

## A NEW GALATHEID CRUSTACEAN (DECAPODA, ANOMURA) FROM THE HAWAIIAN ISLANDS

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### A B S T R A C T

*Munida hawaiiensis*, a new galatheid, is described and illustrated from specimens taken by the *Albatross* 1902 survey in the Hawaiian Islands. The new species belongs to an aberrant group within the genus centered around *Munida scabra*. Its affinities to the closely related species *Munida proxima* are discussed.

Eight lots of galatheids on the shelves in the Division of Crustacea of the Smithsonian Institution, apparently belonging to an undescribed species of the *Munida scabra* group recognized here for the first time, have come to my attention while studying galatheids of the *Albatross* Philippine Expedition of 1907-10. This material is a part of another *Albatross* survey in the Hawaiian Islands in 1902. In addition to the present new species, two undescribed species of this group were also found during the preparation of a report still in progress on the *Albatross* Philippine collection. Comparative study of characters common to members of the *scabra* group may necessitate the revision of the genus *Munida*, which, however, will be discussed elsewhere.

The type-series of the present new species is deposited in the National Museum of Natural History (USNM), Smithsonian Institution, Washington, D.C.

### *Munida hawaiiensis*, new species

Figs. 1, 2

*Material*.—OFF LAYSAN ISLAND. Northwest of Laysan Island Light, 173-220 fm (317-403 m), fine white sand, 22 May 1902, *Albatross* Sta. 3957: 1 ♂, 1 specimen (sex indeterminate); OFF KAUAI ISLAND. Southeast of Nawiliwili Light, 233-240 fm (426-439 m), coarse brown coral sand and shells, 10 June 1902, *Albatross* Sta. 3982: 1 ♂, 1 ♀ (female is holotype, USNM 150452); NORTH COAST OF MOLOKAI ISLAND. Northwest of Mokuapu Islet, 66-96 fm (121-176 m), gray sand, shells and pebbles, 1 May 1902, *Albatross* Sta. 3906: 6 specimens (intersex); PAILOLO CHANNEL, BETWEEN MAUI AND MOLOKAI ISLANDS. Southwest of Mokuhooniki Islet, 123-134 fm (225-245 m), fine brown sand, 29 April 1902, *Albatross* Sta. 3897: 2 ovigerous ♀, 2 ♀; AUAU CHANNEL, BETWEEN MAUI AND LANAI ISLANDS. Southwest of Mokuhooniki Islet, 126-130 fm (231-238 m), sand, pebbles and broken shells, 29 April 1902, *Albatross* Sta. 3896: 1 ovigerous ♀, 1 ♀; NORTH COAST OF MAUI ISLAND. Northwest of Puniawa Point, 143-178 fm (262-326 m), gray sand and Foraminifera, 21 July 1902, *Albatross* Sta. 4079: 4 ♂, 3 ♀. 178-202 fm (326-370 m), gray sand and Foraminifera, 21 July 1902, *Albatross* Sta. 4080: 4 ♂, 1 ovigerous ♀, 2 ♀; NORTHEAST COAST OF HAWAII ISLAND. Northwest of Kauhola Light, 63-107 fm (115-196 m), volcanic sand, Foraminifera and coral, 18 July 1902, *Albatross* Sta. 4064: 8 ♂.

*Description of holotype*.—Carapace (Fig. 1) excluding rostrum slightly longer than broad, weakly convex dorsally, and covered with spinules arranged in transverse rows especially in posterior half. No distinct transverse ridges except posterior one. Gastric region with 2 more or less pronounced spines behind and slightly outside of supraoculars and 3 other spines in midline. Cervical groove distinct. Postcervical spines distinguishable. Cardiac region triangular in outline, anteriorly elevated transversely, dorsally with more or less developed spines in mesial line. Anterior branchial region separated from posterior by deep groove. Lateral margins convex with several spinules and iridescent setae in anterior half. Anterolateral spine distinct.

