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Anomuran Crustaceans Obtained by Dredging from Oshima Strait, Amami-Oshima of the Ryukyu Islands

By

Keiji BABA*

馬場敬次*: ドレッヂにより得られた大島海峡（奄美大島）の甲殻綱異尾類

As a part of the research project titled "Natural History of the Japanese Islands" of the National Science Museum, Tokyo, dredging operations were conducted to obtain invertebrates in Oshima Strait between Amami-oshima and Kakeroma-jima of the Ryukyu Islands in August, 1988. In view of the fact that the Japanese islands have received many of the Indo-Malayan marine elements by way of the Kuroshio Current, the anomuran fauna there is expected to be rich. However, the materials collected from 16 of the 27 stations worked comprise only 14 species: 10 of Galatheidae, 3 of Porcellanidae and 1 of Paguridae. This is quite an unexpected number of species, possibly due to rather monotonous substrata that are composed mostly of fine or coarse coralline sand very occasionally mixed with shells, rarely with dead corals, and that lack stones and rocks.

Six of the 10 species of galatheids are not true corallophiles and all are the first to be recorded from Amami-oshima (*Galathea orientalis, G. ternatensis, Lauriea gardineri, Munida elegantissima, M. japonica,* and *M. rufiantennulata*); these species are rather common in Kyushu and the vicinity, and their occurrence here is not unexpected. *Galathea amamiensis* and *G. platycheles* are reef-associated species and have been known in Amami-oshima together with five other species of corallophile galatheids (MIYAKE and BABA, 1966). *Galathea subsquamata* Stimpson, the type-locality of which is Amami-oshima, occurs widely in the western Pacific and Western Australia, and it is the first of the topotypic specimens to be collected. *Galathea albatrossae* that has recently been described from the Philippines (BABA, 1988:65) extends the range northward to Amami-oshima; *Aliaporcellana suluensis* and *Lissoporcellana quadrilobata,* both widely occurring in the Indo-West Pacific, are the first to be recorded from Amami-oshima, as is also *Polyonyx biunguiculatus*, the northern limit of whose range has been placed at the Formosa Strait (HAIG, 1964: 378).

Locations of the 27 dredging stations are shown in Fig. 1, and characters of bottoms and depth records are listed in Table 1.

The sizes of the specimens are given in parentheses under the list of material, showing

