The Hippoidea (Decapoda, Anomura) of the Marquises Islands, with description of a new species of *Albunea*

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ABSTRACT
The hippoid fauna of the Marquises Islands is summarized, based primarily on materials collected by MUSORSTOM 9. A new species of sand crab of the family Albuneidae, *Albunea marquisiana,* is described based on a sample size that is unusually large for an albuneid. This new species is characterized by the shape of the dactyli, the spatulate and inflated form of the male telson and the composition of the carapace groove 10 and 11, which are broken into smaller elements. It is most closely related to *A. holthuisi* Boyko & Harvey, 1999, which occurs in the Indo-Pacific from Madagascar eastward to Indonesia. New records are given for *A. speciosa* Dana, 1852, the first record of this species from the Marquises Islands, and *Hippa adactyla* Fabricius, 1787.

KEY WORDS
Hippoidea,
Albunea,
Hippa,
new species,
Marquises Islands.

RÉSUMÉ
*Les Hippoidea (Decapoda, Anomura) des îles Marquises, avec une description d'une nouvelle espèce d'*Albunea.
La faune des Hippoidea des îles Marquises est résumée, sur la base des collections réalisées par la campagne MUSORSTOM 9. Une espèce nouvelle de crabe de la famille des Albuneidae, *Albunea marquisiana*, est décrite, fondée sur un spécimen de taille inhabituellement grande pour un Albuneidae. Cette nouvelle espèce est caractérisée par la forme des dactyles, la forme renflée et en spatule du telson du mâle et la structure des sillons 10 et 11 de la carapace, brisés en éléments plus petits. Elle est proche de *A. holthuisi* Boyko & Harvey, 1999 qui est présente dans l'Indo-Pacifique, de Madagascar vers l'est jusqu'à l'Indonésie. De nouvelles récoltes sont mentionnées pour *A. speciosa* Dana, 1852, la première des Îles Marquises, et pour *Hippa adactyla* Fabricius, 1787.

MOTS CLÉS
Hippoidea,
Albunea,
Hippa,
nouvelle espèce,
îles Marquises.

INTRODUCTION

Although the species of Indo-West Pacific Hippoidea were summarized recently by Boyko & Harvey (1999), new material continues to yield new species and locality data, especially for albuneids. Previously, only a single species of hippoid, *Hippa adactyla* Fabricius, 1787, was known from the Marquises Islands (de Man 1896). The large, virtually unprecedented samples of albuneids and hippids from the Marquises Islands collected by MUSORSTOM 9 and associated collectors allow summary of the hippoid fauna of these islands, as well as the description of a new, and apparently endemic, species. The first specimens of this species were found in samples collected by the National Geographic/Smithsonian/Bishop Museum Marquises Expedition (NGSBM Expedition) of 1967. These few specimens from NGSBM were subsequently augmented by a large series collected by MUSORSTOM 9, which confirmed the species as new and allowed it to be described herein. Two additional species of hippoids were collected by MUSORSTOM 9, with one new to the fauna of the Marquises. Three hippoid species are now known from the Marquises Islands.

The majority of the MUSORSTOM material is deposited in the Muséum national d'Histoire naturelle (MNHN), with a few specimens deposited in the American Museum of Natural History, New York, NY, USA (AMNH) and the National Museum of Natural History, Washington, D.C., USA (USNM). The material from NGSBM is deposited in the USNM. All specimens designated as types are cited as such in the material examined; all specimens of the new species without type designation are referred specimens.

The reference lists are restricted to the original description of the species and the most important recent citations.

Measurements are given for carapace length (cl), as measured from the middle of the anterior margin (including rostrum, if any) to the midline of the posterior concavity. The numbering system of the carapace grooves (CG) (Fig. 1) and the dactyl terminology follow that introduced by Boyko & Harvey (1999) and Boyko (1999).

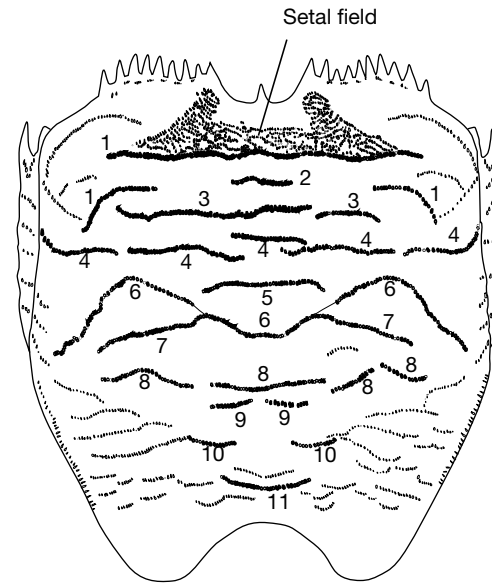

FIG. 1. — Diagrammatic albuneid carapace, based on *Albunea microps* Miers, showing setal field behind front, and 11 setose carapace grooves discussed in species account (from Boyko & Harvey 1999).

