

The Central Pacific Shrimps of the Genus *Hippolyte*, with a Description of Two New Species (Decapoda, Caridea, Hippolytidae)¹

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ABSTRACT: *Hippolyte acuta* (Stimpson) is the only species of this genus now reported from the central Pacific. Examination of several specimens indicates that it is identical with the Indo-Malayan *H. ventricosa* H. Milne-Edwards. Two other species, *H. edmondsoni* n. sp. and *H. jarvisensis* n. sp., have been newly found in the Hawaiian Islands and the Line Islands, respectively. These three species are described, illustrated, and compared to other known species.

DURING A SHORT STAY at the Bernice P. Bishop Museum, Hawaii, I examined part of the collection of Decapoda Natantia and found three species of the genus *Hippolyte*. One is *H. acuta* (Stimpson) from Oahu, Hawaiian Islands, reported by Rathbun (1906) and Edmondson (1946). The second species, also collected from Oahu, was examined by Edmondson, who provided short manuscript notes on it, but did not describe it. The third species, from Jarvis Island, the Line Islands, is related to these Hawaiian species, but shows some noteworthy morphological differences.

I have now studied all three species and compared them with species from other localities. They are easily distinguishable from one another as well as from other species (Table 1). The Hawaiian *Hippolyte acuta* shows no apparent differences from the description of *H. ventricosa* H. Milne-Edwards given by Holthuis (1947), and it is here considered synonymous with *H. ventricosa*.

The second species is characterized by a very short, unarmed rostrum, a small frontal spine on the carapace, and a well-developed supraorbital spine. It is named *Hippolyte edmondsoni* sp. nov., dedicated to the great

Hawaiian carcinologist, C. H. Edmondson, who first noted it as a distinct species.

The third species, *Hippolyte jarvisensis* sp. nov., is distinguished by its small size, a single tooth on both upper and lower margins of the rostrum, and a large and broad eyestalk.

The specimens treated herein are deposited at the Bernice P. Bishop Museum (BPBM), and two or more duplicates will be deposited in the National Science Museum, Tokyo (NSMT).

SYSTEMATICS

Hippolyte edmondsoni sp. nov.

Figures 1-3

TYPE MATERIAL: Kaaawa, Oahu, Hawaiian Islands, November 1929, C. H. Edmondson leg.: 6♂♂, 4 ovig. ♀♀, 8 spp. (paratypes, BPBM S 3500); 1♂, 1 ovig. ♀, 1 sp. (paratypes, NSMT); Waimanalo, Oahu, 20 June 1951: 1♂, 4 ovig. ♀♀, 8 spp. (paratypes, BPBM S 5712); Waimanalo, Oahu, 17 July 1951, with seaweed: 1 ovig. ♀ (holotype, BPBM S 8607); 1♂, 2 ovig. ♀♀, 4 spp. (paratypes, BPBM S 5764).

DESCRIPTION: Small hippolytid, carapace length of holotype 1.8 mm (Figure 1). Rostrum short, less than half of carapace, reaching to end of eyestalk in females (Figure 2A) and to base of eyestalk in males. Both upper and lower margins devoid of teeth. One small spine of frontal region of carapace in most

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TABLE I
DISTINCTIVE CHARACTERS OF THE CENTRAL PACIFIC *Hippolyte*

CHARACTERS	<i>H. edmondsoni</i> sp. nov.	<i>H. jarvisensis</i> sp. nov.	<i>H. ventricosa</i> H. Milne-Edwards
Total length	7.7-9.7 mm in adult males, 9.0-10.3 mm in ovigerous females	5.2-6.0 mm in adult males, 7.6-8.0 mm in ovigerous females	12.5-18.0 mm in adult males, 20.5-22.5 mm in ovigerous females
Rostrum	Less than half as long as carapace, not reaching to end of cornea, unarmed on upper and lower margins, but with a small frontal tooth on carapace	0.7 times as long as carapace, reaching just to end of antennular peduncle in females and to first segment of antennular peduncle in males, with a tooth on basal third of upper margin and on ventral margin near apex	Slightly longer than carapace, with 0-1 teeth on middle of upper margin and 3-5 teeth along lower margin
Supraorbital spine	Large, forming a strong orbital fossa	Large, forming a shallow orbital fossa	Moderate, indistinct orbital fossa
Branchiostegal spine	Just inside anterior margin of carapace	Inside anterior margin of carapace, its apex extending slightly beyond anterior margin of carapace	On antennal region of carapace, its apex never exceeding anterior margin of carapace
Suborbital angle	Bluntly pointed process	Small knoblike process	Large knoblike process
Apical spines of telson	Innermost pair much longer than others	Innermost pair much longer than others	Innermost pair as long as or slightly shorter than the third pair
Eye	Cylindrical, cornea as long as stalk	Stalk wider and longer than cornea	Long, cylindrical, stalk longer than cornea
Stylocerite	Well developed, extending far beyond level of inner ventral spine	Extending as far forward as level of inner ventral spine	Extending beyond level of inner ventral spine
Antennal scale	2-3 times as long as broad, outer distal spine separated from lamella by notch	2.2-2.6 times as long as broad, outer distal spine separated from lamella by notch	3.0-3.5 times as long as broad, outer distal spine attached to lamella
Carpus of second pereopod	Distal segment longest	Proximal and distal segments subequal	Proximal and distal segments subequal
Dactylus of third pereopod	With 8-9(-12) spines on posterior margin	With 7-9 spines on posterior margin	With 13-16 spines on posterior margin
Merus of fifth pereopod	Usually unarmed	Usually unarmed	Usually with outer spine

