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Amphipod crustaceans from Chilean Patagonia

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Abstract. This paper describes new or little known Amphipoda collected from Hydrozoa, Bryozoa, Porifera or kelp along the Chilean fjord region. The following species have been found and most of them were redescribed and illustrated: *Sunamphitoe femorata* (Krøyer, 1845); *Caprella* cf. *equilibra* Say, 1818; *Haplocheira barbimana robusta* K.H. Barnard, 1932; *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931); *Labriphimedia vespuccii* K.H. Barnard, 1931; *Leucothoe kawesqari* Esquete & Aldea, 2015; *Podocerus* cf. *danae* (Stebbing, 1888); *Ligulodactylus macrocheir* (Schellenberg, 1926) and *Torometopa* cf. *crassicornis* (Schellenberg, 1931). One species in this contribution is new to science: *Liouvillea rocagloria* sp. nov.

Keywords. Taxonomy, Amphipoda, Crustacea, new species, associations with other invertebrates.

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Introduction

When marine expeditions were heading towards the Antarctic in the past, collectors also took material on their way south. For example the famous Challenger Expedition 1872–1876 sampled along the Chilean coast and the Beagle Channel. The wonderfully illustrated volumes of taxonomic studies by Stebbing (1888) from this expedition also show amphipods from Chilean Patagonia. Like Stebbing, Schellenberg also did not travel on expeditions personally to collect material for this taxonomic treatment of the "gammarids and caprellids of the Magellan region, South Georgia and the West-Antarctic" (translated German title). Instead he used museum collections obtained during several German expeditions from the 19th century (Eugenie Expedition 1851–1853; Expedition nach den Magellansländern 1895–1897; Südpolar-Expedition 1901–1903 and the Hamburger Magalhaensische Sammelreise 1892–1993, as well as collections of individual collectors, like Pfeffer and Plate) (Schellenberg 1931).

More expeditions were sent south in the 20th century especially by the 12 nations who signed the Antarctic treaty in 1959. Many ships made 'stopovers' on their way to the Antarctic in Patagonia and collected along the shores. Thus in natural history museum collections there should be no shortage of interesting material from these expeditions, but Pérez-Schultheiss *et al.* (2010) stated that at least the southern Chilean west coast is understudied and our taxonomic knowledge of the fauna is still incomplete.

Based on classical taxonomic accounts in recent years, researchers from Chile (e.g., Pérez-Schultheiss *et al.* 2022) and Argentina (e.g., Alonso 2012) studied the fauna extensively, described unknown species and established faunal lists.

What, however, is missing in most of these accounts is how the amphipods live in their natural habitat. Even basic information like substrate preference and associations with invertebrates is missing for many species. The problem is that the amphipods may jump off their substrate (rocks, algae or animal hosts), when collected with nets from research vessels. They appear separated in the same catch and associations between species have only been detected by chance, e.g., Pérez-Schultheiss & Pardo (2020), who found a new crab-associated amphipod species of the genus *Isaeopsis* K.H. Barnard, 1916 in southern Chile. The separation of amphipod and substrate or host can be prevented when the material is collected by SCUBA diving where the substrate and specimens are collected in the same jar. When specimens live inside their hosts (e.g., sponges or ascidians) chances are also higher to match host and associate. In the course of several years one of us (V.H.) collected together with her team during dives in Chilean Patagonia a huge number of amphipods from invertebrates and kelp (Thiel & Hinojosa 2009), part of which we studied taxonomically and present in this paper.

Material and methods

Material has been collected by SCUBA diving by the team of Vreni Häussermann during the years 2010–2015. For habitus drawings the specimens were transferred on a cavity slide into glycerol and drawn with a Leica M205 stereo microscope and a camera lucida. Specimens were then dissected under the stereo microscope using dissecting needles. Mouthparts and appendages were temporarily mounted in glycerol on slides for microscopic examination and drawing.

Pencil drawings were scanned, digitally inked and arranged to plates using the methods described in Coleman (2003, 2009). Lengths were measured along the dorsal outline from the tip of the rostrum to the end of the telson. Appendages were later mounted as permanent slides with glycerol jelly or Faure's medium, or transferred into small glass microvials. These were stoppered with a cotton ball wrapped in Japan paper to avoid the appendages being entangled in the cotton fibres. Slides are lodged at the crustacean collection of the Museo di Storia Naturale Verona (MVRCr), ethanol material at the Museum für Naturkunde Berlin, Germany (ZMB).

In this paper the term "tooth" is a non-articulated pointed ectodermal structure, "spine" a stout, articulated structure (synonymous to "robust seta") and "seta" a flexible, slender, articulated structure.

Results

Systematics *(families in alphabetical order)*

Class Malacostraca Latreille, 1802
Order Amphipoda Latreille, 1816
Family Ampithoidae Boeck, 1871

Genus ***Sunamphitoe*** Spence Bate, 1857

Sunamphitoe Spence Bate, 1857: 147 (type species: *Amphithoe pelagica* H. Milne Edwards, 1830, by subsequent designation (Chevreux & Fage 1925)).
Peramphithoe Conlan & Bousfield, 1982: 60 (type species: *Ampithoe femorata* Krøyer, 1845, by original designation).

Sunamphitoe – J.L. Barnard & Karaman 1991: 111. — Poore & Lowry 1997: 904.
Peramphithoe – J.L. Barnard & Karaman 1991: 108. — Poore & Lowry 1997: 902.

Sunamphitoe femorata (Krøyer, 1845)
Figs 1–6, 30a

Synonymy amended from De Broyer *et al.* 2007:

Amphithoe gaudichaudi Milne-Edwards, 1840: 31–32.
Amphithoe femorata Krøyer, 1845: 335, pl. 3 fig. 4.
Amphithoe brevipes Dana, 1852: 216.
Amphithoe peregrina Dana, 1853: 940, pl. 64 fig. 4.
Amphithoe falklandi Spence Bate, 1862: 237, pl. 41 fig. 6.

Amphithoe brevipes – Dana 1853: 936, pl. 64 fig. 5. — Spence Bate 1862: 248, pl. 43 fig. 2. — Stebbing 1914: 371. — K.H. Barnard 1916: 255, pl. 28 fig. 34; 1932: 239, fig. 150; 1965: 208. — Stephensen 1949: 44 (*Amp(h)ithoe brevipes*). — J.L. Barnard 1958: 25.
Ampithoe femorata – Stebbing 1906: 636–637. — Chilton 1921: 88, fig. 3. – Schellenberg 1931: 245, fig. 127; 1935: 233. — J.L. Barnard 1952: 24, pls 6–7; 1958: 25. — Kreibohm de Paternoster & Escofet 1976: 78–83, figs 1–3. — Lowry & Bullock 1976: 24. — Alonso 1980: 4, pl. 1.
Peramphithoe femorata – Conlan & Bousfield 1982: 68–69, fig. 16. — López Gappa *et al.* 1982: 76, table 1. — J.L. Barnard & Karaman 1991: 108. — Gonzalez 1991: 51. — Conlan & Chess 1992: 415, figs 1, 4. — De Broyer & Jażdżewski 1993: 26.
Paramphithoe femorata – Adami & Gordillo 1999: 186–187.
Sunamphitoe femorata – Peart & Ahyong 2016: 468–469.

Material examined

CHILE • 1 ♂ (12 mm); Puerto Barroso; -46.81806666°, -75.29988333°; 10–15 m depth; 23 Apr. 2015; 099HF24; *Macrocystis pyrifera* (L.) C.Agardh; colour brown; ZMB 34100 (Figs 1–6) • 1 spec.; Roca Gloria; -45.61152777°, -74.47819444°; 20 m depth; 5 Apr. 2014; 090HF21; Hydrozoa; colour brown green; ZMB 34201 • 1 spec.; Isla Usborne; -45.54258333°, -74.22006666°; 4 m depth; 7 Apr. 2014; 123HF21; kelp forest, *Macrocystis pyrifera* (L.) C.Agardh; colour yellow brown; ZMB 34202.

Description (based on ♂, 12 mm)

Body (Fig. 1a). Head longer than deep, slightly shorter than next two segments; anteroventrally angular; eyes circular small, close to the frontal rounded ocular lobe. Pereonite 2 shorter than 1 or 3; pereonites

3 and 4 subequal, pereonite 7 shortest; pleonite 3 longest; epimeral plates 1–3 ventrally rounded. Urosomite 1 longest, with pointed posteroventral angle, urosomite 2 shortest.

HEAD APPENDAGES. *Antenna 1* (Fig. 1e) long, reaching 7th pereonite segment; peduncular article 1 massive, twice as wide as article 2; length ratios 1 : 0.7 : 0.2; flagellum with 21 articles, moderately setose. *Antenna 2* (Fig. 2a) much shorter than antenna 1; peduncular articles 1–3 forming a short socket for the long article 4 longest; article 5 80 % of article 4; flagellum with 11 articles. *Labrum* (Figs 1f, 2e) entire, wider than long, with short setae on the ventral margin. *Mandible* (Fig. 1b) bulky; incisor with 9 teeth on both sides; lacinia mobilis on both sides distally expanded, with 7 stout teeth on the left side and 11 much smaller teeth on the right side, raker row with 11 serrate blades and 3 additional setae on both mandibles; molar column-like elevated, triturative with small teeth on the surface; 3-articulated palp attached on a produced socket close to the mandibular insertion, article 1 subrectangular, article 2 distally expanded with 1 seta, article 3 with oblique apex bearing 8 setae, article length ratios 1 : 5.9 : 4.7. *Lower lip* (hypopharynx) (Fig. 2c), large inner lobes, outer lobes bilobate on both sides and long and inwards curved mandibular processes. *Maxilla 1* (Fig. 3a) inner plate with 1 apical seta; outer plate with 9 spine-like serrate apical setae; palp much longer than outer plate, biarticulate, 2nd article 3 × as long as basal article, 5 medioapical marginal robust setae plus 1 subapical seta. *Maxilla 2* (Fig. 2d) inner plate slightly narrower than outer plate, both subequal in length. *Maxilliped* inner plate (Fig. 2b) weakly convex laterally and with straight margin medially with irregularly distributed setae, a row of setae apically; outer plate (Fig. 1d) ovoid-shaped with long slender setae on the lateral margin and serrate and pointed short robust setae on the medial margin; palp (Fig. 1c) 4-articulate, first article with oblique distal margin; article 2 with produced inner margin, densely setose; article 3 roundly lobate and setose medially; article 4 short with slender apical unguis; length ratios of articles 1–4 1 : 0.9 : 0.8 : 0.7.

PEREON. *Gnathopod 1* (Fig. 3b–d) coxa subrectangular (1.3 × as long as wide) with a weakly oblique ventral margin, and a fringe of long slender setae posteroventrally; basis slightly curved anteriorly, with long setae on the medial face and posterior margin, anterodistal rounded lobe on lateral face, partly surpassing ischium; ischium slightly longer than wide, with notch on anterior margin; merus weakly tapering distally with oblique distal margin bordered with long slender setae; carpus posteromarginally rounded and setose, also groups on medial face; propodus subrectangular and angular posterodistally, posteromarginal setation and groups of setae anteromedially, palm defined by a robust seta; dactylus rather straight, serrate on inner margin, longer than palm angle; length ratios of basis to dactylus: 1 : 0.2 : 0.3 : 0.5 : 0.6 : 0.3. *Gnathopod 2* (Fig. 4a) coxa similar shaped as gnathopod 1 coxa, also with row of setae posteroventromarginally; basis somewhat curved anteriorly, with long setae on posterior margin; ischium as for gnathopod 1; merus longer than wide, with oblique posterodistal lobe bordered with setae; carpus wider than long with posterior rounded setose lobe; propodus ovoid, 1.7 × as long as wide, palm along half of posterior margin; dactylus curved proximally, distally straight. *Pereopod 3* (Fig. 4b) coxa as for gnathopod 2 but wider and longer; basis ovoid inflated, 1.6 × as long as wide, with long setae especially on the posterior margin; ischium subquadrate with anteroproximal notch; merus 1.6 × as wide as ischium, anterior margin convex, drawn out into a lobe, distal margin oblique; carpus subrectangular; propodus subrectangular, slightly tapering; dactylus weakly curved. *Pereopod 4* (Fig. 5a, d) coxa longer than wide, ventrally rounded; basis ovoid posterior margin bordered with long setae; ischium slightly longer than wide; merus expanded distally and roundly produced anteromarginally, oblique distal margin; propodus tapering distally; dactylus stout and weakly curved; length ratios basis to dactylus: 1 : 0.2 : 0.4 : 0.35 : 0.34 : 0.17. *Pereopod 5* (Fig. 5b–c, e) coxa 1.3 × as long as wide, ventrally rounded, with posteroproximal lobe; basis subcircular, with posteromarginal rounded lobe; ischium 1.6 × as wide as long; merus and carpus slightly longer than wide, subequal in length and width; propodus subrectangular with groups of long setae and stout robust setae on lateral face and long slender setae inserted anon the medial face; dactylus curved towards lateral face of propodus; length ratios of basis to dactylus: 1 : 0,27 : 0,47 : 0.47 : 0,68 : 0,23. *Pereopod 6* (Fig. 6b, e) coxa subrectangular, wider than long; basis 2 ×

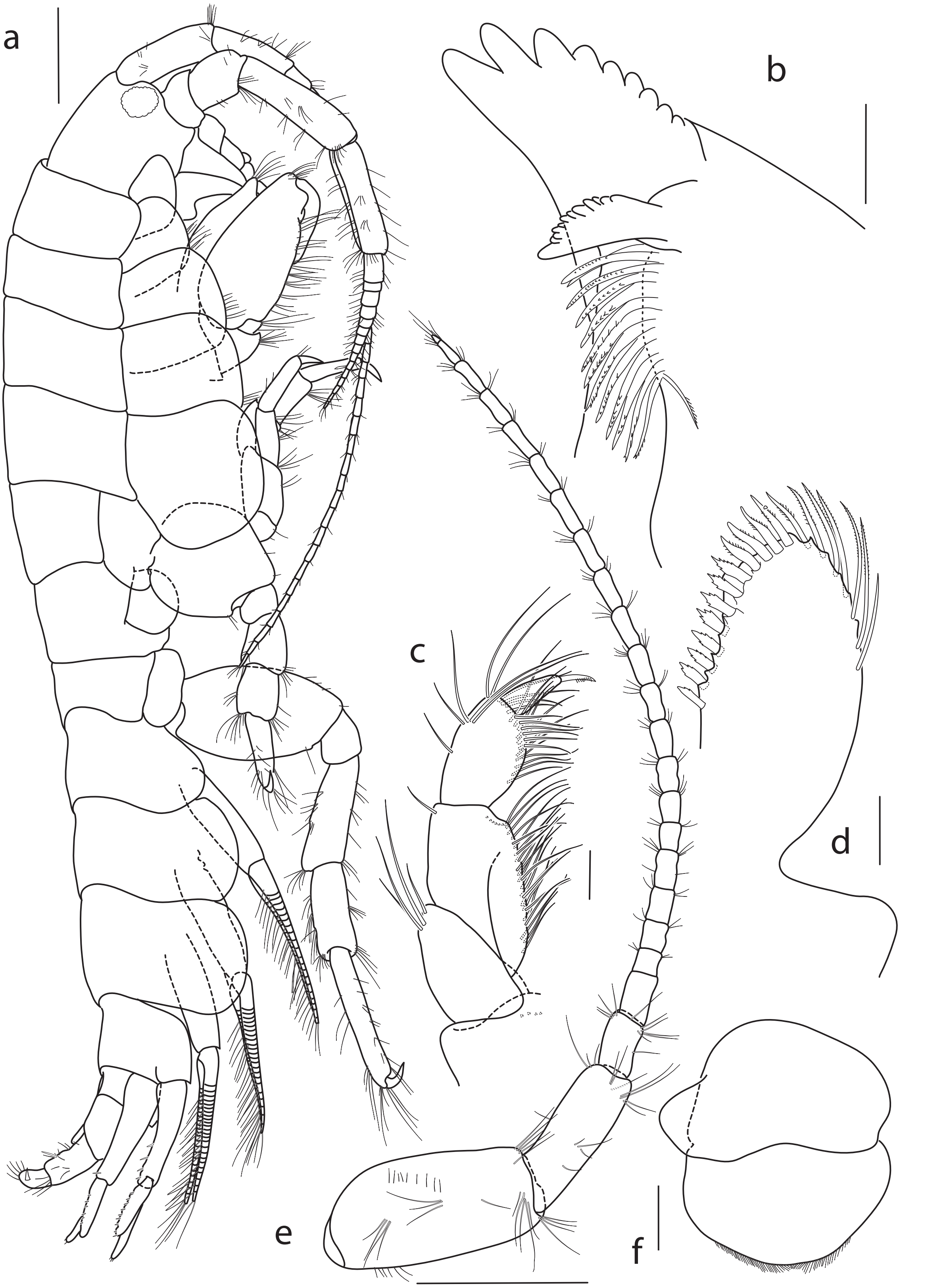

Fig. 1. *Sunamphitoe femorata* (Krøyer, 1845), ♂, 12 mm (ZMB 34100). **a**. Habitus, right body side. **b**. Mandible. **c**. Palp of maxilliped. **d**. Outer plate of maxilliped. **e**. Antenna 1. **f**. Upper lip and epistome. Scale bars: a = 1 mm; b–d, f = 100 µm; e = 500 µm.

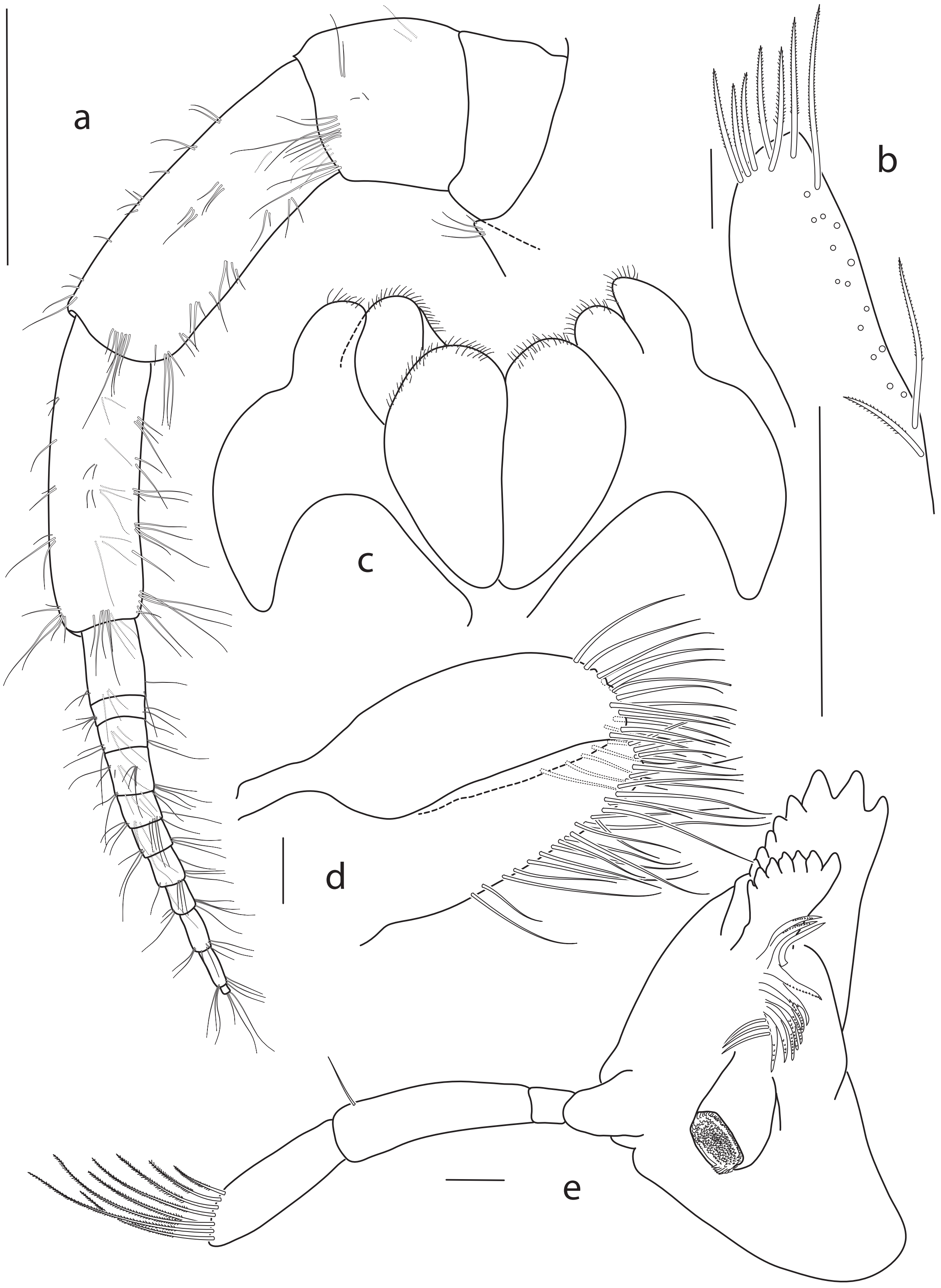

Fig. 2. *Sunamphitoe femorata* (Krøyer, 1845), ♂, 12 mm (ZMB 34100). **a**. Antenna 2. **b**. Inner plate of maxilliped. **c**. Lower lip. **d**. Maxilla 2. **e**. Mandible. Scale bars: a, c = 500 µm; b, d–e = 100 µm.

