanian Isthmus have focused heavily on shoreline and shallow subtidal assemblages, including waters of the Panama Canal. From these efforts, it has become apparent that species diversity for at least some major decapod families is exceptionally high along the west coasts of Costa Rica, Panama, and Colombia (e.g., Abele 1972, 1976; Abele & Patton 1976; Gore & Abele 1976; Kim & Abele 1988; Abele & Kim 1989). However, no major contemporary efforts have been undertaken to augment early expeditionary sampling of offshore continental shelf benthic decapods in this region by trawls, grabs and dredges, leaving early works (e.g., Garth 1940, 1948, 1958, 1959, 1961; Haig 1960) as the primary information source for this element of the decapod fauna. To expand the limited knowledge of the deeper water invertebrate fauna from this region, as well as investigate its relevance to modern systematic and phylogenetic studies, R. Collin and associates of the Smithsonian Tropical Research Institute, Panama, initiated in 2002 a series of trawling and dredging cruises aboard the R/V Urraca.

In July 2005, while sampling shelf waters off Costa Rica, a series of distinctive hermit crab specimens of the family Paguridae with grossly unequal and sexually dimorphic chelipeds, were discovered. While the size and shape of the right cheliped in the specimens initially suggested similarities with species of *Goreopagurus* McLaughlin, 1988, closer study revealed various characters such as the absence of paired pleopods in females that precluded convenient placement of the specimens in that genus. Further examination of the specimens and comparisons to other pagurids from the neotropics revealed the specimens to represent a new species remarkably similar in morphology to *Pagurus longimanus* Wass, 1963 from the tropical western Atlantic. Both species have a strikingly shaped chela that is dorsoventrally flattened and spatula-like. Also, males of both the new species and *P. longimanus* were found to have short sexual tubes extending from their gonopores, a character that had not been

previously documented for the latter species. Although males of a few species of *Pagurus* Fabricius, 1775 are known to have a short sexual tube ramified as a slight papilla protruding from one or both gonopores, the presence of sexual tubes is not usually considered to be diagnostic of *Pagurus*. As presently constituted, *Pagurus* is a catch-all genus that contains a heterogeneous assemblage of approximately 173 species worldwide. It encompasses varied groups of hermit crabs having 11 pairs of phyllobranchiate gills but lacking secondary sexual modifications or similar exclusive characters of several closely related genera (McLaughlin 1997, 2003; McLaughlin *et al.* 2010). The new species and *P. longimanus* do not fit within any of the 11 informal groups that have been proposed for *Pagurus* by various carcinologists (A. Milne-Edwards & Bouvier 1892; Bouvier 1940; MacDonald *et al.* 1957; Forest & de Saint Laurent 1968; Haig 1974, 1977; McLaughlin 1974, 1975; Forest 1978; Lemaitre *et al.* 1982; Ingle 1985), though not all species of the genus have been to date assigned to one of these groups. While molecular phylogenetic analyses of *Pagurus* and its relatives are certainly warranted and underway, we find ample evidence by current morphological standards to proceed with placement of the new species and *P. longimanus* in their own genus. We thus hypothesize that pending molecular phylogenetic analyses will support uniting of these species in a common clade while also supporting separation of this clade from *Pagurus*. We herein diagnose a new genus for these two distinct but related species, fully describe the new species from the eastern Pacific, and present an emended diagnosis of *P. longimanus*.

Shield length (sl) is measured from the tip of the rostrum to the midpoint of the posterior margin of the shield to nearest 0.1 mm. The holotype and most paratypes of the new species are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A. (USNM). An additional paratype (held for molecular genetic analysis) is deposited in the Zoological Collections of the University of Louisiana – Lafayette, LA, U.S.A. (ULLZ). The type and other specimens listed of *Pagurus longimanus* Wass, 1963, remain deposited in the USNM. Other abbreviations used are: ovig. = ovigerous; CR = Costa Rica; sta. = station.

## Systematics

### Family Paguridae Latreille, 1802

#### Genus *Spathapagurus* n. gen.

**Type species.** *Pagurus longimanus* Wass, 1963.

**Diagnosis.** Eleven pairs of phyllobranch gills. Rostrum obtusely triangular. Ocular acicles simple, with submarginal spine. Chelipeds grossly unequal, right often twice or slightly more than twice length of left; right chela flattened, spatulate, carpus moderately produced ventrally. Third maxilliped with accessory tooth on crista dentata. Anterior lobe of thoracic sternite XII (of third pereopods) broadly semi-subovate, setose. Fourth pereopod semi-chelate; preungual process absent. Males with paired, short sexual tubes slightly protruding from gonopores and masked by long, forwardly directed setae (Figs 1h, 2d); unpaired left pleopods 3–5 with endopods rudimentary. Females with paired gonopores; lacking pleopods 1, with unpaired left pleopods 2–5. Uropods markedly asymmetrical. Telson with transverse indentation; terminal margins oblique; posterior lobes with lateral margins armed.

**Etymology.** The name combines the Greek words *spatha*, meaning spatula, and *pagourus*, meaning crab, and is given in reference to the spatulate shape of the right chela shared by the two species placed in this new genus.