Base of both rostrum and supraoculars deeply excavated (Fig. 2a). Rostrum

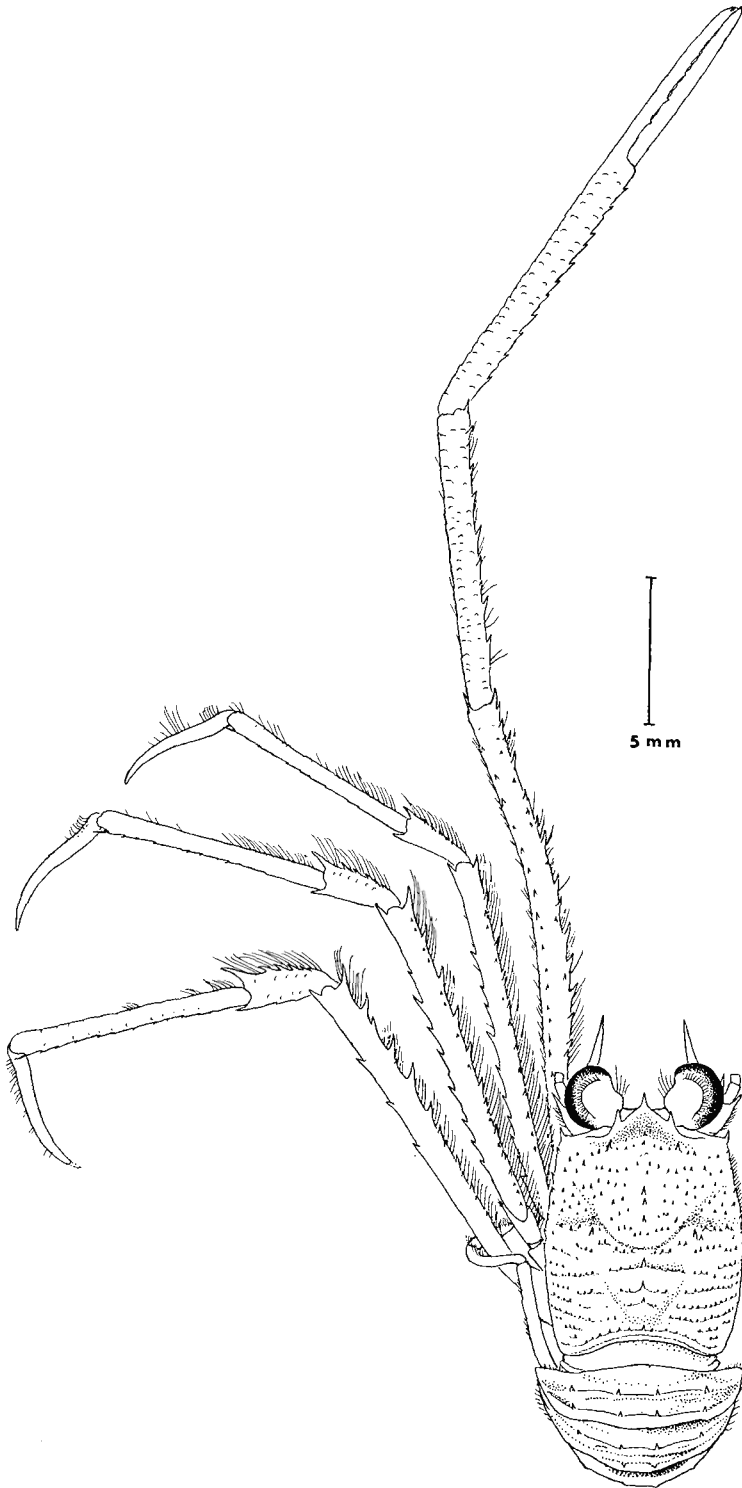


Fig. 1. *Munida hawaiiensis*, new species, female holotype from Albatross Sta. 3982 off Kauai Island.

extremely short, overreaching supraocular spines by length of distal spiniform portion and slightly more; supraoculars slightly longer than spiniform portion of rostrum and broader than latter at bases; these 3 spines distinctly upturned.

Eyes large, distally dilated and depressed, eyelashes short; anterior margin of eyestalk with pronounced iridescent setae.

Second, 3rd, and 4th abdominal segments with distinct spines situated rather regularly as in *Munida scabra*; 4 spines each on anterior and posterior ridges of 2nd and 3rd segments; 4 on anterior and 1 median on posterior ridge of 4th segment.