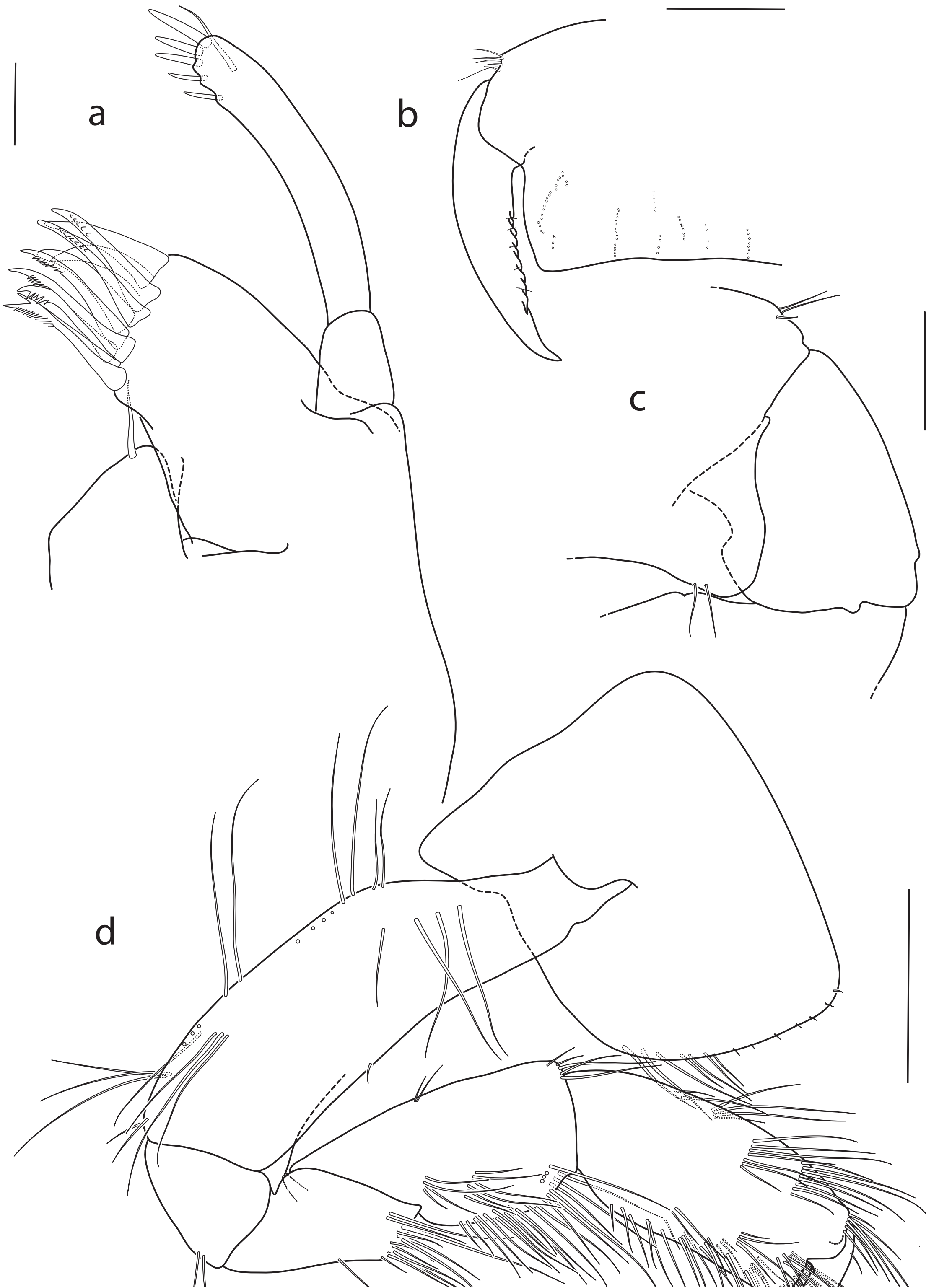

Fig. 3. *Sunamphitoe femorata* (Krøyer, 1845), ♂, 12 mm (ZMB 34100). **a**. Maxilla 1. **b**. Gnathopod 1, chela. **c**. Lobe of basis of gnathopod 1. **d**. Gnathopod 1. Scale bars: a–c = 100 µm; d = 500 µm.

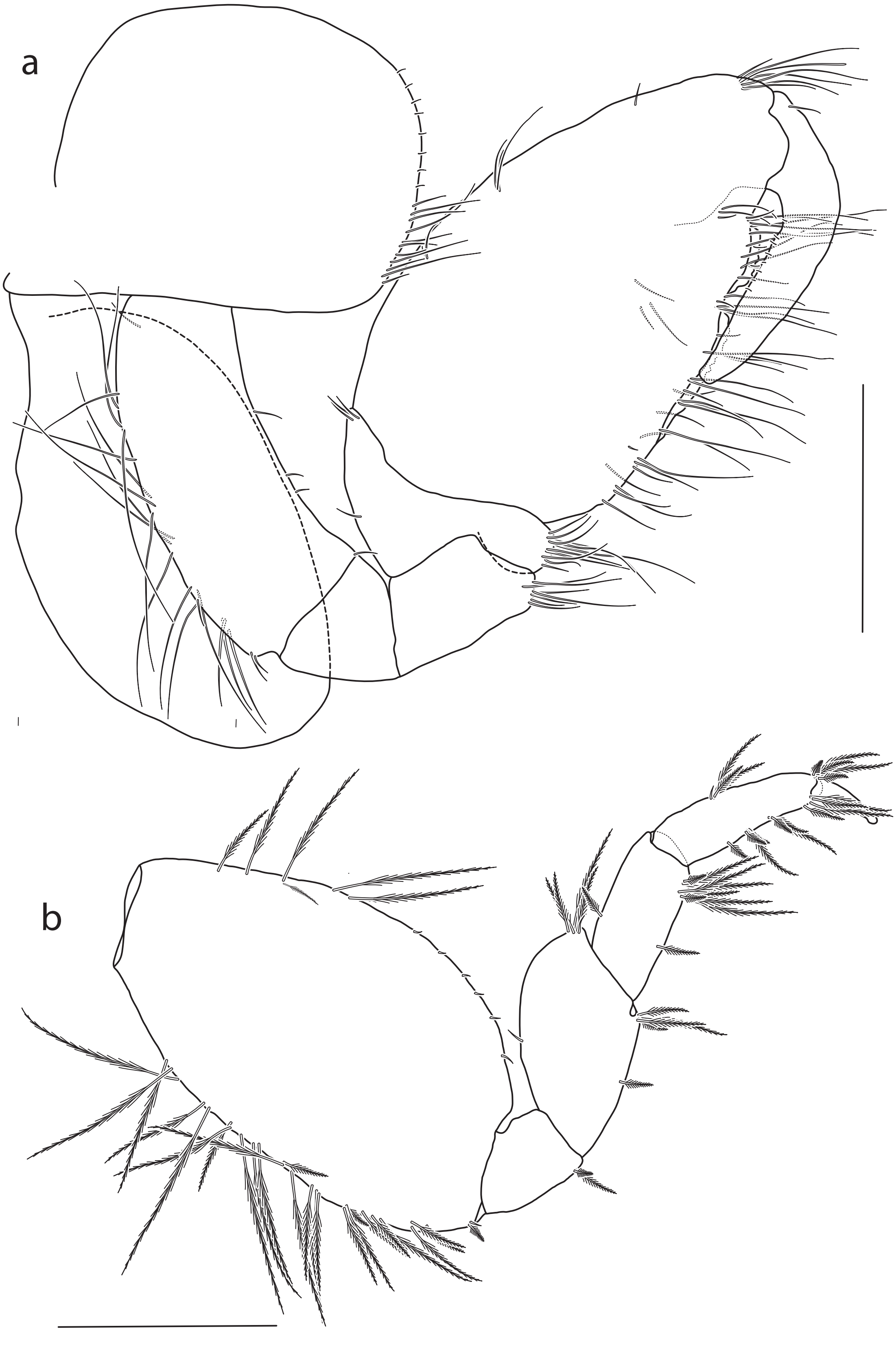

Fig. 4. *Sunamphitoe femorata* (Krøyer, 1845), ♂, 12 mm (ZMB 34100). **a**. Gnathopod 2. **b**. Pereopod 3. Scale bars = 500 µm.

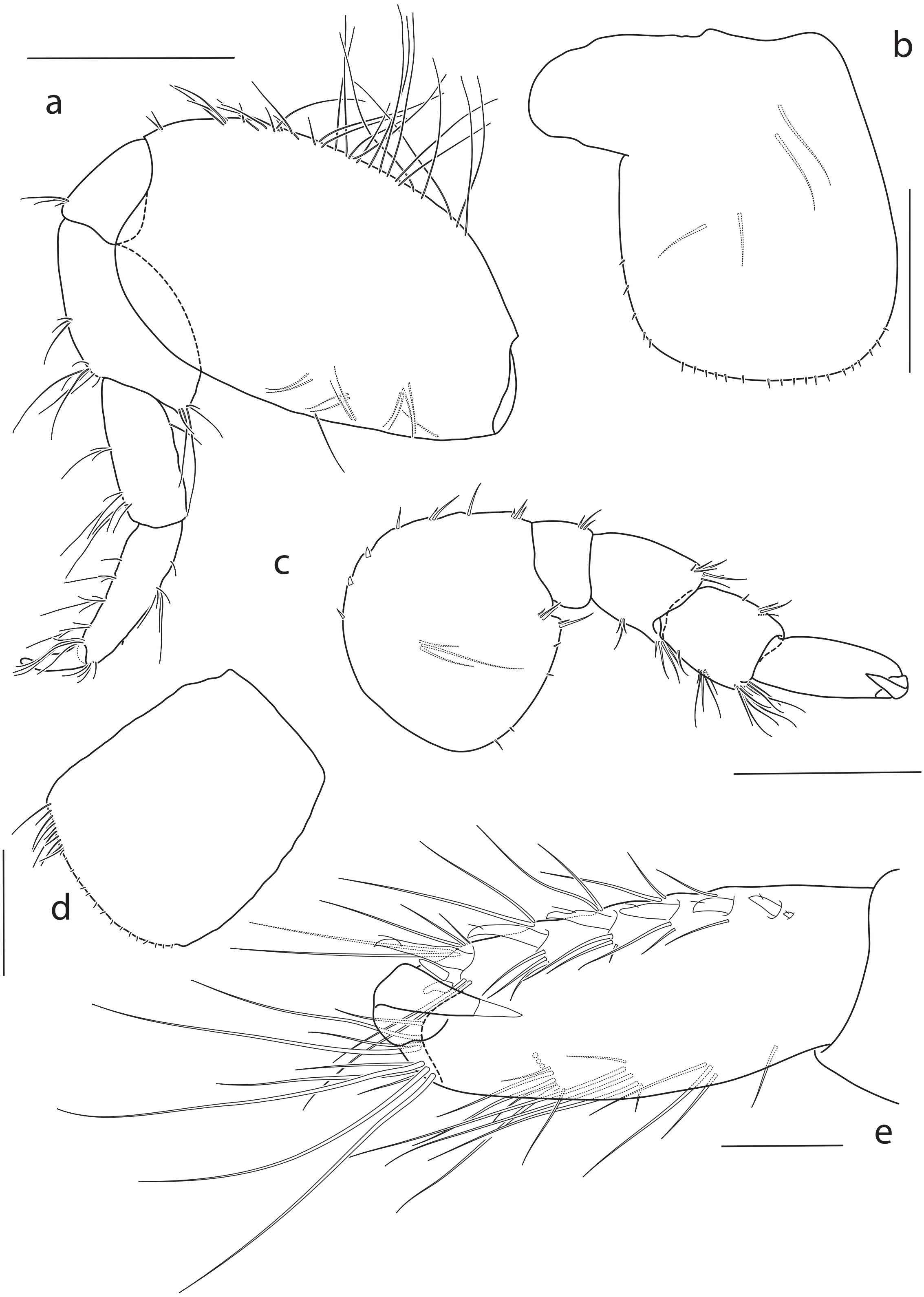

Fig. 5. *Sunamphitoe femorata* (Krøyer, 1845), ♂, 12 mm (ZMB 34100). **a**. Pereopod 4. **b**. Coxa 5. **c**. Pereopod 5. **d**. Coxa 4. **e**. Propodus and dactylus of pereopod 5. Scale bars: a, d = 500 µm; b = 100 µm; c = 1 mm; e = 200 µm.

as long as wide, with small notch posterodistally; ischium longer than wide; merus somewhat drawn out posterodistally with a tuft of setae; carpus subrectangular with groups of setae posteromarginally; propodus slender with groups of setae and a row of robust setae anterosubmarginally; dactylus strongly falcate; length ratios basis to dactylus: 1 : 03 : 0.7 : 0.6 : 0.9 : 0.3. *Pereopod 7* (Fig. 6d) basis similarly shaped but wider than that of pereopod 6; ischium to propodus similar in shape to pereopod 6, but wider; dactylus distally damaged; basis to propodus length ratios: 1 : 0.3 : 0.7 : 0.7 : 0.9.

Pleon and urosome. *Pleopod 1* (Fig. 6c) peduncle 2.2 × as long as wide, with 2 coupling hooks; rami slender, long, subequal in length, 1.7 × as long as peduncle. *Uropod 1* (Fig. 6g) peduncle longer than rami, with distal pointed spur and robust setae on both margins; inner ramus 1.3 longer than outer ramus, with robust setae apically and on inner margin; outer ramus shorter with dense row of robust setae on lateral margin and apically. *Uropod 2* (Fig. 6a) peduncle as long as inner ramus, with few robust setae on both margins, distally with short pointed protrusion; inner ramus 1.1 × as long as outer ramus; outer ramus with dense robust setation on the lateral margin and apically. *Uropod 3* (Fig. 6h) peduncle 2.3 × as long as inner ramus, with groups of slender setae laterally and some robust setae distomarginally; rami subequal in length, both distally rounded; inner ramus with robust setae and slender setae distomarginally; outer ramus with 2 laterally curved robust hook-like setae, on laterodorsal surface minute, pointed cuticular teeth. Telson (Fig. 6f, h) 1.4 × as wide as long, tapering distally, distally rounded and entire; on both margins 4 slender setae and 1 short plumose seta distally.

Distribution (amended from De Broyer *et al.* 2007)

Falkland Islands: no location mentioned (Stebbing 1914); Port Louis (bottom/habitat: deep silt, shells, stones, algae); Port Stanley (bottom/habitat: kelp holdfasts) (Schellenberg 1931); Discovery 1925–27, stn 53, East Falkland Island, Port Stanley, 0–16 m (gear: small beam trawl); stn 56, Port William, Sparrow Cove, 10–16 m (gear: small beam trawl) (K.H. Barnard 1932); Port Stanley (Alonso 1980).

Gough Island: Dell Rocks, -40.35°, -9.916667°; (bottom/habitat: from kelp) (K.H. Barnard 1965).

Magellan Province: Isla Hermite, 9 m (Dana 1853); Bahia Fortescue, 18–22 m (bottom/habitat: algae); Puerto Churruca, 36 m (bottom/habitat: shells); Estrecho de Magallanes; Punta Arenas, 13–14 m (bottom/habitat: sand, algae); Canal Smith; Bahia Inutil, 20–27 m (bottom/habitat: coralline algae); Puerto Bridges, 13 m; Isla Navarino; Isla Nueva, 14 m; Puerto Hope, 11–18 m (bottom/habitat: rock, algae); Puerto Pantalon (bottom/habitat: kelp); Porvenir, 11–18 m (bottom/habitat: rocks, algae); Bahia Ushuaia; Isla Picton, 7 m (bottom/habitat: kelp holdfasts) (Schellenberg 1931); Bahia Camarones, -44.75°, -65.583333° (Kreibohm de Paternoster & Escofet 1976); Santa Cruz, Ria Deseado; (Alonso 1980); Ria Deseado, -47.75°, -65.9° (López Gappa *et al.* 1982); Isla Navarino, Banco de las Tacas, -55.083333°, -67.066667°; Isla Cabo de Hornos, -56°, -77° (Conlan & Bousfield 1982); -56°, -67° (Conlan & Chess 1992); southern Tierra del Fuego, Canal Beagle, -54.8° to -54.866667°, -68.266667° to -68.4° (Adami & Gordillo 1999); Isla Usborne, Roca Gloria, Puerto Barroso, 4–20 m (this study).

Tristan da Cunha: Norwegian Scientific Expedition to Tristan da Cunha 1937–38, Tristan da Cunha Island: stn 3, in *Macrocystis pyrifera* (L.) C.Agardh; stn 9, 0 m; stn 40, 3–13 m; stn 52, 0 m; stn 70, 0 m; stn 80, 5–12 m; Nightingale Island: stn 117, 4–10 m; stn 118, 4–10 m; Inaccessible Island: stn 152, 5 m; stn 155, 8–9 m (Stephensen 1949).

Chile: Valparaiso (type locality); Los Vilos, -31.9°, -71.516667° (Cerda *et al.* 2010).

Argentina: Chubut, Bahía Camarones; Santa Cruz, Ría Deseado, Península Foca (Alonso 1980).

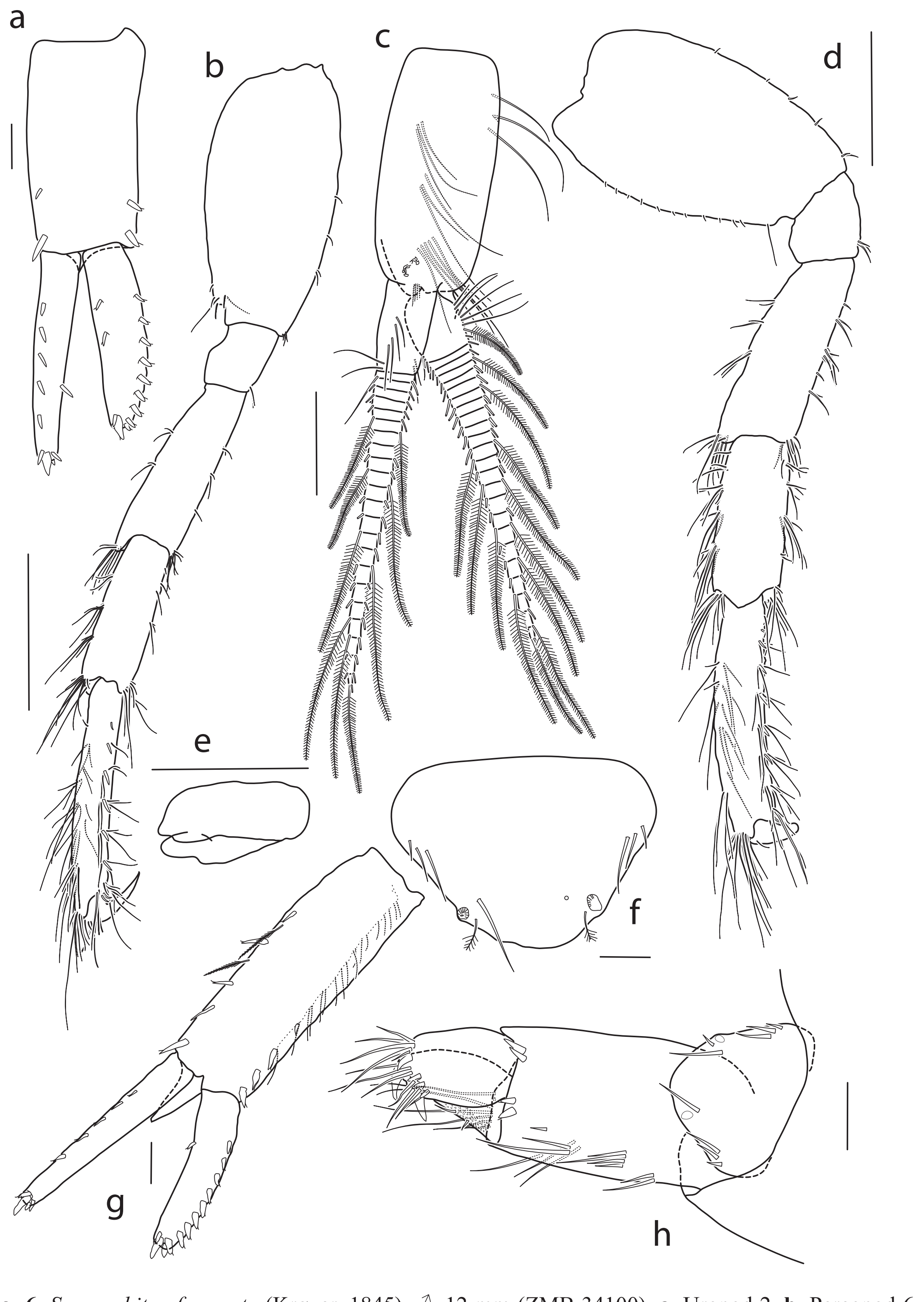

Fig. 6. *Sunamphitoe femorata* (Krøyer, 1845), ♂, 12 mm (ZMB 34100). **a**. Uropod 2. **b**. Pereopod 6. **c**. Pleopod 1. **d**. Right pereopod 7. **e**. Coxa 6. **f**. Telson. **g**. Uropod 1. **h**. Telson and uropod 3. Scale bars: a, c, f–h = 100 µm; b, d–e = 500 µm.

Depth range

0–36 m.

Type locality

Chile: Valparaiso, -33.083333°, -71.666667°.

Type specimen location

Natural History Museum of Denmark (Zoological Museum): lectoype, female, 20.8 mm (designated by Conland & Chess 1992); NHMD-84259, 3 paralectotypes, presumed lost.

Remarks

According to the literature (see above) this species is apparently widely distributed in the southern hemisphere. A few of the distribution records are somewhat dubious. Apart from the South American locations, New Zealand and South Africa are mentioned in the distribution of the taxon given by Conlan & Bousfield (1982). However, it may be that these occurrences of *A. femorata* are erroneous due to misinterpretations of synonymies (see J.L. Barnard 1965: 4). A record of *A. femorata* in California occurs in J.L. Barnard (1952), but the mistake occurred due to his misinterpretation of illustrations of Spence Bate (1862) as discussed by J.L. Barnard (1965). J.L. Barnard (1965) hypothesized a *femorata-brevipes* species complex; that requires further investigation.

Family Caprellidae Leach, 1814
Genus ***Caprella*** Lamarck, 1801

Caprella cf. ***equilibra*** Say, 1818
Fig. 30b

Material examined

CHILE • 2 specs; Isla Fronton; - 46.72336667°, - 75.2558°; 24 m depth; 20 Apr. 2015; 217HF24; rock wall with on *Swiftia comauensis* Breedy, Cairns & Haussermann, 2015, algae, bryozoans, hydrozoans, fouling communities on buoys and aquaculture installations; colour brown; no material deposited • 2 specs; Isla Allen SE; -44.03486667°, -74.1894°; 17 m depth; 11 Apr. 2014; 370HF21; colour brown; no material deposited.

Remarks

Species of the *equilibra*-group are variable and still not well separated. The few collected specimens can only be classified as members of this complex.

Family Corophiidae Leach, 1814
Genus ***Haplocheira*** Haswell, 1879

Haplocheira barbimana robusta K.H. Barnard, 1932
Figs 7–11

Synonymy, amended after De Broyer *et al.* (2007):

Haplocheira robusta K.H. Barnard, 1932: 235, fig. 148.
Haplocheira barbimana (Thomson, 1879) as *Gammarus barbimanus*: 230–248, pl. 10.

Haplocheira barbimanus ? – Stebbing 1914: 370 (questioned by Nicholls 1938).

Haplocheira barbimanus – Schellenberg 1931: 232. — Nicholls 1938: 127 (in part). — J.L. Barnard 1958: 113 (in part); 1972: 25 (in key), 130 (in part). — Gonzalez 1991: 53. — De Broyer & Jażdżewski 1993: 30. — Chiesa *et al.* 2005: 170.
Haplocheira robusta – Lowry & Bullock 1976: 33 (in part). — Moore & Myers 1983: 212–213, figs 18–20, 22. — J.L. Barnard & Karaman 1991: 197.
Haplocheira barbimana robusta – Moore & Myers 1983: 212–213, figs 18–20, 22. — Chiesa *et al.* 2005: 170, tb. 2, 172, tb. 3. — De Broyer *et al.* 2007: 242.

Material examined

CHILE • 1 ♂ (4.2 mm); Isla Allen SE; -44.03486666°, -74.1894°; 5 m depth; 11 Apr. 2014; 260HF21; wood; ZMB 34098 (Figs 7–11) • 8 specs; Bahia Edwards; -45.91555°, -73.66136666°; 3 m depth; 17 Apr. 2014; 609HF21; with stones; ZMB 34097.

Description (based on ♂, 4.2 mm)

Body (Fig. 7a). *Head* longer than deep, as long as first two pereonites, anterior head lobe rounded, eyes oval. *Pereonites* 1–5 subequal in length, pereonite 6 shortest, pereonite 7 longest. *Pleonites* 1 and 2 subequal in length, pleonite 3 longest; posteroventral angle of epimeron of pleonite 1 (Fig. 7a) with short point, that of pleonites 2 and 3 roundly angular and with slender setae on the lateral face along the ventral margin. Urosomite 1 longest; urosomites 2 and 3 equally long.