Illustrations were created by capturing specimen images on a Macintosh™ computer with a digital camera connected to a Wild M8 dissecting microscope. These images were then prepared for publication using the programs Adobe Photoshop™ and Adobe Illustrator™. I attempted to accurately record the position and size of setae in these drawings but, for clarity of presentation, excluded plumules of plumose setae.

LIST OF STATIONS

Stations of National Geographic/Smithsonian/Bishop Museum (NGSBM) Expedition to the Marquises Islands, French Polynesia, 1967 (coll. D. M. Devaney on *Pele*):

Stn NH-VIII, Haul 5, 08°51'S, 140°00'W, Baie Hatuatua, Île Nuku Hiva, 26 fathoms (= 48 m), 18.IX.1967; stn EO I, Haul 1, 08°00'S, 140°50'W, off northern coast of Ile Eiao, 28-29 fathoms (= 51-53 m), 21.IX.1967; stn UP II, Haul 4, off west coast of Île Ua Pou, 40-45 fathoms (= 73-82 m), 23.IX.1967; stn FH I, Haul 1, 10°27-30'S, 138°40'W, west coast of Île Fatu Hiva, 41-43 fathoms (= 75-79 m), 25.IX.1967;

stn TH IX, Haul 1, 09°54'S, 139°07'W, off Hana Moe Noe, northwest coast of Île Tahuata, 37 fathoms (= 68 m), 1.X.1967; stn TH X, Haul 1, 09°52'S, 139°04'W, Haava Straits between Île Tahuata and Île Hiva Oa, 40 fathoms (= 73 m), 1.X.1967.

Stations of MUSORSTOM 9, N/O *Alis* Campagne (coll. J. Poupin & B. Richer de Forges) in the Marquises Islands, French Polynesia (1997):
Stn DW 1143, 09°20.9'S, 140°02.7'W, Île Ua Pou, 18-55 m, 22.VIII.1997; stn DW 1162, 08°56.2'S, 140°06.1'W, Île Nuku Hiva, 45-64 m, 24.VIII.1997; stn DW 1180, 08°46.2'S, 140°04.6'W, Île Nuku Hiva, 80-82 m, 26.VIII.1997; stn DW 1185, 08°48.9'S, 140°03.4'W, Île Nuku Hiva, 31-33 m, 26.VIII.1997; stn CP 1187, 08°49.2'S, 140°03.5'W, Île Nuku Hiva, 25-30 m, 26.VIII.1997; stn DW 1213, 09°50.3'S, 139°03.2'W, Île Hiva Oa, 18-20 m, 29.VIII.1997; stn DW 1214, 09°49.8'S, 139°03.1'W, Île Hiva Oa, 25-40 m, 29.VIII.1997; stn DW 1217, 09°44.5'S, 138°49.9'W, Île Hiva Oa, 85-87 m, 30.VIII.1997; stn DW 1241, 10°27.8'S, 138°40.6'W, Île Fatu Hiva, 85-130 m, 1.IX.1997; stn DW 1242, 10°28.1'S, 138°41.1'W, Île Fatu Hiva, 119-122 m, 1.IX.1997; stn DR 1245, 10°29.2'S, 138°36.2'W, Île Fatu Hiva, 85-130 m, 1.IX.1997; stn DW 1256, 09°25.4'S, 140°07.9'W, Île Ua Pou, 70-72 m, 3.IX.1997; stn DW 1260, 09°25.4'S, 140°07.3'W, Île Ua Pou, 49-100 m, 3.IX.1997; stn DW 1266, 07°57.3'S, 140°42.6'W, Île Eiao, 84 m, 4.IX.1997; stn DW 1279, 07°59.4'S, 140°42.2'W, Île Eiao, 23-70 m, 6.IX.1997; stn DW 1283, 07°53.8'S, 140°34.5'W, Île Mutu One, Hatutaa, 55-56 m, 7.IX.1997; stn DW 1297, 08°54.2'S, 139°37.4'W, Île Ua Huka, 90-150 m, 8.IX.1997; stn CP 1304, 08°54.4'S, 140°13.9'W, Île Nuku Hiva, 50-58 m, 10.IX.1997.

Stations of R. von Cosel, J. Tröndlé & J. Tardy (CTT) in the Marquises Islands, French Polynesia (1997):
Stn 22, 08°56.4'S, 139°34.4'W – 08°56.6'S, 139°34.25'W, Baie de Vaipaee, Île Ua Huka, 6-10 m, X. 1997; stn 24, 08°53.6'S, 139°37'W, Côte NW Baie Haahue, Île Ua Huka, 9-25 m, X.1997; stn 24 bis, 08°53.6'S, 139°37.0'W, Baie Haahue, Île Ua Huka, 25-34 m, X.1997; stn 29, 08°55.7'S, 139°32.0'W, Baie de Hane, Île Ua Huka, 7-11 m, X.1997; stn 32, 08°56.1'S, 139°32.7'W, Côte south of Baie Hiniaehi, Île Ua Huka, 12-17 m, X.1997; stn 34, 08°56.8'S, 139°35.7'W, Baie Haavei, Pointe Tenoni, Île Teuaua, Île Ua Huka, 10-15 m, X.1997.

