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GAMMAROPSIS ARAWAKIA, A NEW SPECIES OF
MARINE AMPHIPODA (CRUSTACEA)
FROM JAMAICA

James Darwin Thomas and J. L. Barnard

Abstract.—One of the dominant amphipods in algal turf communities at Discovery Bay, Jamaica, is a new species, *Gammaropsis arawakia*, characterized by long peduncle of uropod 3, small coxa 1, 3-articulate accessory flagellum, extremely setose gnathopod 2, one pair of dorsal teeth on urosomite 1, pointed ocular lobe, and oblique upper margin of cephalic sinus for antenna 2.

Gammaropsis arawakia is very abundant in the algal turf that now (1986) covers the heavily disturbed reef at Discovery Bay, Jamaica. The living coral was damaged by the hurricane of 1980 and any regenerants almost completely exterminated by algal turf in 1984-1986. This turf developed following the death of the herbivorous urchins *Diadema antillarum* (information from Director Dr. Jeremy Woodley). A nearby loading dock for bauxite may also be a factor in the disturbance, although we are informed that the coral damage and turf development are common to most of the north coast of Jamaica. Discovery Bay is also characterized by the presence of large, cold freshwater seeps. Other amphipod genera present in this turf mat are *Lembos*, *Elasmopus* and *Hyale*.

Isaeidae

Gammaropsis arawakia, new species

Figs. 1-3

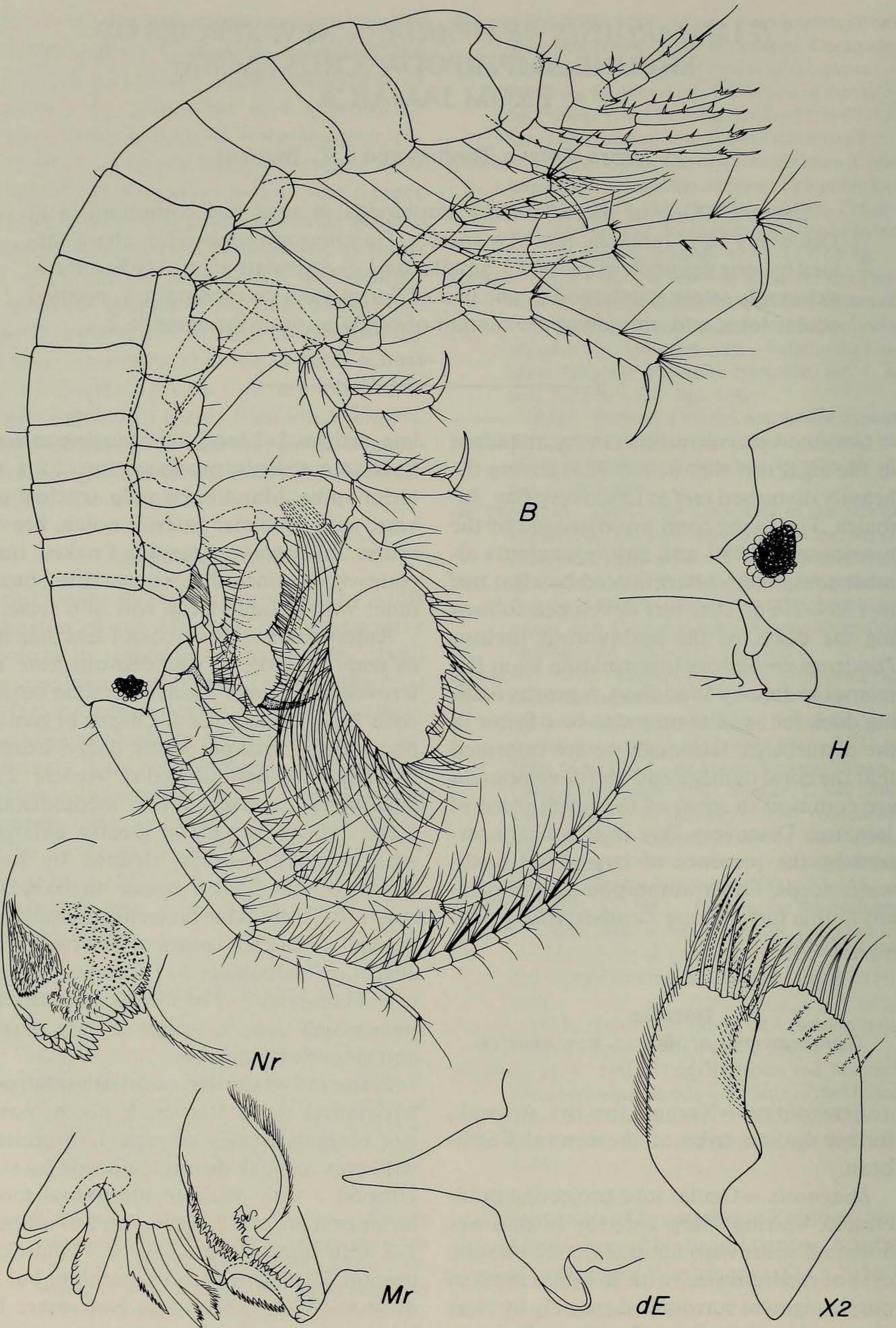
Etymology.—Named for the Arawak, former Indian tribe of the central Caribbean.