**Species included.** The type species, *Pagurus longimanus* Wass, 1963, and *S. collinae* n. sp., described below.

**Distribution.** Tropical waters of the western Atlantic and eastern Pacific. Depth: 15 to 69 m.

#### *Spathapagurus longimanus* (Wass, 1963), new comb.

(Fig. 1)

*Pagurus longimanus* Wass, 1963: 146, fig. 6; Coelho & Ramos 1972: 165; Sánchez & Campos, 1978: 52, figs. 19, 20; Coelho & Santos 1980: 143; Coelho *et al.* 1980: 39; Coelho & Ramos-Porto 1987: 41; Melo, 1999: 134, figs. 77, 78; McLaughlin *et al.* 2010: 33. & Santos 1980: 143; Coelho *et al.* 1980: 39; Coelho & Ramos-Porto 1987: 41; Melo, 1999: 134, figs. 77, 78; Nucci & Melo 2007: 56, figs. 1G, 2G, 3G, 4G; McLaughlin *et al.* 2010: 33.

**Type material.** Holotype: male sl = 4.0 mm, R/V Oregon sta 2307, off Cayenne, French Guiana, 0557'N, 5220'W, 51.2–56.7 m, 11 September 1958 (USNM 108751).

**Other material.** Off Caribbean coast of Panama: 2 males sl = 3.0, 4.0 mm, 2 male molts sl = 2.8, 3.7 mm, 1 female 2.4 mm, R/V J. E. Pillsbury sta P-425, 09°40'12N, 79°17'24"W, 63–69 m, 19 July 1966 (USNM 267513).

**Emended diagnosis.** Gill lamellae biserial (distally undivided). Right chela (Fig. 1a, b) ranging from about 3 (females) to 4 (males) times longer than broad; carpus moderately produced ventrally, dorsomesial margin armed with row of strong, unequal spines, dorsal surface with numerous small spines or tubercles, dorsolateral margin delimited by row of small, blunt spines. Left chela palm (Fig. 1c) nearly smooth dorsally or with short median row of small, blunt spines proximally. Second and third pereopod carpi dorsal margins armed with strong spines; propodi dorsal margins finely denticulate (denticles stronger on second pereopods); dactyls (Fig. 1e, d) each with ventromesial row of about 10–28 small corneous spines appressed against ventromesial margin (not always visible in lateral view). Anterior lobe of thoracic sternite XII (of third pereopods) subovate, long setae on anterior margin (Fig. 1g). Propodal rasp of fourth pereopods (Fig. 1f) with 1 row of ovate scales. Uropods strongly asymmetrical. Telson weakly calcified medially, terminal margins oblique; terminal lobes armed with strong spines on lateral margins at least on distal half; terminal margins armed with strong spines interspersed with small spines and setae.

**Color.** Wass (1963: 146) described color of the type after two months in formalin and mentioned that the corneas were black. The ocular peduncles, ocular acicles, shield, and both the antennular and antennal peduncles had dark gray chromatophores beneath the surface. The right chela was marked by “orange rufous in a broad dorsal stripe” and the carpus mottled with a ferruginous tone dorsally. The propodi of the ambulatory legs had three longitudinal stripes on a similar but lighter colored background.

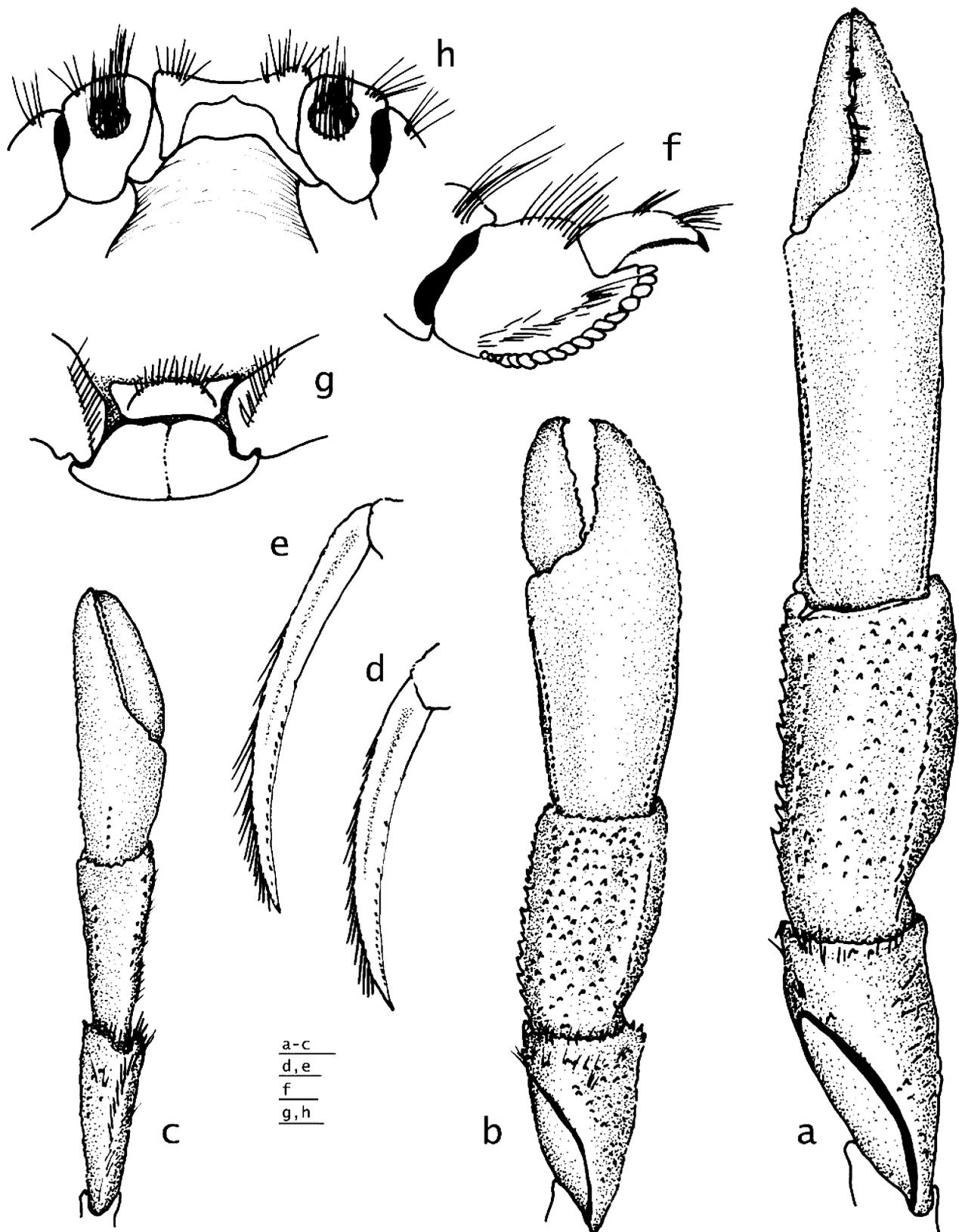
Sánchez & Campos (1978: 55) described the color in fresh specimens, summarized as follows. The color is overall of a light brown. The shield is light brown or almost yellowish, with scattered brownish spots, and a dark spot on each side medially. The ocular peduncles and acicles are of a color similar to the shield, with black corneas. The antennular peduncle has the ultimate and penultimate segments brown on its distal and proximal portions, with several yellowish dots between the brown portions. The antennal peduncle is lighter than the antennular, with brown spots. The carpus and chela of the right cheliped dorsally has two narrow stripes and two broad bands over a brownish background with small red dots; the fixed finger has a stripe on both the dorsolateral and dorsomesial sides. The ambulatory legs are marked laterally by a brown stripe on the dactyls and three brown stripes on the propodi, all over a light brown background.