SYSTEMATICS

Superfamily HIPPOIDEA Latreille, 1825
Family ALBUNEIDAE Stimpson, 1858

Albunea marquisiana n. sp.
(Figs 2; 3)

Albunea sp. Tudge *et al.*, 1999: 2-5, figs 1-3.

MATERIAL EXAMINED. — **Marquises Islands, French Polynesia.** NGSBM: stn TH X, holotype ♂ 10.2 mm (USNM 268577). — Stn NH-VIII, paratype, 1♀5.2 mm (USNM 260948). — Stn EO I, paratype, 1 ♂ 7.9 mm (USNM 260952).— Stn UP II, paratype, 1 ♂ 8.5 mm (USNM 260949). — Stn FH I, one anterior one third of carapace (not measured) (USNM 260950). — Stn TH IX, paratypes, 1 ♂ 7.9 mm, 1 ♀ 8.4 mm (USNM 268578).
MUSORSTOM: stn DW 1279, allotype ♀ 9.3 mm (MNHN-Hi 220). — Stn DW 1143, paratype, 1 ♂ 4.5 mm (MNHN-Hi 221). — Stn DW 1162, one anterior half of carapace 4.7 mm (MNHN-Hi 222). — Stn DW 1180, paratype, 1 ♂ 10.2 mm (MNHN-Hi 223). — Stn DW 1185, 1 ♂ 7.6 mm, one anterior half of carapace 9.5 mm (MNHN-Hi 222 bis). — Stn CP 1187, paratypes, 3 ♂ ♂ 8.9-10.8 mm (MNHN-Hi 224). — Stn DW 1213, 1 ♀ 5.3 mm (MNHN-Hi 225). — Stn DW 1214, one anterior half of carapace 7.1 mm (MNHN-Hi 226). — Stn DW 1217, paratype, 1 ♂ 5.1 mm (MNHN-Hi 227). — Stn DW 1241, paratype, 1 ♂ 6.2 mm (MNHN-Hi 228). — Stn DW 1242, paratype, 1 ♂ 7.2 mm (MNHN-Hi 229). — Stn DR 1245, paratypes, 1 ♂ 10.1 mm, 1 ♀ 9.4 mm (MNHN-Hi 230). — Stn DW 1256, 6 ♂ ♂ 5.2-8.7 mm, 2 ♀ ♀, 6.0-7.4 mm, 1 posterior half of ovigerous ♀ (not measured) (MNHN-Hi 231). — Stn DW 1260, paratypes, 2 ♂ ♂ 8.4-8.9 mm, 1 ♀ 9.7 mm (MNHN-Hi 232). — Stn DW 1266, paratype, 1 ♂ 5.6 mm (MNHN-Hi 233). — Stn DW 1279, paratypes, 4 ♀ ♀ 3.5-8.1 mm (MNHN-Hi 234). — Stn DW 1283, paratype, 1 ♂

5.4 mm (MNHN-Hi 235). — Stn DW 1297, paratype (gonads), 1 ♂ 7.9 mm (MNHN-Hi 236), paratype, 1 ♀ 4.8 mm (MNHN-Hi 237). — Stn CP 1304, paratypes, 3 ♂ ♂ 6.3-8.0 mm (MNHN-Hi 238), paratype, 1 ♂ 7.5 mm (AMNH 17819).
CTT: stn 24, 1 ♂ 4.3 mm, 4 ♀ ♀ 5.8-10.9 mm, 6 juveniles 3.1-3.8 mm, two decalcified juveniles (not measured) (MNHN-Hi 239). — Stn 29, 2 ♀ ♀ 5.0-5.1 mm (MNHN-Hi 240). — Stn 34, paratype, 1 ♂ 6.3 mm (MNHN-Hi 241). — Île Eiao, stn D 77, 7°56.7'S, 139°30.8'W, 54 m, 21.I.1991, coll. J. Poupin, paratype, 1 ♂ 10.0 mm (MNHN-Hi 242). — Île Fatu Hiva, stn D 85, 10°29.4'S, 138°46.5'W, 100 m, 29.I.1991, coll. J. Poupin, 8 ♂ ♂ 5.2-10.0 mm, 2 ♀ ♀ 5.6-6.9 mm, five anterior half carapaces 4.2-7.0 mm (MNHN-Hi 243), paratype, 1 ♀ 6.4 mm (AMNH 17820).

ETYMOLOGY. — The specific name is based on the island group from which all known material has been collected and to which the species appears to be endemic. Gender: feminine.

DISTRIBUTION. — Known only from the Marquises Islands. Depth: between 7-11 and 90-130 m.