Diagnosis.—Ocular lobe projecting moderately, bearing sharp anterior cusp, lower antennal sinus with oblique dorsal margin; eyes of medium size, with irregular mass of purple pigment surrounded sparsely by clear ommatidia. Accessory flagellum 3-articu-

late, articles 1-2 long, apical article minute. Epistome sharply produced into long anterior spike. Mandibular palp article 3 clavate, with subdistal anterior notch, heavily setose. Inner plate of maxilla 1 naked, outer plate with 9 spines. Plates of maxilla 2 broad, inner with oblique facial row of 6 setae.

Anterior coxae short, coxa 1 less than half as wide as coxa 2, rounded-quadrate anteroventrally, coxa 3 narrower than coxa 2, coxa 5 as long as coxa 4. Carpus of gnathopod 1 longer than propodus, dactyl strongly overreaching oblique palm. Article 2 of gnathopod 2 densely setose mediodistally, carpus short, propodus greatly enlarged, palm oblique, convex, defined by tooth lacking spine, densely setose medially and anteriorly, these setae projecting dorsally and medially. Locking spines of pereopods 3-4 absent, of pereopods 5-7 forming unequal pair. Pereopods 5-7 of similar structure but increasingly longer, article 2 very narrow and smooth posteriorly.

Epimera 1-3 similar, each with small posteroventral tooth and setule-notch, posterior margins weakly convex. Urosomite 1 with pair of weak dorsal teeth side by side. Uropod 1 with medium interramal tooth, lacking on uropod 2; each ramus of uropods 1-2 with elongate apical spine. Peduncle of uropod 3 elongate, rami lanceolate but almost rod-like, subequal to each other but longer than peduncle, outer ramus with



elongate apical spine-setae about as long as peduncle of uropod 2. Telson ordinary.

Description of male "a" 2.09 mm.—Left mandibular incisor with four teeth, lacinia mobilis with four teeth, main rakers three. Apex of palp on maxilla 1 with four spines, one apicolateral spine-seta, 3 subdistal facial setae; inner plate short, softly triangular. Inner plate of maxilliped with 3 medial setae, 7 apical setae, three stout apical spines, one ventral facial locking spine and one ventral seta; outer plate with four thick serrate medial spines, two similar but thinner apical spines and 2 apical setae, ventral surface with 11 scattered setae; dactyl elongate, nail of medium length, with three accessory setules (Figs. 1–3).

Apices of rami on uropods 1–2 as in enlarged illustration, with medial elongate spine and short lateral spine, except inner ramus of uropod 2 with long and short spines reversed.

Description of female "b" 2.47 mm.—Oostegites 2 and 5 short, slender, with 2 and 6 setae each, oostegites 3 and 4 twice as long and wide, with 10 setae each; gills 2–3 and 6–7 sac-like, slender, 3 times as long as broad, gills 4 and 5 about 4 times as long as broad, scarcely broader than others.

Holotype.—USNM No. 195175, male "a" 2.09 mm.

Type locality.—Jamaica station 1B, Discovery Bay, backreef, 1 m, 6 Sep 1986, on *Acropora palmata* rubble mound near channel marker, formaldehyde wash of algal turf, coll. J. D. Thomas and J. Clark.