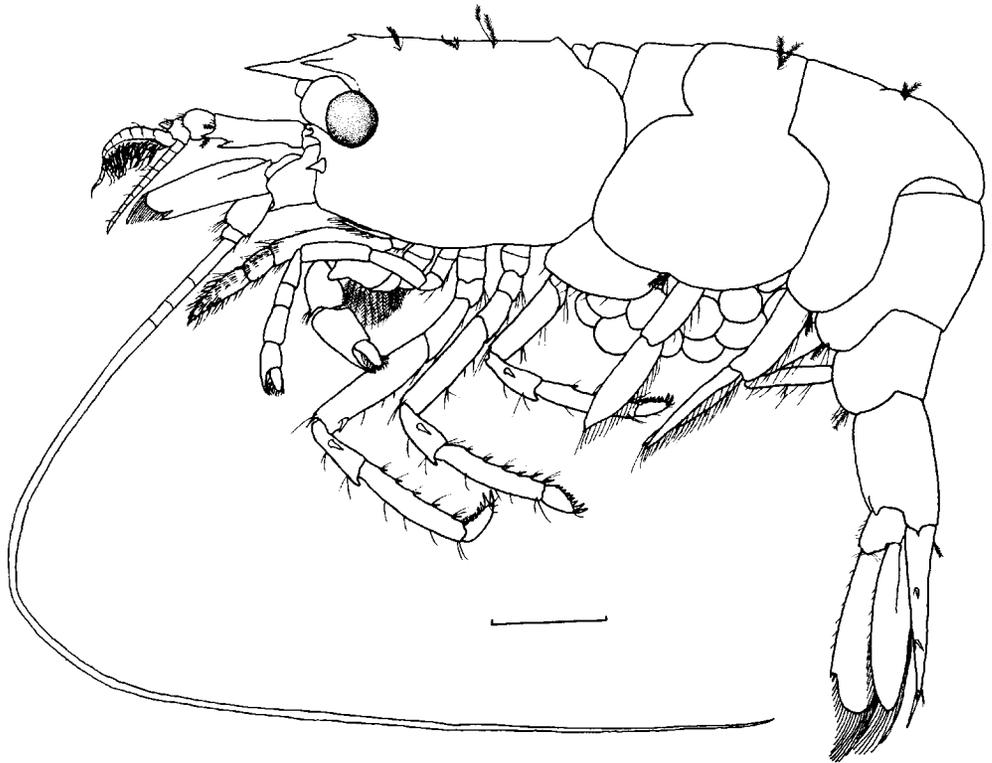


FIGURE 1. *Hippolyte edmondsoni* n. sp. Holotype, ovigerous female. Scale represents 1.0 mm.

specimens (Figure 2A, B, D), but two spines in one ovigerous female (Figure 2C); supraorbital spine well developed, making a strong orbital fossa; antennal spine small and separated from the bluntly pointed suborbital angle; branchiostegal spine articulated and situated just inside anterior margin of carapace (Figure 2D). Some tufts of setae present on carapace and abdomen.

Pleura of all abdominal somites smooth; lateral plate of sixth somite pointed; telson about 1.5 times as long as sixth somite, with two pairs of dorsal spines, which are situated equidistantly; apex with four pairs of spines, innermost pair much longer than the other pairs (Figure 2E).

Eye long, reaching to second segment of antennular peduncle; cornea as long as eye-stalk (Figure 2F). First segment of antennular peduncle with long outer distal and small inner ventral spine; second and third segments subequal in length; outer flagellum

with six or seven basal segments swollen and distal two or three segments slender (Figure 2G); stylocerite well developed, greatly exceeding inner ventral spine (Figure 2H). Outer flagellum slender and long. Antennal scale reaching beyond antennular peduncle by distal two-fifths and 2.0–3.0 times as long as broad; outer distal spine falling far short of end of lamella; basicerite with outer distal spine (Figure 2I).

Mouthparts similar to the typical form (Figure 3). Third maxilliped reaching to end of antennular peduncle, with long exopod (Figure 3F). First pereiopod reaching to end of eye, with dense plumose setae on inner margin of proximal four segments (Figure 2J). Second pereiopod reaching to end of antennular peduncle; chela slightly shorter than carpus; carpus three-segmented, distal segment longest, twice as long as central segment; proximal segment about 1.5 times as long as central segment; merus slightly