DESCRIPTION

Carapace (Fig. 2A) slightly wider than long. Anterior margin concave on either side of ocular sinus, becoming convex laterally with eight to ten large spines along length. Rostrum a small acute tooth, not reaching proximal margin of ocular plate. Ocular sinus smoothly concave and unarmed. Frontal region smooth; setal field broad posteriorly, narrowing anteriorly, with narrow anterior lateral elements and sinuous anterior margin; posterior lateral elements not reaching to posterior lateral elements of CG1. CG1 parallel to anterior margin of carapace, sinuous, slightly crenulate, divided into medial sinuous fragment and curved, posteriorly displaced, lateral elements. Mesogastric region smooth; CG2 absent; CG3 broken into four to six short elements; CG4 with two long lateral elements terminating above apex of CG6, occasionally with two short medial elements. Hepatic region smooth with long setose groove at median of lateral margin. Epibranchial region roughly triangular, smooth. Metagastric region smooth; CG5 broken into two short oblique elements. CG6 strongly crenulate, strongly anteriorly concave medially and sloping out to anteriorly convex lateral thirds. CG7 present as two long oblique elements and separate from CG6. Cardiac region smooth; CG8 with two to four median elements and two slightly longer lateral elements. CG9 present as two short, widely separated elements. CG10 present as two straight lateral fragments, with gap between fragments greater than length of single fragment. CG11 present as two to three irregularly spaced short elements. Branchial region with numerous short, transverse rows of setae. Posterior margin deeply and evenly convex, with submarginal groove reaching about three quaters up either side of posterior concavity. Branchiostegite with short anterior submarginal spine; anterior region with scattered short transverse lines ventral to linea anomurica; with many short rows of setae and sparsely covered with long plumose setae ventrally; posterior region membranous with numerous, irregular fragments, and sparsely covered with long plumose setae.
Ocular plate (Fig. 2B) subquadrate, with shallow median indentation; proximal ocular segments (Fig. 2B) reduced to small rounded calcified area on either side of ocular plate. Ocular peduncle (Fig. 2B) elongate, with proximally convex and distally concave lateral margins, tapering to produced distal cornea; mesial margins approximated along entire length; mesial and ventral margins of segment with sparse row of long plumose setae; few small tufts of plumose setae on dorsoproximal quarter of segment.
Antennule (Fig. 2C) with peduncular segment III subcylindrical; plumose setae on dorsal and ventral margins; dorsal exopod flagellum with 110-118 segments in adults (n = 10) and long plumose setae on dorsal and ventral margins; ventral endopod flagellum short with two segments and plumose setae on dorsal and ventral margins. Peduncular segment II medially inflated from dorsal view, with plumose setae on dorsal and ventral margins, and scattered on ventrolateral third of surface. Segment I wider than long, unarmed; lateral surface dorsal third rugose with long plumose setae; long plumose setae on dorsal and ventral margins.
Antenna (Fig. 2D) with peduncular segment V about two times longer than wide, with long plumose setae on dorsal margins; flagellum seven segmented, with long plumose setae on dorsal, ventral and distal margins. Segment IV expanded

