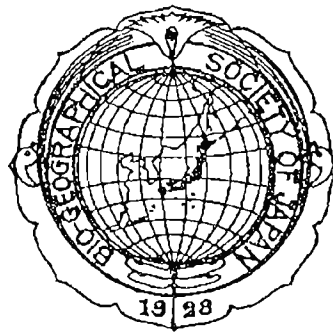


Remarkable Crabs from the Ryukyu Islands (1)

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Abstract. A total of 10 species of 5 families was systematically and biogeographically discussed. They are inhabitants of coral reefs or mangrove swamps and extended their ranges northward to the Ryukyu Islands.

The purpose of this new series is to discuss the systematically or biogeographically remarkable species from the Ryukyu Islands. In this first paper the following 10 species are brought up for discussion. They are *Chlorodiella barbata* (Borradaile), *Phymodius monticulosus* (Dana), *Etisus bifrontalis* (Edmondson), *Cymo deplanatus* A. Milne Edwards and *C. quadrilobatus* Miers of the Xanthidae; *Heteropanope glabra* Stimpson of the Pilumnidae; *Tetralia heterodactyla* of the Trapezidae; *Camptandrium elongatum* of the Ocyropodidae; *Parapyxidognathus deianira* (de Man), and *Percnon abbreviatum* (Dana) of the Grapsidae.

Family Xanthidae

Genus *Chlorodiella* Rathbun, 1897

Chlorodiella barbata (Borradaile, 1900)

This species is finely represented by Forest & Guinot (1961), being distinguished from the congeners most readily on the ground of having a prominent tuft of soft hairs on the proximal parts of the fingers. The anterolateral border of the carapace is cut into only three teeth behind the external orbital angle, bearing no tooth correspondent to the first tooth in the other species; the first is very low, while the second is conical in the larger specimens and spine-tipped in the smaller; the last tooth is very small, but always distinct.

This small species is not uncommon in the Ryukyu Islands, though not so popular as the close congener, *Ch. cytherea* (Dana). The geographical range is from Madagascar and Mauritius through the Laccadive Islands to the Tuamotu Archipelago and through the Gilbert, Ellice and Mariana Islands to the Ryukyu Islands. Recently Chen & Lan (1978) reported this species from the Xisha Islands in the South China Sea.

Genus *Phymodius* A. Milne Edwards, 1863

Phymodius monticulosus (Dana, 1852)

The general formation of the carapace is very close to that of *Ph. unguilatus* (H. Milne Edwards), but the first male pleopods of the two species are, as represented by Gordon (1934), Barnard (1950), and Forest & Guinot (1961), very characteristic and quite different from each other.

This species is not uncommon in the Ryukyu Islands, being found in the interstices of the living coral blocks. The distribution is within the whole Indo-West Pacific waters like the sibling species, *Ch. unguilatus*.

Genus *Etisus* H. Milne Edwards, 1834

Etisus bifrontalis (Edmondson, 1935)

This rare species was previously reported by the original author and Guinot (1964) from the Hawaiian Islands, Palmyra Island, Samoa and the Maldives. It is very close to and sometimes confused with *E. demani* Odhner. In addition to somewhat different contour of the carapace, the front and the male first pleopod, among the differences enumerated by Guinot (*op. cit.*), are the most useful for the ready distinction. In this species the carapace is of broader appearance because of the laterally directed last anterolateral tooth; the front is more advanced, with each lateral angle produced to be a subacute tooth; the male first pleopod is long and sinuate, having no long hairs. Some specimens from Kuroshima and Iriomote-jima Islands in the Yaeyama Group were examined.

Genus *Cymo* de Haan, 1835

Cymo deplanatus A. Milne Edwards, 1873

This species may be generally considered to be synonymous with *C. andreossyi* (Audouin), but the carapace is apparently much more elongate

and markedly flat for its entire surface. The dorsal surface of the carapace is granulated as usual, but there are no prominent granules near the frontal and anterolateral borders. The front is cut into two lobes by a median V-shaped notch; each lobe is armed with three prominent spines, and there is a spine on the supraorbital angle. The chelipeds are similar to those of *C. andreossyi*, but the fingers are orange red.

This species was originally reported from Upolu in the Samoa Islands, and additionally from the Tuamotu Archipelago by Holthuis (1953). Alcock (1898) reported this species with a question mark, without a definite record of specimen, his description rightly indicating its characteristics. One of the figures given by Sakai (1976) as *C. andreossyi* is really referable to this species. One pair of the specimens was collected by the junior author at Amitori Bay, Iriomote-jima Island, and some additional specimens from the Palau and Ryukyu Islands were examined by the senior author.

Cymo quadrilobatus Miers, 1884

This species is characteristic in having the dorsal areolae with the elevated clusters of pearly granules. The front is bilobed, but a granular tubercle at each angle makes it a four-lobed appearance. The chelipeds are thickly covered with larger granular warts of various sizes. The fingers are whitish or grayish with black bases. Alcock (1898) well defined this rare species, and recently Guinot (1958) figured the male first pleopod and Dai & Lan (1981) represented a photograph in the plate.