Material.—Type locality, female "b" 2.47 mm, female "c" 2.14 mm, male "d" 2.03 mm and 15 other specimens. Numerous

specimens from many other similar samples also deposited in Smithsonian crustacean collections.

Relationship.—There are 105 species of *Gammaropsis* so that it was a laborious task to distinguish our species from the score of species that it resembles. To avoid a lengthy discussion we have eliminated those species not fitting significant parts in the following diagnosis:

Ocular lobe pointed, short; eyes small; antennae of medium length; coxae 1–5 short and almost evenly extended; carpus of gnathopod 1 long; carpus of gnathopod 2 short, propodus evenly rectangular, palm shorter than posterior margin of propodus, regular, poorly sculptured, defined, medial surface of hand heavily setose; epimeron 3 with point; urosome with only one pair of dorsal teeth; peduncle and rami of uropod 3 elongate, armaments of rami very sparse and simple.

Gammaropsis (= *Eurystheus*, *Kermystheus*, *Podoceropsis*, *Megamphopus*, *Segamphopus*, *Pseudeurystheus*, see Barnard 1973) contains a diversity of species not yet organized cladistically. Note that *Paranaenia* Chilton (1884) is being revived by Barnard & Karaman (1989). *Gammaropsis arawakia* resembles *Segamphopus* and *Pseudeurystheus* in the elongate carpus of gnathopod 1 and such species as *G. exsertipes* and *G. spinosa* in the elongate peduncle of uropod 3. It also resembles several species with densely setose gnathopod 2 such as *G. setifera*, *G. tonichi*, and *G. tawahi*. The narrow coxa 1 suggests certain species of *Megamphopus* but most members of that "genus" have other anomalies in gnathopods

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Fig. 1. *Gammaropsis arawakia*, unattributed figures = holotype male "a" 2.09 mm; d = male "d" 2.03 mm. Capital letters denote main parts in the following list; lower case letters to right of capital letters or in body of figure indicate modifications as follows; lower case letters to left of capital letters indicate specimens described in captions: B, body; D, dactyl of thoracic leg; E, prebuccal lateral; G, gnathopod; H, head; M, mandible; N, mandibular molar; O, outer ramus; P, pereopod; R, uropod; S, maxilliped; T, telson; V, palp; W, pleon; X, maxilla; r, right; s, setae removed; t, left.