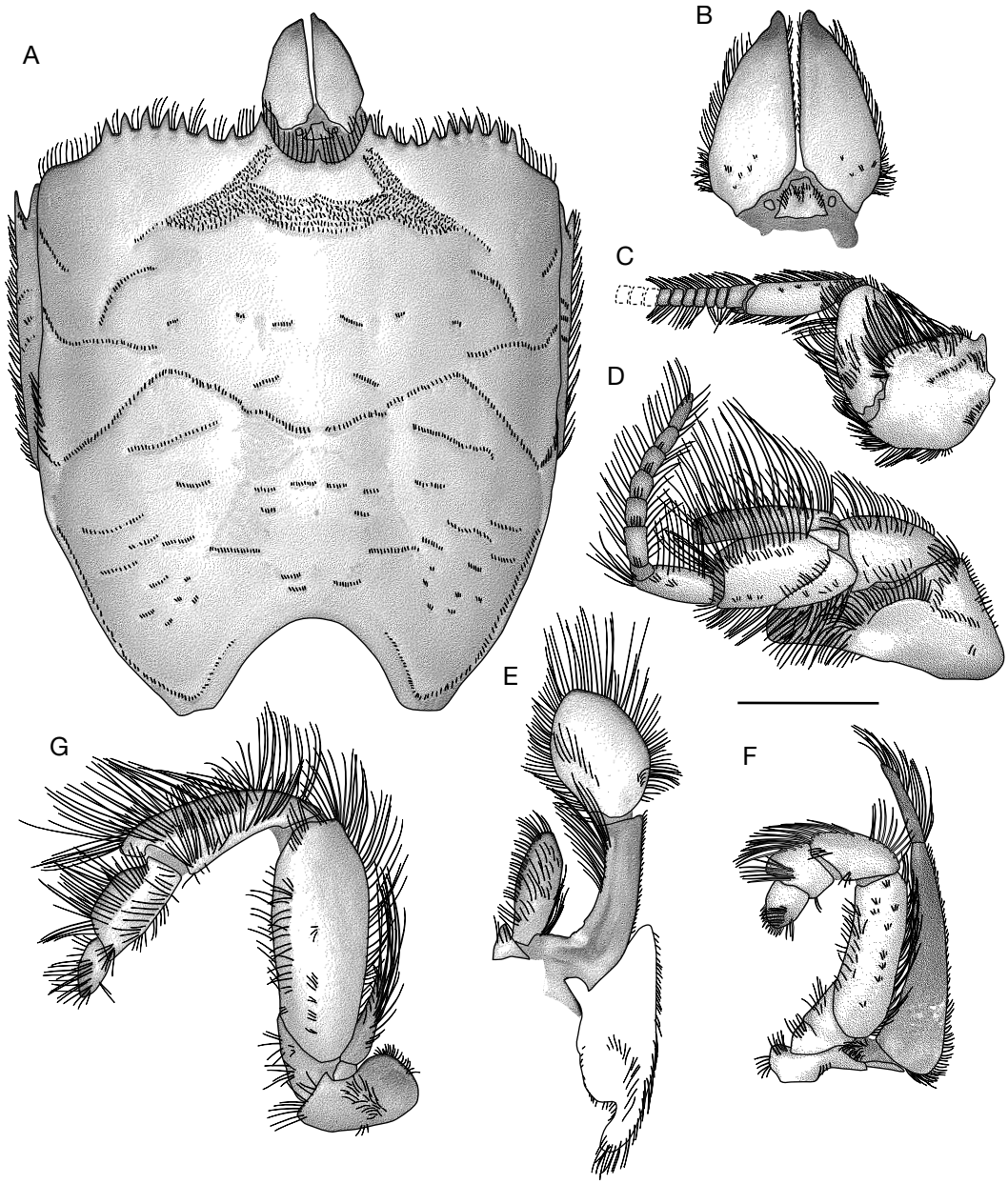

FIG. 2. — *Albunea marquisiana* n. sp., ♂, holotype, cl 10.2 mm, USNM 268577 (A); ♀, paratype, cl 8.4 mm, USNM 268578 (B-G); **A**, carapace, dorsal view; **B**, eyes, dorsal view; **C**, left antennule, lateral view; **D**, left antenna, lateral view; **E**, left maxilliped I, lateral view; **F**, left maxilliped II, lateral view; **G**, left maxilliped III, lateral view. Scale bar: A, C, 3.3 mm; B, F, 1.6 mm; D, E, G, 2.2 mm.

distally with long plumose setae on dorsal, ventral and distal margins, and row of setae on dorsolateral margin. Segment III with long plumose setae on dorsal and ventral margins. Segment II short, widening distally, with plumose setae on margins; antennal acicle long, thin, truncate distally, slightly exceeding distal margin of segment IV, with long plumose setae on dorsal margin. Segment I rounded proximally, flattened ventrolaterally, with long plumose setae on margins; lateral surface

with acute spine subdorsally, with low semicircular dorsolateral lobe ventrodistal to spine; segment with ventromesial antennal gland pore.
Maxilliped I (Fig. 2E) epipod with plumose setae on distal margin and on distolateral surface. Endite tapered distally and subequal to first segment of exopod. Exopod with two segments; proximal segment narrow, margins parallel with plumose setae; distal segment spatulate, about as long as wide, broadest medially, margins with long plumose setae. Endopod flattened and elongate, reaching to distal end of proximal exopodal segment, with plumose setae on margins (not seen in lateral view).
Maxilliped II (Fig. 2F) with dactylus evenly rounded, length slightly greater than width, with thick simple setae distally. Propodus two times wider than long, with plumose setae on dorsal margin and long simple setae on distal margin. Carpus not strongly produced dorsodistally, about three times longer than wide, with long simple setae on dorsal margin. Merus about three times longer than wide, margins parallel, with simple setae on ventrolateral margin and scattered on surface, plumose setae on dorsolateral margin. Basi-ischium incompletely fused, with plumose setae on margins. Exopod a quarter time longer than merus, with flagellum one-segmented and elongate.
Maxilliped III (Fig. 2G) with dactylus evenly rounded; long plumose setae on margins and lateral surface. Propodus with longitudinal median row of plumose setae on lateral surface; margins with plumose setae. Carpus slightly produced onto propodus; lateral surface with row of plumose setae ventromedially; plumose setae on margins. Merus unarmed, with plumose setae on margins and scattered on surface. Basi-ischium incompletely fused, with faint crista dentata of few small low teeth. Exopod two-segmented: proximal segment small; distal segment styliform, tapering, approximately one third length of merus, plumose setae on margins; without flagellum.
Pereopod I (Fig. 3A) subchelate. Dactylus curved and tapering; lateral and mesial surfaces smooth; dorsal margin with long plumose and short simple setae; ventral margin with short simple setae. Propodus lateral surface with numerous short, transverse rows of setose rugae; dorsal margin unarmed; ventral margin distally produced into acute spine; cutting edge lacking teeth, lined with long plumose setae; dorsal margin with long plumose setae, ventral margin with short simple setae. Carpus dorsodistal angle with small spine, dorsal margin smooth; dorsal and distal margins with long plumose setae; lateral surface with small distal rugose area, with few transverse setose ridges on distal half of surface; mesial surface smooth with median row of long plumose setae, margins with long plumose setae. Merus unarmed; lateral surface with scattered transverse rows of long plumose setae, margins with long plumose setae; mesial surface with few short rows of setae. Basi-ischium incompletely fused, unarmed. Coxa unarmed.
Pereopods II-IV with dactyli laterally compressed and dorsoventrally expanded.
Pereopod II (Fig. 3B) dactylus smooth; with base to heel slightly concave, heel smoothly rounded and slightly produced, heel to tip with acute, narrow indent, tip acute, tip to base broadly convex; lateral surface smooth, with several small tufts of short setae in roughly straight line across medioproximal surface, several widely spaced submarginal tufts of short setae dorsodistally; mesial surface smooth, ventral margin with long plumose setae, dorsal margin with short simple setae, with patch of long plumose setae at base. Propodus dorsal surface smooth, ventral margin inflated and rounded; oblique row of long plumose setae on distal margin of lateral surface; distal and ventral margin with long plumose setae; dorsolateral surface a narrow, oblique, flattened shelf, with short setae on dorsal margin and long plumose setae on ventral margin; mesial surface with elevated, curved, setose ridge from ventral junction with dactylus almost to proximoventral junction with carpus. Carpus slightly produced dorsodistally; lateral surface nearly smooth, with irregular, broken row of rugae and submarginal elevated ridge ventrally, rugae and ridge with long plumose setae; margins with long plumose setae; mesial surface smooth with long plumose setae in scattered patches on surface and on margins. Merus lateral surface with large decalcified "window" in median, few scattered setae on surface and margins and thick