Head appendages. *Antenna 1* (Fig. 7c) shorter than antenna 2; peduncle articles 1–3 narrowing, length ratios 1 : 0.8 : 0.38; accessory flagellum biarticulate, first article overreaches 1st article of primary flagellum, very short second article terminally (14% of 1st article), with a tuft of apical setae; primary flagellum with 7 articles, 5 apical articles with 1 aesthetasc each and several short setae. *Antenna 2* (Fig. 7d) peduncle article 1 scale-like; article 2 with narrow produced nephridial cone; article 3 subquadrate; article 4 and 5 subrectangular, peduncular length ratios 1 : 0.9 : 2 : 3.4 : 2.8; flagellum of 3 articles, aside from slender setae a pair of robust setae on distal margin of each flagellum article. *Mandible* (Fig. 7b, e) with strongly produced molar column, triturative molar surface; row of stout rakers; lacinia mobilis and incisor multidentate; palp 3-articulate; article 1 with 1 distal slender seta; article 2 slightly curved, with 2 long mediomarginal setae and two thin setae; article 3 straight, distally rounded with a tuft of long slender setae; length ratios of article 1–3: 1 : 1.3 : 0.9. *Lower lip* (hypopharynx) (Fig. 7g) with rounded inner lobes and wide distal lobes and short mandibular processes. *Maxilla 1* (Fig. 8a) inner plate with 10 long plumose setae on apicomedial margin; outer plate with 8 robust setae distomarginally; palp 2-articulate with short 1st article and long distal article, longer than outer plate, with 5 robust setae distally and group of slender, plumose setae submarginally. *Maxilla 2* (Fig. 10d) outer lobe slightly longer and narrower (80%) than inner lobe; inner lobe apart from terminal setae with additional setal row subapically on face and along medial margin. *Maxilliped* inner plate (Fig. 8b) slightly expanded distally, truncate apically, with plumose setae along medial margin and apically; outer plate (Fig. 8c) narrow, lanceolate with few robust setae medioapicomarginally and two setulated setae on the outer distal margin; palp (Fig. 8d) 4-articulate, length ratios: 1 : 2 : 1.15 : 0.7; palp article 1 distally oblique; article 2 weakly convex on both margins, inner margin with a row of long slender marginal setae and another row of submarginal setae; article 3 weakly expanded distally with long setation in apical half; article 4 tapering distally, rounded tip and some medioapical setae.

Pereon. *Gnathopod 1* (Fig. 9a) coxa subrectangular, rounded ventrally; basis about the length of coxa, with some long setae posteromarginally; ischium wider than long; merus 2× the length of ischium, tapering into a narrow process; carpus expanded distally with a row of long slender setae on the medial face, posterior margin with a row of similar setae; propodus longer and narrower than carpus with setation on both margins, posterodistally drawn out into a tooth; dactylus falcate with a pointed process on the distal ⅔ of the inner curvature. *Gnathopod 2* (Fig. 9b) coxa subrectangular with a fringe of setae

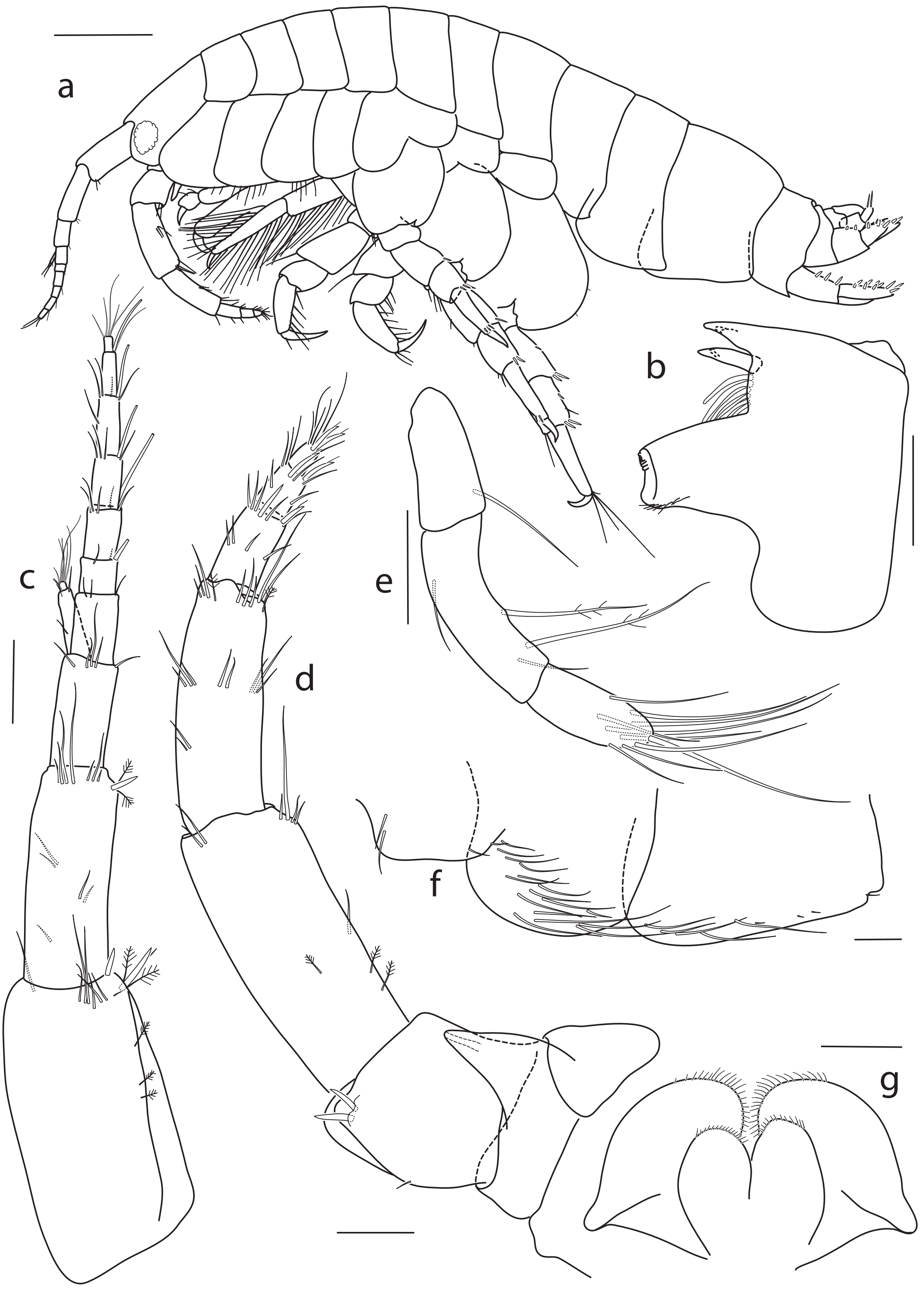

Fig. 7. *Haplocheira barbimana robusta* K.H. Barnard, 1932, ♂, 4.2 mm (ZMB 34098). **a**. Habitus, left body side. **b**. Mandible. **c**. Antenna 1. **d**. Antenna 2. **e**. Palp of mandible. **f**. Epimeral plates 1–3. **g**. Lower lip. Scale bars: a = 500 µm; b–g = 100 µm.

Fig. 8. *Haplocheira barbimana robusta* K.H. Barnard, 1932, ♂, 4.2 mm (ZMB 34098). **a**. Maxilla 1. **b**. Inner plate of maxilliped. **c**. Outer plate of maxilliped. **d**. Palp of maxilliped. Scale bars = 100 µm.

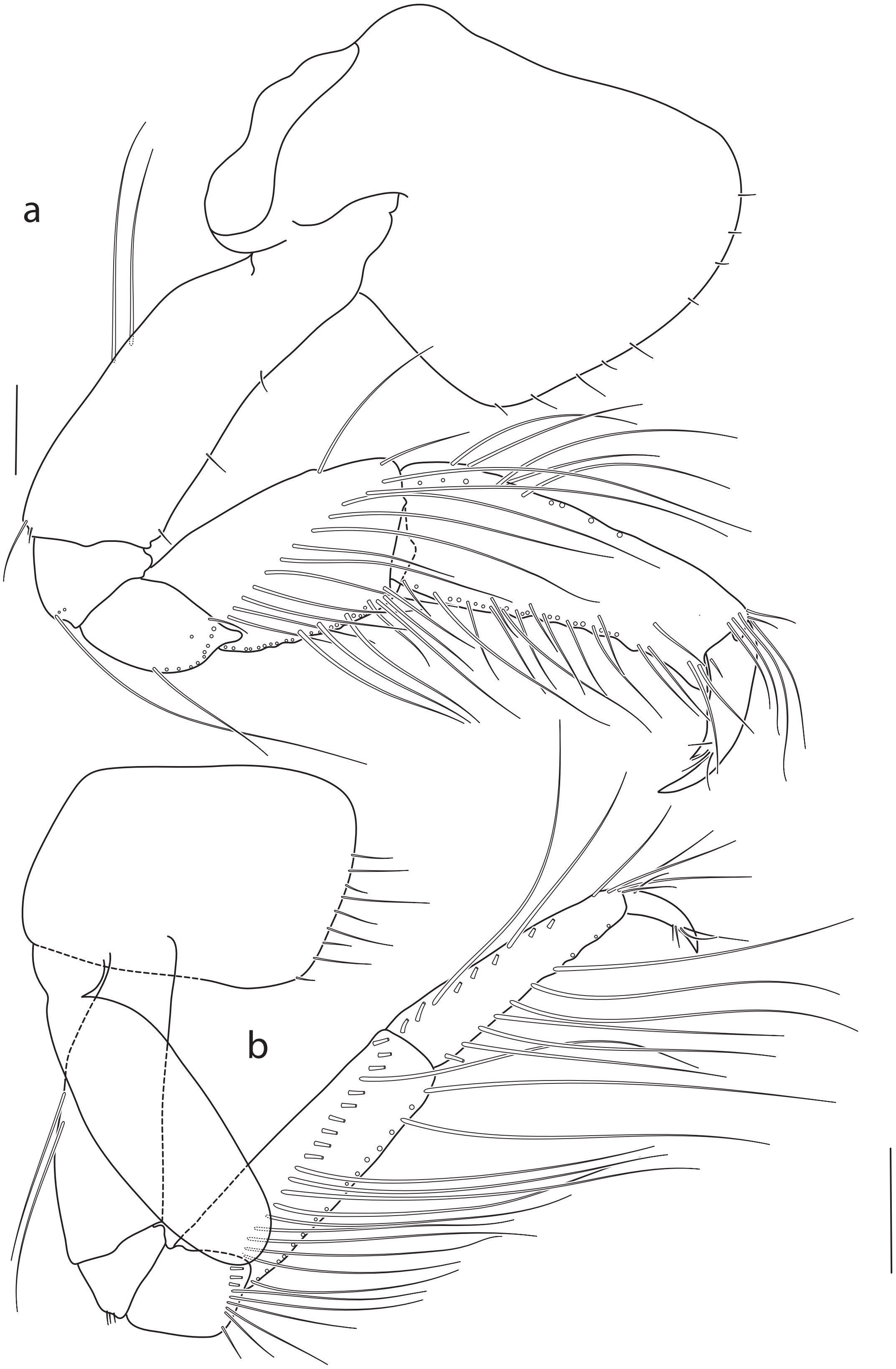

Fig. 9. *Haplocheira barbimana robusta* K.H. Barnard, 1932, ♂, 4.2 mm (ZMB 34098). **a**. Gnathopod 1. **b**. Gnathopod 2. Scale bars: a = 100 µm; b = 200 µm.

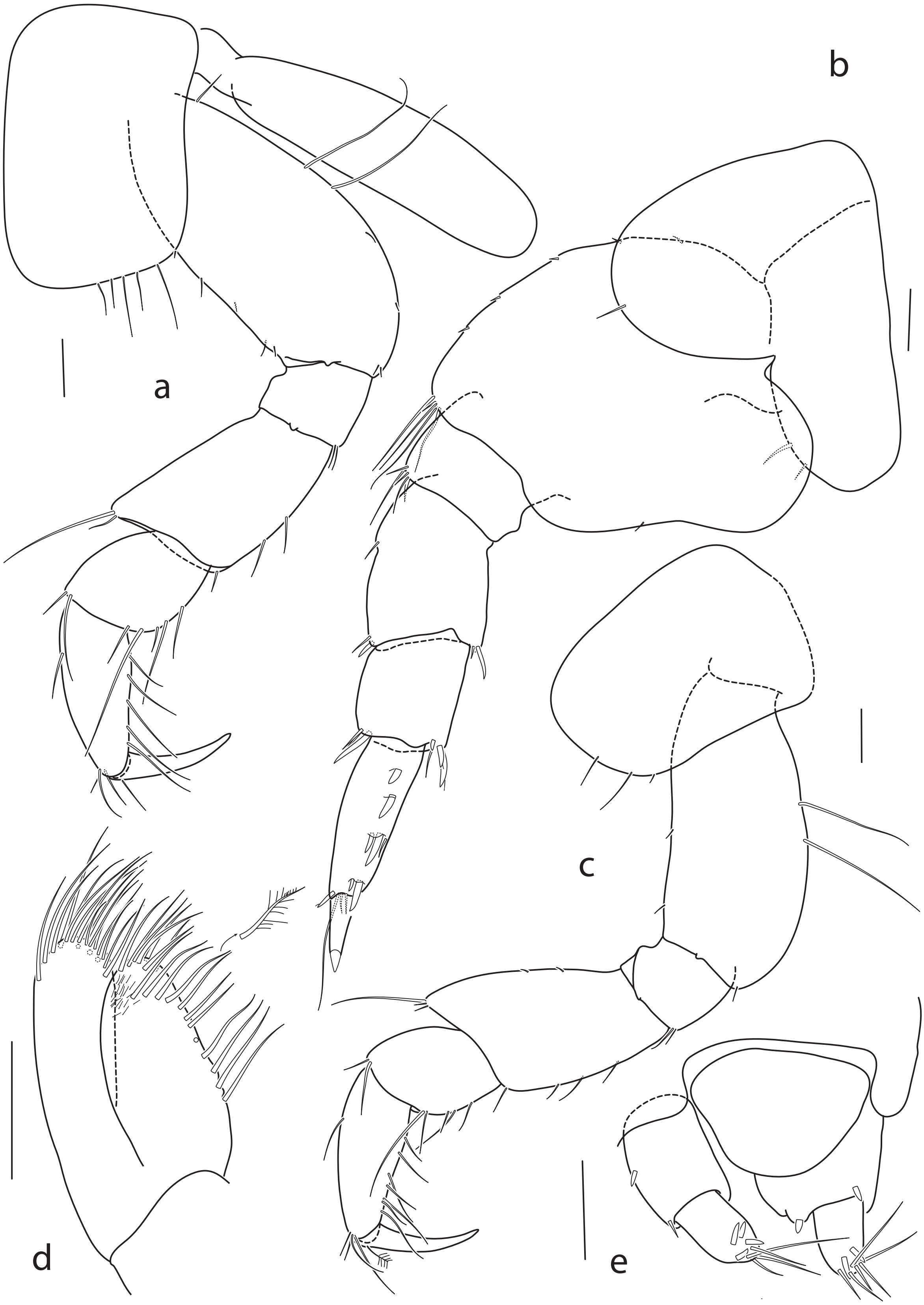

Fig. 10. *Haplocheira barbimana robusta* K.H. Barnard, 1932, ♂, 4.2 mm (ZMB 34098). **a**. Pereopod 3. **b**. Pereopod 5. **c**. Pereopod 4. **d**. Maxilla 2. **e**. Telson and uropod 3. Scale bars = 100 µm.

ventromarginally; basis as long as coxa with some long setae posteromarginally; ischium wider than long, apically oblique; merus subrectangular with row of setae on distal margin; carpus subrectangular with row of long slender setae along posterior margin and diagonal on medial face; propodus slightly tapering distally, long slender setae on both margins; dactylus weakly falcate. *Pereopods 3 and 4* (Fig. 10a, c) coxa subrectangular, ventral margin rounded with fringe setae; basis posteromarginally roundly expanded; ischium slightly wider than long; merus posterodistally expanded; carpus ovoid, longer than wide; propodus tapering distally; dactylus only weakly curved; length ratios ischium to dactylus 1 : 2.3 : 1.4 : 2 : 1.6. *Pereopod 5* (Fig. 10b) coxa bilobate, anterior lobe 2.2 × as long as posterior lobe, overlapping anterior ⅓ of basis; basis as long as wide, anterior margin convex, proximoposterior rounded lobe; ischium 2 × as wide as long; merus subrectangular; carpus shorter than merus, subrectangular with robust setae antero- and posterodistally; propodus tapering distally with robust setae on lateral face; dactylus straight; length ratios ischium to dactylus: 1 : 2 : 1.6 : 2.5 : 1.1. *Pereopod 6* (Fig. 11a) coxa bilobed, anterior lobe narrower and slightly longer than posterior shallow lobe; basis ovoid, anterior and margins convex, posteroventral lobe shorter than distal ischium margin; ischium 1.9 × as wide as long; anteroventral angle of basis and ischium and anterior margin of merus with long slender setae; merus posteroventral angle slightly drawn out; carpus subrectangular; propodus tapering distally, with groups of robust setae on the lateral face; dactylus rather straight; postero- and anteroventral angles of merus and carpus with robust setae; length ratios of ischium to dactylus: 1 : 2.2 : 2 : 2.7 : 1.3. *Pereopod 7* (Fig. 11b) coxa 2.2 × as wide as long, oblique anteriorly, rounded posteriorly; basis similar to that pereopod 6, but posteroventral lobe wider and longer than distal ischium margin and proximoposteromarginally narrower; ischium 1.7 × as wide as long; merus to propodus as for pereopod 6; dactylus strongly falcate.

Pleon and urosome. *Pleopod 1* (Fig. 11d) peduncle subquadrate, mediodistal angle drawn out, 2 coupling hooks, outer ramus shorter than inner (77%). *Uropod 1* (Fig. 11c) peduncle 1.3 × as long as wide, about the length of outer ramus, with long pointed ventral process; some robust setae on outer margin and 1 on the mediodistal angle; outer ramus somewhat shorter than the inner, with robust setae on both margins and apically, inner ramus with robust setae on the medial margin and apically. *Uropod 2* (Fig. 11e) peduncle longer than rami, outer ramus less than half the length of peduncle; inner ramus 1.4 × the length of outer ramus, both rami with a group of terminal setae, 1 additional seta on the margin of the outer ramus and 2 on the dorsal face of the inner ramus. *Uropod 3* (Figs 10e, 11f) peduncle subquadrate, outer ramus short with a group of apical setae, inner ramus scale-like with 1 terminal robust seta. *Telson* (Fig. 10e) tapering, 1.4 × as wide as long, entire and rounded.

Distribution (amended after De Broyer *et al*. 2007)

Falkland Islands: East Falkland Island, Port Stanley, low water (bottom/habitat: in seaweed and in a sponge) (Stebbing 1914); Port Albemarle, 40 m (bottom/habitat: sand, algae); Berkeley Sound, 16 m (bottom/habitat: gravel, shells, algae); Port William, 22 m (bottom/habitat: sand); Port Louis, 3–4 m (bottom/habitat: shells, stones); Sparrow Cove, 11–13 m (bottom/habitat: shells) (Schellenberg 1931); Discovery 1925–27, stn 53, East Falkland Island, Port Stanley, 0–2 m (bottom/habitat: kelp roots); stn 54, East Falkland Island, Port Stanley, shore; stn 58, East Falkland Island, Port Stanley, piles of jetty, 1–2 m (gear: mussel rake); stn WS 71, East Falkland Island, NE of Cape Pembroke, 82 m (bottom: sand; gear: commercial otter trawl); stn WS 85, SE of Lively Island, 79 m (bottom: sand, shells; gear: commercial otter trawl) (K.H. Barnard 1932).

Magellan Province: Ultima Esperanza, 13–18 m (bottom/habitat: algae, clay, stones); Bahia Inutil, 36–54 m (bottom/habitat: shells); Punta Arenas, 27 m (bottom/habitat: shells); Rio Seco, 18–36 m (bottom/habitat: shells); Puerto Madryn, 4–10 m (bottom/habitat: sand, clay); Isla Larga, Canal Smith, 14 m; Puerto Bueno; Bahia Ushuaia, 0–4 m; Banco Sarmiento, -52.4°, -68.15°, 22 m; -54.716667°, -64.133333°, 36 m (bottom/habitat: pebble, gravel) (Schellenberg 1931); Discovery 1925–27, stn WS 86, -53.883333°, -60.566667°, 147–151 m (bottom/habitat: sand, shells, stones; gear: commercial otter

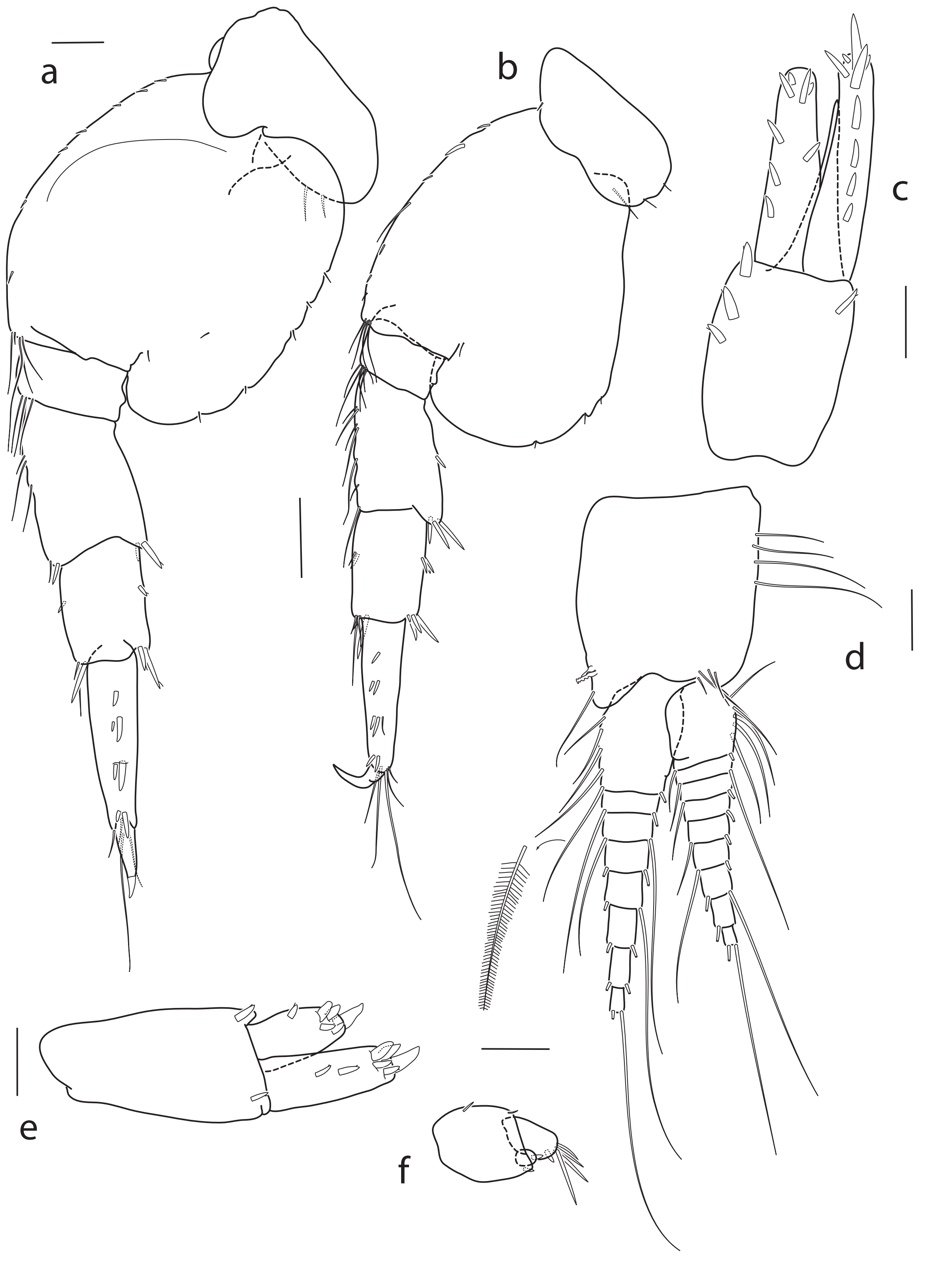

Fig. 11. *Haplocheira barbimana robusta* K.H. Barnard, 1932, ♂, 4.2 mm (ZMB 34098). **a**. Pereopod 6. **b**. Pereopod 7. **c**. Uropod 1. **d**. Pleopod 1. **e**. Uropod 2. **f**. Uropod 3. Scale bars: a, c–f = 100 µm; b = 200 µm.

trawl) (K.H. Barnard 1932); Hudson 70, Southern Chile, Punta Wulaia, low water reef; Cabo de Hornos: stn F24, stn F12, stn 722 (Moore & Myers 1983); Punta Arenas; Bahia Inutil (Gonzalez 1991); southern Tierra del Fuego, Ushuaia, -54.816667°, -68.266667°; Isla Gable, -54.9°, -67.35°, 15–20 m (gear: dredge); Punta Moat, -55.033333°, -66.7°, 15–25 m (gear: dredge); Cabo San Pio, -55.05°, -66.616667°, 30–35 m (gear: dredge); Bahia Slogget, -55°, -66.35°, 15–27 m (gear: dredge) (Chiesa *et al.* 2005); Bahia Edwards, -45.91555°, -73.661367°, Isla Allen, -44.034867°, -74.1894°, 3–5 m; wood, stones (this study).