**Habitat.** Gastropod shells.

**Distribution.** Western Atlantic, from the Caribbean coast of Panama to Amapá, in northern Brazil. Depth: 15–69 m.

**Remarks.** Since Wass' (1963) description based exclusively on the holotype (missing the left cheliped) from French Guiana, this species has been reported from widely separate parts of the Brazilian and Colombian coasts of northeastern South America (Coelho & Ramos 1972; Sánchez & Campos 1978; Coelho & Santos 1980; Coelho *et al.* 1980; Coelho & Ramos-Porto 1987; Nucci & Melo 2007; Melo 1999). These reports, however, provided little additional information and made no mention of morphological details such as the presence of sexual tubes in the males. Additional specimens reported herein were discovered during this study among materials in the USNM from off the Caribbean coast of Panama, and these expand to Central America the distribution of this species in the southwestern Caribbean.

Wass (1963) suggested that his *Pagurus longimanus* was most closely related to *P. exilis* (Benedict, 1892), a species distributed from the southern temperate coast of Brazil to southern Argentina (Melo 1999). However, these two species are clearly not closely related. A comparison during this study of the syntype series (USNM 16690) and additional specimens of Benedict's species to Wass' (1963) taxon revealed that the morphological similarity between these two taxa is superficial and based only on the general elongation of the right cheliped, a character commonly found in many pagurids. Among several important diagnostic characters at the generic level, *P. exilis* differs markedly from Wass' taxon in the asymmetrical sternite of the XIV (of fifth pereopods), telson shape, and lack of sexual tubes in the male, all of which exclude Benedict's taxon from *Spathapagurus* n. gen.



**FIGURE 1.** *Spathapagurus longimanus* (Wass, 1963): a, c, male sl = 3.0 mm, off Caribbean coast of Panama (USNM 267513); b, female sl = 2.4 mm, off Caribbean coast of Panama (USNM 267513); d–h, holotype male sl = 4.0 mm, off Cayenne, French Guiana (USNM 108751). a, b, right cheliped, dorsal view; c, left cheliped, dorsal view; d, dactyl of second pereopod, mesial view; e, dactyl of third pereopod, mesial view; f, propodus and dactyl of fourth pereopod, lateral view; g, thoracic sternite XII, ventral view; h, thoracic sternite XIV, coxae of fifth pereopods and gonopores with sexual tubes, ventral view. Scales equal 1 mm (a–c), 0.50 mm (d, e), 0.25 mm (f), and 0.50 mm (g, h).

*Spathapagurus collinae* n. sp.

(Figs 2–5)

**Material examined.** Holotype: male sl = 3.7 mm, R/V Urraca sta. CR-47-05, off Costa Rica (Pacific), 09°20.212'N, 84°28.858'W, 60–64.5 m, trawl, 17 July 2005 (USNM 1155303). Paratypes: 1 male sl = 3.1 mm, 2 ovig. females 3.0, 3.4 mm, same data as holotype (USNM 1155304); 1 male sl = 2.9 mm, R/V Urraca sta. CR-18-05, off Costa Rica (Pacific), 10°46.264'N, 85°39.938'W, 15.5 m, dredge, 15 July 2005 (USNM 1155305); 9 males sl = 3.0–4.5 mm, 1 female 2.7 mm, 6 ovig. females sl = 2.8–4.0 mm, R/V Urraca sta. CR-21-05, off Costa Rica (Pacific), 10°46.264'N, 85°45.378'W, 51–53 m, trawl, 15 July 2005 (USNM 1155306); 3 males sl = 3.0–3.3 mm, 1 ovig. female 3.1 mm, R/V Urraca sta. CR-22-05, off Costa Rica (Pacific), 10°48.255'N, 85°47.661'W, 46–56 m, trawl, 15 July 2005 (USNM 1155307). 1 male sl = 2.8 mm, R/V Urraca sta. CR-50-05, off Costa Rica (Pacific), 09°41.693'N, 84°59.396'W, 26.5–28 m, trawl, 18 July 2005 (ULLZ 12687)

**Diagnosis.** Gill lamellae biserial (distally undivided). Shield broader than long. Right cheliped very elongate, 1.7 times to more than twice length of left cheliped; chela distinctly longer than carpus. Left cheliped dactyl and palm elevated along midline, median elevation on palm with row of small spines. Second and third pereopod carpi and propodi armed dorsally with row of spines; dactyls with ventromesial row of small corneous spines appressed against ventromesial margin. Telson strongly armed on distolateral and terminal margins. Males with paired short sexual tubes consisting of slight protrusions of vas deferens partially masked by long setae on coxae along margins of gonopores. Females without first pleopods.