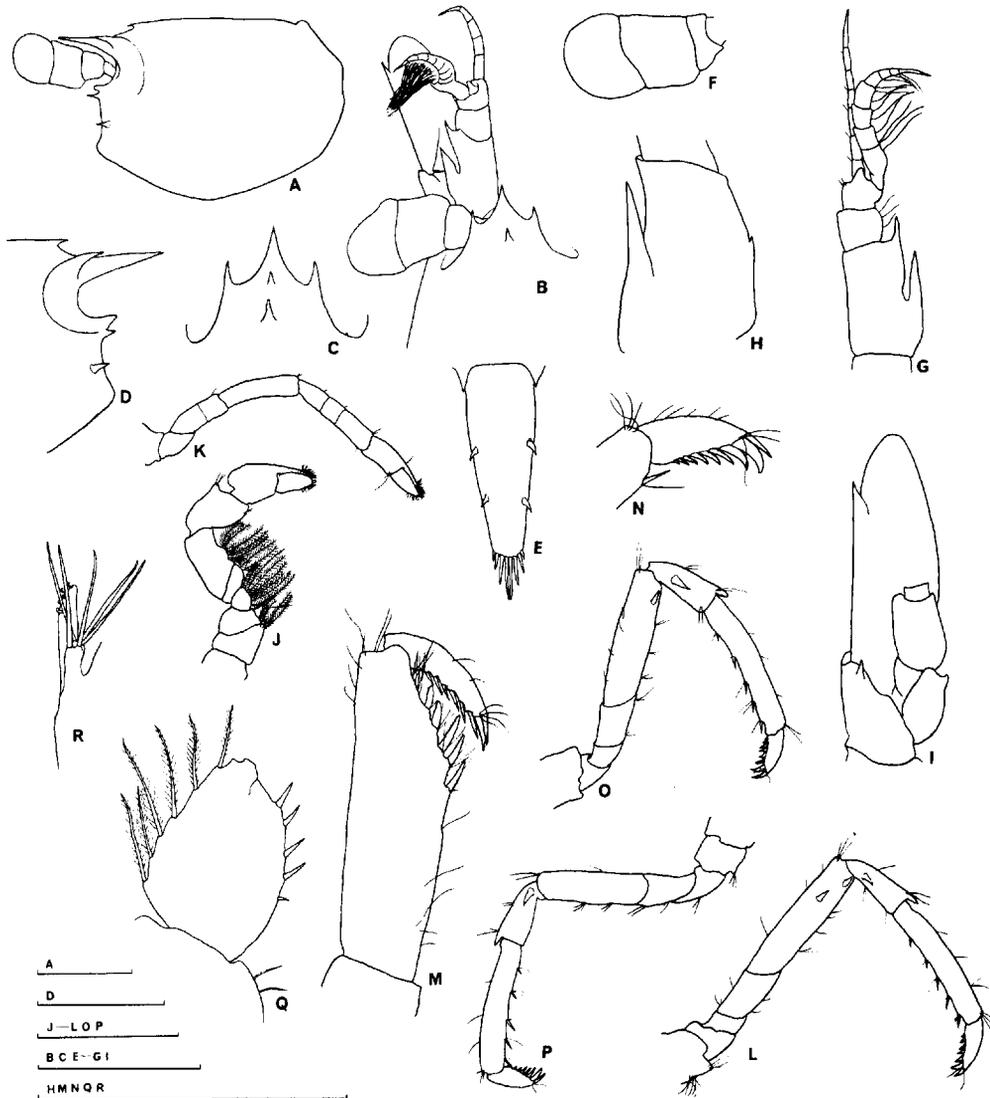


FIGURE 2. *Hippolyte edmondsoni* n. sp. Paratypes: A, ovigerous female, 1.8 mm in carapace length (cl); B, young specimen, 0.5 mm in cl; C, ovigerous female, 1.5 mm in cl; D, F-L, N-P, ovigerous female, 1.9 mm in cl; E, ovigerous female, 1.4 mm in cl; M, male, 1.3 mm in cl; Q, R, male, 1.4 mm in cl; A, carapace; B, anterior part of body; C, rostrum; D, anterior part of carapace; E, telson; F, eye; G, antennular peduncle; H, first segment of antennular peduncle in ventral view; I, antennal scale; J, first pereopod; K, second pereopod; L, third pereopod; M, dactylus and propodus of third pereopod; N, dactylus of third pereopod; O, fourth pereopod; P, fifth pereopod; Q, endopod of first pereopod; R, appendices interna and masculina. Scales represent 1.0 mm for A-P and 0.5 mm for Q and R.

shorter than carpus; ischium with a faint suture near middle (Figure 2K). Third pereopod reaching beyond antennal scale, with six or seven small spines on posterior margin both in females (Figure 2L, N) and in adult

males with prehensile pereopod (Figure 2M); in the largest male rarely ten or more spines present on dactylus. Propodus about 2.0 times as long as dactylus, with five or seven groups of spines on posterior margin;

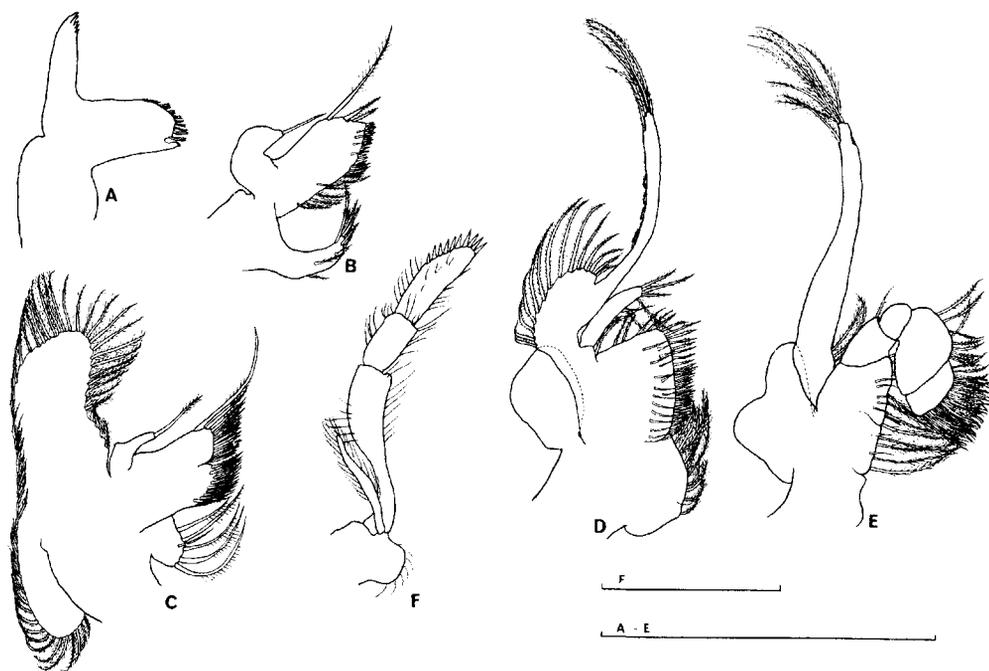


FIGURE 3. Mouthparts of *Hippolyte edmondsoni* n. sp. Paratype, ovigerous female, 1.9 mm in cl; A, mandible; B, maxillula; C, maxilla; D, first maxilliped; E, second maxilliped; F, third maxilliped. Scales represent 1.0 mm.

carpus with an outer spine on proximal part; merus as long as carpus, with one or two outer spines. Fourth pereiopod reaching just to end of antennal scale (Figure 2O), and fifth pereiopod reaching to end of antennular peduncle (Figure 2P). Shape and spinulation of these two pereiopods similar to those of third pereiopod; dactyli ending in two apical spines with six or seven spines on posterior margin; carpus of fourth pereiopod with usually one spine but that of fifth pereiopod sometimes devoid of such spine; meri of these two pereiopods usually without outer spine.