In the Ryukyu Islands this species is rarer than *C. melanodactylus* Dana to which the appearance is close. The previous known range is from the Tuamotu Archipelago through the Micronesian Islands to the western Indian Ocean.

Family Pilumnidae

Genus *Heteropanope* Stimpson, 1858

Heteropanope labra Stimpson, 1858

The diagnostic characters of this species are as follows: Carapace transversely oval, dorsal surface being markedly convex, ill-defined and almost glabrous only with microscopical granules near the frontal and anterolateral borders. Anterolateral border has truncated first, subtruncated second, sharp third and fourth teeth. Chelipeds heavy, smooth and unequal. Ambulatory legs

unarmed, rather slender and sparsely covered with hairs.

This species is included in the crab fauna of Japan on the authority of Yokoya (1933), who recorded one male from Tosa Bay, 126 m deep. However, the known records from Hongkong, Singapore, the Palau Islands, the Mergui Archipelago, Queensland, and Zanzibar indicate that this species is an intertidal or subtidal inhabitant, and thus the record from Tosa Bay is not always reliable. Nakasone (1977) listed this species as one of the estuary crabs in the report on the ecological distribution of the mangrove swamp of Kesaji Bay, Okinawa-jima Island. A male specimen with 8.3 mm in carapace breadth from Amitori Bay, Iriomote Island was examined. It was collected by the junior author from the pocilloporid coral at depths of 3–4 m.

Family Trapeziidae

Genus *Tetralia* Dana, 1851

Tetralia heterodactyla Heller, 1861

This species is unrecorded from Japanese waters, but not uncommon in the Ryukyu Islands. A female and an ovigerous female from Kuro-shima Island agree well with *T. nigrifrons*? forma *fusca* defined by Serène & Dat (1957) and a male from the same locality also with forma *lissodactyla*, but *T. nigrifrons* Dana is probably the name given to the young form of *T. glaberrima* (Herbst). In the present species the frontal region is more or less banded in dark brown, being not distinctly delimited from the whitish posterior part of the carapace as in the young of *T. glaberrima*, and the chelipeds and ambulatory legs are dark brown. In the smaller specimens of *T. glaberrima*, the frontal region and the anterior parts of the lateral borders bear a rather wide blackish band that is very distinct from the greater part of the dorsal surface, while in the larger specimens only the frontal border is fringed with the darker color.

This species is smaller than *T. glaberrima*, and in addition to the different color pattern mentioned above, the contour of the carapace, the serration of the front, the ambulatory legs and the male first pleopod are remarkably different from each other. The carapace of this species is more strongly convergent posteriorly with the more concave posterolateral borders. The frontal margin is more distinctly serrulated and rather strongly sinuate in the middle, while in *T. gla-*

berrima the median situation is very weak. The merus of the fourth ambulatory leg of *T. glaberrima* is much narrower than those of the preceding pairs, but in this species the merus is strongly foliaceous and not different from the meri of the preceding pairs. The male first pleopod of *T. glaberrima* is rather short, stout, and sub-truncated at the tip, while that of this species is long, more or less curved and narrowed distally, reaching the apex of the terminal segment of the abdomen in its natural position as represented by Serène & Dai (*op. cit.*).

T. nigrifrons? forma *cyanea* is defined as a form having a small spine behind the external orbital angle. The materials examined by the original authors are smaller than the forma *fusca*. Since in one of the figures of *fusca* given by them a vestigial tooth may be traceable, it is probable that *cyanea* represents the smaller form of *fusca*. On the other hand, since *T. armata* Dana, which is in general dealt with as a synonym of *T. glaberrima*, is said to be armed with a spine, it is also probable that the forma *cyanea* is identical with *T. armata*. If this presumption is acceptable, *T. armata* Dana may be used in preference to *T. heterodactyla* Heller, although the name is rather inappropriate for the species usually having no lateral spine.

The previous records are few, being definitely known only from the Red Sea and Viet Nam. It must be noted that one of the figures of *T. glaberrima* given by Sakai (1976) is really this species. Recently Dai & Lan (1981) recorded this species as *T. heterodactyla fusca* from the Xisha Islands in the South China Sea. The senior author examined some specimens from the Palau Islands. This species is probably widely distributed in the Indo-West Pacific waters together with *T. glaberrima*.

Family Ocypodidae

Genus *Camptandrium* Stimpson, 1858

Camptandrium elongatum Rathbun, 1931

An ovigerous female was collected at the mouth of the Nakama-gawa River, Triomote-jima Island, together with a female of *Ilyograpsus paludicola* (Rathbun). These two species and also *Shenius anomalus* (Shen) are unexpectedly close to one another in their general appearance of the carapace. *Ilyograpsus* is, however, referred to the Grapsidae because of the formation of the front-