**Description.** Gill lamellae biserial (Fig. 2a). Shield (Fig. 2b) as broader than long; anterior margins between rostrum and lateral projections weakly concave; anterolateral margins sloping or slightly terraced, each with distolateral indentation; posterior margin roundly truncate; dorsal surface with few sparse tufts of setae. Rostrum obtusely triangular, unarmed terminally, with tuft of short setae on dorsal surface. Lateral projections obtusely triangular, each with small terminal spine.

Ocular peduncles about 0.6 length of shield, moderately stout with distinct medial constriction, surfaces naked except for short dorsomesial tuft of setae; corneal diameter about 0.6 peduncular length. Ocular acicles subtriangular, concave dorsally, with small submarginal spine, separated basally by at least length of 1 acicle.

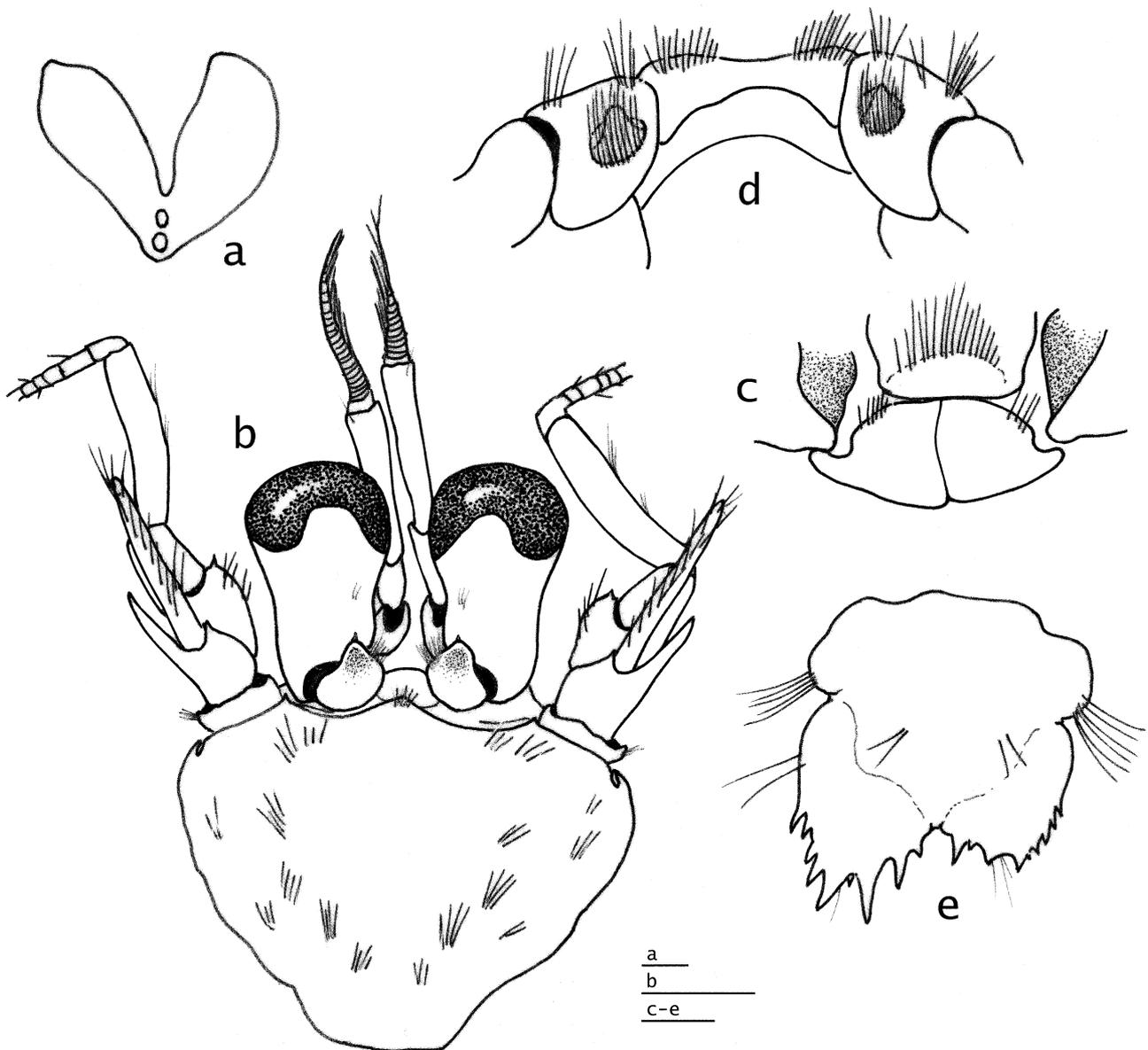
Antennular peduncles overreaching distal margins of corneas by about 0.8 to nearly entire length of ultimate segments. Ultimate and penultimate segments naked or with scattered short setae. Basal segment with slender spine on lateral margin of statocyst lobe.