* Faculty of Education, Kumamoto University
熊本大学教育学部

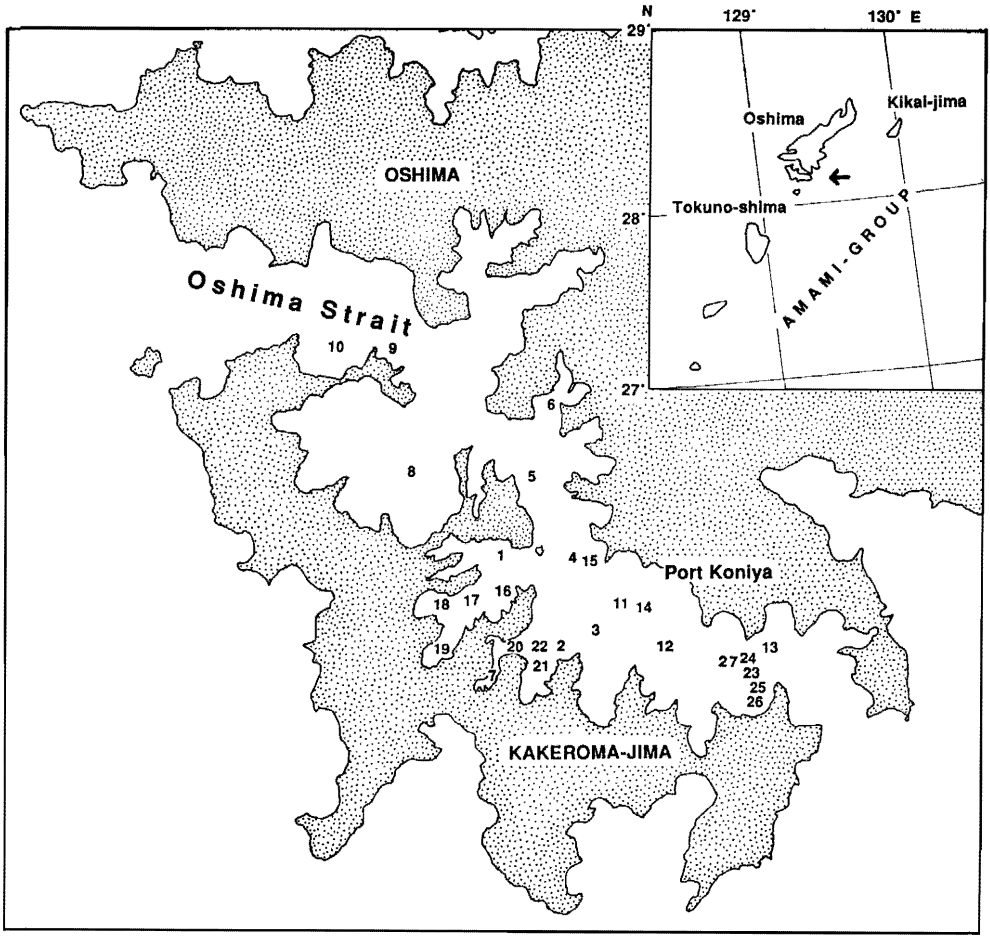

Fig. 1. Oshima Strait, showing the positions of 27 dredging stations.

carapace lengths (including the rostrum) in millimeters for the Galatheidae, carapace lengths by carapace widths for the Porcellanidae, and shield lengths for the Paguridae.

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Family Galatheidae

1. *Galathea albatrossae* BABA, 1988

Sta 16: 1 ♂ (5.1), 1 ♀ (3.9); Sta 19: 1 ♂ (5.0); Sta 22: 1 ♂ (5.6), 2 ovig. ♀ (5.0, 5.2), 1 ♀ (4.4); Sta 23: 1 ovig. ♀ (7.8).

Table 1. Station data.

Station	Position	Bottom*	Depth	Date
1	Miura	f. s.	45 m	Aug. 4, 1988
2	NW of Shiraki-saki	s.	50 m	—
3	Betw. Koniya and Shiraki-saki	g. sh.	55 m	—
4	Betw. Seto-saki and Hyoko-shima	s. sh.	65 m	—
5	S of Yui-shima	r. co.	60 m	—
6	Atetsu-wan	s.	40 m	—
7	Nomino-ura	m.	15 m	—
8	Satsukawa-wan	s. m.	65 m	Aug. 5, 1988
9	Off Ihama	s.	70 m	—
10	Shiba-ura	s. sh.	50 m	—
11	Betw. Koniya and Shiraki-saki	s. sh.	50 m	—
12	Betw. Koniya and Kanekubiri-saki	s. sh.	50 m	—
13	Betw. Kuro-saki and Machiami-saki	s. sh.	40 m	—
14	Betw. Koniya and Shiraki-saki	s. sh.	45 m	—
15	Betw. Seto-saki and Hyoko-shima	s. sh.	70 m	—
16	SE of Tawara-saki	f. s.	45 m	Aug. 6, 1988
17	S of Tawara-saki	f. s.	45 m	—
18	Near Tawara	co. s.	30 m	—
19	Near Seso	co. r.	25 m	—
20	West side of Nomino-ura	crs. s. sh.	35 m	—
21	Off Oshikaku	crs. s. sh.	40 m	—
22	Nomino-ura	s. sh.	45 m	—
23	Off Doren	s. sh.	35 m	Aug. 8, 1988
24	Off Doren	s. sh.	40 m	—
25	Off Doren	s. sh.	35 m	—
26	Off Doren	s. sh.	30 m	—
27	Off Doren	s. sh.	40 m	—

* co., coral; crs., coarse; f., fine; m, mud; g., gravel; r., rock; s., sand; sh., shell.

Remarks: This species has recently been described from the Sulu Sea and the South China Sea off northern Palawan and off southwestern Luzon in 26–60 m (BABA, 1988:65). The sharply triangular rostrum and the antennular basal segment bearing a reduced distomesial spine link the species more strongly to *Galathea yamashitai* MIYAKE and BABA, 1967 from the East China Sea than to *G. pubescens* STIMPSON, 1858. However, they differ in the following particulars: the epigastric spines are two in *G. yamashitai*, two to eight (mostly four) in *G. albatrossae*; the hepatic region usually bears two to five spinules in *G. albatrossae*, none in *G. yamashitai*; the carapace has more numerous transverse ridges in *G. yamashitai*; and epipods are present on chelipeds in *G. albatrossae* but absent in *G. yamashitai*.

Color in life: Carapace reddish brown with a broad median stripe of light color continued onto abdomen; appendages light reddish brown.

2. *Galathea amamiensis* MIYAKE and BABA, 1966

Sta 6: 1 ♂ (4.2).