Endopod of male first pleopod oval, about half as long as exopod, with six plumose setae on outer margin and five simple setae on inner margin (Figure 2Q). Appendix masculina much shorter than appendix interna, with five apical setae (Figure 2R). Uropod longer than telson. Well-developed preanal spine present on sixth abdominal sternite in both sexes. Eggs comparatively large and relatively few.

REMARKS: The present type series is composed of 9 males, 12 ovigerous females, and 22 specimens for which sex is unknown. Most of these type specimens have a spine on the frontal region, with four exceptions, two with two frontal spines and the remaining two are unarmed. Males with prehensile pereiopods apparently do not differ from females and other small specimens in the spinulation of the posterior pereiopods, but the largest male, 1.5 mm in carapace length, has 10–12 spines on dactyli of the third and fourth pereiopods.

SIZE: The large and perfect ovigerous female is selected as the holotype; 10.3 mm in total length, 1.8 mm in carapace length, and 0.8 mm in rostrum length. Mature males with prehensile pereiopods are 7.7–7.9 mm in total length, 1.1–1.5 mm in carapace length, and 0.4–0.5 mm in rostrum length. Ovigerous females are 9.0–10.3 mm in total length, 1.8–1.9 mm in carapace length, and 0.5–0.8 mm in rostrum length.

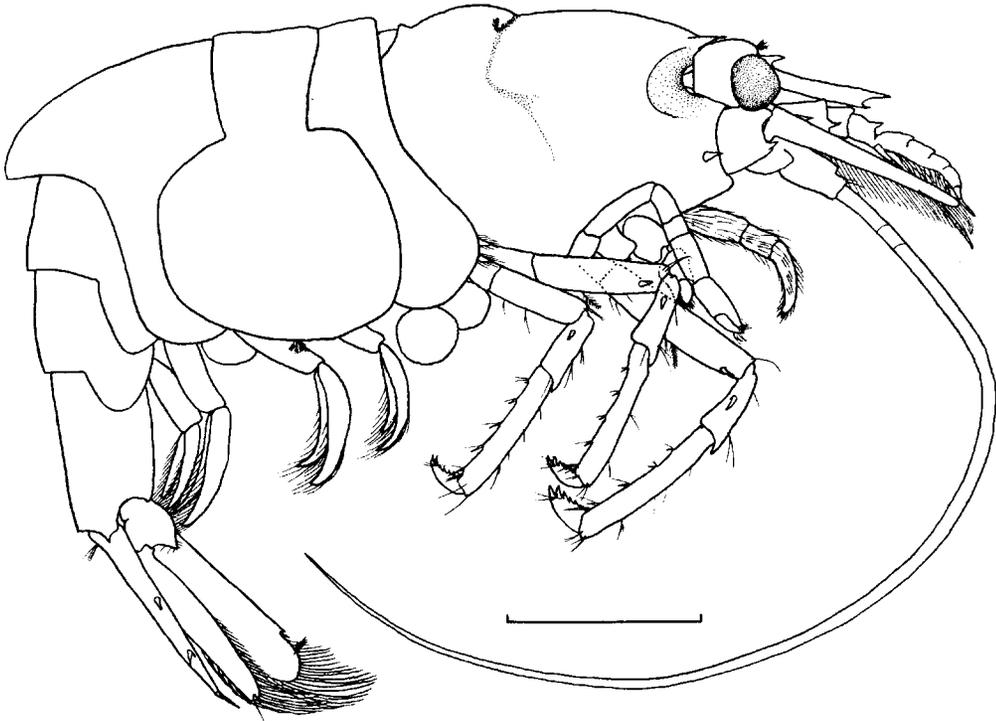


FIGURE 4. *Hippolyte jarvisensis* n. sp. Holotype, ovigerous female. Scale represents 1.0 mm.

DISTRIBUTION: The species has been collected from Oahu, Hawaiian Islands only, and is probably found in the littoral zone.

***Hippolyte jarvisensis* sp. nov.**

Figures 4 and 5

TYPE MATERIAL: Jarvis Islands, the Line Islands, March–April 1935, Itasca Expedition, Toomey, Ahia and Graf leg.: 1 ovig. ♀ (holotype, BPBM S 8603); 2♂♂, 2 ovig. ♀♀, 1♀ (paratypes, BPBM S 4084); 1♂, 1 ovig. ♀, 1♀ (paratypes, NSMT).

DESCRIPTION: Small shrimp, 1.6 mm in carapace length in the holotype (Figure 4). Rostrum shorter than carapace, reaching just to end of antennular peduncle in females (Figure 5A) and to first segment of antennular peduncle in males; a tooth present on basal third of dorsal margin in all specimens and also a small tooth on ventral margin near apex in most specimens; two small teeth in one female and unarmed in smallest speci-

men. Carapace smooth with a few tufts of plumose setae. Supraorbital spine large, forming a shallow orbital fossa; antennal spine acute but small; branchiostegal spine articulate and situated inside anterior margin of carapace, its apex extending slightly beyond anterior margin of carapace; pterygostomial angle not pointed. Suborbital angle knoblike process (Figure 5B).

Abdomen smooth and strongly geniculated at third somite. Pleura of all somites rounded. Lateral plate of sixth somite pointed. Telson longer than uropod, with two pairs of dorsal spines. Apex with four pairs of spines, of which innermost pair is much longer than the other pairs (Figure 5C).

