



## *Palaemonella burnsi* Holthuis, 1973, a pontoniine shrimp (Crustacea: Decapoda: Palaemonidae) new to the Japanese fauna

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**Abstract:** The pontoniine shrimp, *Palaemonella burnsi*, is recorded for the first time outside the Hawaiian Islands. The single specimen, from the Ryukyu Islands, Japan, indicates a considerable extension of the species distribution, that it is not an endemic Hawaiian species, and that it may occur in pools on coral reef flats and is not restricted to anchialine habitats.

**Resumé:** *Palaemonella burnsi* Holthuis, 1973, une crevette Pontoniinae (Crustacea : Decapoda; Palaemonidae) nouvelle pour la faune japonaise. La crevette Pontoniinae *Palaemonella burnsi*, est signalée pour la première fois en dehors des Iles Hawaii. Le seul spécimen, provenant des Iles Ryukyu, Japon, indique une extension considérable de la distribution de l'espèce, qui n'est donc pas un espèce endémique à Hawaii, qui peut être trouvée dans les cuvettes sur les platiers des récifs de corail et n'est pas restreinte aux habitats anchialins.

**Keywords:** *Palaemonella burnsi*, Palaemonidae, Pontoniinae, Second record, First occurrence in Japan.

### Introduction

The small pontoniine shrimp *Palaemonella burnsi* Holthuis, 1973, is known only from the type material, 9 female specimens, collected in 1972 from two of the Hawaiian Islands. The collection of the present Japanese

specimen indicates a great extension of the known range of the species and that it is not a Hawaiian endemic, and also shows that it is not confined to the type locality habitat of anchialine pools. The other species of *Palaemonella* Dana so far reported from Japanese waters are briefly reviewed.

Restricted synonymies only are provided. Fuller synonymies can be found in Li (2000) and Bruce (2002a).

The specimen is deposited in the collections of the Queensland Museum (QM).

## Systematics

Family PALAEMONIDAE Rafinesque, 1815  
 Subfamily Pontoniinae Kingsley, 1878  
 Genus *Palaemonella* Dana, 1852

*Palaemonella burnsi* Holthuis, 1973  
 (Fig. 1)

*Palaemonella burnsi* Holthuis, 1973: 24-30, figs. 8-9.

*Palaemonella burnsi* – Li, 2000: 100, fig. 107.

*Palaemonella burnsi* – Bruce, 2002a: 288.

### Material

1 female, Madomari, Kume-jima, Ryukyu Islands, Japan, 26° 21'N, 146° 49'E, 14 June 1995, coll. K. Nomura (YMP-1360b), QM W27480.

### Diagnosis

A medium sized species (CL > 4.2 mm), rostrum longer than antennular peduncle, dentition 7-8/0-2, without supraorbital spines or ridges, carpus and merus of second pereiopod distally unarmed, ambulatory dactyls less than 7.0 times longer than proximal depth, propods about 18 times or less longer than wide

### Description

The specimen corresponds closely to the original description and illustrations (Holthuis, 1973).

Rostrum 0.72 of postorbital carapace length, reaching to slightly beyond antennular peduncle, compressed, with distinct lateral carinae, with 7 acute dorsal teeth, posterior tooth postorbital, distal tooth smaller, preterminal, 2 ventral teeth, interdental spaces and ventral margin with numerous plumose setae, epigastric tooth well developed.

Fourth and fifth abdominal pleura posteroventrally blunt. Proximal segment of antennular peduncle with small acute ventromedial tooth.

Mandible (Fig. 1A) with small 2 segmented palp (Fig. 1B), distal segment 2.5 times longer than proximal, with long slender terminal seta, shorter setae laterally.

Second maxilliped podobranch with two well developed lamellae.

Third maxilliped with small rudimentary arthrobranch.

Fourth thoracic sternite with small finger-like median process.

Fifth sternite with low transverse ridges, without acute submedian teeth. Posterior sternites unarmed.

Second pereiopods similar, slightly unequal, chela with fingers (Fig. 1C, D) slender, dactyls with two low rounded teeth proximally, fixed finger with 3 (major) or 5 (minor) small slightly recurved acute teeth proximally, distal cut-

ting edges straight, entire.

Third pereiopod with slender dactylus (Fig. 1E, F), about 0.23 of propod length, corpus about 0.23 times longer than proximal depth, dorsal margin convex, with 3 slender simple setae at 0.7 of margin length (from proximal margin), ventral margin straight, unguis feebly demarcated, about 0.4 of corpus length, curved, 4.0 times longer than proximal width, ventral margin concave; propod (Fig. 1E) slender, 0.6 of post-orbital carapace length, uniform, 17.5 times longer than width, sparsely setose, with 2 unequal distoventral spines, short lateral, longer medial, long spine twice length of shorter, half length of dactylar corpus, ventral margin with 5 short spines, of decreasing size proximally.

### Measurements

Post-orbital carapace length, 4.5 mm; carapace and rostrum, 7.75 mm; total body length (approx.), 23.7 mm; major second pereiopod chela, 6.15 mm; minor second pereiopod chela, 5.3 mm.