Depth range

0–151 m.

Type locality

East Falkland Island, Discovery 1925–27, stn 53, Port Stanley, 0–2 m (bottom/habitat: kelp roots).

Type specimen location

The Natural History Museum, London.

Remarks

Haplocheira barbimana (Thomson, 1879) and *Haplocheira robusta* K.H. Barnard, 1932 are today classified as the subspecies *H. barbimana barbimana* and *H. barbimana robusta* (Moore & Myers 1983). *Haplocheira barbimana barbimana* occurs around New Zealand and Auckland Island, whereas *H. barbimana robusta* is distributed in waters of Chile, Cape Horn and the Falkland Islands (Moore & Myers 1983). There are slight differences between the subspecies, e.g., the body length range of *H. barbimana robusta* seems to be slightly greater. There is some degree of variability of characters (e.g., details of head, bases of pereopods 5–7, epimeral plates) and part of it seems to be dependent on the life history stage and their length.

The specimen studied herein agrees mostly with the few published descriptions, except for the following: (1) the shape of the telson: in K.H. Barnard's (1932) original description the telson is subrectangular, with tapering distal third, small laterally curved processes or spines on a truncate distal margin (vs evenly rounded distally); (2) the ischium of pereopod 5 seems shorter in Barnard's illustration; (3) the rami of the pleopod illustrated by K.H. Barnard are equal in length (vs clearly shortened outer ramus).

Family Epimeriidae Boeck, 1871
Genus ***Epimeria*** Costa in Hope, 1851

Epimeria (Metepimeria) acanthurus (Schellenberg, 1931)
Figs 12–17, 30d

Metepimeria acanthurus Schellenberg, 1931: 162, fig. 85, pl. 1 fig. g.

Epimeria acanthurus – K.H. Barnard 1932: 176, figs 104b, 108, pl. 1: fig.
Metepimeria acanthurus – J.L. Barnard 1958: 108. — Lowry & Bullock 1976: 122. — Watling & Holman 1981: 216–217, fig. 22. — J.L. Barnard & Karaman 1991: 397. — Gonzalez 1991: 60. — De Broyer & Jażdżewski 1993: 36. — Lörz & Brandt 2004: 179–190 (phylogeny). — Coleman 2007: 61, fig. 36, map 1 (rhomb).
"*Epimeria inermis* 1" – Rauschert & Arntz 2015: 61, pl. 54.
Epimeria (Metepimeria) acanthurus – d'Udekem d'Acoz & Verheye 2017: 117–118.

Material examined

CHILE • 1 ♀ (22 mm) with setose oostegites and slightly damaged mouthparts; Isla van der Meulen; -48.2901°, -74.33583333°; 15 m depth; 23 Apr. 2015; 250HF24; on hydrozoans, sponges, gorgonians and soft corals (e.g., *Alcyonium haddoni* Wright & Studer, 1889); colour: orange with white specks, especially on the tergites of the pereonites; ZMB 34099 (Figs 12–17) • 1 dissected ♀ (unspecified type material, with setose oostegites; Puerto Harris; 11 Mar. 1896; Museum Stockholm leg.; ZMB 22838.

Description (based on ♀ with setose oostegites, 22 mm).

Body. *Head* (Fig. 12a, d) with slightly curved rostrum; *eyes* large and oval; frontal head margin weakly produced, ventral head margin straight. *Pereonites* 1–2 (Fig. 12a) slightly longer than pereonite 3. Pereonites 3–5 successively longer. Pereonite 5 with mid-dorsal rounded hump at posterior margin. Pereonites 6 and 7 dorsal outline sinuous and mid-dorsal rounded upright hump at posterior margin, that on pereonite 7 larger and slightly more curved posteriorly than that on 6; posterodorsolateral rounded hump on both sides. Pleonites (Fig. 12a) 1–3 progressively longer; pleonites 1–2 with similar dorsal outline as pereonite 7 and posterodorsolateral humps; pleonite 2 with additional hump anteriorly; pleonite 3 with 2 shallow dorsal depressions and mid-dorsal hump anterior of segmental end; posterior margins of pleonites sinuous; posteroventral corner of pleonite 1 angular, those of pleonites 2–3 pointed. *Urosomite* 1 longest, with mid-dorsal pointed process; urosomite 2 shortest; urosomite 3 with shallow lateral dorsal ridges.

Head appendages. *Antenna 1* (Fig. 13d) peduncle stout, without long processes, peduncular articles length ratios: 1 : 0.4 : 0.3; accessory flagellum uni-articulate, small, scale-like; flagellum 1st article about as long as the next 3 articles, more than 11 articles (tip broken off) with groups of long setae and aesthetascs. *Antenna 2* (Fig. 13c) peduncular articles 1–2 circumpass article 3; peduncular articles 4 and 5 subequal; flagellum 1st article about as long as the next 3 articles, flagellum of more than 23 articles (tip broken off). *Upper lip* (labrum) (Fig. 12b) tapering distally with a shallow notch and fine setation on both sides of the notch. *Mandible* (Fig. 13a–b, e) body slender, molar triturative with serrate margins and tuft of setae on proximal margin; spine row consisting of 4 stout blade-like setae and slender additional setae; lacinia mobilis distally expanded, with 5 teeth; incisor with 6 stout rounded teeth; palp 3-articulate, length ratios of article 1–3: 1 : 3.5 : 2.9. *Lower lip* (hypopharynx) (Fig. 12c) with tapering distally subacute lobe and relatively short mandibular lobe. *Maxilla 1* (Fig. 14a) inner plate with 10 plumose setae on medial margin, outer plate oblique with 11 distal spine-like setae with 1–3 distomedial processes; palp 2-articulate with short basal article and unknown distal article (damaged). *Maxilla 2* (Fig. 14c) inner plate slightly narrower (92%) compared to outer plate, somewhat tapering distally, two rows of setae from the tip along the medial margin; outer plate subovoid with double row at apex drawing medially. *Maxilliped* inner plate (Fig. 14b) tapering distally, with 3 nodular setae apically, row of slender setae medially and subapically; outer plate (Fig. 14d) ovoid with serration (Fig. 15a) distomedially, row of setae along medial margin and submarginally distally; palp damaged.

Pereon. *Gnathopod 1* (Fig. 15b) coxa tapering distally, apex pointed, few setae posteromarginally and some on medial face; basis slightly longer than coxa (104%), with row of short, slender setae anteromarginally and two groups of longer setae posteromarginally; ischium subquadrate; merus length 1.5 × width, tapering distally, oblique apex with group of setae; carpus and propodus subequal in length with groups of setae posteromarginally; carpus with group of setae anterodistally; propodus with groups of setae on distal half of medial side; dactylus slightly curved with serrate inner curvature and distal unguis. *Gnathopod 2* (Fig. 15c) similar in shape as gnathopod 1, but articles longer and coxa somewhat more bulky and with more setae on medial face. *Pereopod 3* (Fig. 16a) coxa with rounded apex, weakly sinuous and with row of short setae posteromarginally; basis as long as merus and carpus combined, with setae on proximal lateral face and on both margins; ischium slightly expanded distally, slightly longer than wide; ischium to dactylus length ratios 1 : 2.6 : 2.1 : 2.0 : 1.3 and stout setae posteromarginally.

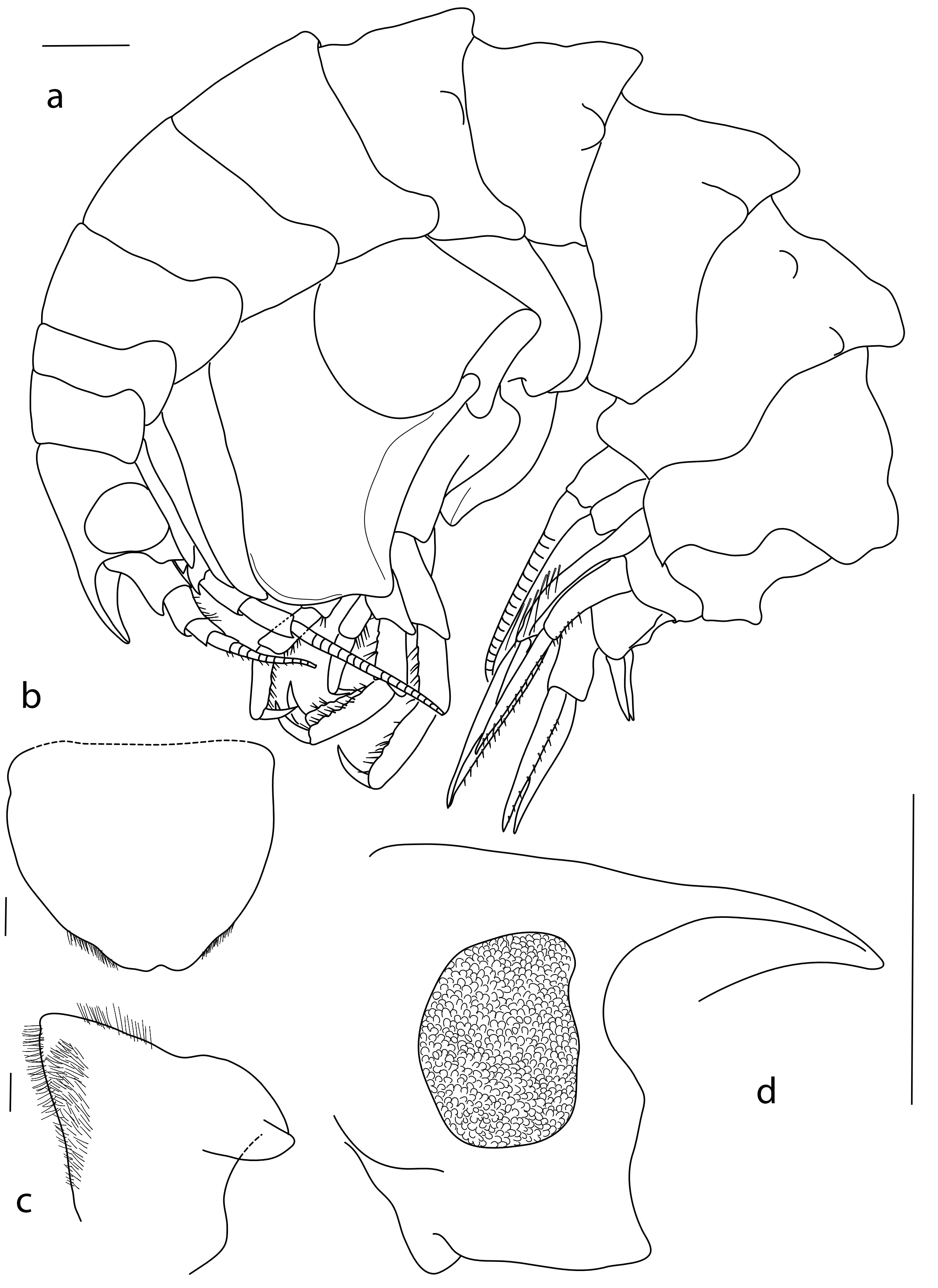

Fig. 12. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931), ♀, 22 mm (ZMB 34099). **a**. Habitus, left body side. **b**. Upper lip. **c**. Lower lip, damaged. **d**. Right side of head. Scale bars: a, d = 1 mm; b–c = 100 µm.

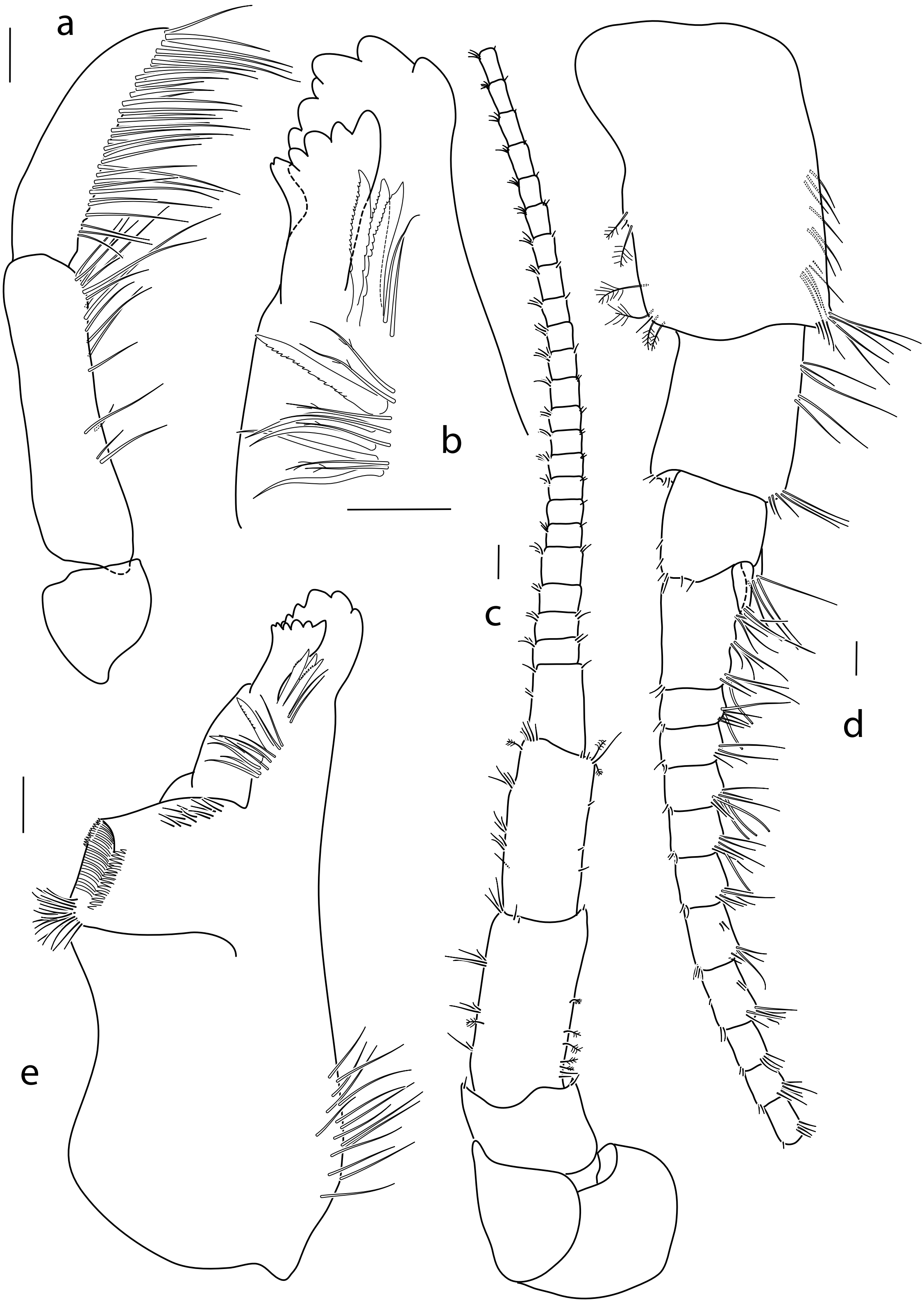

Fig. 13. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931), ♀, 22 mm (ZMB 34099). **a**. Mandible palp. **b**. Mandibular incisor, lacinia mobilis and raker row. **c**. Antenna 2. **d**. Antenna 1. **e**. Mandible. Scale bars = 100 µm.

Fig. 14. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931), ♀, 22 mm (ZMB 34099). **a**. Maxilla 1. **b**. Inner plate of maxilliped. **c**. Maxilla 2. **d**. Outer plate of maxilliped. Scale bars = 100 µm.

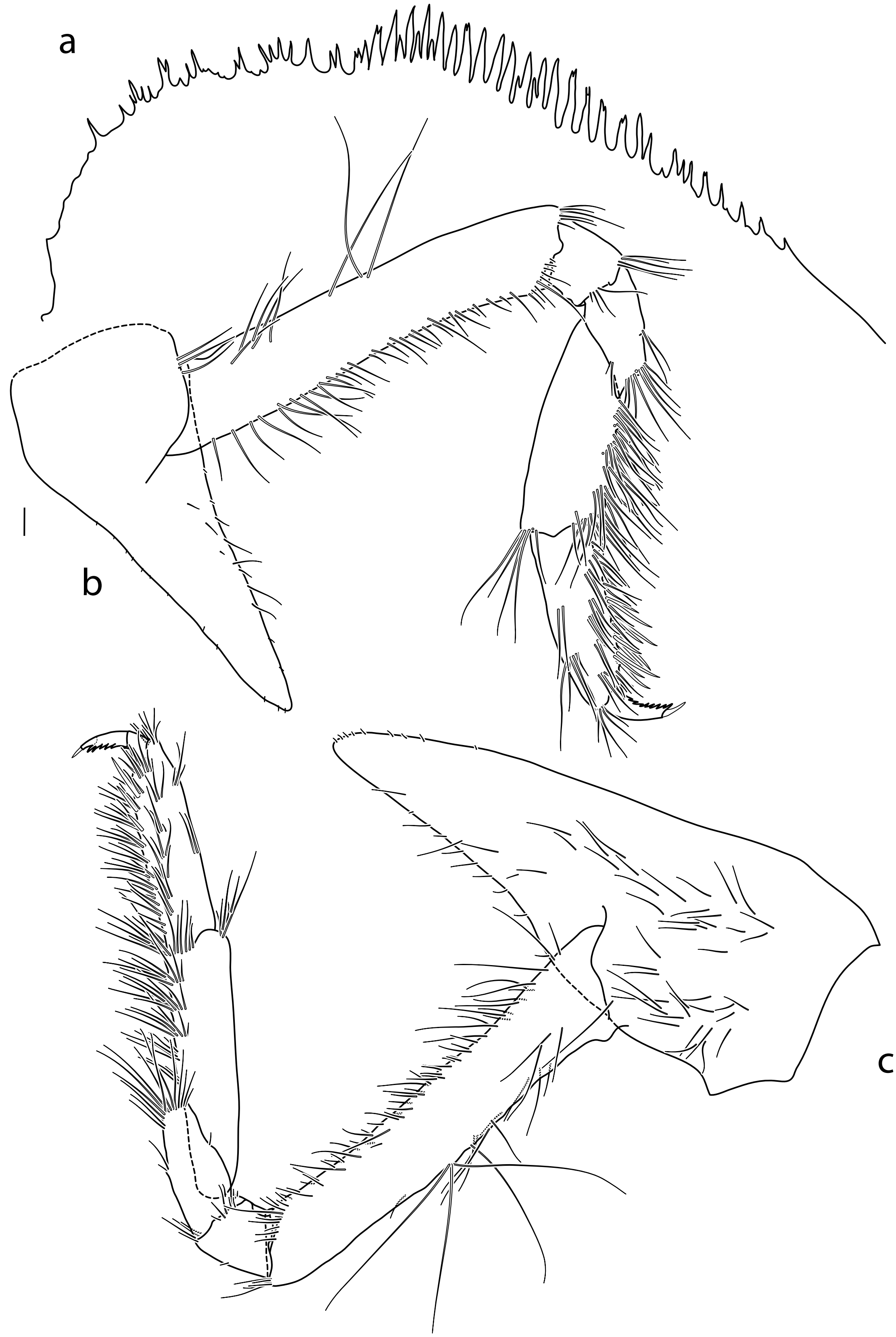

Fig. 15. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931), ♀, 22 mm (ZMB 34099). **a**. Serrate margin of outer plate of maxilliped. **b**. Gnathopod 1. **c**. Gnathopod 2. Scale bars = 100 µm.

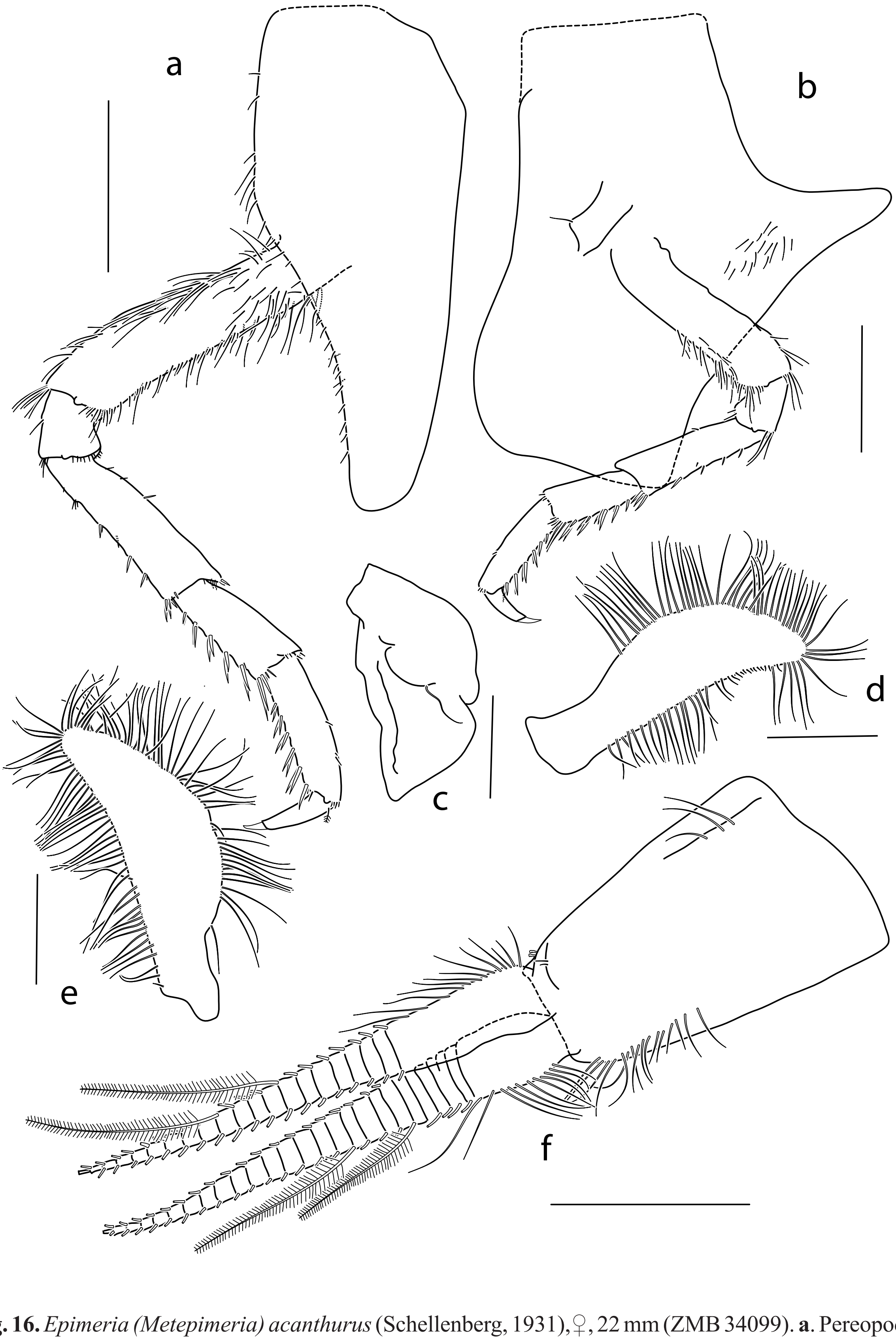

Fig. 16. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931), ♀, 22 mm (ZMB 34099). **a**. Pereopod 3. **b**. Pereopod 4, medial aspect. **c**. Gill of pereopod 4. **d**. Oostegite of pereopod 5. **e**. Oostegite of pereopod 3. **f**. Pleopod 1. Scale bars = 1 mm.