Eyestalk much wider than cornea, with a tuft of short setae distally on dorsal side (Figure 5D). Antennular peduncle reaching to rostral apex; first segment long, with an outer distal spine and a small spine on inner ventral margin; second and third segments subequal in length and both much shorter than first (Figure 5E); stylocerite long,

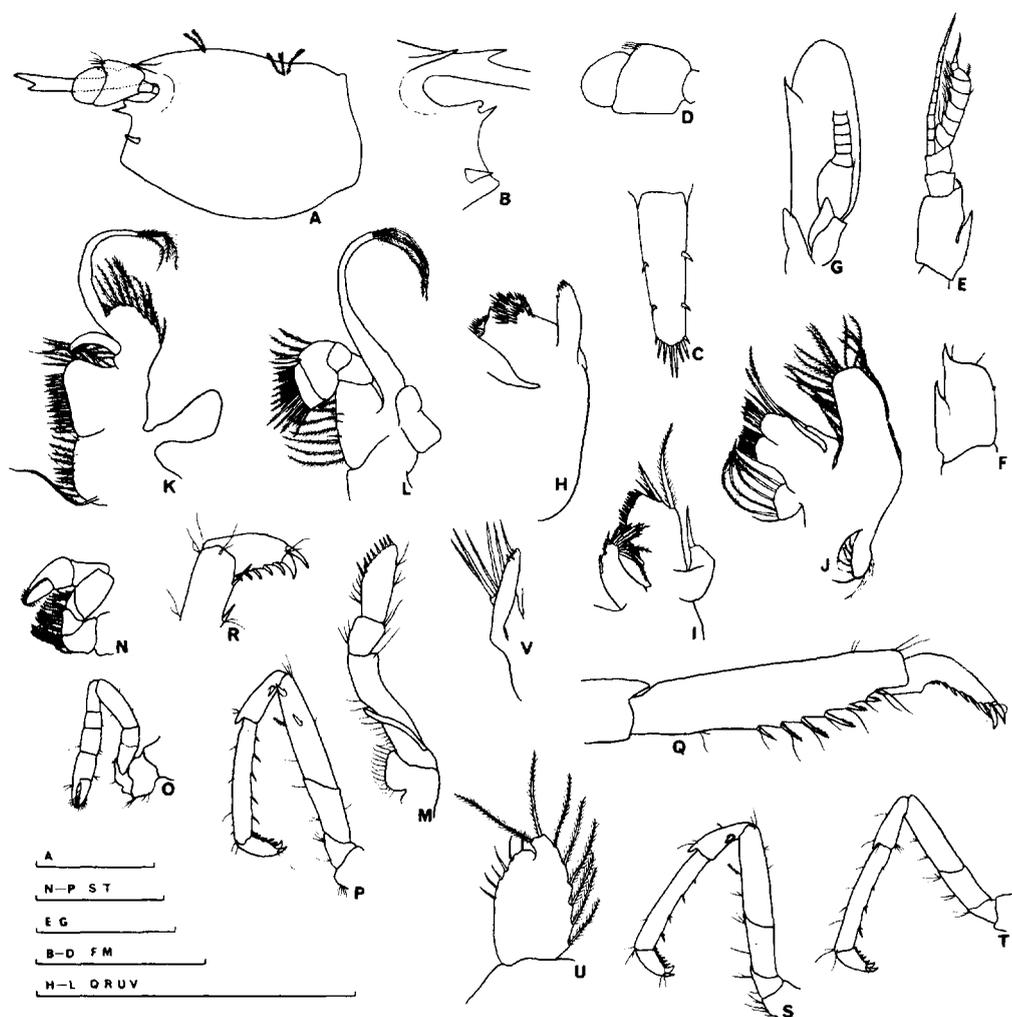


FIGURE 5. *Hippolyte jarvisensis* n. sp. Paratypes; A, ovigerous female, 1.5 mm in cl; B, D-P, R-T, ovigerous female, 1.5 mm in cl; C, male, 0.9 mm in cl; Q, U, V, male 1.1 mm in cl; A, carapace; B, anterior part of carapace; C, telson; D, eye; E, antennular peduncle; F, first segment of antennular peduncle; G, antennal scale; H, mandible; I, maxillula; J, maxilla; K, first maxilliped; L, second maxilliped; M, third maxilliped; N, first pereiopod; O, second pereiopod; P, third pereiopod; Q, dactylus and propodus of third pereiopod; R, dactylus of third pereiopod; S, fourth pereiopod; T, fifth pereiopod; U, endopod of first pleopod; V, appendices interna and masculina. Scales represent 1.0 mm for A-T and 0.5 mm for U and V.

reaching just to inner ventral spine (Figure 5F); outer flagellum with about six swollen proximal segments and about four slender segments; inner flagellum more slender and longer than outer flagellum. Antennal scale reaching beyond rostral apex by distal third and 2.2-2.6 times as long as broad; outer distal spine much exceeded by anterior

lamella; basicerite with a small outer distal spine (Figure 5G).

Mouthparts similar to those of *H. edmondsoni* (Figure 5H-L). Third maxillipeds reaching just to rostral apex, with slender exopod (Figure 5M). First pereiopod short, not reaching end of antennular peduncle, with long plumose setae on inner margins of

proximal segments; inner margin of merus not convex (Figure 5N). Second pereopod reaching beyond rostral apex by chela; carpus three-segmented, proximal and distal segments subequal in length and both about twice as long as central segment; ischium slightly shorter than merus, with a faint suture near middle (Figure 5O). Third pereopod long, reaching beyond rostral apex by distal two segments (Figure 5P). Dactylus with seven to eight spines on posterior margin in females and eight to nine spines in males, the distal spine longer than the other spines though the second spine is stouter than the distal (Figure 5R); propodus 2.4 times as long as dactylus with five spines on posterior margin in females and six to seven spines in males (Figure 5Q); carpus usually with one outer spine on proximal part; merus as long as propodus with none to two outer spines on distal half. The following two pereopods similar in shape to the third pereopod, but their length decreasing in order, especially in meri; fourth pereopod reaching beyond rostral apex by dactylus and fifth pereopod, reaching just to rostral apex; carpus of fourth pereopod usually with a single outer spine (Figure 5S), but that of fifth pereopod with or without such spine (Figure 5T). Meri of posterior two pereopods usually devoid of outer spines.

