Griffin, D. 1976

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Yours Clare with sincere thanks Don.

Spider crabs of the family Majidae (Crustacea: Brachyura) from the Philippine Islands*

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Introduction

Early collections of spider crabs were made in the Philippine Islands by Cumming and White (Adams & White, 1848) and by major expeditions such as the *Challenger* (Miers, 1886). Very few species, however, had been recorded by the turn of the century.

Leaving San Francisco on 16.x.1907, the U.S. Fisheries Steamer *Albatross* made an extensive series of cruises through the Philippine Islands, leaving Manila on 21.i.1910. During this cruise, numerous shore collections were made and 576 trawl stations in the Philippine Islands and surrounding area were worked from shallow water to depths exceeding 800 fms.

The very large collections were studied by a number of scientists. Mary J. Rathbun, at that time Associate in Zoology at the U.S. National Museum (Smithsonian Institution), published a series of papers describing new species of Brachyura from the Philippines. In her report on the families ' Inachidae ' and Parthenopidae (Rathbun, 1916), a total of 30 new species of spider crabs were described; 28 of these species came from the Philippines; one from the China Sea near Hong Kong—*Leptomithrax sinensis*—and one from the Molucca Sea—*Antilibinia gilloloensis*. The material not representing new species was not, however, dealt with although it was sorted and tentatively identified by Rathbun.

The present account deals with all the spider crabs of the family Majidae collected by the *Albatross* in the Philippine Islands. The collections are very rich, as was indicated by the number of new species described by Rathbun. A total of 19 species not previously known from the Philippines are recorded here, bringing to 45 (two species reduced to synonymy) the number of species added to the spider crab fauna of the Philippines by the *Albatross* collections. Sixty-three spider crabs are dealt with in this report; 10 species of spider crab known from the Philippine Islands are not contained in the collections made by the *Albatross*. (Species only recorded by Adams and White (1848) from ' Eastern Seas ' are not included in this report.)

The *Albatross* stations from which specimens dealt with in this report were collected are listed in table 1 (the data is taken from Department of Commerce and Labour Bureau of Fisheries Document 741, Government Printing Office, Washington, 1910); only locality position, data, depth and character of bottom are given.

In the species accounts the only references given are those to the original description, those dealing with the Philippine Islands and major accounts.

The material examined is summarized into the number of males and females, range of carapace length (including rostrum) in mm; the associated

*Based on the collections made by the U.S. Fisheries Steamer *Albatross* during the years 1907–1910.

Table 1

List of *Albatross* stations from the Philippine Islands from which spider crabs were collected