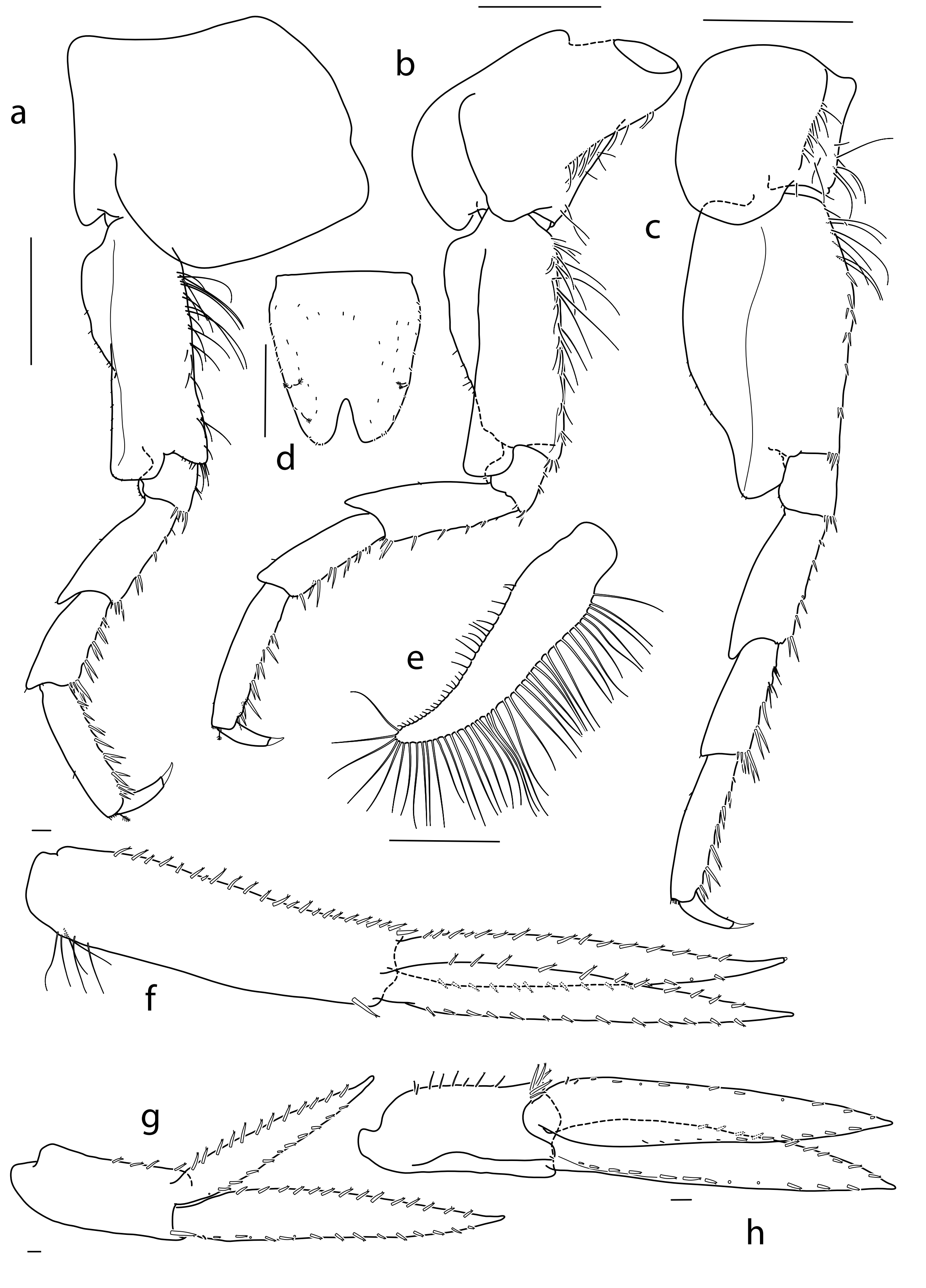

Fig. 17. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931), ♀, 22 mm (ZMB 34099). **a**. Pereopod 5. **b**. Pereopod 6. **c**. Pereopod 7. **d**. Telson. **e**. Oostegite of pereopod 5. **f**. Uropod 1. **g**. Uropod 2. **h**. Uropod 3. Scale bars: a–c, e = 1 mm; d, f–h = 100 µm.

Pereopod 4 (Fig. 16b–c) coxa longer than wide (116%), anteromarginally shallowly excavate; apex oblique, posterior margin with pointed process; basis as long as merus and carpus combined; ischium longer than wide, somewhat expanded distally; length ratios ischium to dactylus 1 : 2.7 : 2 : 2.3 : 1.2. *Pereopod 5* coxa (Fig. 17a) wider than long (119%) with wide anterior lobe and minute posterior lobe; basis anteromarginally straight, setose, posteroproximally lobate, posterodistomarginally straight, posterodistal oblique lobe; ischium subquadrate with posteromarginal notch; length ratios ischium to dactylus 1 : 1.7 : 2 : 2.9 : 1.2; merus and carpus drawn out anterodistally; ischium to propodus with robust setae along posterior margin. *Pereopod 6* (Fig. 17b) similar in shape to pereopod 5, but anterior lobe of coxa smaller. *Pereopod 7* (Fig. 17c) coxa slightly longer than wide (110%); basis posterior margin sinuous, posteroventral angle rounded and drawn out; length ratios ischium to dactylus 1 : 2.1 : 1.9 : 2.5 : 1, shape and setation of these articles as for pereopod 5 and 6.

Pleosome and urosome. *Pleopod 1* (Fig. 16f) peduncle tapering distally; two coupling hooks on inner distal angle; rami longer than peduncle (145%), each article with a pair of long feather-like setae. *Uropod 1* (Fig. 17f) peduncle weakly shorter than rami (94%), with robust setae on outer margin and a group of slender setae medioproximally; rami subequal. *Uropod 2* peduncle (Fig. 17g) shorter than rami; outer ramus shorter than outer ramus (139 % of peduncle), inner ramus 2 × the peduncle length. *Uropod 3* (Fig. 17h) peduncle shortest; rami lanceolate, subequal in length, 2 × the peduncle length. Telson slightly longer than wide (113%), notched 24%.

Distribution (amended from De Broyer *et al.* 2007)

Falkland Islands: Discovery 1925–27: stn WS 81, West Falkland Island, off North Island, 81–82 m (bottom/habitat: sand; gear: nets); stn WS 85, East Falkland Island, off Lively sand; gear: nets); stn WS 85, East Falkland Island, off Lively Island, 79 m (bottom/habitat: sand, shells; gear: commercial otter trawl); stn WS 86, -53.883333°, -60.566667°, 151–147 m (bottom/habitat: sand, shells, stones; gear: commercial otter trawl) (K.H. Barnard 1932).

Magellan Province: Puerto Condor, 90 m (bottom/habitat: rocks, ascidians); Bahia Harris, 27 m (bottom/habitat: shells) (Schellenberg 1931); Eltanin 9, stn 740, -56.1° to -56.116667°, -66.325°, 384–494 m; Hero 715, stn 894, -54.913333° to -55.916667°, -64.3° to -64.333333°, 263–285 m (Watling & Holman 1981); Isla van der Meulen, 15 m (on hydrozoans) (this study).

Depth range

27–494 m.

Type locality

Magellan Province: Puerto Condor, 90 m (bottom/habitat: rocks, ascidians); Bahia Harris, 27 m (bottom/habitat: shells) (Schellenberg 1931).

Type specimen location

ZMB, Berlin.

Remarks

When compared with the type material, stored at the Museum für Naturkunde Berlin (ZMB 22838), there are a few differences in the redescribed material: (1) less pronounced depression in the middle of the dorsal carinae on pereonites and pleonites; (2) shorter middorsal and symmetrical process on urosomite 1 (vs anterior margin shorter than posterior); (3) pereopod coxa 3 proximo-posteromarginally narrower; (4) pereopod coxa 4 with a narrower ventral margin, which additionally has a weak depression;

(5) colour orange with white specks (vs white with red stripes in the type description: Schellenberg 1931: 162).

The few details illustrated by K.H. Barnard (1932) of material collected off the Falklands, deviate from our material in (1) the posterior margin of pleonite 3, which has a rather straight posterior margin with a pointed tooth and a drawn out middorsal carina (vs sinuous margin with rounded protrusion and rounded middorsal hump); (2) the pointed middorsal, slightly forward curved tooth (vs straight subacute tooth) on urosomite 1 and (3) the posteroventral angles of the basis of pereopods 5–7 are drawn out acutely (vs angularly subacute).

Watling & Holman (1981) published on material collected south of the Isla de los Estados. Their drawings match our material, except for the telson, which is notched only 12% (vs 26% in our material).

Family Iphimediidae Boeck, 1871

Genus ***Labriphimedia*** K.H. Barnard, 1931

Labriphimedia K.H. Barnard, 1931: 427 (type species: *Labriphimedia vespuccii* K.H. Barnard, 1931, original designation).
Maoriphimedia Hurley, 1954: 771 (type species: *Maoriphimedia hinemoa* Hurley, 1954, original designation). Synonymy by Karaman & J.L. Barnard 1979: 111.

Labriphimedia vespuccii K.H. Barnard, 1931
Figs 18–22

Labriphimedia vespuccii K.H. Barnard, 1931: 427.

Labriphimedia vespuccii – K.H. Barnard 1932: 124, fig. 69. — J.L. Barnard 1958: 18. — Lowry & Bullock 1976: 15. — Watling & Thurston 1989: 311. — J.L. Barnard & Karaman 1991: 396. — De Broyer & Jażdżewski 1993: 57. — Coleman 2007: 111, fig. 71a–b, map 34 (circle). — De Broyer *et al.* 2007: 104.

Material examined

CHILE • 1 ♀ (21 mm) (Figs 18–22), 4 juvs; Punta Garro; -46.315167°, -73.652033°; 20 m depth; 30 Nov. 2011; HF11C355; rock, on gorgonian; ZMB 34096 • 1 unsexed spec.; Isla Jorge; -44.861483°, -74.005400°; 18 m depth; 22 Nov. 2011; HF11C087; coarse sand with stones; ZMB 34095.

Description (based on ovigerous ♀, 21 mm)

Body (Fig. 18a). *Head* with small oval eyes; rostrum (Fig. 18a, d) moderately short and wide; frontal head margin sinuous. *Pereonite 1* as long as pereonites 1 and 2 combined. *Pereonites 4–6* subequal in length; posteroventral angle of tergites 5 and 6 angular and pointed respectively. *Pereonite 7* with posteromarginal pair of pointed processes, space between paired dorsal processes strongly narrowed at the segmental border and v-shaped; posteroventral angle pointed and drawn out. *Pleonite* 1 with subequal posteromarginal paired processes as on pereonite 7; posterior margin with small point; epimeral plate rounded ventrally. *Pleonite 2* with subequal posteromarginal paired processes as on pereonite 7, mid-dorsal crest and shallow hump, seen from lateral side; posteromarginal lateral margin with small point; posteroventral corner acutely drawn out, dorsally of the process margin somewhat serrate. *Pleonite 3* with two shorter posteromarginal paired processes and between these a short carina; posterior lateral margin of epimeral plate 3 with pointed process and ventrally of that serrate, posteroventral corner with pointed with process, about the size of that on epimeral plate 2. *Urosomite 1* longest, with a notch seen from laterally. *Urosomite 2* shortest. *Urosomite 3* twice the length of urosomite 2.

Head appendages. *Antenna 1* (Fig. 18b, d) peduncular article 1 massive, 1.5× as long as wide, subrectangular and distally straight except for two subacute lobe; peduncular article 2 about half the length of article 1 (57%), with two apical pointed drawn out equally long processes, not exceeding beyond distal margin of article 3; article 3 subrectangular, with inconspicuous, scale-like vestige of an accessory flagellum; primary flagellum first article longer than next two articles, number of flagellum articles unknown (broken off at the tip). *Antenna 2* (Fig. 19e) peduncular article 4 1.5× as long as article 3, with 2 pointed processes; peduncular article 5 slightly longer than 4, distally straight; flagellum article 1 about as long as the following 3 articles combined; number of flagellum articles unknown (broken off at the tip). *Upper lip* (labrum) entire, with fields of hair-like setae on both sides of the apex. *Mandible* (Fig. 18c, e–f) tapering distally, incisor without dentation, rounded, medially excavate; no lacinia mobilis on both sides; molar vestigial, rounded lobe without triturative surface; palp article ratios (from article 1 to 3) 1 : 1.6 : 1:4; article 1 without setation, article 2 with a group of distomedial setae; article 3 lanceolate with a row of plumose setae mediomarginally, inner surface covered by hair-like setae. *Lower lip* (hypopharynx) with wide lobes and rather narrow lateral lobes. *Maxilla 1* (Fig. 19a) inner lobe tapering distally, with 8 plumose setae on the mediodistal margin; outer plate with 11 in part serrate spine-like setae distomarginally; palp biarticulate, longer than outer plate, article 2 1.9× the length of article 1, tapering distally, with 6 terminal setae. *Maxilla 2* (Fig. 19b) inner plate slightly shorter than outer plate, 1.4× as wide as outer plate; two rows of setae (see detail drawing) apically. *Maxilliped* (Fig. 19d) inner plates (Fig. 19c) subrectangular, outer margins slightly convex, with medial row of long setae mediomarginally, apical margin with shorter setae; outer plate (Fig. 20a) tapering distally with dense setation apicomedially and apicolaterally, apex almost reaching distal margin of palp article 2; palp (Fig. 20b) with 3 long articles and 1 minute article inserted subapically on article 3, length ratios of article 1–4 1 : 0.7 : 0.7 : 0.09, article 2 not produced forward and not guarding along inside article 3.

Pereon. *Gnathopod 1* (Fig. 20c, e) coxa ventrally rounded; basis about as long as merus to dactylus combined, with row of setae anteromarginally, posterior margin convex, anterior margin sinuous; ischium subrectangular, 1.6× as long as wide; merus tapering distally into a point, about as long as propodus; carpus attached along the medial side of merus, slightly longer than propodus; propodus with several setae distally forming a chela with finger-like dactylus. *Gnathopod 2* (Figs 20d, 21a) coxa tapering distally with serrate apex; basis subrectangular with oblique distal margin; ischium subequal in length to merus; carpus slightly expanded distally and with posteromarginal groups of setae; propodus longer than carpus with groups of setae on both margins, posterodistal lobe and dactylus form a chela. *Pereopod 3* (Fig. 21d) coxa anterior margin convex, posterior margin straight, apex rounded with some small teeth posterodistally; basis subrectangular, laterally with a semicircular lobe in the middle of the distal margin; ischium longer than wide, with similar lobe in the middle of distal margin; merus expanded distally somewhat drawn out antero- and posterodistally, with some robust setae; carpus weakly expanded with shallow lobe on medial side, with groups of robust setae on posterior margin, posterodistal angle and anterodistal margin; propodus subrectangular with groups of robust setae posteromarginally; dactylus weakly curved; length ratios ischium to dactylus: 1 : 1.5 : 1.3 : 2.5 : 1.2. *Pereopod 4* (Fig. 21c) coxa anteriorly strongly convex, posteroventrally rectangular, posterior margin with narrow rounded lobe in the middle; basis half as long as coxa, subrectangular with rounded lobe in the middle of distal margin; ischium longer than wide with similar lobe as basis; merus to dactylus subequal to that of pereopod 3. *Pereopod 5* (Fig. 22a) coxa bilobed, anterior lobe semicircular, posterior lobe subangular posteromarginally; basis slightly longer than wide (1.2×), anterior margin with groups of robust setae, anterodistal angle acutely drawn out, ventrally rounded, not surpassing distal margin of ischium, posterior margin drawn out, truncate to slightly excavate with serrate margin on proximal ⅔; ischium wider than long, with acutely drawn out anterodistal corner; merus distally expanded, posterodistally strongly produced into a pointed lobe, anterodistally with short point; carpus and propodus subrectangular; dactylus stout and rather short; length ratios merus to dactylus: 1 : 0.9 : 1.5 : 0.39. *Pereopod 6* (Fig. 22c)

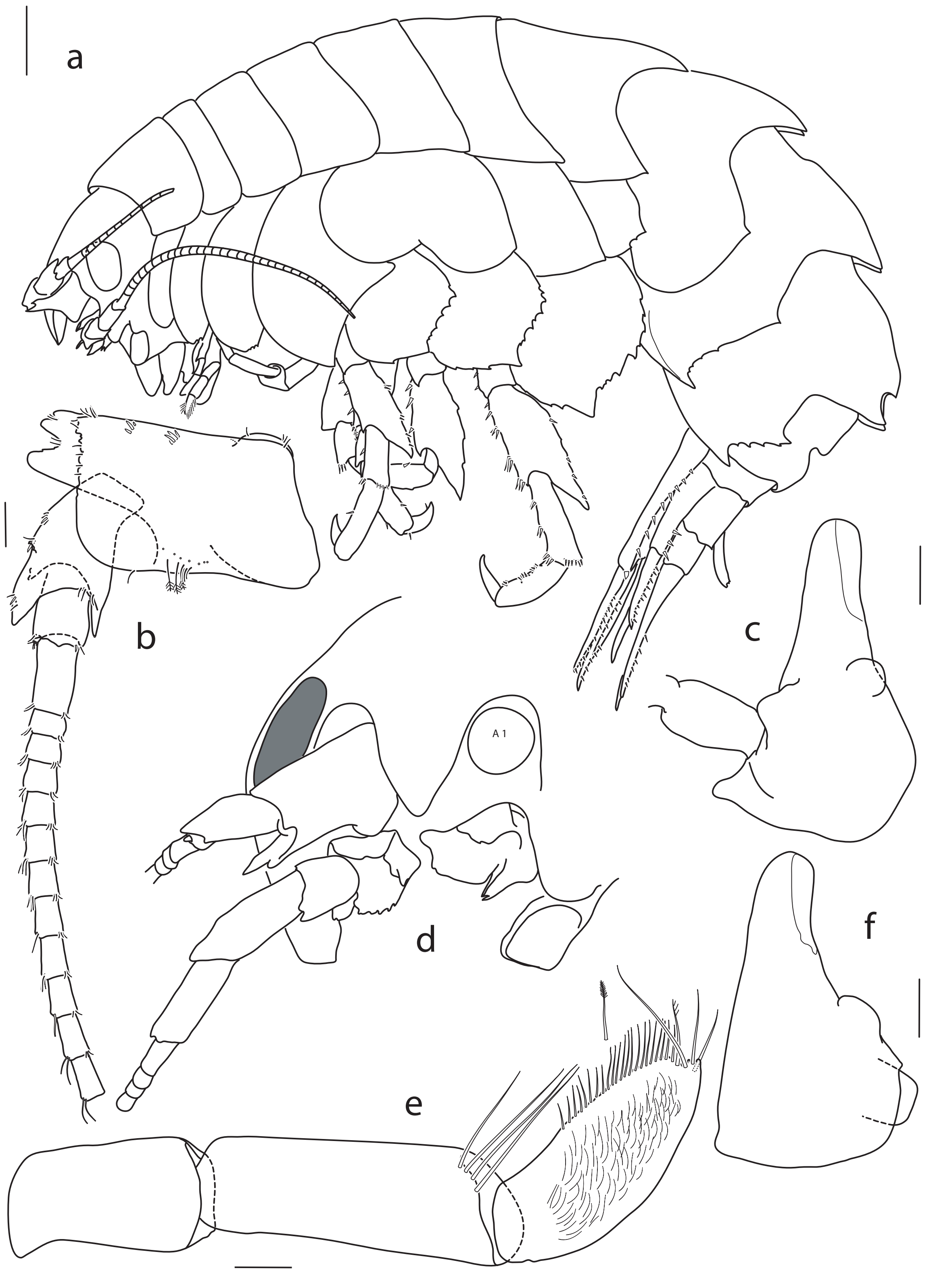

Fig. 18. *Labriphimedia vespuccii* K.H. Barnard, 1931, ♀, 21 mm (ZMB 34096). **a**. Habitus, left body side. **b**. Antenna 1. **c**. Left mandible. **d**. Head, frontal aspect. **e**. Mandible palp. **f**. Right mandible. Scale bars: a = 1 mm; b–c, f = 200 µm; e = 100 µm.