Remarks: The species is known originally from the reef at northeastern Amami-oshima (Kasari) (MIYAKE and BABA, 1966: 75), and subsequently from the Moluccas (BABA, 1979: 647). KAMEZAKI *et al.* (1988: 96) provided a color illustration for a fresh specimen taken among dead corals on the shore of the southern Ryukyu Islands. The present specimen was taken in 40 m.

3. *Galathea orientalis* STIMPSON, 1858

Sta 4: 4 ♂ (3.2–5.1), 3 ovig. ♀ (3.3–3.8); Sta 5: 1 ♂ (3.7); Sta 9: 1 ♂ (2.2), 1 ovig. ♀ (3.7), 1 ♀ (2.8); Sta 13: 1 ovig. ♀ (3.5), 1 ♀ (3.7); Sta 14: 1 ♂ (4.2); Sta 15: 2 ♂ (3.5, 4.0); Sta 19: 1 ♂ (3.0); Sta 20: 1 ♂ (3.0); Sta 22: 2 ♂ (3.5, 4.7), 1 ovig. ♀ (4.6); Sta 23: 3 ♂ (2.7–4.1), 2 ovig. ♀ (3.3, 4.6).

Remarks: This is one of the most typical shore galatheids in Japan. It is occasionally trawled in the East China Sea in 66–101 m (MIYAKE and BABA, 1967:232) so that the occurrence here is not unexpected. This is the first to be recorded from Amami-oshima.

4. *Galathea platycheles* MIYAKE, 1953

Sta 21: 1 ♂ (3.0).

Remarks: Originally taken from Taiwan, subsequently recorded from coral reefs on the northeast coast of Amami-oshima (Kasari); the Malay Archipelago including Ambon, Lembeh Strait and Obi Island; and the Palau Islands (MIYAKE, 1953: 205; MIYAKE and BABA, 1966: 65; BABA, 1977: 246; 1982: 60).

5. *Galathea subsquamata* STIMPSON, 1858

Sta 6: 1 ♂ (7.2), 1 ovig. ♀ (5.3); Sta 18: 1 ovig. ♀ (5.3); Sta 19: 1 ♂ (6.1); Sta 20: 1 ovig. ♀ (5.3).

The species ranges from Japan (Inubozaki) southward to Queensland and Western Australia via the Philippines; on shore to a depth of 238 m (BABA, 1988: 79).

The type material from Amami-oshima has been lost by the Chicago fire and is no longer extant. The topotypic specimens here obtained for the first time agree well with the previous description (BABA, 1988: 79).

6. *Galathea ternatensis* De MAN, 1902

Sta 23: 1 ♀ (4.9).

Remarks: Widely known from the Indo-West Pacific from Providence Island, Maldives, Western Australia, Ternate, north of New Guinea, New Caledonia, Japan and the Bonin Islands; 20–210 m. The previous locality record in Japan is only from Amakusa, western Kyushu (MIYAKE and BABA, 1963: 405).

7. *Lauriea gardineri* (LAURIE, 1926)

Sta 4: 1 ovig. ♀ (3.9).

Remarks: Known from the Red Sea eastward and northward to Japan (north coast of Kyushu), via the Malay Archipelago, and from Western Australia (BABA, 1988: 81). KAMEZAKI *et al.* (1988: 99) provided a color illustration for a living specimen taken from crevices of dead corals on the reef of the southern Ryukyus. The present specimen was dredged in 65 m.

8. *Munida elegantissima* De MAN, 1902

Sta 13: 1 ♀ (6.3).

Remarks: The distributional range is as given in a previous paper (BABA, 1988: 95): western Indian Ocean, Malay Archipelago, Japan, and western and eastern Australia. The previous Japanese locality record is from off Miyake-jima (Izu Islands) and off Mage-jima (west of Tanegashima). The color of the living specimen is as noted by BABA (1969b: 40).

9. *Munida japonica* STIMPSON, 1858

Sta 12: 1 spec. (sex indet., 3.4); Sta 5–6: 1 ♂ (5.5).

Remarks: The species is widely known from the Indo-West Pacific, ranging from the western Indian Ocean including the Red Sea eastward to Japan and the Bonin Islands, via the Malay Archipelago, and from Western Australia (BABA, 1988: 109). Very common in the East China Sea (MIYAKE and BABA, 1967: 241).

10. *Munida rufiantennulata* BABA, 1969

Sta 14: 1 ♀ (4.5).

Remarks: This species is known from the west coast of Kyushu (type-locality) and the Philippines between Mindanao and Luzon, in 167–705 m (BABA, 1988: 128).