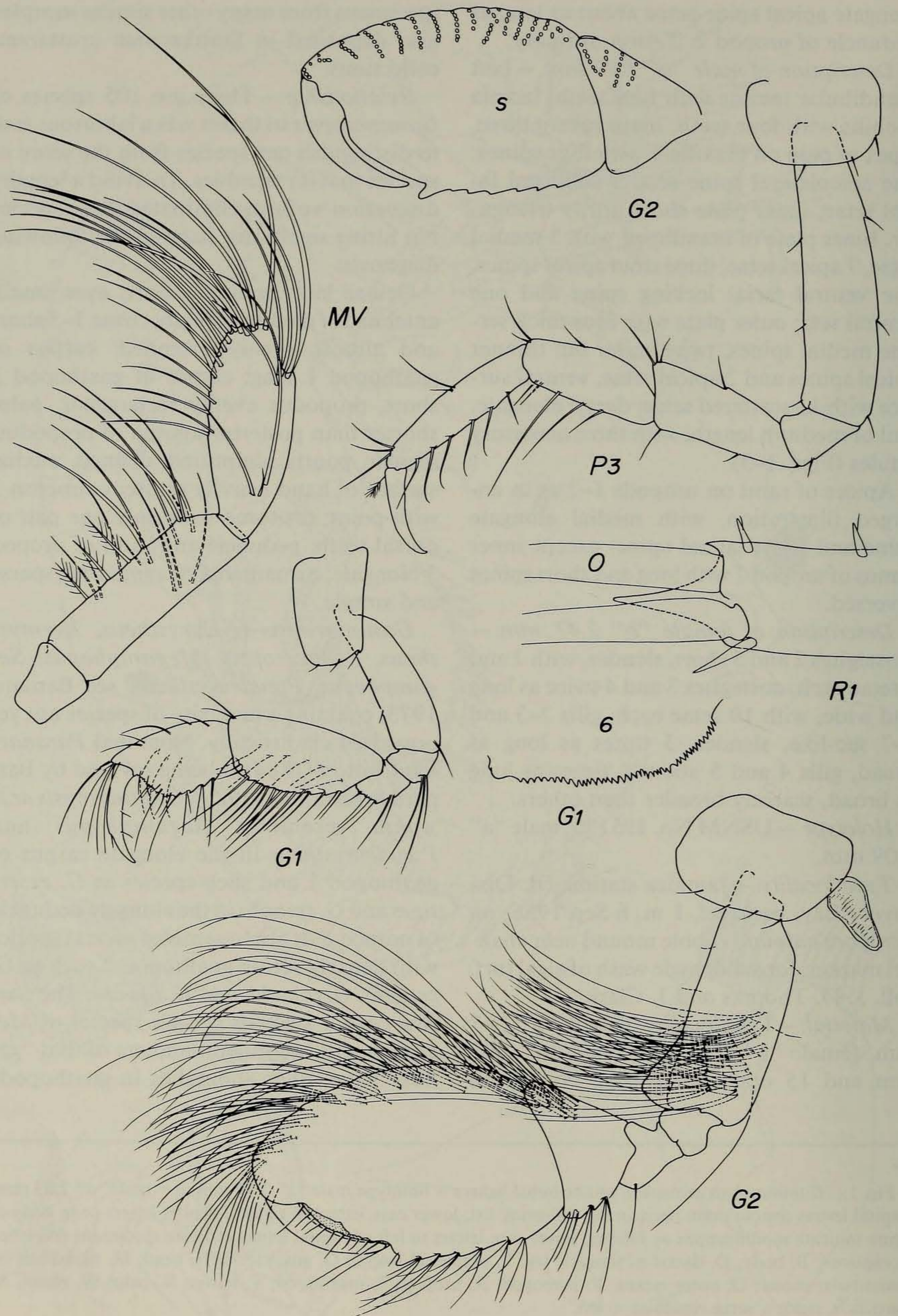


Fig. 2. *Gammaropsis arawakia*, holotype male "a" 2.09 mm. Letter codes see Fig. 1.