Endopod of first pleopod shorter than exopod but similar in shape to exopod in females; less than half length of exopod in males; oval in outline with several simple setae on inner margin and plumose setae on outer margin (Figure 5U). Appendix masculina of male second pleopod bearing six long setae on tip (Figure 5V).

Distinct preanal spine present on sixth abdominal sternite in both sexes. Eggs comparatively large and relatively few in number.

REMARKS: The present species is based upon a single lot of ten specimens. Males are more slender and smaller than females and have a more slender rostrum with weaker spines. The upper tooth on the rostrum is constantly present even in small specimens, but the occurrence of a lower tooth is rather

variable. The spinulation of prehensile pereopods in males apparently does not differ from that of females.

SIZE: The largest and perfect ovigerous female is selected as the holotype; 8.0 mm in total length, 1.6 mm in carapace length, and 1.1 mm in rostrum length. Mature males are 5.2–6.0 mm in total length, 0.9–1.1 mm in carapace length, and 0.8–0.9 mm in rostrum length. Ovigerous females are 7.6–8.0 mm in total length, 1.5–1.6 mm in carapace length, and 1.1 mm in rostrum length.

DISTRIBUTION: The species is only known from the type locality, Jarvis Island, the Line Islands, central Pacific, and seems to be found in the littoral zone.

Hippolyte ventricosa H. Milne-Edwards

Figure 6

Hippolyte acuta Rathbun 1906, p. 912, pl. 24, fig. 3.

Hippolyte acuta Edmondson 1946, p. 252, fig. 153c.

Hippolyte ventricosa Holthuis 1947, pp. 16 and 55, figs. 7–9.

MATERIAL EXAMINED: Kaaawa, Oahu, Hawaiian Islands, 5 February 1927, C. H. Edmondson leg.: 1♂, 5 ovig. ♀♀, 1♀ (BPBM S 2633); November 1927, C. H. Edmondson leg.: 2♂♂, 2♀♀ (BPBM S 2907); 1♂, 1♀ (NSMT).

DESCRIPTION: Rostrum nearly straight and slightly longer than carapace in most specimens, with 0–1 tooth on middle of upper margin and 3–5 teeth along lower margin. Carapace smooth, with some tufts of short plumose setae. Supraorbital and antennal spine present; branchiostegal spine articulate and placed on antennal region of carapace, with its apex not exceeding anterior margin of carapace (Figure 6A); suborbital angle a knoblike process. Pterygostomial angle rounded (Figure 6B).

Abdomen smooth and strongly geniculated at third somite. Some tufts of plumose setae present on second to fourth somites. Pleura of all somites rounded. Lateral plate of sixth somite acutely pointed. Telson