Station No.	Locality	Latitude (N)	Longitude (E)	Date	Depth (fms)	Bottom
				1908		
5097	Corregidor Lt	14°19′15″	120°33′52″	Jan. 2	30	gy. M., S., Sh
5100	Corregidor Lt	14°17′15″	120°32′40″	Jan. 2	35	gy. S
5104	Sueste Pt. Lt	14°45′48″	120°12′20″	Jan. 8	33	
5117	Sombrero Id	13°52′22″	120°46′22″	Jan. 21	118	
5118	Sombrero Id	13°48′45″	120°41′51″	Jan. 21	159	dk. gn. M
5123	Malabrigo Lt	13°12′45″	121°38′45″	Feb. 2	283	gn. M
5131	Id off Panabutan Pt	—	—	Feb. 6	27	gn. M., co. S
5134	Balukbaluk Id	6°44′45″	121°48′	Feb. 7	25	fne. S.
5136	Jolo Lt	6°04′20″	120°59′20″	Feb. 14	22	S., Sh
5138	Jolo Lt	6°06′	120°58′50″	Feb. 14	19	S., Co
5139	Jolo Lt	6°06′	121°02′30″	Feb. 14	20	co. S
5141	Jolo Lt	6°09′	120°58′	Feb. 15	29	co. S
5142	Jolo Lt	6°06′10″	121°02′40″	Feb .15	21	co. S., Sh
5144	Jolo Lt	6°05′50″	121°02′15″	Feb. 15	19	co. S
5145	Jolo Lt	6°04′30″	120°59′30″	Feb. 15	23	co. S., Sh
5146	Sulade Id	5°46′40″	120°48′50″	Feb. 16	24	co. S., Sh
5147	Sulade Id	5°41′40″	120°47′10″	Feb. 16	21	co. S., Sh
5148	Sirun Id	5°35′40″	120°47′30″	Feb. 16	17	co. S
5149	Sirun Id	5°33′	120°42′10″	Feb. 18	10	Co., Sh
5151	Sirun Id	5°24′40″	120°27′15″	Feb. 18	24	co. S., Sh
5157	Tinakta Id	5°12′30″	119°55′50″	Feb. 21	18	fne. S
5158	Tinakta Id	5°12′	119°54′30″	Feb. 21	12	crs. S., Sh
5159	Tinakta Id	5°11′50″	119°54′	Feb. 21	10	co. S
5160	Tinakta Id	5°12′40″	119°55′10″	Feb. 22	12	S
5162	Tinakta Id	5°10′	119°47′30″	Feb. 22	230	crs. S., brk. Sh
5163	Observation Id	4°59′10″	119°51′	Feb. 24	28	co. S
5164	Observation Id	5°01′40″	119°52′20″	Feb. 24	18	gn. M
5165	Observation Id	4°58′20″	119°50′30″	Feb. 24	9	Co
5169	Sibutu Id	4°32′15″	119°22′45″	Feb. 27	10	co. S
5172	Jolo Lt	6°03′15″	120°35′30″	Mar. 5	318	fne. S., Sh
5173	Jolo Lt	6°02′55″	120°53′	Mar. 5	186	Sh., Co
5174	Jolo Lt	6°03′45″	120°57′	Mar. 5	20	crs. S
5179	Romblon Lt	12°38′15″	122°12′30″	Mar. 25	37	hrd. S
5198	Baliscasag Id	9°40′50″	123°39′45″	Apr. 9	220	gn. M
5201	Limasaua Id	10°10′	125°04′15″	Apr. 10	554	gy. S., M
5202	Limasaua Id	10°12′	125°04′10″	Apr. 10	502	gy. M
5206	Badian Id	11°31′40″	124°42′40	Apr. 14	32	gn. M
5207	Badian Id	11°38′05″	124°40′45″	Apr. 14	35	gn. M., S
5213	Destacado Id	12°15′	123°57′30″	Apr. 20	80	S., M., Sh
5218	Anima Sola Id	13°11′15″	123°02′45″	Apr. 22	20	crs. S
5219	Mompog Id	13°21′	122°18′45″	Apr. 23	530	gn. M
5221	San Andreas Id	13°38′15″	121°48′15″	Apr. 24	193	gn. M
5235	Nagubat Id	9°43′	125°48′15″	May 9	44	sft. M
5249	Lanang Pt	7°06′06″	125°40′08″	May 18	23	Co., S
5251	Linao Pt	7°05′12″	125°39′35″	May 18	20	Co
5252	Linao Pt	7°04′48″	125°39′38″	May 18	28	Co
5253	Linao Pt	7°04′48″	125°39′38″	May 18	28	Co
5254	Linao Pt	7°05′42″	125°39′42″	May 18	21	S., Co
5260	Balanja Pt	12°25′35″	121°31′35″	June 3	234	gn. M., S
5265	Matacot Pt	13°41′15″	120°00′50″	June 6	135	S., M
5268	Matacot Pt	13°42′	120°57′15″	June 8	170	S., P
5269	Matacot Pt	13°39′50″	120°59′30″	June 8	220	fne. S., P
5276	Malavatuan Id	13°49′15″	120°14′45″	July 17	18	Sh., P., S
5279	Malavatuan Id	13°57′30″	120°22′15″	July 17	117	gn. M
5280	Malavatuan Id	13°55′20″	120°25′55″	July 17	193	gy. S
5282	Malavatuan Id	13°53′	120°26′45″	July 18	248	dk. gy. S
5283	Malavatuan Id	13°48′30″	120°28′40″	July 18	280	dk. gy. S
5289	Matacot Pt	13°41′50″	120°58′30″	July 22	172	brk. Sh., S

Table 1.—(*continued*)