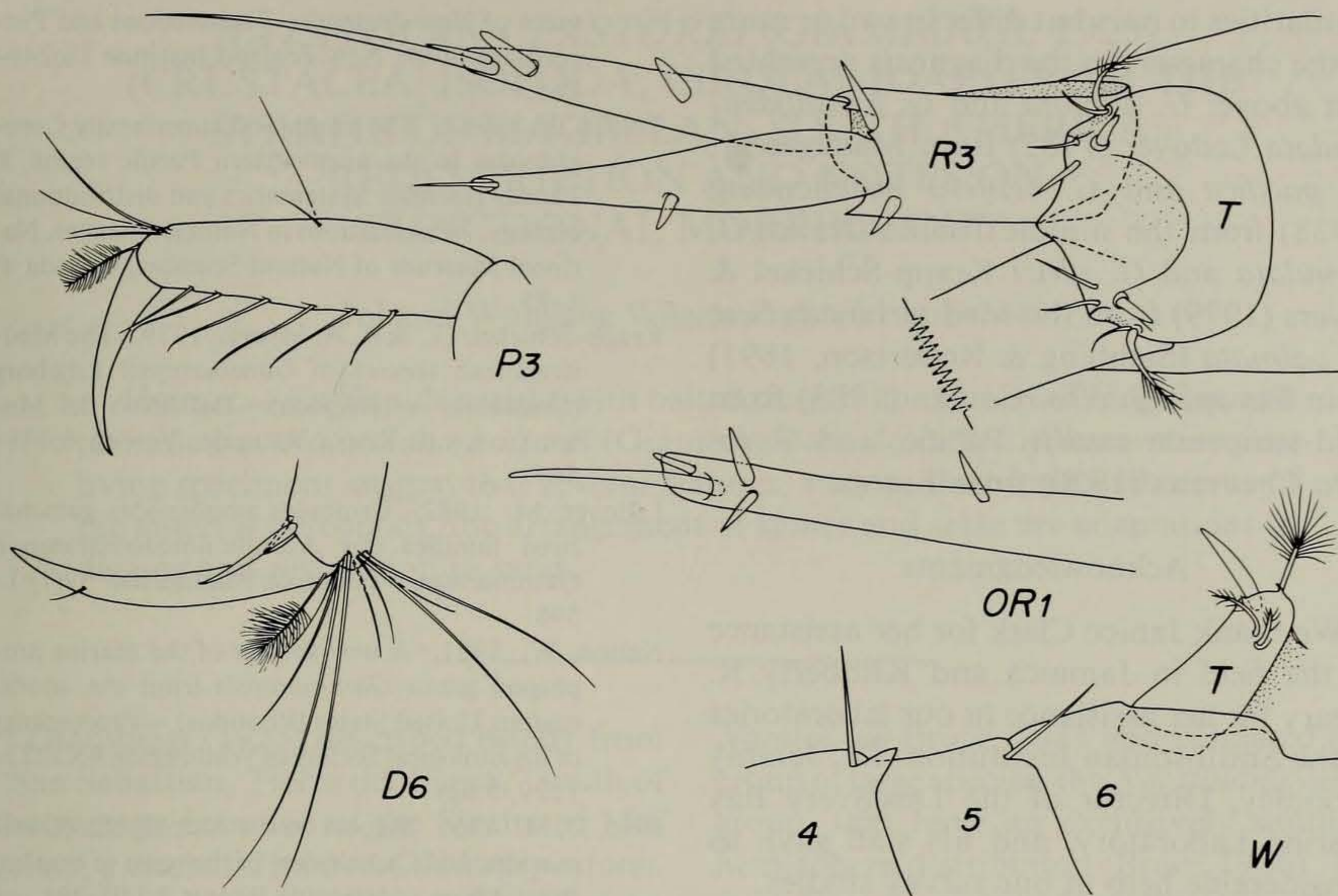


Fig. 3. *Gammaropsis arawakia*, holotype male "a" 2.09 mm. Letter codes see Fig. 1.

or other coxae. We have ignored species of "*Podoceropsis*" and "*Kermystheus*" which have severely reduced accessory flagella.

Gammaropsis tawahi Barnard (1972), from New Zealand, has an elongate peduncle on uropod 3 and densely setose gnathopod 2 but the palm bears a tooth near the hinge, the apical armaments on uropods 1–3 are all short, mandibular palp article 3 lacks a notch and the antennae are shortened and sparsely setose.

Our species is close to *G. averus* Reid (1951) from West Africa, but differs in the broader hand of gnathopod 2 and less sculptured palm.

Our species differs: From *G. sutherlandi* Nelson (1981), North Carolina, in the small even coxae 1–5, strongly subchelate gnathopod 2 and simpler spination of uropod 3; From *G. hirsuta* Reid (1951), West Africa, in the more sculptured palm and long propodus of male gnathopod 2 and the longer carpus of gnathopod 1; From *G. tonichi* Barnard (1969), Pacific Mexico, in the presence of only one pair of teeth on the urosome,

and the lack of radical transformations occurring in male gnathopod 2 and coxa 7; From *G. spinosa* Shoemaker (1942), Pacific Mexico, in the small coxae 1–5 and medium (versus very short) antennae; From *G. chiltoni* and *G. haswelli* Thomson (1897), New Zealand, in the sharp ocular lobes, small coxae 5–6 and the ordinary, not grotesque, male gnathopod 2; From the pan-tropical *G. atlantica* Stebbing (1888) in the normal and small eyes and longer carpus of gnathopod 1; From *G. thomsoni* Stebbing (1888), New Zealand, in the more simplified armaments on the more elongate rami of uropod 3; From *G. exsertipes* Stebbing (1888), Kerguelen, in the ordinary condition of coxae 1–5 (versus enlarged), male gnathopod 2 (versus grotesque or elephantine), epimeron 3, regular length of antennae and sharp ocular lobes; From *G. anomala* Chevreux (1926), warm eastern Atlantic, in the normal gnathopod 2 and pereopod 5 which in the Lusitanian species are respectively weakly palmate and elephantine.

The following species also have many

similarities to ours but differ in two or more of the characters in the diagnosis presented just above: *G. dilatata* and *G. pseudodenticulata* Ledoyer (1982) from Madagascar; *G. pacifica* and *G. setifera* Schellenberg (1938) from the middle Pacific Ocean; *G. crenulata* and *G. ulrici* Krapp-Schickel & Myers (1979) from the Mediterranean Sea; *G. palmata* (Stebbing & Robertson, 1891) from Europe; *G. ellisi* Conlan (1983) from cold-temperate eastern Pacific; and *G. lobata* Chevreux (1920) from Europe.

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