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First Record of a Palaemonid Shrimp, *Brachycarpus*
biunguiculatus (LUCAS, 1849) from Japan

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First Record of a Palaemonid Shrimp, *Brachycarpus biunguiculatus* (LUCAS, 1849) from Japan

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ABSTRACT *Brachycarpus biunguiculatus* (LUCAS, 1849) is recorded on the basis of three specimens collected from Japanese waters; two of them were captured from the lagoon on Kuro-shima Islet of Yaeyama Group, Ryukyu Islands and another specimen was caught in a submarine cave on Hachijo-jima Island, Izu Islands. This species is widely distributed from the Mediterranean Sea and Atlantic Ocean to Indo-Pacific region, and the present specimens represent the first record of the species from Japan.

A palaemonid shrimp, *Brachycarpus biunguiculatus* was originally described as *Palaemon biunguiculatus*, based on the specimens from the Mediterranean Sea (LUCAS, 1849). BATE (1888) established a new genus *Brachycarpus* for his new species, *B. savignyi* from Bermuda and *B. audouini* from New Zealand. NOBILI (1905) described a new species of *Brachycarpus* from the Red Sea, under the name of *B. advena* and he recognized the above four species as members of the genus *Brachycarpus* (NOBILI, 1906). Subsequently, KEMP (1925) regarded *B. savignyi* and *B. advena* as junior synonym of *B. biunguiculatus*, and *B. audouini* as a separate genus on account of the absence of the biunguiculate claws on dactyli of third to fifth pereopods, which is a diagnostic character of the former genus. Now, *Brachycarpus* includes two species, *B. biunguiculatus* and *B. holthuisi* FILHO, 1966.

During the investigation of the cryptic decapod crustaceans living in dead branchial corals, the junior author captured two specimens of *B. biunguiculatus* from the lagoon on Kuro-shima Islet of Yaeyama Group, Ryukyu Islands in the summer of 1992. Furthermore, a specimen of *B. biunguiculatus* was collected from a submarine cave at 15 m depth in Hachijo-jima Island, one of Izu Islands, while the senior author was carrying on a survey of that island's caridean shrimp fauna in the early summer of 1993. Because these specimens represent the first record of this species from Japan, they are described in detail.

The method of measurement follows that of BABA *et al.* (1988). The abbreviation CL indicates postorbital carapace length. The specimens examined by us are deposited in the crustacean collections of the National Science Museum, Tokyo (NSMT-Cr).

Description

Brachycarpus BATE, 1888

Brachycarpus biunguiculatus (LUCAS, 1849)

(Figs. 1–2)

Restricted synonymy.

Palaemon biunguiculatus LUCAS, 1849, 45, pl. 4, fig. 4.

Brachycarpus savignyi BATE, 1888, 795, pl. 129, fig. 4.

Brachycarpus advena NOBILI, 1905, 395; NOBILI, 1906, 75, pl. 4, fig. 1.

Bithynis savignyi: PEARSON, 1905, 78.

Palaemonella orientalis: RATHBUN, 1906, 925.

Palaemonella rathbunensis: EDMONDSON, 1925, 8.

Brachycarpus biunguiculatus: KEMP, 1925, 312; SCHMITT, 1939, 13, fig. 1; HOLTHUIS, 1952, 3, pl. 1; CHACE, 1962, 606; BRUCE, 1965, 399, fig. 1; HOLTHUIS, 1972, 33; MANNING & CHACE, 1990, 9.

Materials examined. 1 female (NSMT-Cr 1815, 5.0 mm CL), 24°12.6'N, 123°58.8'E, lagoon on Kuro-shima Islet, Yaeyama Group, Ryukyu Islands, Sep. 8, 1992, coll. by M. OSAWA; 1 female (NSMT-Cr 1816, 3.5 mm CL), same locality of the former, Aug. 15, 1992, coll. by M. OSAWA; 1 female (NSMT-Cr 2618, 10.9 mm CL), 33°03.5'N, 139°47.9'E, submarine cave at Occhoga-hama, Hachijo-jima Island, Izu Islands, 15 m depth, June 17, 1993, coll. by S. KATO and J. OKUNO.

Description. Body subcylindrical (Fig. 1A, B). Carapace (Fig. 2A) smooth, glabrous, with well developed, straight rostrum anteriorly. Rostrum (Fig. 2A) 0.9–1.1 times as long as carapace, extending slightly beyond tip of antennal scale; upper margin with 7 equidistant acute teeth, proximal 3 teeth on dorsal margin of carapace behind orbit, distal tooth pre-terminal; lower margin with 3–4 teeth, slightly directed forward, with dense setae; lateral carina of rostrum weak, continuous with postorbital carina. Antennal spine acute, marginal; hepatic spine obliquely below level of antennal spine; pterygostomial angle obtuse, without spine.

Abdomen smooth, glabrous; sixth segment 0.3–0.4 times as long as carapace, pleura of first to third segments broad, rounded; posterolateral angle of fifth and sixth segments bluntly pointed, directed posteriorly.