orbital and buccal regions, and *Shenius* and *Camptandrium* of the Ocypodidae are, as noted by Serène & Umali (1972), differentiated from each other by the different development of the first male pleopod. In *Camptandrium* the male first pleopod is abruptly recurved toward the base, with a forked tip. In this small species, which was previously known from several localities in China and Malaysia (Rathbun, 1931; Shen, 1935; Tweedie, 1937; Serène & Umali, 1972), the carapace is a little longer than wide, very uneven with a broad, elevated, more or less carinated cross; anterior part of median ridge of this cross bifurcated and directed to each supraorbital angle; posterior border of carapace is truncated, with its median part dorsally developed. Among the known species of *Camptandrium*, *C. starmuhlneri* Pretzmann from New Caledonia is not the member of the genus in question because of the presence of spines on the anterior borders of the ambulatory meri, but as suggested by Serène & Moosa (1971), probably synonymous with *Ilyograpsus paludicola*. Otherwise, it must be noted that *C. rathbunae* Takeda originally reported from the Palau Islands and subsequently recorded at Okinawa-jima Island by Nakasone (1977) may be conspecific with *C. ambonense* Serène et Moosa. Both species were almost simultaneously described, but the actual date of issue of the Micronesica, vol. 7, nos. 1 and 2, in which *C. rathbunae* was appeared, was July 20, 1972.

Family Grapsidae

Genus *Parapyxidognathus* Ward, 1941

Parapyxidognathus deianira (de Man, 1888)

This species, originally referred to *Pyxidognathus* A. Milne Edwards, was designated as the type-species of *Parapyxidognathus* Ward, which seems to be not always sharply delimited from the early known genus. Serène & Moosa (1971) validated *Parapyxidognathus* without adequate discussion and transferred *Pyxidognathus fluviatilis* Alcock to the genus in question. As a result, at present, *Pyxidognathus* is monotypically represented by *P. granulatus* A. Milne Edwards, with which *Hypsilograpsus deldeni* de Man and *P. subgloboatus* Tesch were synonymized by Serène & Moosa (*op. cit.*) and Holthuis (1978).

This species is generally close to the species of *Ptychognathus* in having the exopod of the third maxilliped broader than ischium, but genetically

distinct from them by having spines on the ambulatory meri. The diagnostic characters are as follows: Carapace a little wider than long, quadrate, with smooth and ill-defined dorsal surface. Anterolateral border cut into three teeth by two deep notches; teeth diminish their sizes and become sharper posteriorly; the first distinctly lobate and subtruncated laterally. Both chelipeds heavy, equal and smooth. Ambulatory legs slender and hairy; each merus of first three pairs armed with a subterminal spine on anterior border, and in each merus of all pairs a strong spine and one or two small spines at one-third of posterior border.

This species is previously known from the Mergui Archipelago, Thailand, Java, Ambon, and the Philippines. In this study two males from the Nakama River, Iriomote-jima Island were examined, and a male from Okinawa-jima Island recorded by Shokita & Nishijima (1976) as *Pyxidognathus* sp. was re-examined. Otherwise, it is highly probable that *Pyxidognathus* sp. recorded by Shokita (1980) from the mangrove swamp of the Ohara and Okukubi Rivers in Okinawa-jima Island is also conspecific with this species.

Genus *Percnon* Gistel, 1848

Percnon abbreviatum (Dana, 1851)

This species has often been confused with *P. planissimum* (Herbst), but is readily distinguished from it by the different shape of the anterolateral teeth, palm, and male first pleopod, as finely noted by Edmondson (1959) and Crosnier (1965). Of three anterolateral teeth the first and third are subequal and much smaller than the second, and the palm is rather long and provided with a longitudinal row of appressed downy hairs on its upper border and with a long triangular patch of similar hairs and several conical granules on the inner upper surface, and the apical horny tip of the first male pleopod is long and strongly sinuate.

The known range of this species is from the Hawaiian Islands to Clipperton Island in the East Pacific, Tahiti, and Samoa in the South Pacific, and through the Cocos Keeling Islands to Madagascar. Recently Chen (1975) recorded a juvenile male at the Xisha Islands in the South China Sea. This species is not uncommon in the coral flat reefs of the southern Ryukyu Islands.

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琉球列島産カニ類注記 (1)

武田正倫・岩崎幸一

本報まで日本近海未記録のカニ類を記録し、分類学的に問題がある種については問題点を注記した。記録されたカニ類は以下の通りである。オウギガニ科 *Chlorodiella barbata* (Borradaile) ケツキカニガエトギガニ (新称), *Phymodius monticulosus* (Dana) ヒメオウギガニモトギ (新称), *Etisus bifrontalis* (Edmondson) ヒメヒメツメガニモトギ (新称), *Cymo deplanatus* A. Milne Edwards ヒラコウサエモガニ (新称), *Cymo quadrilobatus* Miers アロハダサエモガニ、ケツキガニ科 *Heteropanope glabra* Stimpson マルミナラシガニ、サシゴガニ科 *Terralia heterodactyla* Heller クロゴリヒメサシゴガニ (新称)、ウサガニ科 *Camptandrium elongatum* Rathbun コウサガカニ、ウサガニ (新称)、イロガニ科 *Parapyxidognathus deianira* (de Man) シゲアシヒライソガニモトギ (新称), *Percnon abbreviatum* (Dana) ミサミトケアシガニ (新称)。

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