This is recorded for the first time from Amami-oshima.

Family Porcellanidae

11. *Aliaporcellana suluensis* (DANA, 1852)

Sta 22: 1 ♂ (3.8, 4.3), 1 ovig. ♀ (4.3, 5.7), 1 ♀ (3.0, 3.3).

Remarks: Widely known from the Red Sea, Malay Archipelago, eastern (Great Barrier Reef) and Western Australia, Palau Islands, Hong Kong, Formosa Strait and off western Kyushu (NAKASONE and MIYAKE, 1969: 21). This is the first time for the species to be recorded from Amami-oshima.

12. *Lissoporcellana quadrilobata* (MIERS, 1884)

Sta 22: 2 ♂ (2.3 x 1.9, 3.7 x 2.9), 10 ovig. ♀ (2.2 x 1.8–5.3 x 4.7), 1 ♀ (3.0 x 2.4).

Remarks: Previously known from the western Indian Ocean (Iranian Gulf and Gulf of Oman, Madagascar, Portuguese East Africa, Gulf of Mannar), Java, Arafura Sea, Queensland (Port Denison), Tong King Bay, Palau Islands, southern South China Sea (NAKASONE and MIYAKE, 1969: 24). This is the first time for the species to be recorded from Japan.

13. *Polyonyx biunguiculatus* (DANA, 1852)

Sta 6: 2 ♂ (4.0 x 5.1, 4.4 x 5.1), 2 ovig. ♀ (3.9 x 5.3, 4.7 x 6.2); Sta 12: 1 ♂ (3.2 x 4.1); Sta 20: 3 ♂ (2.9 x 3.7–3.0 x 3.8), 3 ovig. ♀ (2.8 x 3.6–3.0 x 4.0).

Remarks: The type-locality is unknown. The dactyli of the walking legs are as illustrated by MIYAKE (1942: 373) and HAIG (1979: 131). The coloration, however, is different from that provided by MIYAKE (1942: 374): the present specimens are totally reddish with irregular reticulation of white, and have the carapace with a rough longitudinal stripe of white color, while MIYAKE noted the dorsal surface [of the carapace] to be light orange yellow, the ventral [surface] whitish.

According to HAIG (1964: 378; 1979: 132), this species occurs in the Indian Ocean and the western Pacific, and the northern limit of the range is placed at the Formosa Strait. Thus the present record extends the range further north to Amami-oshima.

Family Paguridae

14. *Paguritta harmsi* (GORDON, 1935)

Sta 5: 1 ♀ (1.4); Sta 11: 3 ♂ (1.2–2.0), 4 ♀ (2.0–2.2); Sta 15: 1 ♂ (2.0), 5 ♀ (1.7–2.3).

Remarks: A pair of specimens were taken from tubes of a serpulid annelid *Spirobranchus giganteus* from Oshima Strait (Koniya Bay) (MIYAKE, 1978: 127), as were all the present specimens.

要　　約

国立科学博物館の「日本列島の自然史科学的総合研究」の一環として，1988年8月，大島海峡（奄美大島）の27地点においてドレッヂによる底生生物調査が行なわれた．甲殻綱異尾類は16地点から得られたが，種数は予想外に少なく，3科14種であった．うち，ガラテア科の2種（*Galathea amamiensis*, *G.*

platycheles) は奄美大島を含む琉球列島のサンゴ礁に普通の種であり，ホンヤドカリ科の *Paguritta harmsi* はすでに大島海峡から知られている種である．*Galathea subsquamata* は STIMPSON (1858) が奄美大島から報告して以来，西太平洋に広く知られながら，基産地からの標本の記録がなかったものである．そのタイプ標本はシカゴ大火により焼失している．他の7種（ガラテア科の *Galathea orientalis, G. ternatensis, Lauriea gardineri, Munida elegantissima, M. japonica, M. rufiantennulata*, カニダマシ科の *Aliaporcellana suluensis*) は九州付近にも記録のある種であるが，奄美大島からは初めての記録となる．最近フィリピンから記載されたガラテア科の *Galathea albatrossae* と，分布の北限が台湾海峡付近に置かれていたカニダマシ科の *Polyonyx biunguiculatus* および *Lissoporcellana quadrilobata* が大島海峡で採集され，分布が更新された．多くのインド・マレーの南方系要素の生息が予想される中にあって，大島海峡のフォーナの乏しさは予想外の調査結果であった．おそらく，単調な底質に起因するものであろう．

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