Basal segment of antennule (Fig. 2b) setose ventrally and externally, distally narrowing with moderate-sized spine at outer extremity, indistinctly produced on inner distal margin; outer margin with few spinules.

Anterior prolongation of antennal peduncle (Fig. 2c) with iridescent setae, nearly twice as long as 2nd segment including inner spine; inner spine of 2nd segment slightly overreaching end of 3rd segment.

Third maxilliped (Fig. 2d) setose, relatively wide and depressed. Ischium 1.4 times as long as merus, inner margin strongly produced distally, inner toothed ridge with indistinct reduced denticles. Merus with median inner marginal spine, outer margin unarmed. Distal 2 segments comparatively short and narrow. Anterior part of sternal segments as illustrated (Fig. 2e); 4th thoracic sternum not triangular, anterior margin transverse, nearly as wide as 3rd thoracic sternum.

Chelipeds subcylindrical, fully 5 times as long as carapace. Arm comparatively long, spinulose dorsally and ventrally, inner margin furnished with iridescent setae sparsely and soft plumose setae moderate in density. Wrist nearly as long as palm, squamate dorsally with 2 rows of inner marginal spines. Palm about 10 times as long as broad, fully 1.5 times as long as fingers, dorsally squamate, armed with 11 small spines on inner margin. Fingers (Fig. 2f) not gaping, distally sharply spiniform, curving inward to cross, with accompanying dorsal spine near apex of immovable finger; opposable margins almost straight, minutely tuberculate with more or less pronounced tubercular processes equidistantly.

Walking legs very slender, depressed, similar but propodus shorter in 1st leg; furnished with plumose setae on anterior margin, especially thick on dactylus and distal half of propodus. Merus with spines anteriorly and posteriorly, both terminals pronounced; anterior marginals more numerous and smaller in size, accompanying spinules along, and dorsal to margin. Carpus with both strong terminal marginals and 5 smaller anterior marginals. Propodus slender, distinctly shorter in 1st leg; 13.5 times as long as broad in 1st and 3rd legs, 15.3 times as long in 2nd leg; posterior marginal spinelets rudimentary, terminal one distinct. Dactylus slender, curving inward as illustrated, 0.51 times as long as propodus in 1st leg, 0.55 times as long in 2nd and 3rd legs; posterior margin entire, without serration.

*Variations.*—The armature of the abdominal segments is rather constant but minor variations exist in the number of spines, especially on the posterior transverse ridge; the second segment bears three or four (mostly four) spines on the posterior ridge, the third two to four (mostly two), and the fourth lacks the median spine in only two of the 38 specimens examined. The propodus of the walking leg is usually slender, the length-breadth ratios being 12.2–15.3 (average, 13.8) in 16 first legs available, 13.5–16.6 (average, 15.1) in 13 second legs, and 13.3–17.6 (average, 15.8) in 14 third legs.

Chelipeds are missing in all male specimens. One pair of gonopods is present in the male.