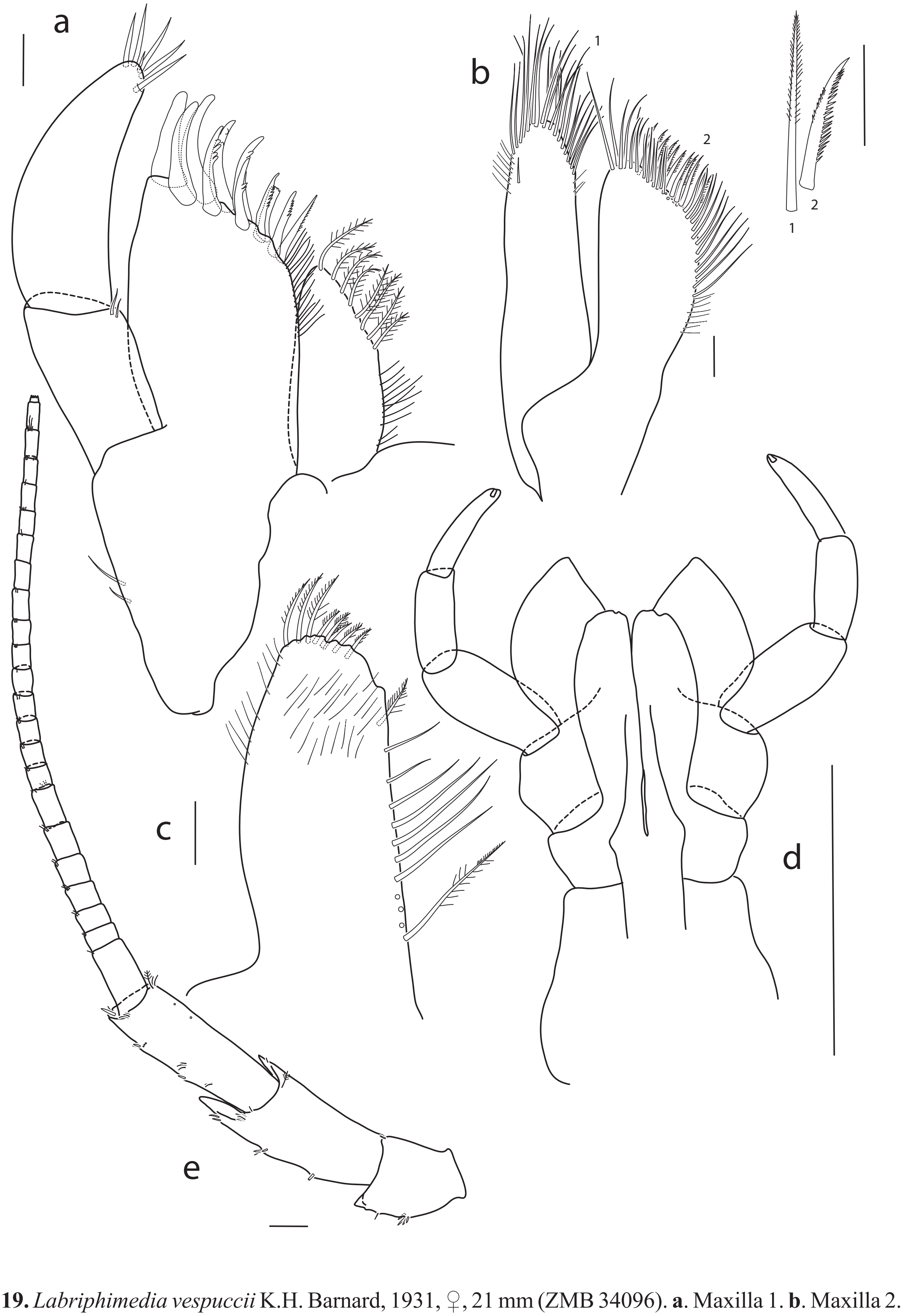

Fig. 19. *Labriphimedia vespuccii* K.H. Barnard, 1931, ♀, 21 mm (ZMB 34096). **a**. Maxilla 1. **b**. Maxilla 2. **c**. Inner plate of maxilliped. **d**. Outlines of maxilliped, setae omitted. **e**. Antenna 2. Scale bars: a–c = 100 µm; d = 1 mm; e = 200 µm.

Fig. 20. *Labriphimedia vespuccii* K.H. Barnard, 1931, ♀, 21 mm (ZMB 34096). **a**. Outer plate of maxilliped. **b**. Palp of maxilliped. **c**. Gnathopod 1. **d**. Gnathopod 2, setae on propodus omitted. **e**. Chela of gnathopod 1. Scale bars: a–b, e = 100 µm; c = 200 µm; d = 1 mm.

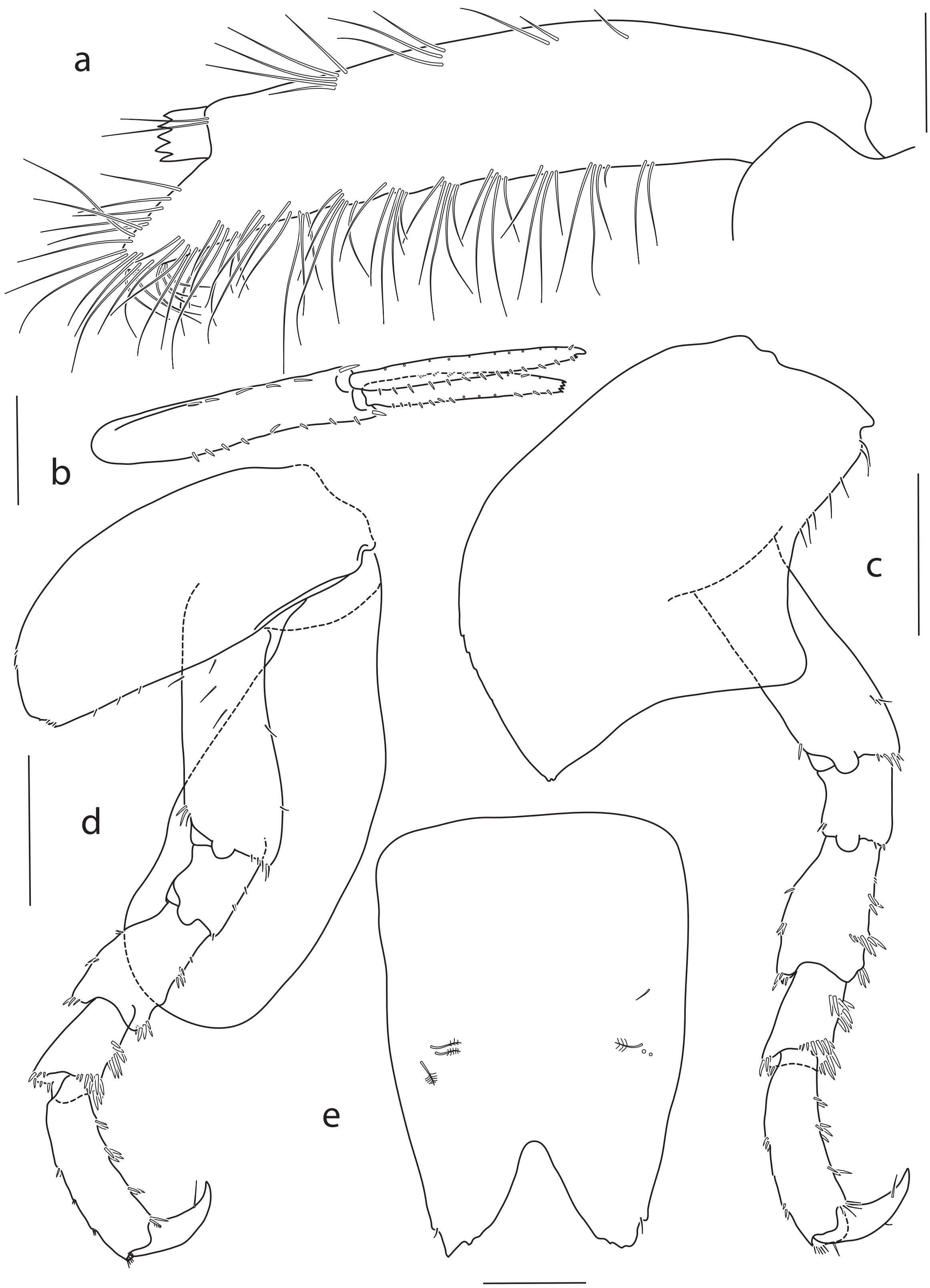

Fig. 21. *Labriphimedia vespuccii* K.H. Barnard, 1931, ♀, 21 mm (ZMB 34096). **a**. Propodus of gnathopod 2, dactylus damaged. **b**. Uropod 1. **c**. Pereopod 4. **d**. Pereopod 3. **e**. Telson. Scale bars: a = 200 µm; b–d = 1 mm; e = 200 µm.

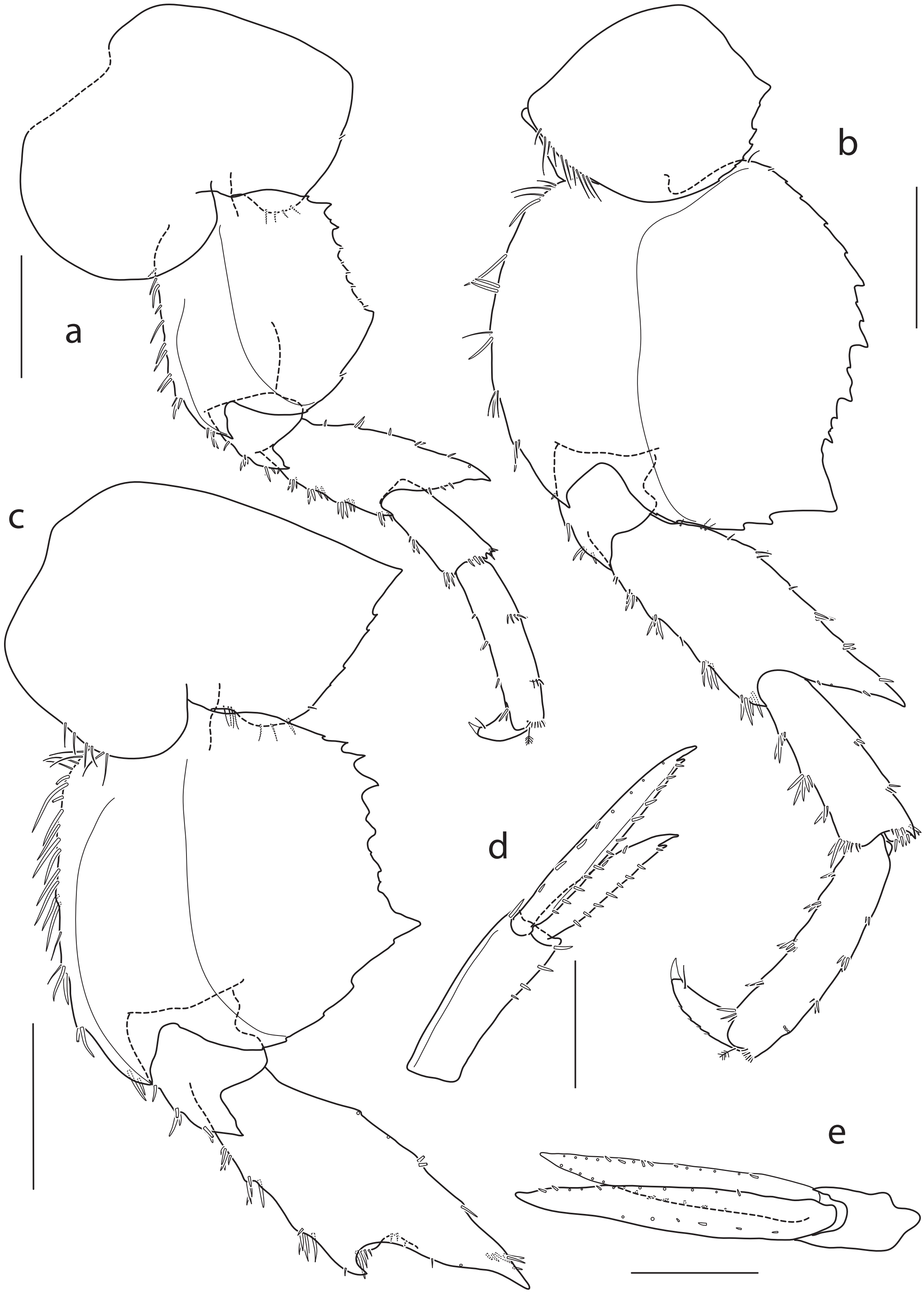

Fig. 22. *Labriphimedia vespuccii* K.H. Barnard, 1931, ♀, 21 mm (ZMB 34096). **a**. Pereopod 5. **b**. Pereopod 7. **c**. Pereopod 6. **d**. Uropod 2. **e**. Uropod 3. Scale bars = 1 mm.

coxa bilobed, equally long, anterior lobe rounded, posterior lobe drawn out posteriorly into a pointed tip, posteroventral margin weakly serrate; basis about as wide as long, ventrally not surpassing distal margin of ischium, anterior margin lined with robust setae, anteroventral angle pointed and produced, posterior and posteroventral margin serrate, drawn out tooth on ventral third of posterior margin; ischium wider than long, excluded pointed lobe anteroventrally; merus distally expanded, with groups of robust setae anteromarginally, posterodistally acutely drawn out, short process anterodistally. *Pereopod 7* (Fig. 22b) coxa ventrally rounded and weakly serrate, posteriorly pointed; basis convex anteromarginally with robust setae, anterodistally acutely drawn out, posteromarginally sinuous and serrate, with truncate posterior margin, drawn out tooth posteroventrally, basis surpassing distal margin of ischium; ischium longer than wide, with small pointed anterodistal tooth; merus distally widened and acutely drawn out posterodistally, anterior margin with groups of robust setae and shorter setae posteromarginally; carpus weakly expanded distally and with anteromarginal groups of robust setae; propodus longer than carpus; length ratios ischium to dactylus: 1 : 2,5 : 2.4 : 3 : 1.2.

Urosome. *Uropod 1* (Fig. 21b) peduncle longer than rami, with robust setae on both margins; rami slender and subequal. *Uropod 2* (Fig. 22d) peduncle outer margin with some robust setae; outer ramus slightly shorter than peduncle, outer ramus 0.67 × the length of the inner ramus. *Uropod 3* (Fig. 22e) inner ramus 3 × the length of the peduncle. *Telson* (Fig. 21e) 1.4 × as long as wide, roundly notched apically (27 % depth), lobes pointed; dorsal face with 2 lateral groups of 3 plumose sensory setae.

Distribution

Falkland Islands: Discovery 1925–27, stn 51, off Eddystone Rock, 105–115 m (bottom/habitat: fine sand; gear: large heavy dredge, large otter trawl, nets) (K.H. Barnard 1932).

Magellan Province: Isla Jorge; Punta Garro, 18–20 m (this study).

Depth range

18–115 m.

Type locality

Discovery 1925–27, stn 51, off Eddystone Rock, 105–115 m (K.H. Barnard 1932).

Type specimen location

The Natural History Museum, London.

Remarks

This is the first full description of this species since the original description and some illustrations given one year later by K.H. Barnard (1931, 1932). The original material had been collected off the Falkland Islands. Between K.H. Barnard's descriptions and the Magellan material, redescribed herein, there are a few minor differences: (1) dorsal paired teeth on pleon shorter than described in the holotype; (2) middorsal tooth on pleonite 3 shorter; (3) traces of serration on epimeral plate 2 (vs smooth); (4) urosomite 1 with middorsal angular process (vs pointed tooth) and no posteromarginal carina (vs pointed tooth).

Family Leucothoidae Dana, 1852
Genus ***Leucothoe*** Leach, 1814

Leucothoe kawesqari Esquete & Aldea, 2015
Figs 23, 30c

Leucothoe kawesqari Esquete & Aldea, 2015: 83–95.

Material examined

CHILE • 1 ♀ with red eggs; Canal Ultima Esperanza SE; -44.5909°, -74.34921667°; 25 m depth; 10 Apr. 2014; HF21; from the leather-coral *Alcyonium*; ZMB 34204 (Fig. 23) • 4 specs; Isla Huemules NE, -45.915550°, -73.661367°; 18.3 m depth; 30 Nov. 2011; C 285; in sponge; no depository data.

Distribution

Southern Chile (Esquete & Aldea 2015) and material from this study.

Depth range

5–18.3 m.

Type locality

Southern Chile, Bernardo O'Higgins National Park: 51°04′04.7″ S, 74°08′29.5″ W, 5–15 m (Esquete & Aldea 2015).

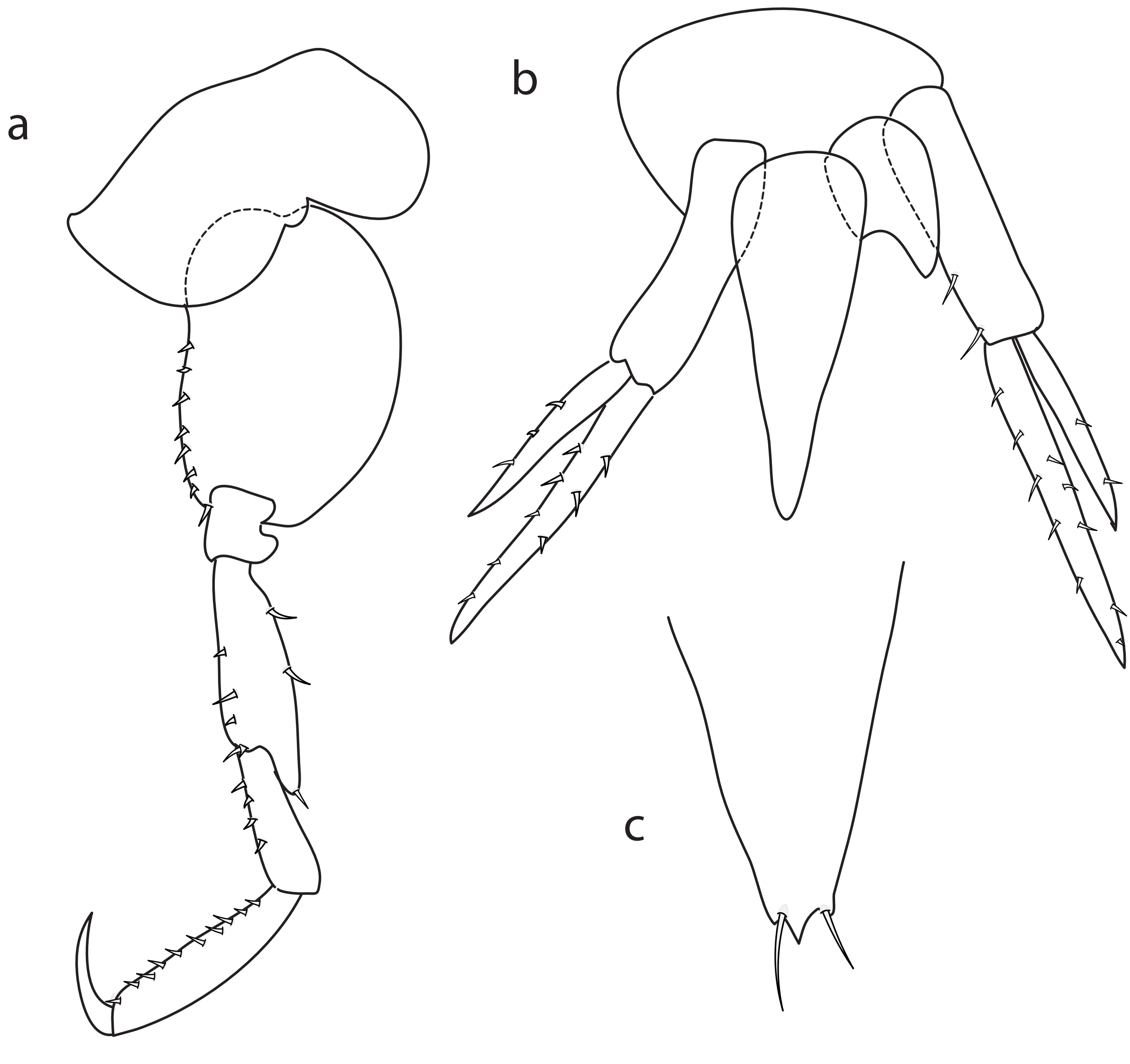

Fig. 23. *Leucothoe kawesqari* Esquete & Aldea, 2015. **a**. Pereopod 5. **b**. Urosome with uropod 2 and telson. **c**. Telson tip. Figure not scaled.

Type specimen location

Museo Nacional de Historia Natural de Chile (AMP-15038–15039).

Remarks

The specimens studied herein, collected at 18–25 m depth, lived somewhat deeper than the type material (5–15 m), but are collected in an adjacent region. Originally they were found between -49° to -51° and -74° to -75° now they also occur from -44° to -45° and -73° to -74°, thus from less southern and less western Chilean coasts.

Morphologically our material matches perfectly the detailed original drawings of *L. kawesqari*. Only some additional notes about the urosome are given here: in Esquete & Aldea (2015: 91, fig. 4) the labels of uropod 2 and uropod 3 were mixed up; uropod 2 has the shorter ramus allometric, as in mature animals it is 60% of the longer one and this longer ramus is longer than the peduncle, in younger specimens the difference of the rami is less clear. The shape of the telson is identical to the original drawings, but the distal end in our material has always 3 teeth and 2 setae sitting next to the tip.

Family Podoceridae Leach, 1814
Genus ***Podocerus*** Leach, 1814

Podocerus cf. ***danae*** (Stebbing, 1888)
Fig. 30e–f

Platophium danae Stebbing, 1888: 1185, pls 128–129.
Platophium orientale Della Valle, 1893: 332 (in part).
Podocerus danae armatus Bellan-Santini & Ledoyer, 1987: 418–421.

Podocerus danae – Stebbing 1899: 239; 1906: 705, fig. 122. — Chilton 1926: 514. — J.L. Barnard 1958: 122; 1962: 65 (in key). — Mills 1972: 75, table 1. — Lowry & Bullock 1976: 132. — Bellan-Santini & Ledoyer 1987: 418–419, fig. 25. — J.L. Barnard & Karaman 1991: 665. — Branch *et al.* 1991: 16, 39–40, fig. on p. 16. — De Broyer & Jażdżewski 1993: 88.

Material examined

CHILE • 1 ♂ (7 mm); Canal Williams – Southern Exit; -45.601028°, -74.478194°; 15 m depth; 19 Nov. 2011; HF11C004; on hydrozoans, together with pycnogonids; colour brownish; ZMB 34210 • 1 juv. (4 mm); same collection data as for preceding; 20.5 m depth; HF11C006; ZMB 34209 • 1 ovigerous ♀ (6 mm); same collection data as for preceding; 8.9 m depth; HF11C012; on hydrozoans; colour brownish; ZMB 34208.

Description (based on ♂, 7 mm)

HEAD. Without rostrum, lateral cephalic lobes angled; in the middle of the back of the head a rounded small process (vs *P. danae*, like *P. danae armatus*).

BODY. Each of the *pereonites 1–4* with moderate elevation posterodorsally (vs *P. danae*, like *P. danae armatus*), the size depending on age; on pereon segment 4 dorsally with 2 long setae (vs *P. danae*, like *P. danae armatus*). Only *pereonites 5–7* and first pleon segment with one large triangular process each (according to the original description of *P. danae*, vs *P. danae armatus*). No lateral additional teeth on pereonite 7 (vs *P. danae*). *Pleon* strongly flexed. Body cuticule without hair-like setae (vs *P. danae*, like *P. danae armatus*). *Eyes* very prominent, projecting, round.

Head appendages. *Antenna 1* peduncle article 1 robust, length subequal to head; peduncle article 2 narrower and up to twice as long as article 1; article 3 subequal to article 2; flagellum with 9 articles; accessory flagellum with one long and one very small article (not described in *P. danae* and *P. danae armatus*). *Antenna 2* much longer than antenna 1; peduncle article 3 quadrangular, distally somewhat expanded; article 4 reaching beyond peduncle of antenna 1, 2 × as wide as last peduncle articles of antenna 1, 3–4 × as long as article 3; article 5 somewhat less wide, but much longer than article 4; all peduncle articles beset with short setae on both margins; flagellum with 4 articles (last one very reduced), combined about same length as article 4 of peduncle.