Antennal peduncles overreaching distal corneal margins by about 0.8 length of ultimate segments. Fifth segment with several sparse tufts of setae. Fourth segment with few scattered setae. Third segment with prominent, acute spine at ventrodiscal margin. Second segment with dorsolateral distal angle produced, terminating in acute spine. First segment usually with small distal spine on dorsolateral margin, another distal spine on ventrolateral margin. Antennal acicle long, slightly exceeding distal margin of cornea, reaching close to midlength of ultimate peduncular segment, nearly straight (dorsal view), terminating in spine; mesial surface with row of stiff setae. Antennal flagella usually not overreaching tip of outstretched right cheliped; lacking setae or at most with scattered short (< 0.5 length of 1 article) setae.

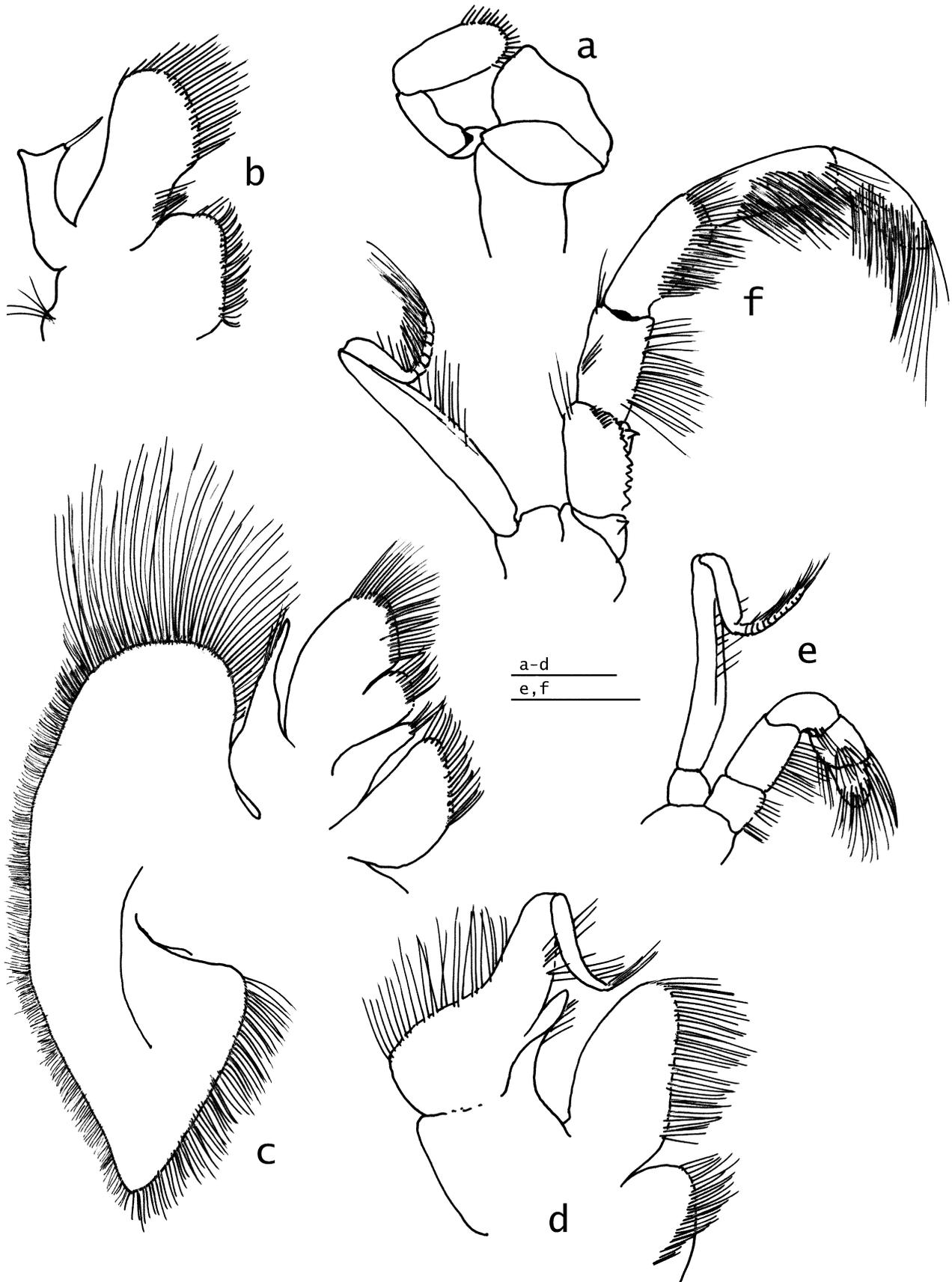
Mandible (Fig. 3a) with molar and incisor processes calcareous. Maxillule (Fig. 3b) with external lobe of endopod moderately developed; internal lobe with long terminal seta. Maxilla (Fig. 3c) with endopod extending beyond distal margin of scaphognathite. First maxilliped (Fig. 3d) with endopod extending about 0.8 length of distal endite. Second maxilliped (Fig. 3e) without distinguishing characters. Third maxilliped (Fig. 3f) with 1 spine on basis; ischium with accessory tooth on well developed crista dentata, transverse row of short bristle-like setae distomesially; merus lacking spines. Sternite of third maxilliped unarmed.