Station No.	Locality	Latitude (N)	Longitude (E)	Date	Depth (fms)	Bottom
				1908		
5290	Matacot Pt	13°40′09″	120°59′30″	July 22	214	Lav., G
5293	Escarceo Lt	13°28′15″	121°04′30″	July 23	180	fne. bk. S
5296	Matacot Pt	13°40′09″	120°57′45″	July 24	210	M., S
5297	Matacot Pt	13°41′20″	120°58′	July 24	198	M., S
5302	China Sea, vicinity Hong Kong	21°42′	114°50′	Aug. 9	38	stf. gy. M
5304	Ditto	21°46′	114°47′	Aug. 9	34	bl. M
5305	Ditto	21°54′	114°46′	Oct. 24	37	sft. gy. M
5311	Ditto	21°33′	116°15′	Nov. 4	88	crs. S., Sh
5317	China Sea, vicinity Formosa	21°36′	117°27′	Nov. 5	230	S., sml. Sh
5325	Hermanos Id	18°34′15″	121°51′15″	Nov. 12	224	gn. M
5335	Observatory Id	11°37′15″	119°48′45″	Dec. 18	46	S., M
5348	Pt Tabonan	10°57′45″	118°38′15″	Dec. 27	375	Co., S
				1909		
5353	Cape Melville Lt	7°50′45″	116°43′15″	Jan. 1	148	
5355	Balabac Lt	8°08′10″	117°19′15″	Jan. 5	44	co. S
5358	Sandakan Lt	6°06′40″	118°18′15″	Jan. 7	39	M
5360	Corregidor Lt	14°21′	120°41′	Feb. 7	12	hrd.
5363	C. Santiago Lt	13°47′20″	120°43′30″	Feb. 20	180	
5364	C. Santiago Lt	13°48′30″	120°43′45″	Feb. 20	160	
5366	Escarceo Lt	13°39′	120°58′30″	Feb. 22	240	
5367	Malabrigo Lt	13°34′37″	121°07′30″	Feb. 22	180	S
5369	Tayabas Lt	13°48′	121°43′	Feb 24	106	bk. S
5371	Tayabas Lt	13°49′40″	121°40′15″	Feb. 24	83	gn. M.
5372	Tayabas Lt	13°49′12″	121°36′09″	Feb. 24	150	gn. M
5373	Tayabas Lt	13°40′	121°31′10″	Mar. 2	338	sft. M
5378	Mompog Id	13°17′45″	122°22′	Mar. 4	395	sft. gn. M
5388	Bagatao Id	12°51′30″	123°26′15″	Mar. 11	226	sft. gn. M
5395	Panalangan Pt	11°56′40″	124°14′	Mar. 15	140	hrd. gn. M.
5403	Capitancillo Id	11°10′	124°17′15″	Mar. 16	182	gn. M
5404	Ponson Id	10°50′	124°26′18″	Mar. 17	190	M
5406	Ponson Id	10°49′03″	124°22′30″	Mar. 17	298	M
5407	Ponson Id	10°51′38″	124°20′54″	Mar. 17	350	gn. M
5409	Capitancillo Lt	10°38′	124°13′08″	Mar. 18	189	gn. M
5415	Lauis Pt Lt	10°07′50″	123°57′	Mar. 24	88	fne. S
5418	Lauis Pt Lt	10°08′50″	123°52′30″	Mar. 25	159	gy. M., S
5419	Lauis Pt Lt	9°58′30″	123°46′	Mar. 25	175	gn. M
5423	Cagayan Id	9°38′30″	121°11′	Mar. 31	508	gy. M., co. S
5426	30th of June Id	9°12′	118°28′	Apr. 3	27	fne. gy. S
5432	Corandagos Id	10°37′50″	120°12′	Apr. 8	51	S
5440	S. Fernando Pt Lt	16°33′52″	119°52′54″	May 10	172	fne. gy. S., Glob
5442	S. Fernando Pt Lt	16°30′36″	120°11′06″	May 10	45	co. S
5444	Atalaya Pt	12°43′51″	124°58′50″	June 3	308	gn. M
5445	Atalaya Pt	12°44′42″	124°59′50″	June 3	383	gn. M., S
5453	Legaspi Lt	13°12′	123°49′18″	June 7	146	
5454	Legaspi Lt	13°12′	123°50′30″	June 7	153	
5459	Legaspi Lt	13°10′21″	123°59′54″	June 8	201	
5460	Sialat Pt Lt	13°32′30″	123°58′06″	June 10	565	gy. M
5469	Atulayan Id	13°36′48″	123°38′24″	June 18	500	gn. M
5475	S. Bernardino Lt	12°55′26″	124°22′12″	June 24	195	Sh
5478	Tacbuc Pt	10°46′24″	125°16′30″	July 29	57	Sh
5481	Cabugan Grande Id	10°27′30″	125°17′10″	July 30	61	S., Sh., G
5482	Cabugan Grande Id	10°27′30″	125°18′	July 30	67	brk. Sh, S, gn. M
5483	Cabugan Grande Id	10°27′30″	125°19′15″	July 30	74	S., brk. Sh
5484	Cabugan Grande Id	10°28′	125°20′	July 30	76	S., brk. Sh
5487	San Ricardo Pt	10°02′45″	125°05′33″	July 31	732	gn. M
5492	Diuata Pt	9°12′45″	125°20′	Aug. 1	735	gy. M

(*continued over*)

Table 1.—(*continued*)