Pereon. *Gnathopod 1* coxa much longer than wide; basis slender; ischium somewhat longer than wide, quadrangular; merus with prominent angle of about 90° on posterior margin (vs *P. danae*, like *P. danae armatus*); carpus somewhat box-shaped with rectangular posterior margin, the distal corner of about 120° and the proximal a right angle; propodus of triangular shape with palmar corner also of 90°; dactylus strongly curved, on inner side densely spinose. The entire leg densely setose on posterior margin, much less on anterior one. *Gnathopod 2* much larger than gnathopod 1; coxa longer than wide, much shorter than propodus; basis long and strong, distally only scarcely expanded (in Stebbing 1888 not widened at all, in Bellan-Santini & Ledoyer 1987 for *P. danae armatus* with prominent corner); merus rectangular, shorter than wide; carpus with acute gently curved tooth posterodistally, longer than wide; propodus about twice as long as head and 5–6 × as long as propodus of gnathopod 1; anterior margin regularly convex with 4 groups of setae on distal half; posterior margin remarkably straight, palm nearly covering all the posterior margin, only on the most proximal tenth part of propodus slightly narrowing, forming a blunt palmar corner; along distal quarter of the margin three blunt triangular humps, hidden under very long and dense ciliated setae all over the palm; dactylus slender and straight, about length of palm; inner margin smooth. *Pereopod 3* merus, carpus and propodus subequal, dactylus half length of propodus. *Pereopod 4* similar, but merus a bit shorter. *Pereopods 5–7* merus distally widened but not lengthened, propodus and carpus more robust than in the preceding legs; dactylus strong, longer than half propodus.

Urosome. *Uropod 1* peduncle about as long as inner ramus; outer ramus shorter; peduncular spur about one third of length of outer ramus. *Uropod 2* smaller than uropod 1, peduncle much shorter. *Telson* scarcely shorter than broad (like *P. danae*) or scarcely longer than broad (like *P. danae armatus*), with rounded distal corners.

Distribution

Podocerus danae: Kerguelen, 230 m depth (Stebbing 1888); *P. danae armatus*: Marion and Prince Edward islands (Bellan-Santini & Ledoyer 1987, 110–570 m depth, together with *P. danae*). Canal Williams, Chile, this study.

Depth range

8.9–570 m.

Type locality

Kerguelen Islands: Challenger 1873–76, stn 149H, off Baie de Recques (Cumberland Bay), -48.75°, 69.233333°, 232 m (Stebbing 1888).

Type specimen location

The Natural History Museum, London.

Remarks

Bellan-Santini & Ledoyer (1987) found *Podocerus danae* together with their new subspecies *Podocerus danae armatus* (!), and they repeated that several characters of these specimens are not clearly defined, but vary with age. In our collection there are only two adult specimens and one juvenile found, thus it is not possible to add statistically informative data about the limits of variations.

Family Pontogeniidae Stebbing, 1906

Genus ***Liouvillea*** Chevreux, 1911

Diagnosis

Body obese, with dorsal teeth. *Head* with rostrum. *Eyes* prominent. *Antennae* very long, accessory flagellum rudimentary. *Gnathopods* subequal and subcheliform. Outer ramus of *uropods 1 and 2* much shorter than inner one. *Telson* partly cleft.

Liouvillea rocagloria sp. nov.
urn:lsid:zoobank.org:act:E11887DA-7761-495E-A7CD-776CD936F88C
Figs 24–26, 30g–h

Diagnosis

Antenna 1 much longer than body and than antenna 2, mandible last palp article subequal to second article. *Maxilla 1* inner lobe subequal to outer one. *Gnathopod* coxae 1–2 much deeper than wide. *Gnathopod 1* carpus longer than ischium and merus combined, propodus subequal to carpus, dactylus about as long as palmar margin, basis with short setae. Gnathopods subequal in shape, *gnathopod 2* propodus rectangular and subequal to carpus length, propodi of both gnathopods subequal. *Telson* cleft about ⅔ of length.

Etymology

The species name (noun in apposition) is in reference to the type locality, i.e., Roca Gloria, Aysén, Chile.

Material examined

Holotype

CHILE • 1 ♀ (8 mm), slide in Faure's medium; Roca Gloria; -45.61152778°, -74.47819444°; 15 m depth; 5 Apr. 2014; 92HF21; on Hydrozoa; colour white; MVRCr 7734 (Figs 24–26).

Paratypes

CHILE • 10 specs (4–8 mm); same collection data as for holotype; ZMB 34213.

Additional material

CHILE • 6 specs (4–7 mm); Canal Ultima Esperanza SE, -44.5909°, -73.34921667°; 26 m depth; 10 Apr. 2014; 399HF21; on *Swiftia* sp. (gorgonian octocoral) together with *Ligulodactylus macrocheir* (Schellenberg, 1926); ZMB 34215 • 2 specs (4 mm); Isla Porcia NE; -47.9175°, -74.51356667°; 15–20 m depth; 19 Apr. 2015; 121HF24; on Hydrozoa; body colour clear red; ZMB 34214 • 2 specs (4 mm); Isla Waller; -46.76475°, -75.23121667°; 20 Apr. 2015; 143HF24; on Bryozoa; body colour whitish with red tips; ZMB 34216 • 1 spec. (6 mm); Estero Millabu; -45.757617°, -74.551600°; 7.4 m depth; 20 Nov. 2011; HF11CO17; on hydrozoan on a rock; body colour whitish; ZMB 34211 • 1 juv. spec.; Isla Fronton; -46,7233666°, -75.2558°; 10 m depth; 20 Apr. 2014; 147HF24; on Hydrozoa; ZMB 34212.

Description

Holotype

BODY. Last *pereon* and first two *pleon* segments each with one dorsal tooth, in smaller specimens not much developed.

Head (Fig. 24a). Shorter (vs longer in *Liouvillea oculata* Chevreux, 1912) than 3 first pereonites together.

Head appendages. *Antenna 1* (Fig. 24a–b) much longer than body and than antenna 2; accessory flagellum rudimentary. *Antenna 2* (Fig. 24a) subequal to body length. *Mandibles* (Fig. 24c–d) cutting edge with 6 spines, last palp article subequal to second article. *Maxilla 1* (Fig. 24e) inner lobe subequal to outer, both with ciliated setae. *Maxilla 2* (Fig. 24f) inner plate slightly shorter than outer, with a row of facial setae. *Maxilliped* (Fig. 24g) outer plate reaches about middle of second palp article; palp article 3 with prolongation.

Pereon. *Gnathopod coxae* 1–2 much deeper than wide, broadened anterodistally. *Gnathopod 1* (Fig. 24h) carpus longer than ischium and merus combined; propodus subequal to carpus, subrectangular, distally somewhat widened; palmar corner blunt, more than 90 degrees, dactylus curved, about as long as palmar margin (vs shorter); basis with short setae on anterior and posterior margin. *Gnathopod 2* (Fig. 24i) shape similar, subequal in length to gnathopod 1; propodus rectangular, palmar corner with nearly right angle; propodus subequal to carpus, length of propodus of gnathopod 2 subequal to the one of gnathopod 1. Pereopods (Fig. 25a–b, d–f) 3–7 dactyls long, about half length of propodus. Pereopods 5–7 basis oval, crenulated posteriorly (vs smooth in *Liouvillea oculata*); merus posteriorly clearly lengthened (vs only scarcely lengthened in *Liouvillea oculata*), subequal in length with carpus; propodus ratio length to width about $^4/_5$ (vs much more slender in *Liouvillea oculata*).

Pleosome and urosome. *Epimeron 3* (Fig. 25g) with small distal tooth. *Uropod 1* (Fig. 26a) outer ramus ¾ of length of inner one (vs half as long as inner one in *Liouvillea oculata*), peduncle subequal to inner ramus. *Uropod 2* (Fig. 26b) outer ramus about half length of inner one, peduncle shorter than inner ramus. *Uropod 3* (Fig. 26c–g) peduncle about half length of outer ramus, with acute prolongation on inner side, about as long as outer margin of peduncle; outer ramus very robust, with strong spines on outer margin; inner ramus in most of the material lost, but when present, longer than outer one, lanceolate, also beset with lots of spines on both margins (Chevreux (1912) writes for *Liouvillea oculata*: "the inner ramus is represented by a long spiniform process of the peduncle, without traces of articulation"). No ciliated setae found (vs ciliated setae together with spines in *Liouvillea oculata*). *Telson* (Fig. 26h) distally rounded, cleft for about ⅔ of length (vs ¼ of length in *Liouvillea oculata*)

Distribution

Only known from the type locality.

Depth range

7.4–26 m.

Type locality

Roca Gloria, Aisén, Chile.

Type specimen location

MVRCr 7734 (holotype), ZMB 34213 (paratypes).

Remarks

The length of this new species is smaller than the hitherto only known species of this genus, *Liouvillea oculata* Chevreux, 1912, which is described with 9 mm by Chevreux (1912) and with 11 to even 19 mm by Thurston (1974). Antenna 1 is longer than the body (vs as long as), gnathopod 1 propodus subequal to (vs longer than) carpus, dactylus about as long as palmar margin (vs shorter), basis with short vs long setae on both margins. Both gnathopods are subequal in length, while gnathopod 2 is longer in *Liouvillea*

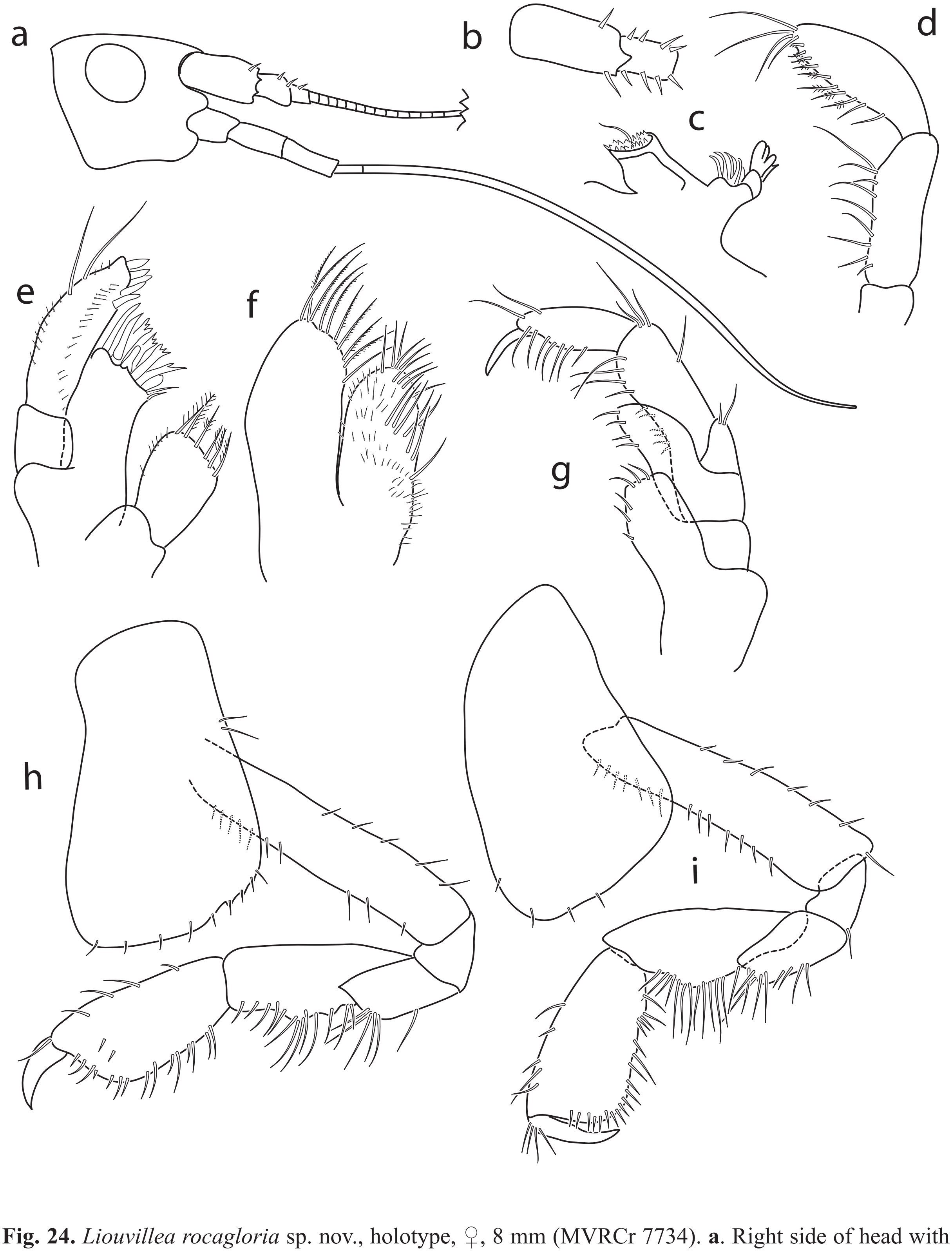

Fig. 24. *Liouvillea rocagloria* sp. nov., holotype, ♀, 8 mm (MVRCr 7734). **a**. Right side of head with antenna 1 and 2. **b**. Articles 1–2 of antenna 1. **c**. Mandible. **d**. Mandible palp. **e**. Maxilla 1. **f**. Maxilla 2. **g**. Maxilliped. **h**. Gnathopod 1. **i**. Gnathopd 2. Figure not scaled.

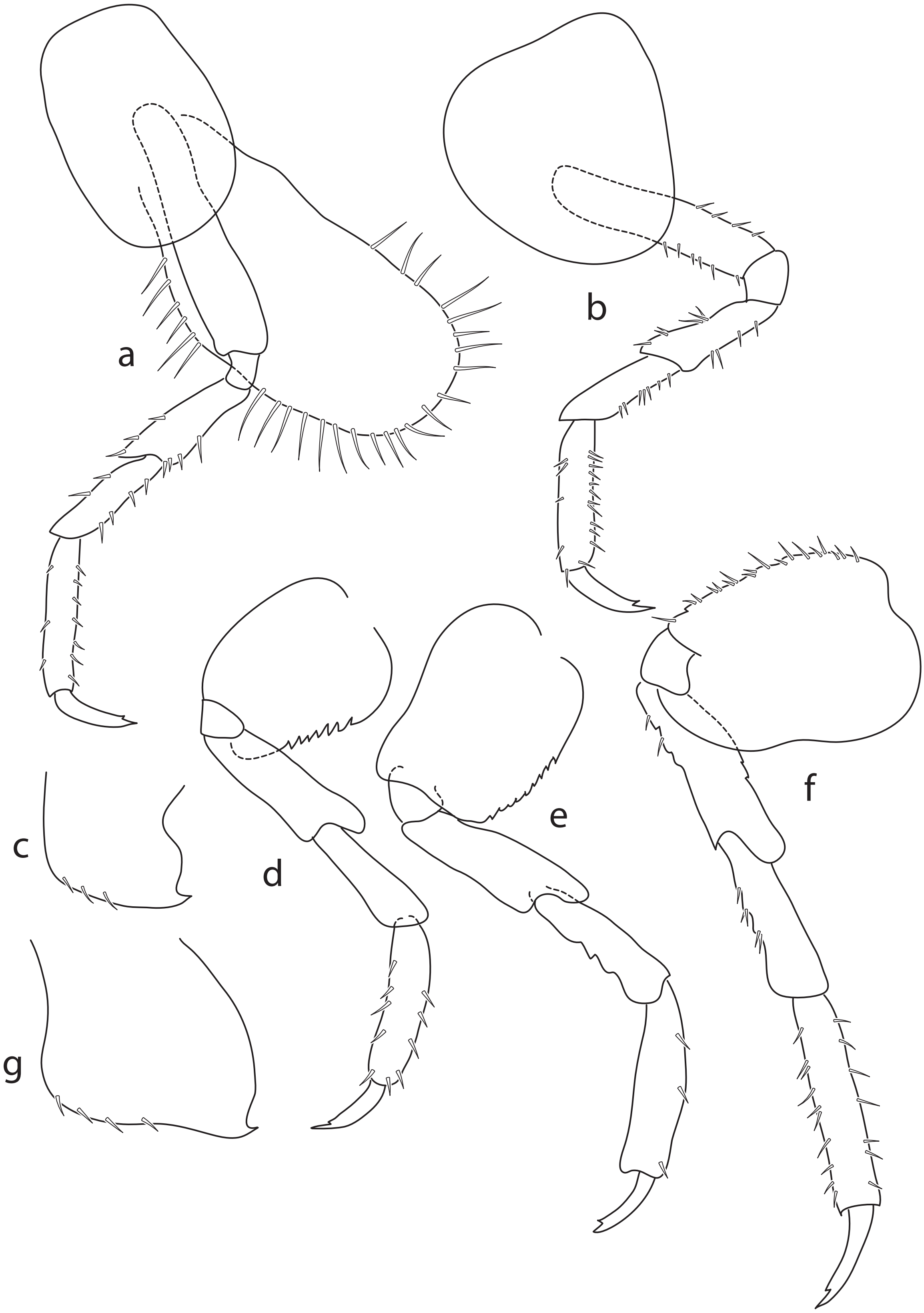

Fig. 25. *Liouvillea rocagloria* sp. nov., holotype, ♀, 8 mm (MVRCr 7734). **a**. Pereopod 3. **b**. Pereopod 4. **c**. Epimerial plate 2. **d**. Pereopod 5. **e**. Pereopod 6. **f**. Pereopod 7. **g**. Epimeral plate 3. Figure not scaled.

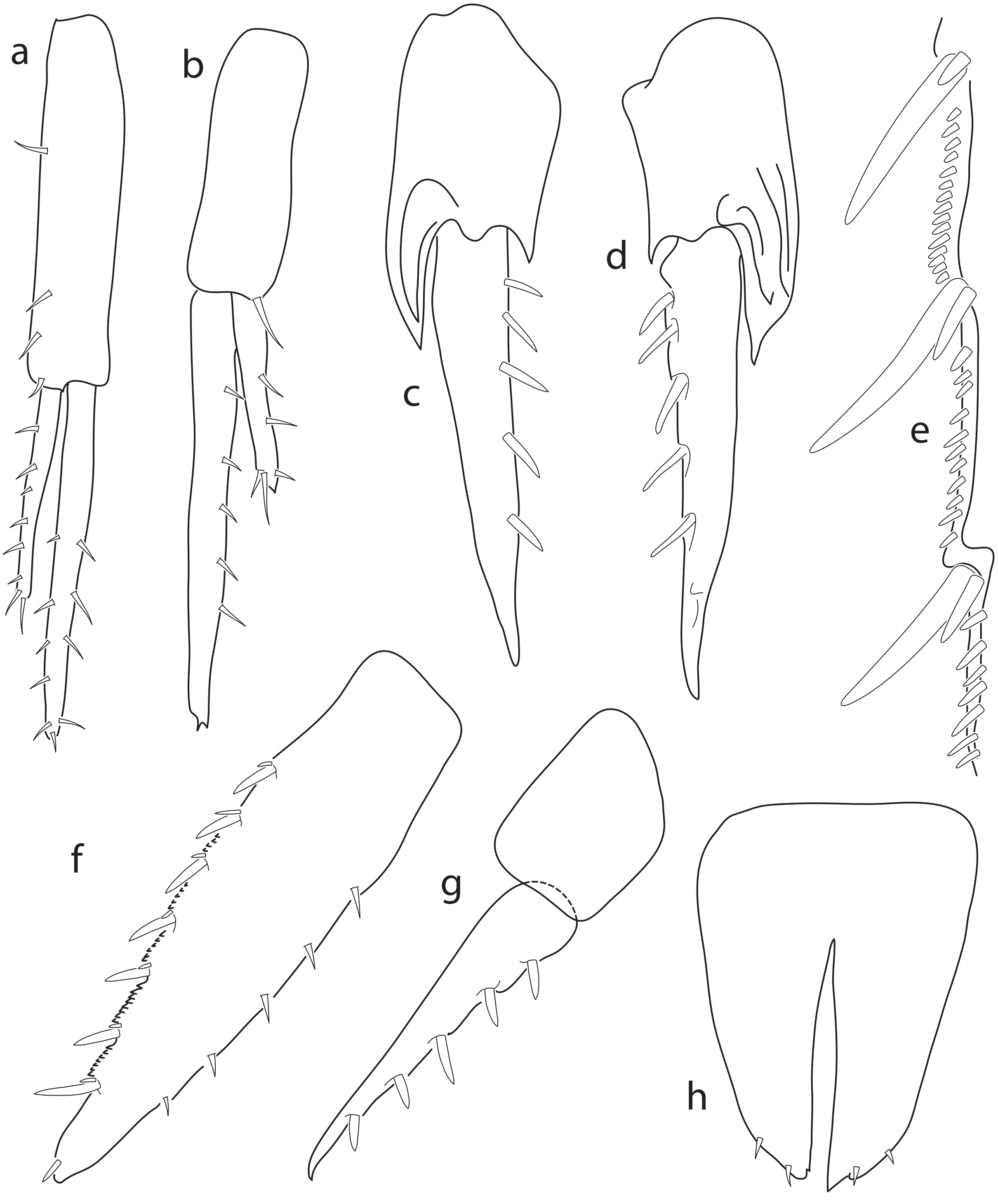

Fig. 26. *Liouvillea rocagloria* sp. nov., holotype, ♀, 8 mm (MVRCr 7734). **a**. Uropod 1. **b**. Uropod 2. **c**. Uropod 3. **d**. Uropod 3. **e**. Margin of ramus of uropod 3. **f**. Uropod 3 ramus. **g**. Uropod 3 (partially) different aspect. **h**. Telson. Figure not scaled.

oculata. Gnathopod 2 propodus is rectangular (vs much wider), subequal to carpus (vs clearly longer), length of gnathopod 2 propodus subequal to the one of gnathopod 1 (vs much longer). For uropod 3 Chevreux reports “the inner ramus is represented by a long spiniform process of the peduncle, without traces of articulation”. No ciliated setae found here, while ciliated setae together with spines can be found in *Liouvillea oculata.* The telson in the present species is cleft about ⅔ of length (vs ¼ of length).

Family Stenothoidae Boeck, 1871

Genus ***Ligulodactylus*** Krapp-Schickel, 2013

Ligulodactylus macrocheir (Schellenberg, 1926)

Metopoides macrocheir Schellenberg, 1926: 318–319, fig. 38.
Proboloides nititus Ren, 1991: 286, fig. 61.
Scaphodactylus simus Rauschert & Andres, 1994: 321–329, figs 1–6.

Ligulodactylus macrocheir – Krapp-Schickel 2013: 836, fig. 3.

Material examined

CHILE • unrecorded number of specs; Bahia Hoppner; -46.68855°, -75.48136667°; 10 m depth; 22 Apr. 2015; 351HF24; between algae, together with *Epimeria*; ZMB 34206 • unrecorded number of specs; Isla Fronton; -46.72336667°, -75.2558°; 10 m depth; 20 Apr. 2015; 148HF24; Hydrozoa, together with *Dexamine;* ZMB 34207 • 2 specs; Canal Ultima Esperanza SE; -44.5909°, -73.34921667°; 26 m depth; 10 Apr. 2014; 399HF21; on *Swiftia* sp. (gorgonian octocoral) together with *Liouvillea rocagloria* sp. nov.; ZMB 34203.

Distribution

Type locality and Weddell Sea (Klages 1991)

Depth range

10–385 m.

Type locality

Davis Sea: ‘Gauss Station’, 66°02′ S, 89°38′ E, 385 m (Schellenberg 1926).

Type specimen location

ZMB 20339.

Remarks

This species is well known from the Antarctic and Subantarctic.

Genus ***Torometopa*** J.L. Barnard & Karaman, 1987

Torometopa cf. ***crassicornis*** (Schellenberg, 1931)
Figs 27–29

Metopoides crassicornis Schellenberg, 1931: 98, fig. 52.

Proboloides crassicornis – Ruffo 1949: 13. — J.L. Barnard 1958: 131; 1969: 447.
Metopoides crassicornis – Lowry & Bullock 1976: 137–138.