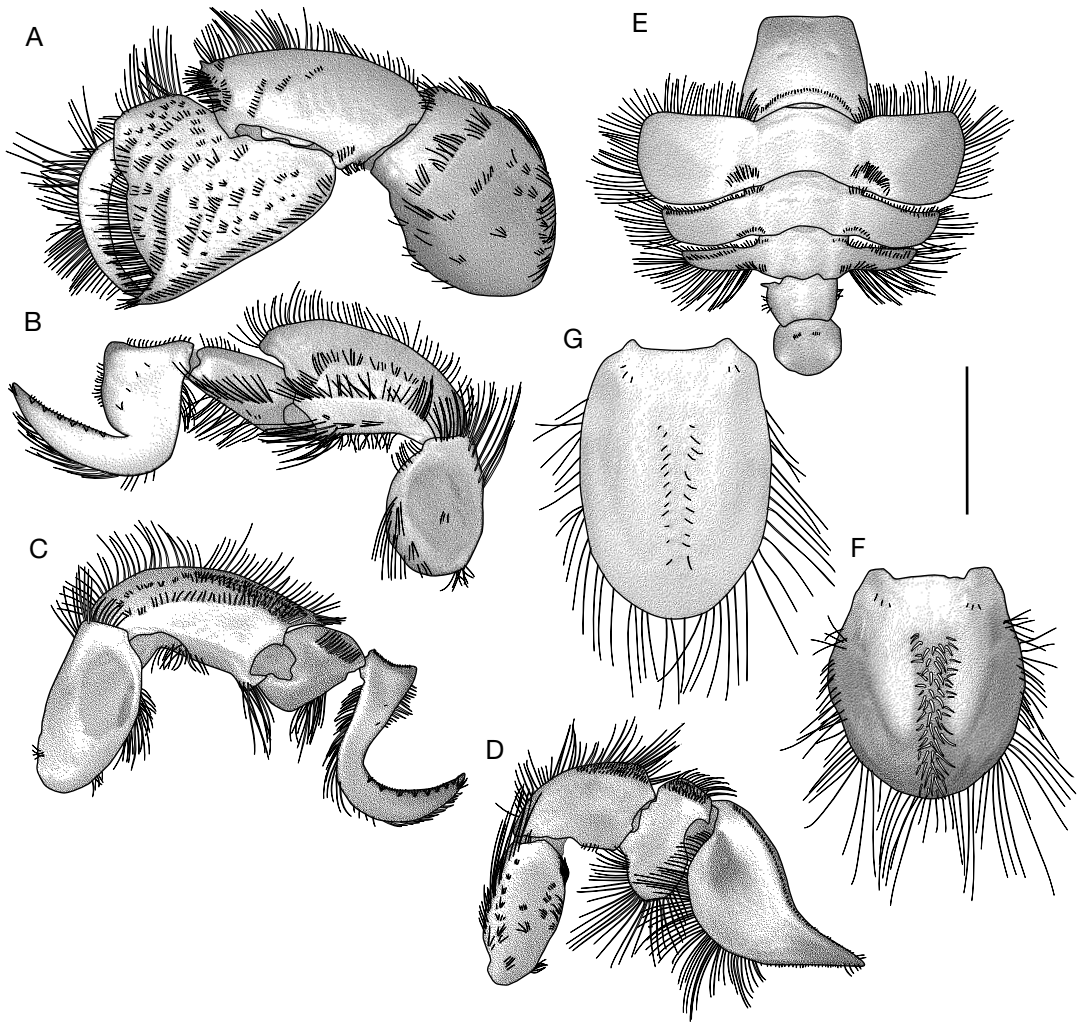

FIG. 3. — *Albunea marquisiana* n. sp., ♀, paratype, cl 8.4 mm, USNM 268577 (A-F); ♂, paratype, cl 7.9 mm, USNM 268578 (F); ♀, paratype, cl 5.2 mm, USNM 260948 (G); **A**, left pereopod I, dorsolateral view; **B**, left pereopod II, lateral view; **C**, right pereopod III, lateral view; **D**, right pereopod IV, lateral view; **E**, abdominal somites I-VI, dorsal view; **F**, telson of ♂, dorsal view; **G**, telson of ♀, dorsal view. Scale bar: A-D, 3.3 mm; E, 6.7 mm; F, 1.6 mm; G, 1.1 mm.

patch of long simple setae at distolateral margin; mesial surface nearly smooth with many median setae. Basi-ischium incompletely fused and unarmed. Coxa with one small tubercle on anterior margin.