Station No.	Locality	Latitude (N)	Longitude (E)	Date	Depth (fms)	Bottom
				1909		
5502	Macabalan Pt Lt	8°37′37″	124°35′	Aug. 4	214	
5503	Macabalan Pt Lt	8°36′26″	124°36′08″	Aug. 4	226	gn. M
5504	Macabalan Pt Lt	8°35′30″	124°36′	Aug. 5	200	gn. M
5506	Macabalan Pt Lt	8°40′	124°31′45″	Aug. 5	262	gn. M
5510	Camp Overton Lt	8°16′	124°03′50″	Aug. 7	423	gy. M., fne. S
5511	Camp Overton Lt	8°15′20″	123°57′	Aug. 7	410	gy. M., S
5512	Camp Overton Lt	8°16′02″	123°58′26″	Aug. 7	445	gy. M., fne. S
5513	Camp Overton Lt	8°16′45″	124°02′48″	Aug. 7	505	gy. M., fne. S
5516	Pt Tagolo Lt	8°46′	123°32′30″	Aug. 9	175	Glob
5517	Pt Tagolo Lt	8°45 30″	123°33′45″	Aug. 9	169	Glob
5518	Pt Tagolo Lt	8°48′	123°31′	Aug. 9	200	gy. M., Glob
5519	Pt Tagolo Lt	8°47′	123°31′15″	Aug. 9	182	Glob., S
5526	Balicasag Id	9°12′45″	123°45′30″	Aug. 11	805	gn. M., Glob
5527	Balicasag Id	9°22′30″	123°42′40″	Aug. 11	392	glob. Oz
5528	Balicasag Id	9°24′45″	123°39′15″	Aug. 11	439	glob. Oz
5536	Apo Id	9°15′45″	123°22′00″	Aug. 19	279	gn. M
5537	Apo Id	9°11′00″	123°23′00″	Aug. 19	254	gn. M
5538	Apo Id	9°08′15″	123°23′20″	Aug. 19	256	gn. M., S
5541	Tagolo Lt	8°49′38″	123°34′30″	Aug. 20	219	fne. S., brk. Sh
5542	Tagolo Lt	8°48′30″	123°35′30″	Aug. 20	200	fne. S., brk. Sh
5543	Tagolo Lt	8°47′15″	123°35′00″	Aug. 20	162	S
5555	Cabalian Pt	5°51′15″	120°58′35″	Sept. 18	34	crs. S
5557	Cabalian Pt	5°51′30″	121°01′00″	Sept. 18	13	S., Co
5558	Cabalian Pt	5°51′33″	121°00′58″	Sept. 18	15	Co
5559	Cabalian Pt	5°51′36″	121°00′45″	Sept. 18	13	Co
5561	Teomabal Id	5°50′45″	121°01′15″	Sept. 18	10	
5566	Dammi Id	5°52′12″	120°31″00″	Sept. 21	244	fne. S., Sh
5587	Sipadan Id	4°10′35″	118°37′12″	Sept. 28	415	gn. M., S., Co
5589	Mabul Id	4°12′10″	118°38′08″	Sept. 29	260	fne. gy. S., gy. M
5617	Ternate Id	00°49′30″	127°25′30″	Nov. 27	131	
5623	Makyan Id	0°16′30″	127°30′00″	Nov. 29	272	fne. S., M
5624	Makyan Id	0°12′15″	127°29′30″	Nov. 29	288	fne. S., M
5625	Kayoa Is	0°07′00″	127°28′00″	Nov. 29	230	gy. M., fne. S
5626	Kayoa Id	0°07′30″	127°29′00″	Nov. 29	265	gy. M., fne S
5640	Labuan Blanda Id	4°27′00″S	122°55′40″	Dec. 13	24	S., brk. Sh
5656	Olang Pt	3°17′40″S	120°36′45″	Dec. 19	484	gy. M

Abbreviations; capitalized for nouns, not for adjectives: bk.—black; bl.—blue; brk.—broken; Co.—Coral; crs.—coarse; dk.—dark; fne.—fine; G.—Gravel; Glob.—Globigerina; gn.—green; gy.—grey; hrd.—hard; Lav.—Lava; M.—Mud; Oz.—Ooze; P.—Pebbles; S.—Sand; sft.—soft; Sh.—Shells; sml.—small.

information is summarized under locality (the stations are grouped by major area and the locality given is the general area as listed in the original station list) and habitat.

Where particular specimens are referred to the catalogue number is generally given after the abbreviation of the Museum; the abbreviations are as follows:

Smithsonian Institution Washington—USNM
British Museum (Natural History) London—BMNH
Universitetets Zoologiske Museum, Copenhagen—ZMC
Rijksmuseum van Natuurlijke Historie, Leiden—RML
Zoological Survey of India, Calcutta—ZSC.

Achaeus akanensis Sakai

Achaeus akanensis Sakai, 1938 : 224–225, text fig. 15.

Material examined: 1 ♂, 3·5 mm, 1 ovig. ♀, 6 mm (USNM 49867, 49869).