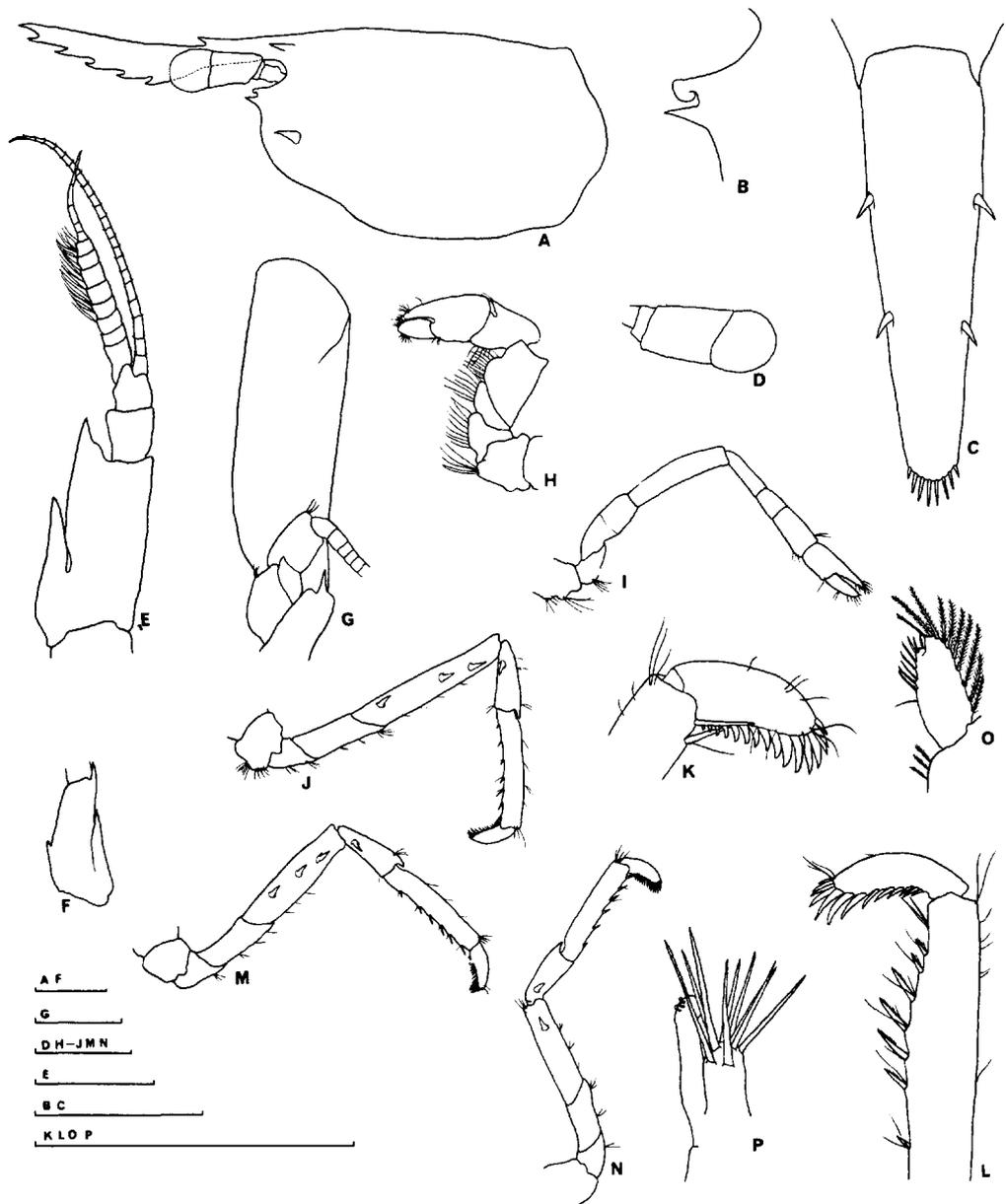


FIGURE 6. *Hippolyte ventricosa* H. Milne-Edwards: A, ovigerous female, 3.8 mm in cl; B, E-G, ovigerous female, 3.6 mm in cl; C, ovigerous female, 3.4 mm in cl; D, H-K, M, N, ovigerous female, 3.6 mm in cl; L, O, P, male, 1.9 mm in cl; A, carapace and rostrum; B, suborbital region of carapace; C, telson; D, eye; E, antennular peduncle; F, first segment of antennular peduncle; G, antennal scale; H, first pereiopod; I, second pereiopod; J, third pereiopod; K, dactylus of third pereiopod; L, dactylus and propodus of third pereiopod; M, fourth pereiopod; N, fifth pereiopod; O, endopod of first pleopod; P, appendices interna and masculina. Scales represent 1.0 mm.

slightly shorter than uropod, with two pairs of dorsal spines situated equidistantly; apex with four pairs of spines (Figure 6C).

Eye cylindrical and elongate; cornea shorter than stalk (Figure 6D). Antennular peduncle not reaching to rostral apex; first segment long, with stout outer distal spine and small spine on inner ventral margin (Figure 6E); stylocerite long, much exceeding inner ventral spine. Second and third segments much shorter than first (Figure 6F). Outer flagellum bearing about ten swollen proximal segments and about five slender distal segments. Inner flagellum slender and longer than outer. Antennal scale reaching just to or slightly beyond apex of rostrum and 3.0–3.5 times as long as broad; outer distal spine falling considerably short of end of scale; basicerite with a distinct outer distal spine (Figure 6G).

Mouthparts similar to those of *H. edmondsoni* and *H. jarvisensis*. Third maxilliped reaching to end of antennular peduncle, with slender exopod. First pereopod short, not reaching end of antennular peduncle; chela oval in outline; merus slightly longer than carpus, distinctly convex in proximal part of inner margin; long simple setae present along inner margin of merus, ischium, and basis (Figure 6H). Second pereopod longer than first, reaching just to or beyond end of antennular peduncle; carpus three-segmented, proximal and distal segments subequal in length and both about twice as long as central segment. Ischium slightly shorter than merus, with a faint suture at middle (Figure 6I). Third pereopod long, reaching with dactylus beyond antennal scale (Figure 6J). Dactylus with about 13–16 spines, of which apical three or four spines are smaller than the following two or three (Figure 6K, L); propodus 2.5 times as long as dactylus with seven or eight (rarely six) outer spines; carpus always with a single outer spine on proximal part; merus longer than propodus, with two to three outer spines. Fourth pereopod reaching nearly to rostral apex and fifth pereopod reaching to antennular peduncle only. Dactyli and propodi of these two posterior pereopods similar in shape and spinulation to those of third, with their

length reduced posteriorly; carpus of fourth pereopod with a single outer spine without exception and merus with one to four spines (Figure 6M); both carpus and merus of fifth pereopod generally with a single spine only, but without spines in some specimens (Figure 6N).

Endopod of first pleopod shorter than exopod, similar in shape to exopod in females; in males less than half length of exopod and oval in shape with several simple setae on inner margin and plumose setae on outer margin (Figure 6O). Second pleopod similar in shape in both sexes; an appendix masculina with about ten long simple setae on tip present in males (Figure 6P).

REMARKS: Several specimens of this species deposited in the Bernice P. Bishop Museum were examined but excluded from consideration in the present paper. Two lots of specimens (5♂♂, 5 ovig. ♀♀, 3♀♀) are treated herein.

Males are smaller and more slender than females and their rostra and rostral spines are more slender than those of females. Rostral spinulation is 1/5 in five females, including ovigerous specimens; 1/4 and 1/3 in two males; 0/5 in one ovigerous female; and 0/4 in one male. The remaining two specimens have broken rostra. The fourth and fifth pereopods are longer in males than in females. Spinulation of the last three pereopods is variable. The prehensile pereopods in males bear more numerous spines on the dactyli and propodi than are found in females, but the number of spines on carpi and meri is similar in males and females.

SIZE: Mature males are 13.0–18.0 mm in total length, 1.8–2.5 mm in carapace length, and 2.5–3.2 mm in rostrum length. Ovigerous females are 20.0–22.5 mm in total length, 3.4–3.8 mm in carapace length, and 3.7–4.2 mm in rostrum length.

DISTRIBUTION: The species is found throughout the Indo-West-Pacific region (Holthuis 1947), from South Africa through the Indian Ocean and from Malay–Austrian waters to the Hawaiian Islands.

DISCUSSION

Six species of *Hippolyte* are reported from the Indo-West-Pacific region (Barnard 1950, Holthuis 1947): *H. acuta* (Stimpson), *H. caradina* Holthuis, *H. commensalis* Kemp, *H. kraussiana* (Stimpson), *H. proteus* (Paulson), and *H. ventricosa* H. Milne-Edwards. Five additional species have been recently erected or designated (Chace 1951, 1972; Nouvel 1953; Yaldwyn 1971; Zariquiey Alvarez 1953), but all are found outside the Indo-West-Pacific area and no species is known to cross a zoogeographic boundary. The distinguishing features of the three central Pacific species are given in Table 1.