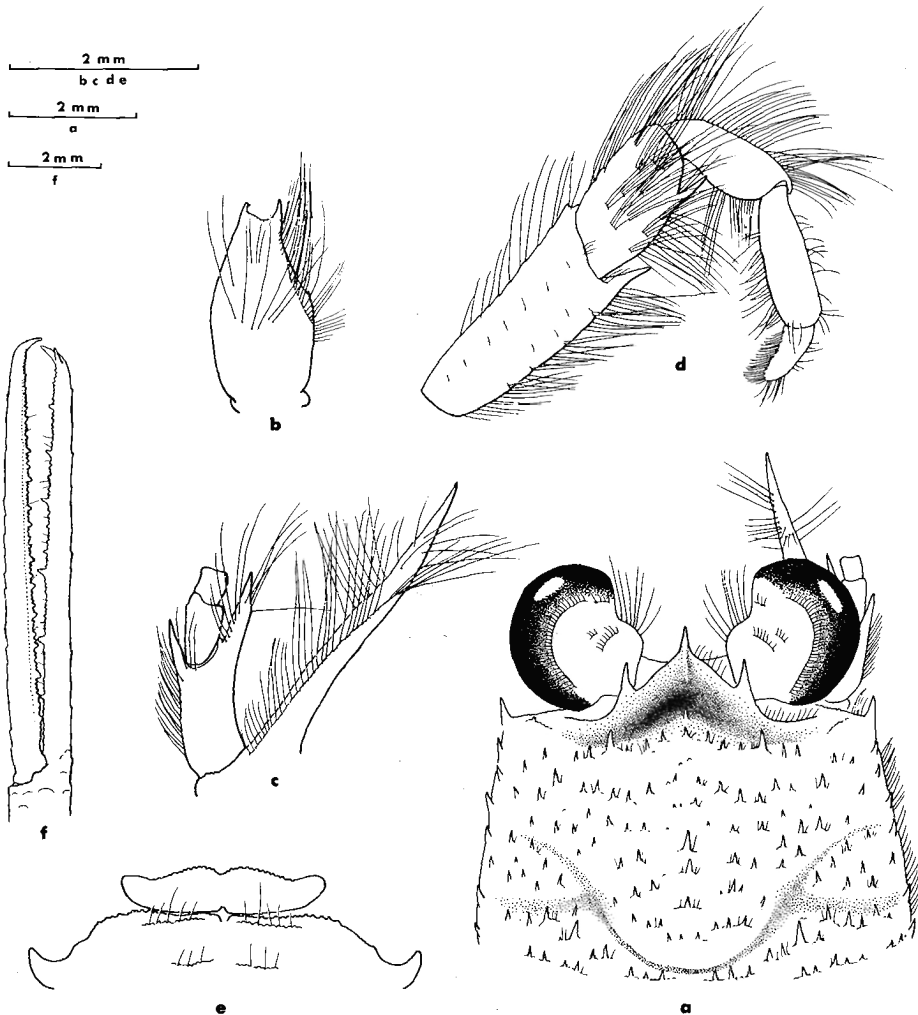


Fig. 2. *Munida hawaiiensis*, new species: a, anterior half of carapace, dorsal view; b, basal segment of left antennule; c, left antennal peduncle; d, endopod of right third maxilliped; e, anterior part of sternal segments; f, fingers of right cheliped; a-e, female holotype from Albatross Sta. 3982 off Kauai Island; f, female paratype from Albatross Sta. 3897 between Maui and Lanai Islands.

*Measurements of holotype.*—Length of carapace including rostrum, 8.4 mm; breadth of carapace, 6.7 mm; length of cheliped (left), 46.3 mm; of wrist, 10.0 mm; of palm, 10.9 mm; of movable finger, 6.5 mm; diameter of ovum,  $0.39 \times 0.43$  mm.

*Measurements of paratypes.*—Carapace lengths of males, 5.0–12.7 mm; of ovigerous females, 8.9–10.0 mm; of nonovigerous females, 10.0–11.9 mm.

*Remarks.*—The basally broad and comparatively short rostrum, the carapace without transverse ridges covered with spinules or granules, and the first segment of the antennal peduncle with an extremely prolonged inner terminal process, are characteristic of the group gathered around *Munida scabra* Henderson. This

group now contains five species, i.e., *Munida scabra*, *M. granulata*, *M. proxima*, *M. tricarinata*, and *M. hawaiiensis*, all Indo-Pacific. Alcock (1894, 1901) believed that *Munida obesa* Faxon from the Gulf of Panama should also be included; however, it shares none of the above-mentioned characters of the group. *Munida proxima* from north of Papua (Henderson 1885: 410; 1888: 135, pl. 13: fig. 2; Tirmizi, 1975: 305, figs. 1–8) seems to be the most closely related species, from which the new species is distinguished by having a shorter rostrum with its base deeply excavated and short eyelashes failing to reach the corneal margin. The members of this group are also alike in having the male gonopods only on the second abdominal segment and the propodus of the first walking leg much shorter than those of the second and third walking legs. All these peculiarities may indicate that the *scabra* group is aberrant in *Munida*. Their taxonomic significance will provoke much discussion and will be treated elsewhere when more information becomes available for the two undescribed *Albatross* Philippine species.

*Type-locality*.—Southeast of Nawiliwili Light, off Kauai Island, Hawaiian Islands.

*Distribution*.—Hawaiian Islands between Laysan and Hawaii Island, in 115–439 m.

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