Right cheliped (Fig. 4a, b, e) elongate, 1.7–2.1 as long as left cheliped, longer in large males (sl > 3.0 mm) than in females and small males; chela slightly widening distally, usually widest across midportion of fingers; palm, fixed finger and dactyl slender, dorsoventrally compressed. Fingers each with dorsal and ventral row of tufts of setae parallel to and near cutting edges; dorsal surfaces somewhat flattened, with scattered small spinules, tubercles or protuberances; each terminating in small, inwardly directed corneous claw, often worn. Dactyl ranging 0.7–0.8 length of palm; cutting edge with moderately prominent calcareous tooth at midlength, 4–6 smaller calcareous teeth on proximal half, and row of small calcareous or corneous teeth on distal half; dorsomesial margin delimited by row of small spines, spinules or spinulose tubercles. Fixed finger broader than dactyl, broader in females than in

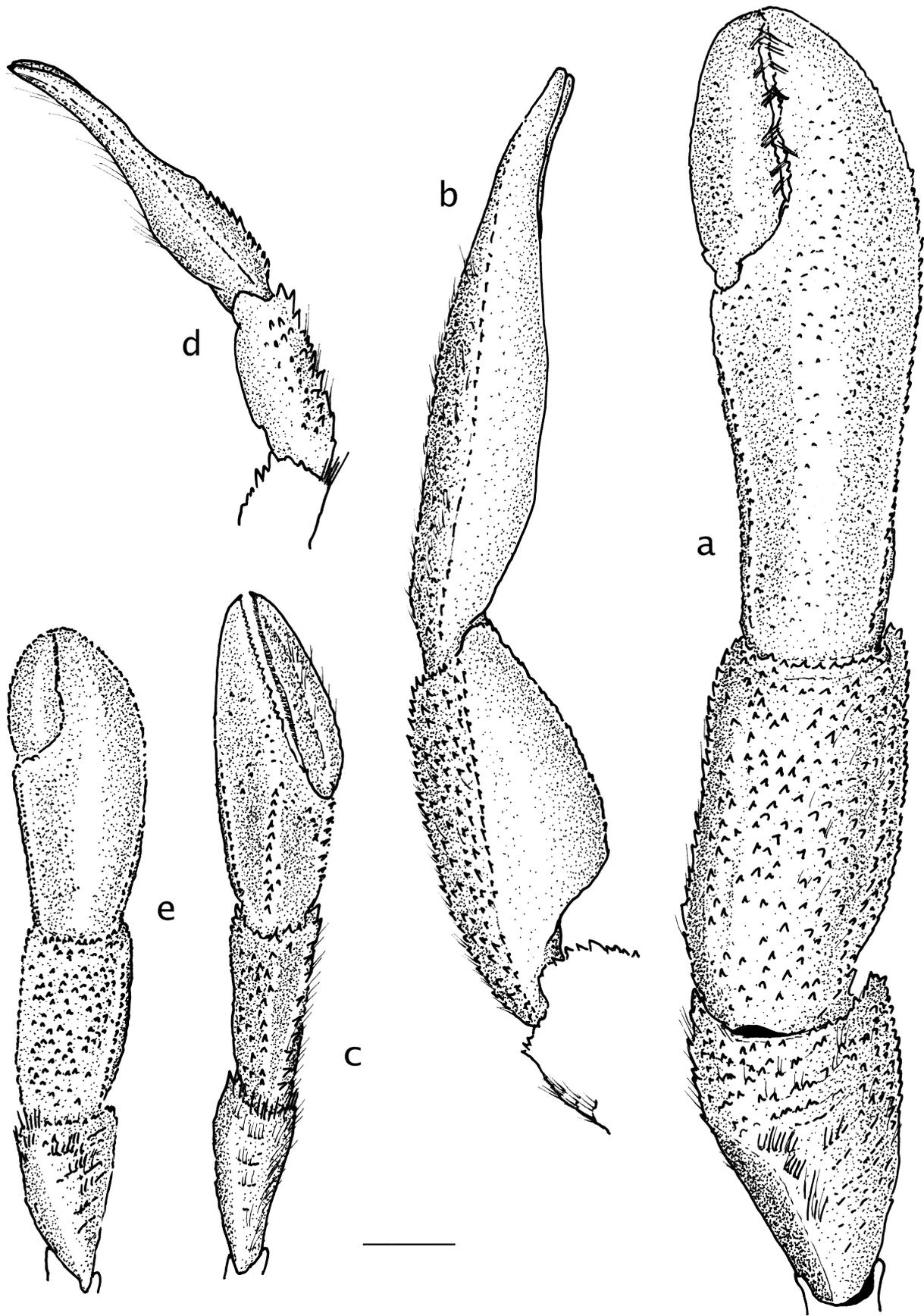
males (Fig. 4a, e); somewhat expanded laterally, with lateral margin rounded. Palm slightly shorter than carpus; dorsomesial margin distinctly delimited by row of small spines or tubercles; mesial face rounded, strongly sloping, covered with numerous small spines or tubercles; dorsolateral margin well delimited by row of small spines or tubercles; dorsal surface moderately elevated along midline, usually covered with numerous minute granules or small tubercles and scattered short setae. Carpus distinctly longer than merus, moderately produced ventrally; ranging 1.8–2.1 times longer than broad, broader in females than males; dorsomesial margin weakly to notably expanded, armed with row of prominent blunt or acute spines, dorsodistal margin with row of small spines or tubercles; dorsal surface with numerous small spines or tubercles and scattered setae, dorsolateral margin delimited by row of small spines; lateral and ventral surfaces with small granules; mesial face strongly sloping, nearly perpendicular to dorsal face, ventromesial margin unarmed. Merus subtriangular; dorsodistal margin with 1–4 well spaced, small spines; dorsal and ventrolateral surfaces with transverse, sparsely setose furrows and transverse rows of small spines; ventromesial and ventrolateral margins each with row of spines, ventral surface usually with few scattered spines and sparse, moderately long setae. Ischium unarmed or with inconspicuous small protuberances on dorsal and ventral surfaces.