Pereopod III (Fig. 3C) dactylus base to heel concave, heel broadly rounded and slightly produced, heel to tip with broad, evenly rounded indent, tip acute, tip to base smoothly convex to straight; lateral surface smooth, with several small tufts of short setae in roughly straight line across medioproximal surface, dorsodistal margin with tufts of short setae; ventromesial margin with long plumose setae, dorsal margin with short simple and plumose setae; mesial surface smooth with plumose setae proximally at junction with propodus. Propodus not inflated dorsoventrally; lateral surface smooth, with long plumose setae

distally, simple setae on dorsal margin, long plumose setae on ventral margin; dorsolateral surface narrow, oblique, flattened; mesial surface with scattered long setae on and near distal margin. Carpus produced dorsodistally, exceeding proximal margin of propodus by about one quarter of the length of propodus, pointed but not acute; dorsolateral margin unarmed; lateral surface slightly rugose dorsodistally, with mat of short setae and two longer rows of setae ventrally; mesial surface smooth, long plumose setae on margins and in transverse row on surface. Merus smooth with large decalcified window near median of lateral surface; dorsal and ventral margins unarmed and with long plumose setae; distolateral margin with long plumose setae; mesial surface smooth. Basi-ischium incompletely fused and unarmed. Coxa unarmed. Female with large gonopore on anterior mesial surface of coxa, fringed with short plumose setae; male without pore.

Pereopod IV (Fig. 3D) dactylus base to tip convex to concave, heel and indent absent, tip acute, tip to base straight distally, becoming convex proximally; lateral surface smooth, ventral margin with long plumose setae, dorsal margin with short simple setae; mesial surface with decalcified dorsal window, demarcated ventrally by longitudinal elevated ridge with row of short setae, setose punctae ventral to decalcified window. Propodus expanded dorsally and ventrally; ventral expansion not exceeding ventral margin of dactylus, margins with long plumose setae; dorsal expansion with row of long plumose setae medially and mat of short simple setae along length; lateral and mesial surfaces smooth, mesial surface with large decalcified window. Carpus not produced dorsodistally; lateral and mesial surfaces smooth; dorsal margin with short simple and long plumose setae; ventral margin with short simple setae, small mat of short simple setae dorsally; mesial surface with decalcified window. Merus lateral surface with scattered short transverse rows of setae, dorsal and ventrodistal margins with long plumose setae; mesial surface with large decalcified window proximoventrally. Basi-ischium incompletely fused and unarmed. Coxa unarmed.

Pereopod V reduced, slender. Coxa of male with large mesioproximal gonopore.

Abdomen (Fig. 3E) somite I approximately as long as wide, widest posteriorly; dorsal surface with anterior margin straight; posterior margin concave, with elevated submarginal row of short setae; small transverse decalcified windows laterad to segment median. Somite II dorsal surface with submarginal transverse ridge anteriorly; small transverse decalcified windows laterad to segment median just anterior to submarginal ridge; tuft of setae at posterolateral angle, extending onto pleura posteromesially; posterior margin with indistinct punctate submarginal groove laterally; pleura expanded and directed slightly anterolaterally; lateral margins rounded, anterior and lateral margins with long plumose setae, posterior margin with short setae. Somite III similar to somite II, but narrower, shorter, and lacking anterior submarginal ridge; small tuft of short thick setae on posterolateral angle; pleura thinner and shorter than on somite II, directed anterolaterally, with setae as in somite II; anterolateral angle acute; dorsal surface obliquely flattened anterolaterally. Somite IV similar to somite III, but thinner and shorter; dorsal surface with thick setae posterolaterally; pleura thinner and shorter than on somite III, directed posterolaterally; dorsal surface obliquely flattened anterolaterally; margins with long plumose setae. Somite V subequal to somite IV; lateral margins with plumose setae; pleura absent. Somite VI subequal to somite V in width but longer; dorsal surface with short transverse rows of setae laterad to midline anteriorly; pleura absent.

Females with uniramous, paired pleopods on somites II-V; males lacking pleopods.

Uropods lacking distinctive features.

Telson of male (Fig. 3F) spatulate, length greater than width, rounded distally; weakly calcified at margins of large calcified median plate; median longitudinal groove short, extending a quarter length of telson; thick elevated ridge continuing from end of groove to distal end of telson, lined with dense row of thick simple setae. Telson of female (Fig. 3G) ovate, longer than wide, dorsal surface smooth, with median longitudinal groove reaching almost to distal margin; row of setose punctae lateral to midline along whole length of median groove except proximal quarter; margins with long plumose setae.