The specimens of *Hippolyte* from Oahu identified by Rathbun (1906) and Edmondson (1946) as *H. acuta* (then the only known representative of the genus in the central Pacific) have features that coincide with the characters of *H. ventricosa* as redescribed by Holthuis (1947). Among these distinguishing characters are the length of the apex of the branchiostegal spine, which does not exceed the anterior margin of the carapace; the stout outer distal spine on the first segment of the antennular peduncle; and the numerous spines on the dactyli of the last three pereopods. Although Gurney (1927) noted that the original description of *H. ventricosa* H. Milne-Edwards (1837) was "too incomplete to permit sure identification," the Hawaiian specimens are referred to the species in view of Holthuis' (1947) clarification.

There is also a problem concerning the description of *Virbius acutus* Stimpson (1860) in that it is not sufficiently detailed to permit certain identification of that species. Until specimens from southern Japan, the type locality of *Hippolyte acuta*, are examined, that species cannot be determined as synonymous with *H. ventricosa*.

Hippolyte jarvisensis, with the outer distal spine on the first segment of the antennular peduncle, apparently differs from *H. kraussiana* and *H. proteus*, which are entirely devoid of such a spine. The dactyli of the last three pereopods of *H. jarvisensis* indicate that it may not have a commensal habit as

does *H. commensalis* but is perhaps epifaunatic on seaweeds or sea grass. The rostral shape and spinulation are also different from those of the commensal species and from those of the Australian species, *H. caradina*, which bears a spine on the postrostral region just above the orbit. Although animals of *H. jarvisensis* resemble those of *H. ventricosa*, the animals are less than half the size of those of the latter species. Holthuis (1947) showed a wide range of sizes in Indo-Malayan *H. ventricosa*, but these size differences were not separable into distinct taxa.

The second new species, *Hippolyte edmondsoni*, is characterized by its very short, unarmed rostrum and small gastric spine on the carapace. All the known species except for the Mediterranean *H. leptocerus*, have a long rostrum that is slender or triangular in dorsal view and overreaches the cornea. In *H. leptocerus* there is a very short rostrum "que no alcanza el extremo del globo ocular" (Zariquiey Alvarez 1968). Other features in *H. edmondsoni* similar to those in *H. leptocerus* are the dactyli of the last three pereopods and the lack of a tooth on the lower margin of the rostrum. However, *H. leptocerus* has one to three (usually two) spines on the postrostral region of the carapace in females, but none in males; *H. edmondsoni* has a single frontal spine in both males and females. In the original description of *Virbius leptocerus* Heller (1863), the first and third segments of the carpus of the second pereopod are subequal in length, but the figure shows the distal segment to be longer. In *H. edmondsoni*, the distal segment is longer than either the proximal or central segments.

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LITERATURE CITED

- BARNARD, K. H. 1950. Descriptive catalogue of South African decapod Crustacea. *Ann. S. Afr. Mus.* 38: 1-837.
- CHACE, F. A., JR. 1951. The grass shrimps of the genus *Hippolyte* from the west coast of North America. *J. Wash. Acad. Sci.* 41: 35-39.
- . 1972. The shrimps of the Smithsonian-Bredin Caridean expeditions with a summary of the West Indian shallow-water species (Crustacea: Decapoda: Natantia). *Smith. Contr. Zool.* 98: i-x, 1-179.
- EDMONDSON, C. H. 1946. Reef and shore fauna of Hawaii. *Spec. Publ. Bishop Mus.* 22: i-iii, 1-389.
- GURNEY, R. 1927. Report on the species of *Hippolyte*. Zoological results of the Cambridge expedition to the Suez Canal, 1924. XXVI. *Trans. Zool. Soc. London* 22: 391-397.
- HELLER, C. 1863. Die Crustaceen des südlichen Europa. Crustacea Podophthalmia. Mit einer Übersicht über die horizontale verbreitung sämtlicher europäischer Arten.
- HOLTHUIS, L. B. 1947. The Decapoda of the Siboga expedition. Part IX. The Hippolytidae and Rhynchocinetidae collected by the Siboga and Snellius expeditions with remarks on other species. *Siboga Exped. Monogr.* 39a8: 1-100.
- MILNE-EDWARDS, H. 1837. Histoire naturelle des Crustacés, comprenant l'anatomie, la physiologie et la classification de ces animaux. Vol. 2. Libraire encyclopédique de Roret, Paris.
- NOUVEL, H. 1953. Un *Hippolyte* (Crust. Decap. Nat.) méconnu, nouveau pour les cotes de France et commensal de la comatule *Antedon bifida*. *Arch. Zool. Exp. Gen. Notes Rev.* 90: 71-86.
- RATHBUN, M. J. 1906. The Brachyura and Macrura of the Hawaiian Islands. *Bull. U.S. Fish. Comm.* 23: 827-930.
- STIMPSON, W. 1860. Prodromus descriptionis animalium evertibratorum, qua in expeditione ad Oceanum Pacificum septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. *Proc. Acad. Nat. Sci. Philadelphia*, 1860: 22-48 (91-117).
- YALDWYN, J. C. 1971. Preliminary descriptions of a new genus and twelve new species of natant decapod Crustacea from New Zealand. *Rec. Dom. Mus.* 7: 85-94.
- ZARIQUIEY ALVAREZ, R. 1953. Decapodos espanoles VII. Algo sobre Hippolytidae de las costas N. E. de Espana. *Publ. Inst. Biol. Apl.* 13: 103-108.
- . 1968. Crustaceos decapodos ibericos. *Inv. Pesq.* 32: 1-xv, 1-510.