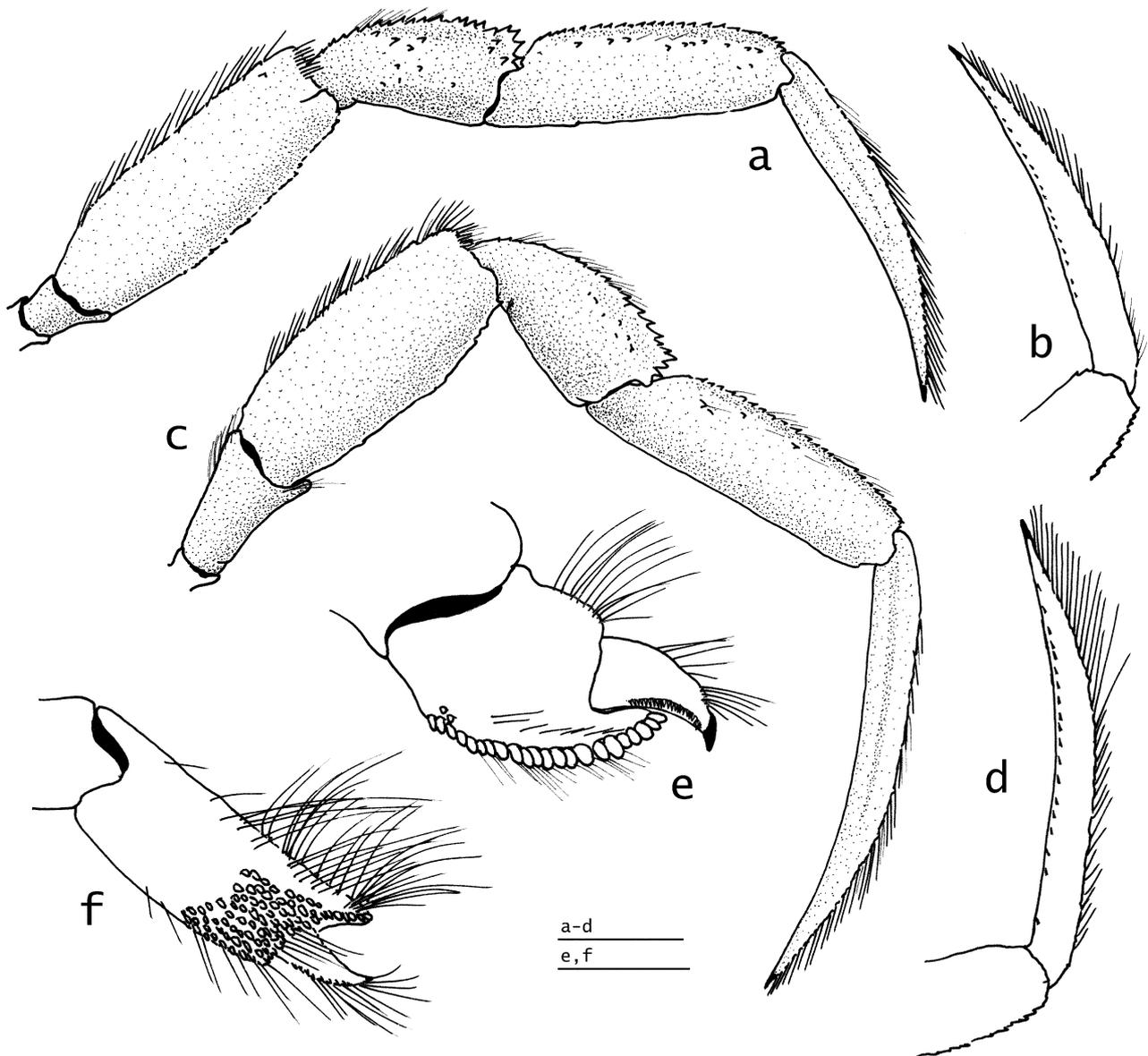
**FIGURE 2.** *Spathapagurus collinae* n. sp.: a, paratype male, sl = 3.9 mm, off Pacific coast of Costa Rica (USNM 1155306); b–e, holotype male, sl = 3.7 mm, off Pacific coast of Costa Rica (USNM 1155303). a, gill lamella; b, shield and cephalic appendages, dorsal view; c, thoracic sternite XII, ventral view; d, thoracic sternite XIV, coxae of fifth pereopods and gonopores with sexual tubes, ventral view; e, telson, dorsal view. Scales equal 0.25 mm (a), 1.00 mm (b), 0.50 mm (c, d), and 0.25 mm (e).



**FIGURE 3.** *Spathapagurus collinae* n. sp., holotype male, sl = 3.7 mm, off Pacific coast of Costa Rica (USNM 1155303). Left mouthparts, internal view: a, mandible; b, maxillule; c, maxilla; d, first maxilliped; e, second maxilliped; f, third maxilliped. Scales equal 0.50 mm (a–d), and 1.00 mm (e, f).



**FIGURE 4.** *Spathapagurus collinae* n. sp.: a–d, holotype male, sl = 3.7 mm, off Pacific coast of Costa Rica (USNM 1155303); e, paratype ovig. female, sl = 2.8 mm, CR–21–05 (USNM 1155306). a, e, right cheliped, dorsal view; b, carpus and chela of same, lateral view; c, left cheliped, dorsal view; d, carpus and chela of same, lateral view. Scale equals 1.00 mm.