### Colouration

No data.

### Bathymetric range

Intertidal.

### Habitat

Inner reef flat, shallow pool with sea grasses, non-anchialine.

### Distribution

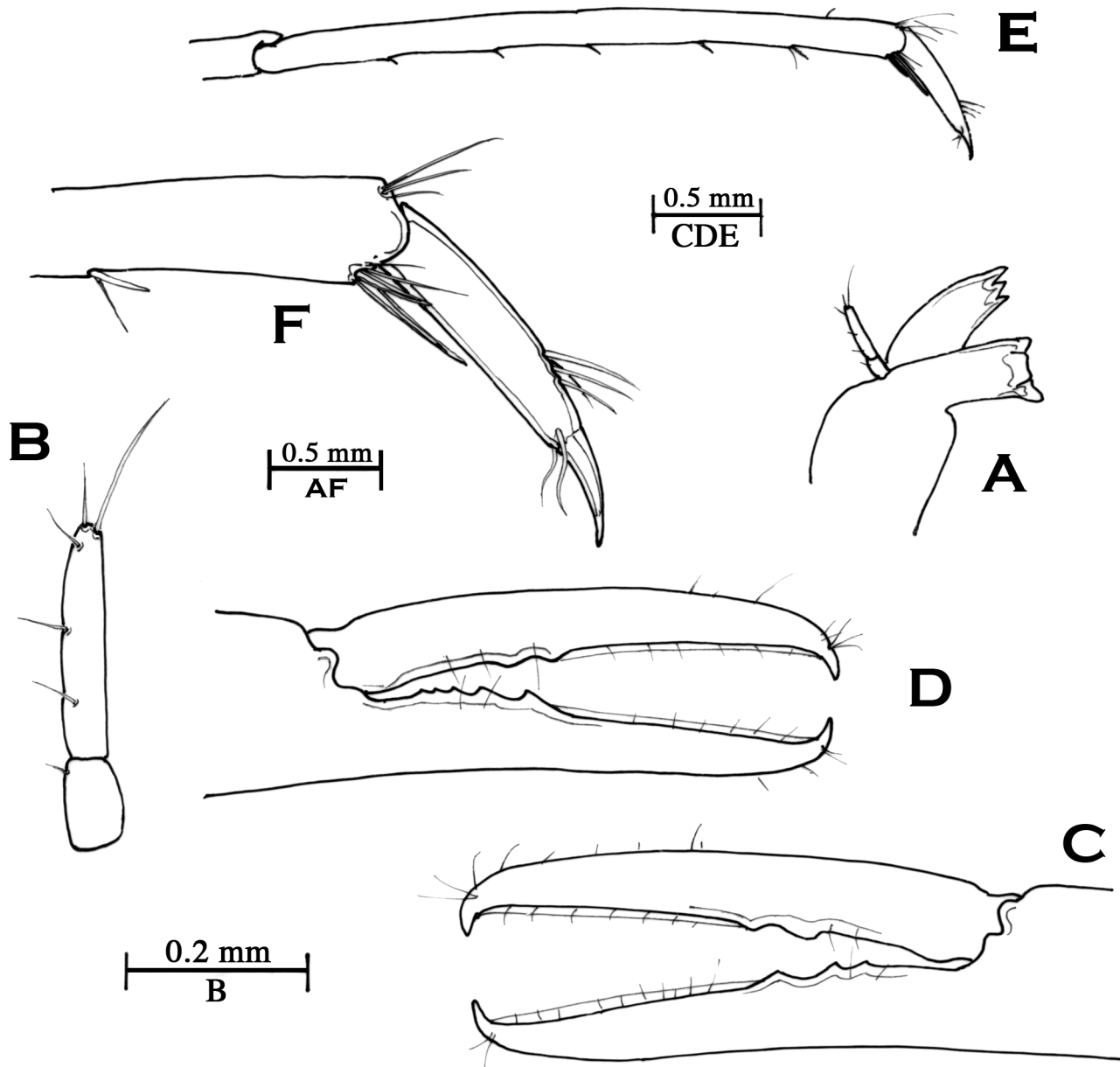
Previously reported only from the Cape Kinau Peninsula, Maui, Hawaiian Islands, the type locality, and Kaloko Fishpond, North Makai Corner, Kona Coast, Hawaii. Now also known from the Ryukyu Islands, Japan.

### Remarks

The only noteworthy difference from Holthuis's 1973 description is the presence of a rudimentary arthrobranch at the base of the third maxilliped. The presence of an arthrobranch in this situation is a normal feature of the genus *Palaemonella* and may have been an individual abnormality or lost in dissection in the type material (Bruce, 1994).

The type material of *P. burnsi* was collected from anchialine pools. The shrimp fauna associated with anchialine pools is of special interest on account of restricted habitat and generally limited distribution.