Localities: S.W. Luzon-Mindoro: vicinity of Romblon, St. 5179, 1 specimen. Sulu Archipelago: vicinity of Jolo, St. 5141, 1 specimen.

Habitat: 29–37 fms, sand and coral.

Remarks: These two specimens do not differ greatly from the material described by Sakai. In both specimens the ' neck ' is extremely short, the hepatic regions laterally protruding with forwardly directed spines and the rostral spines extremely short and slender.

The female (the larger specimen) possesess a strong spine on each supraorbital eave; in the male these appear to be broken. The distribution of spines on the carapace in both specimens are for the most part as described by Sakai although the protogastric ones are small and there are some low tubercles on the branchial region laterally subdorsally. The third and fourth ambulatory legs are missing from the male; the dactyls of the fourth leg of the female are weakly curved and ventrally spinulous, the more distal spinules being large.

These specimens were identified as *A. lorina* by Rathbun. *A. lorina* has a long postorbital ' neck ' and lacks a supraorbital spine.

Distribution: Philippine Islands; southern Luzon and Sulu Archipelago; previously known only from Japan.

Achaeus brevirostris (Haswell)

Stenorhynchus brevirostris Haswell, 1879 : 408.
Achaeus brevirostris.—Griffin, 1970 : 98–101, figs. 1 (*a*), 2, 15 (*e*), (*f*).

Material examined: 1 ♀, 14 mm (USNM 49824).

Locality: Sulu Archipelago: vicinity of Jolo, St. 5136, 1 specimen.

Habitat: 22 fms, sand and shells.

Remarks: The present specimen was identified by Rathbun as *Achaeus affinis* Miers, shown elsewhere to be a synonym of Haswell's species (Griffin & Yaldwyn, 1965). Specimens of this species from the Gulf of Thailand in the Smithsonian Institution and the University Zoological Museum, Copenhagen, were also identified by Rathbun as *A. affinis*. This adult female has fronds of thecate hydroids attached to the body and legs.

Distribution: Philippine Islands: Sulu Archipelago; previously recorded from the Indo-west Pacific from Zanzibar (east Africa) to northern Australia and Java.

Achaeus lorina (Adams & White)

Inachus lorina Adams & White, 1848 : 3–4, pl. 2, fig. 2.
Achaeus lorina.—Griffin, 1968 a : 79 (in discussion).

Material examined: 1 ♀ (ovig.), 10·5 mm (USNM 49837).

Locality: Palawan: North Balabac Strait, St. 5355, 1 specimen.

Habitat: 44 fms, coral sand.

Remarks: This specimen was fully discussed recently (Griffin, 1968 a). Adams & White recorded the species from ' the shores of Mindanao '.

Distribution: Philippine Islands: Palawan and Mindanao.

Achaeus paradicei Griffin

Achaeus paradicei Griffin, 1970 : 108–109, figs. 3 (*b*), 6, 15 (*b*), (*c*).

Material examined: 1 ♂, 5 mm (USNM 49868).

Locality: Sulu Archipelago: near Basilan I., St. 5134, 1 specimen.

Habitat: 25 fms, fine sand.

Remarks: This single small male agrees very closely with the material from Australia originally described. It differs strongly from *A. lorina* (Adams & White), under which name Rathbun identified it, in tuberculation and spinulation.

Distribution: Sulu Archipelago, Philippine Islands; previously known only from north-eastern Australia.

Achaeus villosus Rathbun

(Fig. 1 (*a*))

Achaeus villosus Rathbun, 1916 : 528.

Material examined: 1 ♂ (holotype), 1 mm (USNM 48207).

Locality: Sulu Archipelago: vicinity of Jolo, St. 5139, 1 specimen.

Habitat: 20 fms, coral sand.

Remarks: This species was described in fair detail by Rathbun (1916) from the only known specimen. Rathbun did not mention the following features: the carapace is densely covered by spinules but lacks enlarged spines, there are several rows of spinules on the posterior part of the supraorbital eave and around the posterolateral margin, the fingers of the chelae gape weakly but are toothed. Both of the fourth ambulatory legs are missing.

Distribution: Known only from the Phillippine Islands.

Antilibinia gilloloensis Rathbun

Antilibinia gilloloensis Rathbun, 1916 : 537–538.

Material examined: None.

Remarks: This species is known only from the holotype (♂, 13 mm, Molucca Sea between Gillolo (most widely known as Halmahera) and Makyan Is, St. 5624, 288 fms on fine sandy mud). Rathbun (1918 : 13–14) compared this species with others of the genus.

Distribution: South east of Philippine Islands—Molucca Sea.