**FIGURE 5.** *Spathapagurus collinae* n. sp.: holotype male, sl = 3.7 mm, off Pacific coast of Costa Rica (USNM 1155303). a, second left pereopod, lateral view; b, dactyl of same, mesial view; c, third left pereopod, lateral view; d, dactyl of same, mesial view; e, propodus and dactyl of left fourth pereopod, lateral view; f, propodus and dactyl of left fifth pereopod, lateral view. Scales equal 2.00 mm (a–d), and 0.50 mm (e, f).

Left cheliped (Fig. 4c, d) slender, reaching at most to about proximal margin of right cheliped palm; dactyl and fixed finger weakly arched ventrally; fingers with ventral row of setal tufts parallel to and near cutting edges, each finger terminating in inwardly directed corneous claw. Dactyl 1.8–2.0 length of palm; cutting edge with row of small corneous teeth; dorsal surface slightly elevated in midline, sparsely setose; dorsomesial margin sharply defined by row of inconspicuous spinules or tubercles. Fixed finger broader than dactyl, somewhat expanded laterally; cutting edge with row of small calcareous teeth interspersed with small corneous teeth. Palm 0.4–0.6 length of carpus; dorsomesial margin with irregular row of small spines or tubercles; dorsal surface distinctly elevated on midline and armed with longitudinal row of small spines; dorsolateral margin with row of small spinules or granules, adjacent dorsal surface granular; ventral surface with scattered tufts of long setae. Carpus slightly shorter than merus; dorsal surface somewhat flattened, with dorsomesial and dorsolateral rows of spines; dorsodistal margin with row of spines; mesial face with scattered small tubercles and short setae; lateral face covered with small spines. Merus subtriangular; dorsal surface with transverse, sparsely setose furrows; ventrolateral margin with row of spines, ventral surface at most with scattered short setae. Ischium unarmed or with inconspicuous small protuberances on dorsal and ventral surfaces.

Ambulatory legs (Fig. 5a–d) similar from left to right. Dactyls about 1.7 times length of propodi; dorsal margins each with sparse row of short stiff setae; ventromesial margins each with row of 20–24 small corneous spinules often appressed to ventromesial margin (not always visible in lateral view); lateral faces each with weak longitudinal sulcus. Propodi about 1.2 times length of carpi; dorsal margins of each with row of small spines and sparse setae; dorsolateral faces each with a few small spines or tubercles; ventral margin unarmed. Carpi each with row of spines and sparse setae on dorsal margin, and 2 or 3 spines on dorsodistal angle; dorsolateral faces each with a few small spines or tubercles; ventral margin unarmed. Meri with low protuberances and tufts of setae on dorsal surfaces; lateral and mesial faces glabrous; ventral margin with few minutes spines or tubercles at least distally. Ischia unarmed but with few stiff setae or bristles dorsally. Anterior lobe of thoracic sternite XII (between third pereopods) (Fig. 2c) semi-subovate, with stiff bristles on anterior margin. Fourth pereopods (Fig. 5e) lacking preungual process at base of dactyl claw. Fifth pereopod (Fig. 5f) chelate; propodal rasp not reaching to midlength of propodus.

Males with paired, short sexual tubes consisting of slight protrusions of vas deferens partially masked by stiff long, forwardly directed setae on coxae around margins of gonopores (Fig. 2d); unpaired left pleopods 3–5 with endopods rudimentary. Females without paired pleopods 1; pleopods 2–4 with endopods stout, exopods long, slender; pleopod 5 as in males. Uropods markedly asymmetrical. Telson (Fig. 2e) with transverse indentation; anterior lobes each with tuft of long setae; posterior lobes separated by deep median cleft, posterior half of lateral margins and terminal margins armed with spines (strongest, on left lobe) often interspersed with small spines, terminal margins oblique.

**Color.** Unknown in life.

**Habitat.** Gastropod shells.

**Distribution.** At present known only from the eastern Pacific, off the coast of Costa Rica. Depth: 15.5–64.5 m.

**Etymology.** The species name is given to recognize the efforts of Dr. Rachel Collin (Smithsonian Tropical Research Institute, Panama) in promoting studies of the rich and taxonomically challenging tropical invertebrate fauna of the Caribbean and eastern Pacific coasts of Central America.

**Morphological variations.** Morphological variations in *S. collinae* n. sp. are seen in the right cheliped and are mostly related to sex and size. Males, in particular larger males (sl > 3.0 mm), generally have distinctly longer, slenderer, and more unequal chelipeds than females (Fig. 4a, e).

**Remarks.** Given the distribution on opposite sides of the Isthmus of Panama, and the remarkable morphological similarity of this new species and *Spathapagurus longimanus*, the two can be considered geminate species. Even the depth ranges of the two species are remarkably similar. The new species differs from *S. longimanus* only in subtle characters. The right chela in *S. collinae* tends to be wider distally and the distolateral and distomesial margins (fingers) more rounded than in *S. longimanus* (Figs 1a, b, 4a, e), at least in males. The distal portion of the right chela or fingers in larger males (sl > 3.0 mm) of *S. longimanus* can be narrowly triangular (Fig. 1a). In *S. collinae*, the dorsal surface of the palm of the left cheliped is distinctly elevated medially and armed with a row of spines, whereas in *S. longimanus* the palm is at most weakly elevated and unarmed or with a row of very small spines or tubercles proximally. In *S. collinae* the spines on the dorsal margins of the ambulatory leg carpi and meri are stronger than in *S. longimanus*, particularly those on the carpi which can be minute in the latter species, the margin sometimes appearing finely denticulate.

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