Colour pattern

The colour pattern of this species is based on both the preserved material at hand, as well as a color transparency made of a live specimen (MNHN-Hi 223). Juvenile specimens are virtually lacking in pigment and appear almost white. Adults are a uniform tan, with reddish-brown setae. Larger specimens show a markedly increased reddish tone on the carapace (especially the anterior region), eyes, antennae and antennules.

REMARKS

Albunea marquisiana is most similar to *A. holthuisi* Boyko & Harvey (1999). Both species share the distinctive thick median row of setae on the telson of the male, as well as a general similarity in the shape of the pereopod dactyli. They can be easily separated by the number of elements of CG 10 (one long median element in *A. holthuisi*, three to four short elements in *A. marquisiana*), CG 11 (one in *A. holthuisi*, two to three in *A. marquisiana*), the relative thickness of the proximal blade of pereopod III (thicker in *A. marquisiana*), and the distal margins of both the male and female telsons (truncate in *A. holthuisi*, smoothly rounded in *A. marquisiana*). The color pattern of *A. marquisiana* is also unlike that observed in *A. holthuisi*. Couplet 8 in the key of Boyko & Harvey (1999) for Indo-West Pacific species of hippoids should be modified as follows and couplet 8a inserted into the key.

8. CG 11 present 8a
— CG 11 absent 9
8a. CG 11 one long element, CG 10 one long element .... *A. holthuisi* Boyko & Harvey, 1999
— CG 11 two-three short elements, CG 10 three-four short elements .... *A. marquisiana* n. sp.

Little is known about the biology of this species. Ovigerous females are, unfortunately, only known from the posterior portion of a single specimen. Additionally, the morphology of the spermatozoa of this species has been studied by Tudge *et al.* (1999), based on one of the paratypes (MNHN-Hi 236) that I identified. *Albunea marquisiana* n. sp. generally occurs in deeper water than *A. speciosa* Dana, 1852, but the two species were collected together twice in 9-25 m. *Albunea marquisiana* n. sp. is much more similar to the *Albunea* species of the western Indo-Pacific than to any occurring in the eastern Pacific.

Albunea speciosa Dana, 1852

Albunaea [sic] *speciosa* Dana, 1852: 405-406.
Albunea speciosa – Boyko 1999: 147-155, figs 3; 4 (synonymy).

MATERIAL EXAMINED. — **Marquises Islands, French Polynesia.** CTT: stn 24, 4 ♂ ♂ 3.0-4.8 mm, 1 ♀ 4.4 mm, 4 juveniles 3.2-3.7 mm (MNHN-Hi 244), 1 ♂ 4.8 mm, 1 ♀ 5.2 mm (AMNH 17818), 1 ♂ 4.6 mm, 1 ♀ 5.4 mm (USNM 260951). — Stn 24 bis, 1 ♂ 6.8 mm (MNHN-Hi 245). — Stn 32, 3 ♂ ♂ 4.1-7.0 mm, 3 ♀ ♀ 4.4-7.2 mm, 1 ovigerous ♀ 6.8 mm, 5 juveniles 3.2-4.0 mm (MNHN-Hi 246). — Stn 34, 1 ♀ 6.7 mm (MNHN-Hi 247).

DISTRIBUTION. — Hawaii, Marquises Islands, Western Australia, Seychelles, Maldives, 3.7-34 m depth.

REMARKS

This species was redescribed and all known aspects of its biology noted by Boyko (1999). Although not previously reported from the Marquises, its occurrence there is not surprising, given the broad extent of its range. The Marquises specimens from CTT stn 24 bis increase the known depth range of the species up to between 20-34 m. As very few specimens were collected, this species is either not as common in the Marquises as *A. marquisiana*, or occurs only at shallower depths where less collecting effort was made by MUSORSTOM 9. Discovery of specimens of *A. speciosa* in the southern Pacific islands supports a southwest to northeast disper-

sal pattern for this species from its presumed western Indo-Pacific origin towards Hawaii, the type locality and easternmost part of its range (Boyko 1999).

HIPPIDAE Latreille, 1825

Hippa adactyla Fabricius, 1787

Hippa adactyla Fabricius, 1787: 329. – Haig 1970: 294 (synonymy; neotype designated).

MATERIAL EXAMINED. — **Marquises Islands, French Polynesia.** CTT: stn 22, 2 ♂ ♂ 11.0-20.6 mm, 1 ♀ 23.4 mm (MNHN-Hi 248).

DISTRIBUTION. — Madagascar eastward to the Marquises Islands, northward to Japan and southward to Queensland, Australia (Haig 1974: 180).

REMARKS

Hippa adactyla was previously recorded from the Marquises by de Man (1896: 461, 463) as *Remipes testudinarius* Latreille, 1806 (see Haig 1970: 294), but has not been reported from there subsequently. This species has been reported to have 3-6 antennal flagellum segments in adults (Haig 1974: 179; Boyko & Harvey 1999: 403) but in one small yet mature specimen at hand (MNHN-Hi 248) there are only two segments. This supports the suggestion of Boyko & Harvey (1999: 399) that identifications of *Hippa* specimens should not be based on single characters as done by some authors, but rather on multiple characters such as the shape of the dactyli, form of the anterior carapace margin and carapace patterning.

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