(*a*)

(*b*)

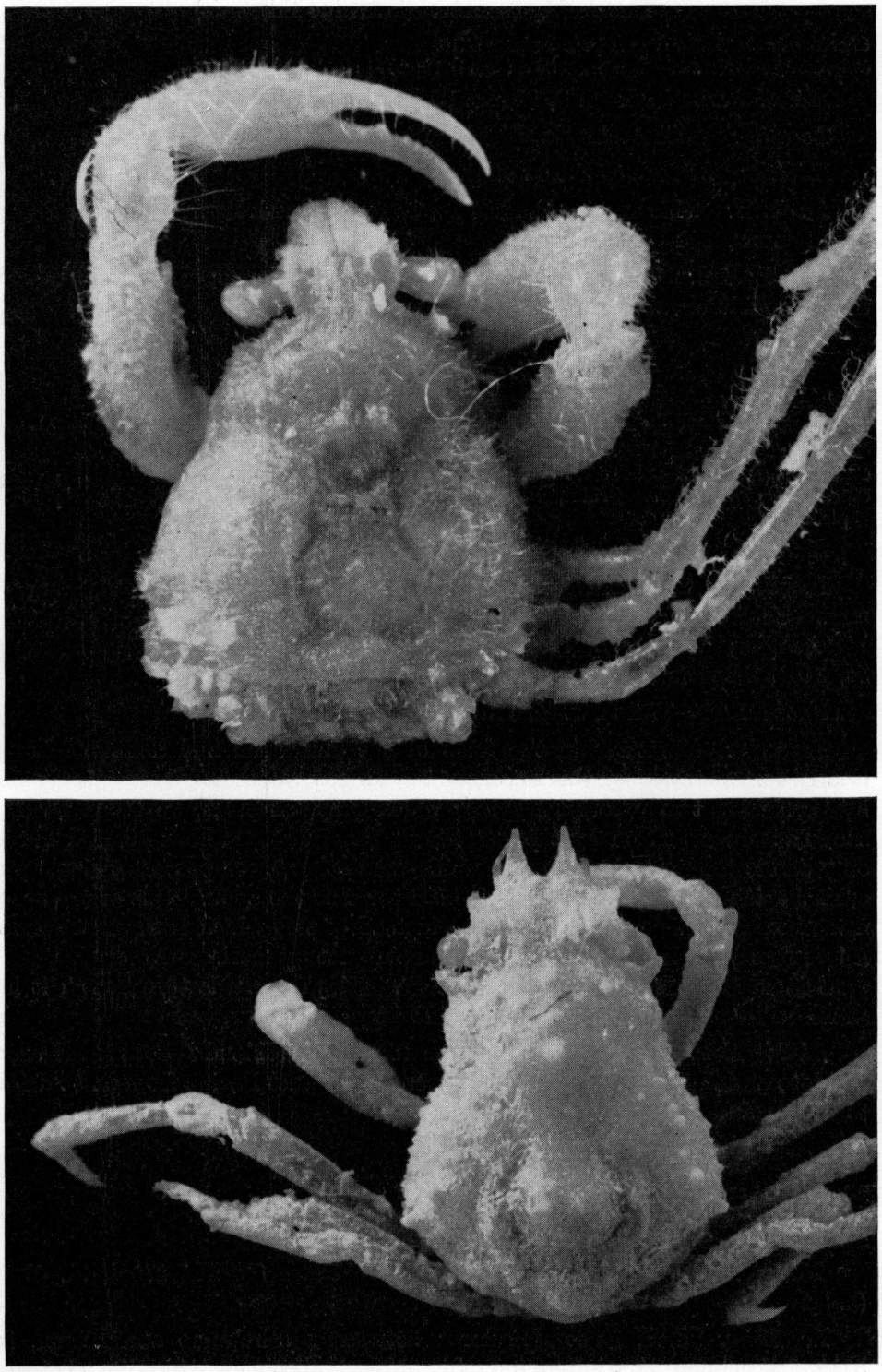

FIG. 1. (*a*) *Achaeus villosus* Rathbun, holotype, male, 1·1 mm, dorsal view. (*b*) *Hyastenus fraterculus* Rathbun, holotype, male, 7·5 mm, dorsal view.

Chlorinoides aculeatus (H. Milne Edwards)

Chorinus aculeata H. Milne Edwards, 1834 : 316.
Chlorinoides aculeatus.—Griffin, 1966 a : 4, 11, 13; 1974 : 7.

Material examined: 1 ♀, 12 mm (USNM 49490).

Locality: Sulu Archipelago: Jolo I. and vicinity, St. 5555, 1 specimen.

Habitat: 34 fms, coarse sand.

Remarks: This species has not been recorded previously from the Philippine Islands.

Distribution: Sulu Archipelago, Philippine Islands; Indo-west Pacific from Bay of Bengal to Japan and northern Australia.