Torometopa crassicornis – J.L. Barnard & Karaman 1991: 700. — De Broyer & Jażdżewski 1993: 95. — De Broyer & Rauschert 1999: 287, table 1.

Material examined

CHILE • unrecorded number of specs; Isla Fronton; -46.72336667°, -75.2558°; 10 m depth; 20 Apr. 2015; 147HF24; on Hydrozoa; repository not recorded (Figs 27–29) • unrecorded number of specs; Canal Chaicayan; -46.6635667°, -75.30491667°; 23 m depth; 185HF24; 23 Apr. 2015; on red-brown *Bolocera occidua* McMurrich, 1893; repository not recorded.

Distribution

Falkland Islands: Berkeley Sound.

Magellan Province: Chilean fjord region (this study).

Depth range

10–197 m.

Type locality

Falkland Islands: Berkeley Sound, 16 m; -52.483333°, -60.6°, 197 m; -53.75°, -61.166667°, 140–150 m (Schellenberg 1931).

Type specimen location

Swedish Museum of Natural History (Stockholm).

Remarks

Although the specimens are immature, the description by Schellenberg fits well, and his type material has the same small body size.

Discussion

SCUBA diving allows us to observe animals in their natural habitat and potential hosts like sea anemones, sponges, gorgonians, soft corals, hydrozoans or bryozoans can be individually collected by divers. Thus host and associates are kept together in the jar and the associate cannot escape during collection. It is also possible that divers dislodge individual specimens (e.g., caprellids, clinging on to their hydrozoan host) with forceps (Takeuchi unpubl. res.). When specimens live inside sponges or ascidians it is possible to suck them out of their hosts with underwater aspirators (Hughes & Ahyong 2016) during the dive.

Despite the methodological problems of finding associations between amphipods and other invertebrates or algae and kelp during the collection events, there are published reports in the past. In order to give a rough overview, we only selected reviews summarising amphipod invertebrate associations. Especially Wim Vader and coworkers collected examples on these aspects of amphipod ecology. In 1972 Vader summarized publications on the associations between gammarid and caprellid amphipods with medusae. In the same year he reviewed associations between amphipods and molluscs (Vader 1972), which Vader & Tandberg (2013) extended in a second paper on amphipod–mollusc associations. In 1978 another such review papers on amphipod echinoderm association followed (Vader 1978). Vader (1983) listed the associations of amphipods with actiniarians and in 1996 on *Liljeborgia* Spence Bate, 1862 and hermit crab associations. Vader & Tandberg (2015) listed amphipods associated with other crustaceans and in 2020 both authors updated the associations of amphipods and sea anemones.

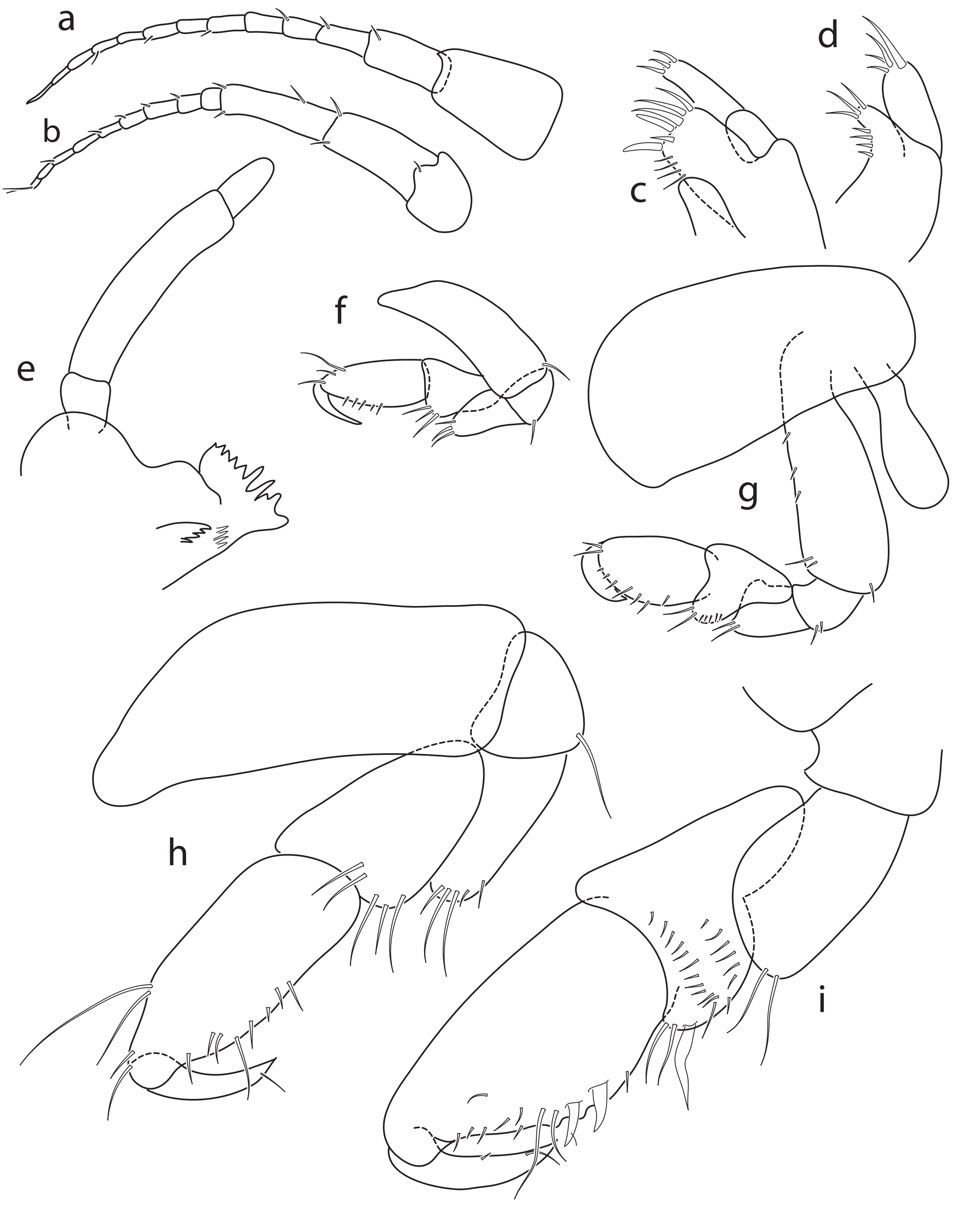

Fig. 27. *Torometopa* cf. *crassicornis* (Schellenberg, 1931). **a**. Antenna 1. **b**. Antenna 2. **c**. Maxilla 1. **d**. Maxilla 2. **e**. Mandible. **f**. Gnathopd 1. **g**. Gnathopod 2. **h**. Gnathopod 1, enlarged. **i**. Gnathopod 2, ischium to dactylus, also enlarged. Figure not scaled.

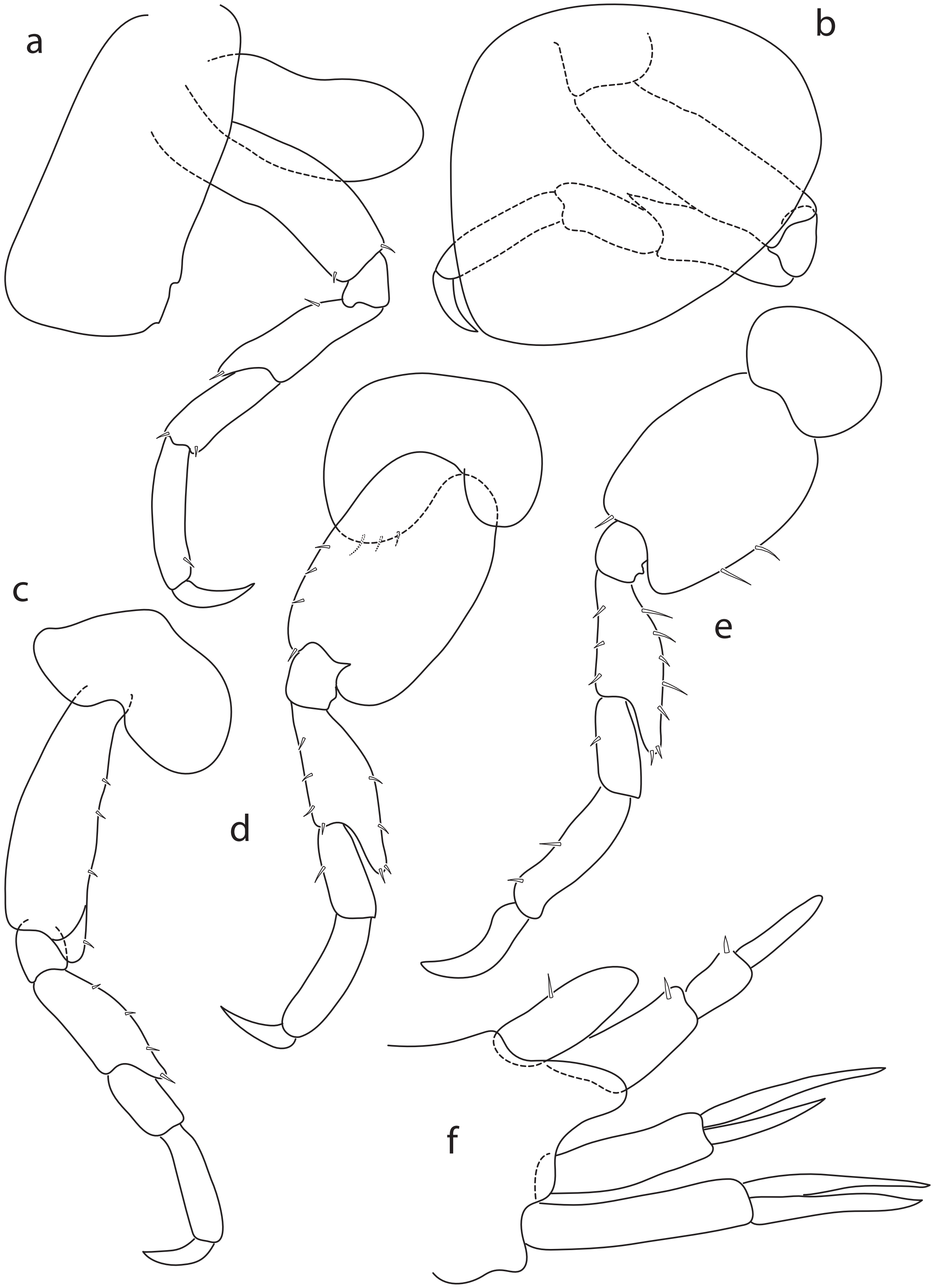

Fig. 28. *Torometopa* cf. c*rassicornis* (Schellenberg, 1931). **a**. Pereopod 3. **b**. Pereopod 4. **c**. Pereopod 5. **d**. Pereopod 6. **e**. Pereopod 7. **f**. Urosome, lateral aspect with uropods 1–3 and telson. Figure not scaled.

The amphipod species from the Chilean fjord region, taxonomically described in this study, were hand-collected by SCUBA divers mostly from benthic invertebrates. *Sunamphitoe femorata* was found on *Macrocystis pyrifera* in two of our samples. Cerda *et al.* 2010 described nest-building behaviour of this amphipod species on the kelp *Macrocystis pyrifera* from northern-central Chile. They found out that the amphipods build domiciles of their host plants and at the same time eat from them. They live only for 1–4 days in these nests. *Sunamphitoe femorata* was also found on Hydrozoa Owen, 1843 in one of our samples. To our knowledge this is the first record of the species on Hydrozoa.

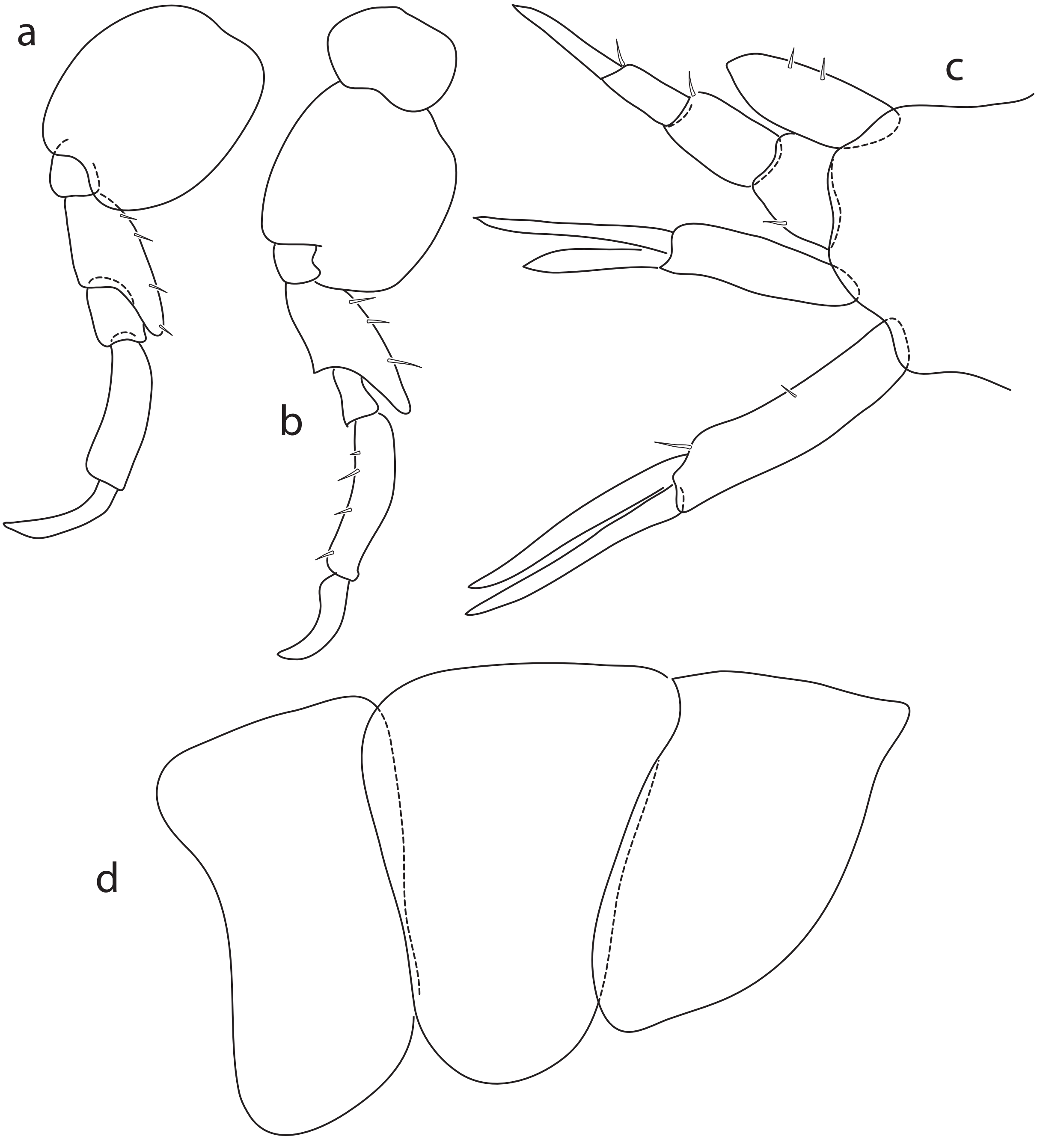

Fig. 29. *Torometopa* cf. c*rassicornis* (Schellenberg, 1931), second specimen. **a**. Pereopod 6. **b**. Pereopod 7. **c**. Urosome with uropods 1–3 and telson. **d**. Pleon segments with epimeral plates. Figure not scaled.

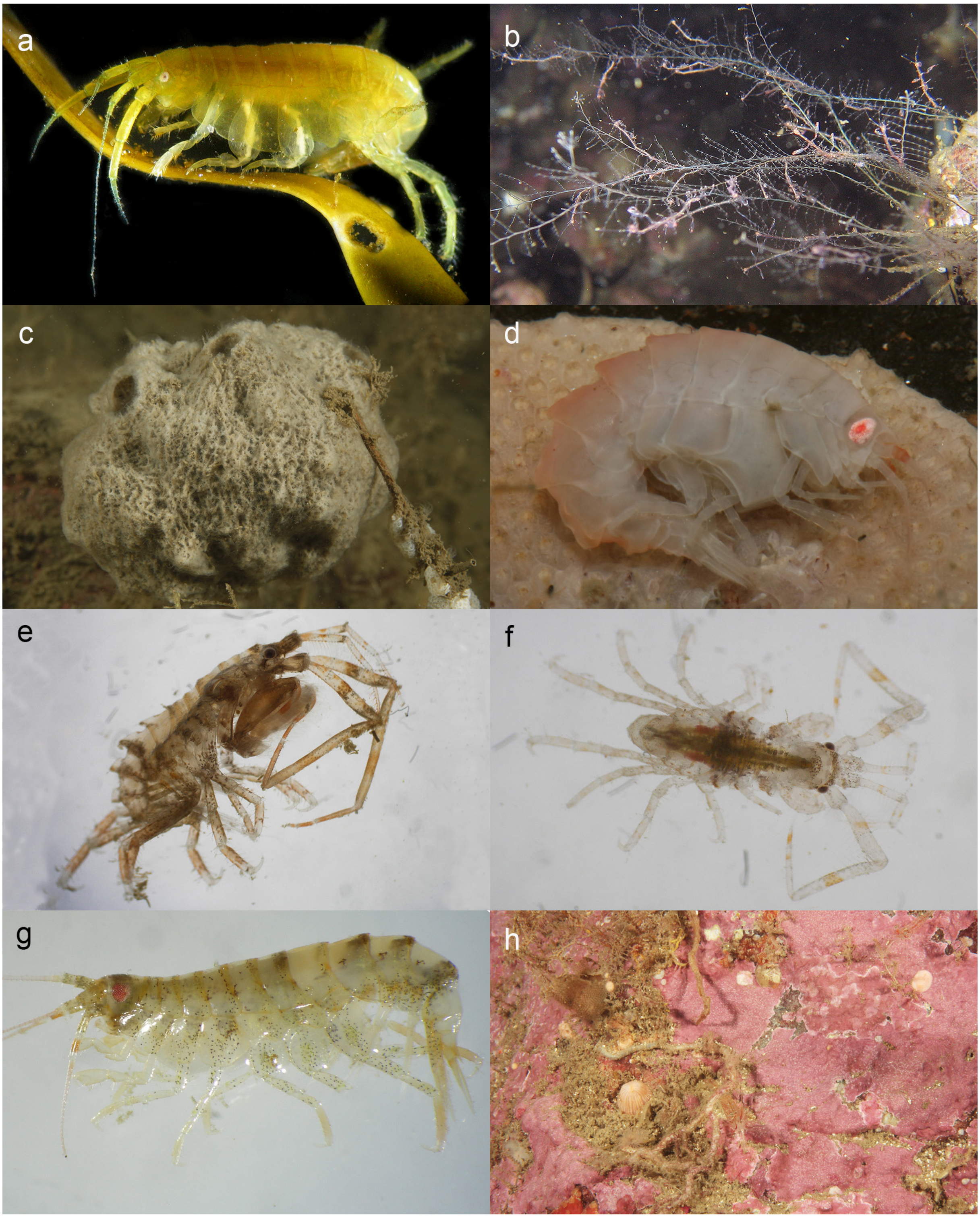

Fig. 30. In vivo photos of some of the described amphipods. **a**. *Sunamphitoe femorata* (Krøyer, 1845). **b**. Numerous specimens of *Caprella* cf. *equilibra* Say, 1818, on the hydrozoan *Halopteris schucherti* Galea, 2006. **c**. Habitat of *Leucothoe kawesqari* Esquete & Aldea, 2015, on sponge. **d**. *Epimeria (Metepimeria) acanthurus* (Schellenberg, 1931). **e–f**. *Podocerus* cf. *danae* (Stebbing, 1888). **g**. *Liouvillea rocagloria* sp. nov. **h**. Habitat of *Liouvillea rocagloria* sp. nov. Photos: Iván Hinojosa (a); V. Häussermann & G. Försterra (b, d, h); G. Försterra & V. Häussermann (c, e–g).

Another species redescribed in this study, which was found on Hydrozoa, is *Epimeria (Metepimeria) acanthurus.* The material of the original description of this species was found on rocky bottoms with ascidiaceans and sponges (Schellenberg 1931). Another species of the same genus, *Epimeria oxicarinata* Coleman, 1990, was found climbing on Hydrozoa (in aquaria) and the fixed ethanol specimens from trawls also had remains of Hydrozoa (possibly Plumulariidae McCrady, 1859) in the stomachs (Coleman 1990).

Labriphimedia vespuccii was collected from the sea bottom covered with coarse sand and stones and a second sample was from "rock, on gorgonian". There are a few records of amphipods associated with gorgonians (Vader & Tandberg 2020), but so far no iphimediid amphipods.

One specimen of *Leucothoe kawesqari* was collected from the leather-coral *Alcyonium* sp. and four animals were found inside sponges. Leucothoids are commonly found inside sponges, and some species occur inside ascidians and bivalves (White 2011). However, this is the first record of a leucothoid living on a leather-coral (White pers. com.)

Four of six stations, where *Liouvillea rocagloria* sp. nov. was found, show hydrozoans as substrate, one sample was found on octocorals (*Swiftia* sp.) and one from bryozoans. For the only other species of the genus, *Liouvillea oculata* Chevreux, 1912, the substrate preference was not recorded in the literature.

Stenothoidae are known to be associated with other invertebrates, such as sea anemones, bivalves or hermit crabs (Krapp-Schickel & Vader 2015). Two stenothoid species were redescribed in this study: *Ligulodactylus macrocheir* was found on hydrozoans and octocorals (*Swiftia* sp.) and *Torometopa* cf. *crassicornis* lived on hydrozoans and the sea anemone *Bolocera occidua*.

These few examples show that SCUBA collecting of benthic invertebrates yields, apart from morphological and taxonomical traits, additional data on the ecology of species compared to catching material from research vessels.

All species described in this study, except for *Liouvillea rocagloria* sp. nov., are known to science. Several of these species from the Magellan Province in this study had also been found around the Falkland Islands in the past: *Haplocheira barbimana robusta*; *Epimeria (Metepimeria) acanthurus*; *Labriphimedia vespuccii* and *Torometopa* cf. c*rassicornis.* This co-occurance of amphipod species around the Falklands and the Magellan Province is a known biogeographic pattern, which was examined by De Broyer & Jazdzewska (2014): for the Magellan Province 174 benthic species were listed (De Broyer & Rauschert 1999) whereas on the Falklands 104 species were counted, with an overlap of 67 species (64.4%) between both regions. They explained these zoogeographic affinities of both regions by the wide Patagonian shelf connecting both areas.

Other species in this paper have a much wider range, like *Sunamphitoe femorata*, which was originally described from Valparaiso on the west coast of Chile, the Magellan Province but also occurs on the coast of Argentina and Atlantic islands (Falklands, and in-midst the Atlantic Ocean on Tristan da Cunha and Gough Island). One species, *Ligulodactylus macrocheir*, had previously only been recorded in the Davis and Weddell Sea (see De Broyer *et al.* 2007) and was found in this study for the first time in the Magellan Province.

Labriphimedia vespuccii was originally described from the Falklands and we found it in the Magellan Province for the first time. There are several minor differences between specimens from both locations, which could indicate reduced gene flow between both populations, or – alternatively, both could turn out to be separate species when applying molecular methods in future.

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