The first species of *Palaemonella* to be recorded from Japanese waters was *Palaemonella tenuipes* Dana, reported by Stimpson (1860) as ? *Palaemonella tenuipes*. The Japanese *Palaemonella* fauna now includes six species. A



**Figure 1.** *Palaemonella burnsi*. Female. A. Mandible. B. Same, palp. C. Second pereiopod, major chela. D. Same, minor chela. E. Third pereiopod, propod and dactyl. F. Same, dactyl and distal propod.

**Figure 1.** *Palaemonella burnsi*. Femelle. A. Mandibule. B. Idem, palpe. C. Second péréiopode, pince principale. D. Idem, pince secondaire. E. Troisième péréiopode, propode et dactyle. F. Idem, dactyle et partie distale du propode.

key for the identification of most Indo-West Pacific species is given in Bruce (2002a).

***Palaemonella* Dana, species reported from Japanese waters**

*Palaemonella hachijo* Okuno, 1999

*Palaemonella hachijo* Okuno, 1999: 739-745, figs 1-3.

*Japanese Distribution*

Ocho-ga-hama, Hachijo-jima, Izu Islands, Japan, 20 m (Okuno, 1999); Nakanomama and Nazumado, Hachijo-jima, Izu Islands, Japan, 15-45 m (Okuno, 2000); Kume Island, Okinawa, 30 m (Kawamoto & Okuno, 2003).

*General distribution*

Not known outside Japanese waters.

*Palaemonella pottsi* (Borradaile, 1915)

*Periclimenes (Falciger) pottsi* Borradaile, 1915: 212.

*Palaemonella pottsi* – Kemp, 1922: 126-127.

*Japanese Distribution*

Okinawa (Kamezaki et al., 1988); without locality, (Minemizu, 2000); Sokodo, 10 m, Hachijo Island (Kato & Okuno, 2001); Kume Island, Okinawa, 15 m (Kawamoto & Okuno, 2003). Not *P. pottsi* – Miyake, 1975: p. 103 (probably *Periclimenes commensalis* Borradaile, 1915).

*General distribution*

Zanzibar, Singapore, Vietnam, Indonesia, China, Japan, Philippine Islands, Papua New Guinea, Western Australia, Northern Territory, Queensland, Marshall Islands, New Caledonia.

*Palaemonella rotumana* (Borradaile, 1898)

*Periclimenes rotumanus* Borradaile, 1898: 383.

*Palaemonella rotumana* – Bruce, 1970: 276-279, pl. 1 e-f.

*Japanese Distribution*

Amakusa Island (Kikuchi & Miyake, 1978); Okinawa (Kamezaki et al., 1988); Sagami Bay, Honshu (Okuno, 1994); without locality, (Minemizu, 2000).

*General distribution*

Israel (Haifa), Egypt, Suez, Yemen, Kenya, Zanzibar, Tanganyika, Moçambique, Madagascar, Comoro Islands, Seychelle Islands, Maldive Islands, Sri Lanka, Andaman Islands, Nicobar Islands, Burma, Malaya, Singapore, China, Hong Kong, South China Sea, Indonesia, Papua

New Guinea, Western Australia, Northern Territory, Queensland, Philippines, New Caledonia, Marshall Islands, Mariannas Islands, Fijian Islands, and Hawaii(?). Also known from the eastern Mediterranean Sea.

*Palaemonella spinulata* Yokoya 1936

*Palaemonella spinulata* Yokoya, 1936: 135, fig. 4.

*Japanese Distribution*

Misaki (Yokoya, 1936). The type locality for this species. Type material no longer extant. Not recorded from Japanese waters since Yokoya's original report. Some of the reports of this species from other localities are probably not conspecific (Bruce, 2002b). Some of the specimens earlier referred to *P. spinulata* have been transferred to *P. maziwi* Bruce, 2002, and others should be re-examined.

*General distribution*

La Réunion, Australia, Mariana Islands and China.

*Palaemonella tenuipes* Dana, 1852

*Palaemonella tenuipes* Dana, 1852: 25.

*Japanese Distribution*

Ryukyu Islands (Stimpson, 1860). The type species of the genus *Palaemonella*. Type material and Stimpson's specimen(s) are no longer extant. Not recorded from Japanese waters since Stimpson's original report. This included no detailed information on the morphology or illustration of the specimen. The persistence of this species in Japanese waters needs confirmation, but its presence is not unlikely.

*General distribution*

Reported from Red Seas, Sudan, Eritrea, Djibuti, Madagascar, Seychelle Islands, Réunion, Maldive Islands, Chagos Islands, Malaya, Indonesia, Thailand, China (South China Sea), Japan, Philippine Islands, Western Australia, Marshall Islands, Tuvalu, Fijian Islands, Samoan Islands, Cook Islands, and Society Islands, and Palmyra and Wake Islands and Johnson Atoll.

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**Addendum**

A further specimen of *Palaemonella burnsi* from Japan has

recently been examined. The single ovigerous female specimen, collected from Aara, Kume-jima, by K. Nomura (YMP 1384c), on 13 June 1995, has a CL of 4.2 mm and a rostral dentition of 7/2 and was found amongst dead coral.

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