Chlorinoides longispinus (De Haan)

Maja (*Chorinus*) *longispina* De Haan, 1839 : 94–95.
Maja (*Chorinus*) *aculeata*.—De Haan, 1839 : pl. 33, figs. 2, 2 (*a*), 2 (*b*). (Not *Chorinus aculeata* H. Milne Edwards, 1834.)
Chorinus longispina.—Adams & White, 1848 : 12.
Chlorinoides longispinus.—Griffin, 1966 a: 4, 11, 13; Serene, 1969 : 286–288, figs. 3, 13–15, pls. 3A, B.

Material examined: 3 ♂♂, 3 ♀♀, 16–38·5 mm (USNM 49486–89, 49491).

Localities: S.W. Luzon-Mindoro: vicinity of Romblon, St. 5179, 1 specimen. Sulu Archipelago: vicinity of Jolo, St. 5138, 1 specimen; St. 5174, 1 specimen; vicinity of Siasi, St. 5149, 1 specimen; Tawi Tawi Group, St. 5151, 2 specimens.

Habitat: 10–37 fms, sand, coral, shells.

Remarks: Variation in the form of the preorbital and hepatic lobes is clearly demonstrated by this small series. In general, *C. longispinus* is typified by possessing two preorbital spines which may, at most, be fused basally. Three specimens taken by the *Albatross* possess two preorbital spines but in only one is the posterior one recurved. The other three possess a single preorbital spine although in one this is bifid towards the apex. One of the specimens possesses a single hepatic spine instead of two which is the more usual. All possess a single terminal spine on the ambulatory meri.

Adams & White (1848) recorded this species from ' Eastern Seas '; it has not been recorded previously from the Philippine Islands.

Distribution: Northern and southern Philippine Islands—southern Luzon-Mindoro and Sulu Archipelago; widespread Indo-west Pacific from east Africa to Japan and Australia.

Cyrtomaia echinata Rathbun

(Fig. 2.)

Cyrtomaia echinata Rathbun, 1916 : 533–535.

Material examined: 3 ♂♂, 10 ♀♀, 8–66·5 mm (USNM 47302–11, 47305 (holotype)).

Localities: S.W. Luzon-Mindoro: between Marinduque and Luzon, St. 5219, 1 specimen; Marinduque I., St. 5373, 1 specimen. Siquijor: between Siquijor and Bohol Is, St. 5526, 1 specimen. Leyte: Sogod Bay, St. 5201, 2 specimens; between Leyte and Mindanao, St. 5487, 1 specimen (holotype).

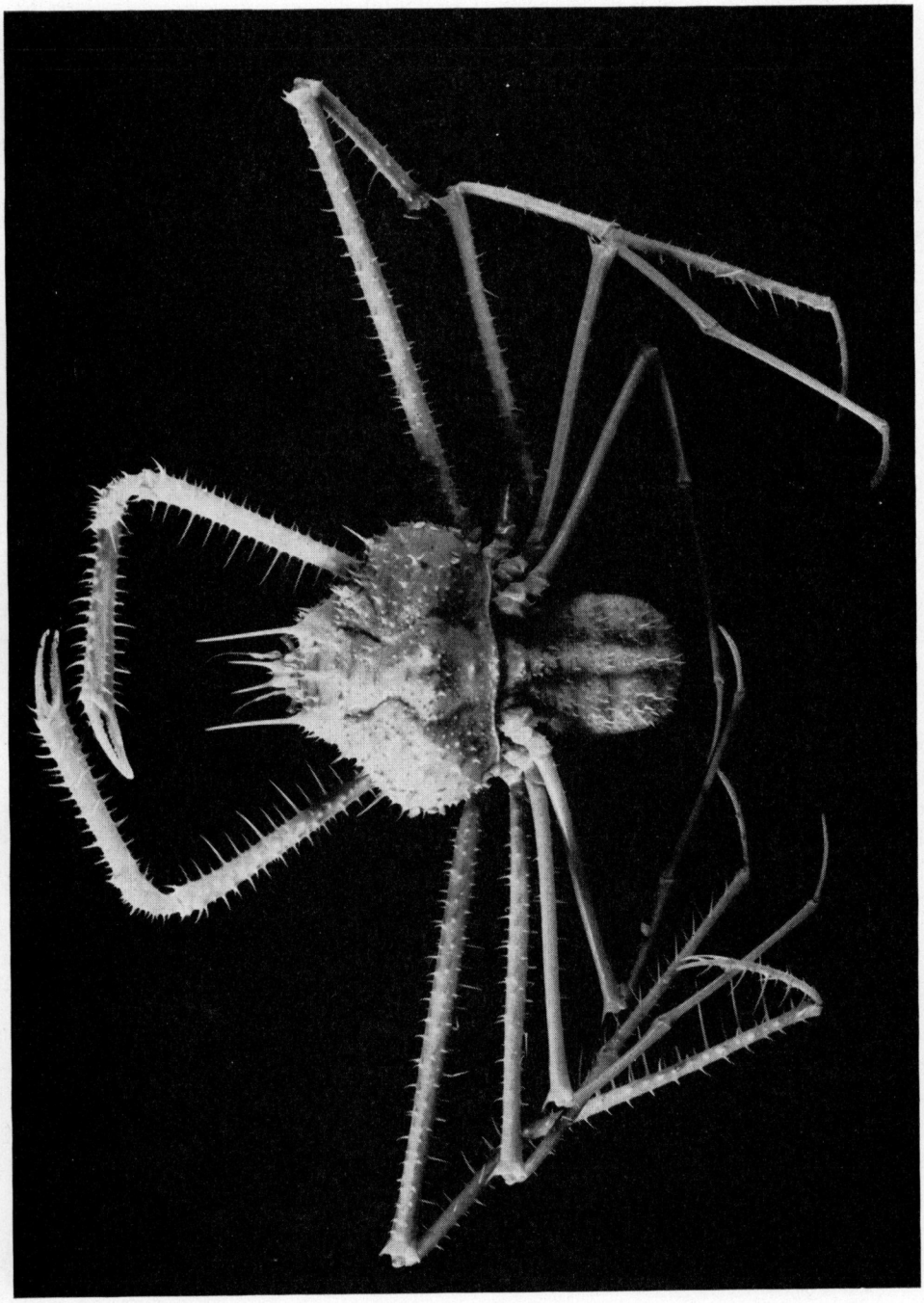

FIG. 2. *Cyrtomaia echinata* Rathbun, holotype, female, 64·3 mm, dorsal view.

N. Mindanao: between Leyte and Mindanao, St. 5492, 2 specimens; N. Mindanao, St. 5510, 1 specimen; St. 5511, 1 specimen; St. 5512, 2 specimens. Sulu Archipelago: Jolo Sea, St. 5423, 1 specimen.

Habitat: 410–805 fms, mud and sand.

Remarks: This species belongs to that group of the genus possessing long slender protogastric spines. The carapace is rather densely covered with small spines. There are seven slender prominent spines in addition to the protogastric ones; these are one mesogastric, two cardiac and four branchial, two on each side above the lateral margin. There are a few spinules on the supraorbital margin.

Distribution: Known only from the Philippine Islands from southern Luzon to the Sulu Archipelago.

Cyrtomaia horrida Rathbun

(Fig. 3)

Cyrtomaia horrida Rathbun, 1916 : 532–533; Sakai, 1938 : 242.
Cyrtomaia horrida pilosa Ihle & Ihle-Landenberg, 1931 : 154–156.

Material examined: 5 ♂♂, 1 ♀, 10·5–60 mm (USNM 47320–23, 47321 (holotype)).

Localities: Negros: between Negros and Siquijor, St. 5536, 2 specimens; St. 5538, 1 specimen (holotype). Molucca Sea: between Gillolo and Kayao Is, St. 5625, 1 specimen; St. 5626, 2 specimens.

Habitat: 230–279 fms, green or grey mud, fine sand, shells.

Remarks: This species, like several others, possesses long protogastric spines but the surface of the carapace is granular, not spinous, there are a few short spines on the branchial region towards the lateral margin and the supraorbital border bears a single spine. The other species with extremely long branchial spines lack spines on the orbital border.

Distribution: Philippine Islands, known only from the region of Negros; Japan.

Cyrtomaia owstoni Terazaki

Cyrtomaia owstoni Terazaki, 1903 : 239, text fig.; Sakai, 1965 a : 71, pl. 31, fig. 2; Takeda & Miyake, 1969 : 500–501, fig. 11 (*d*), (*e*).
Cyrtomaia septemspinosa Rathbun, 1932 : 30.

Material examined: 1 ♂, 16 mm, 1 ♀, 20 mm (USNM 47300–01).

Localities: Palawan: Palawan Passage, St. 5348, 1 specimen. Cebu-Bohol: Jolo Sea, St. 5423, 1 specimen.

Habitat: 375–508 fms, grey mud, coral sand, sand, coral.

Remarks: These two specimens were compared with the holotype of *C. septemspinosa* Rathbun 1932 (USNM 47297—a male, 26 mm, from W. of Koshika Is., Japan) and agree well with that specimen. Sakai (1938 : 240) showed that species to be a synonym of *C. owstoni*.

This species has not previously been recorded from the Philippine Islands.

Distribution: Southern Philippine Islands; southern Japan.