Telson (Fig. 2B) 0.4–0.5 times as long as carapace; dorsal surface convex, with two pairs of small spines at about half and distal third of telson length; median part of posterior margin bluntly pointed, directed backwards, with two pairs of posterior spines, outer spines very short, inner spines very long, exceeding beyond to tip of outer spines; 8 setae in space between inner spines.

Antennular peduncle (Fig. 2C) reaching to proximal three fourths of rostrum; distal margin of basal segment with long acute external tooth; stylocerite very small, reaching to proximal third of basal segment length; statocyst rounded.

Antennal scale (Fig. 2D) well developed, not reaching to rostral apex, 0.7–0.9 times as long as carapace; anterior part of lamella more or less quadrate; external distal tooth strongly acute, extending to tip of lamella.

Mouthparts agree well with those represented by HOLTHUIS (1952).

Third maxilliped (Fig. 2E) reaching to tip of antennal scale, with dense setae uniformly; ischiomerus with broad laminar expansion anteroventrally; ultimate segment short, 0.2–0.3 times as long as carapace.

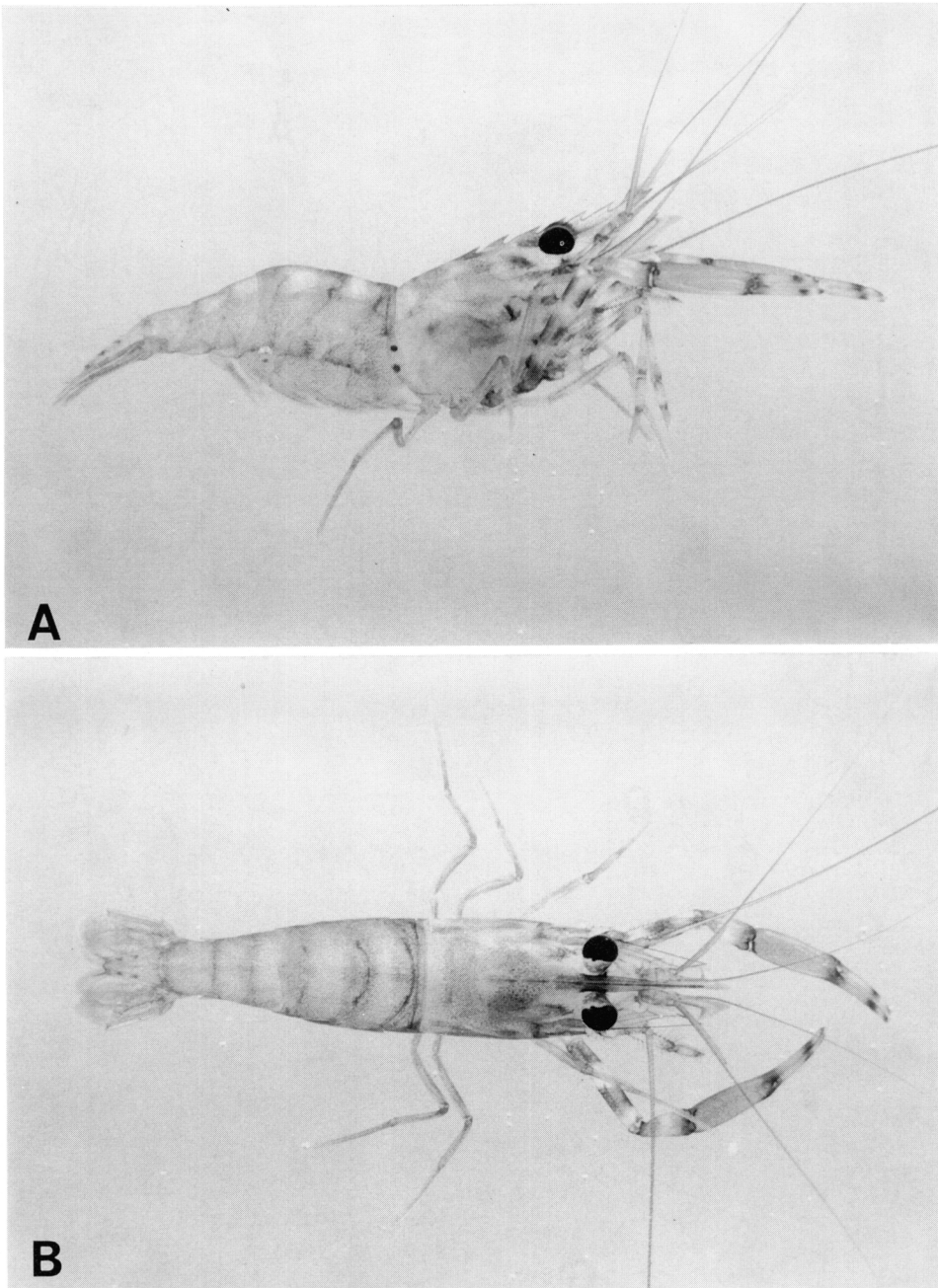


Fig. 1. *Brachycarpus biunguiculatus* (LUCAS). Female (10.9 mm CL, NSMT-Cr 2618).
A, lateral view of fresh specimen; B, dorsal view of fresh specimen.

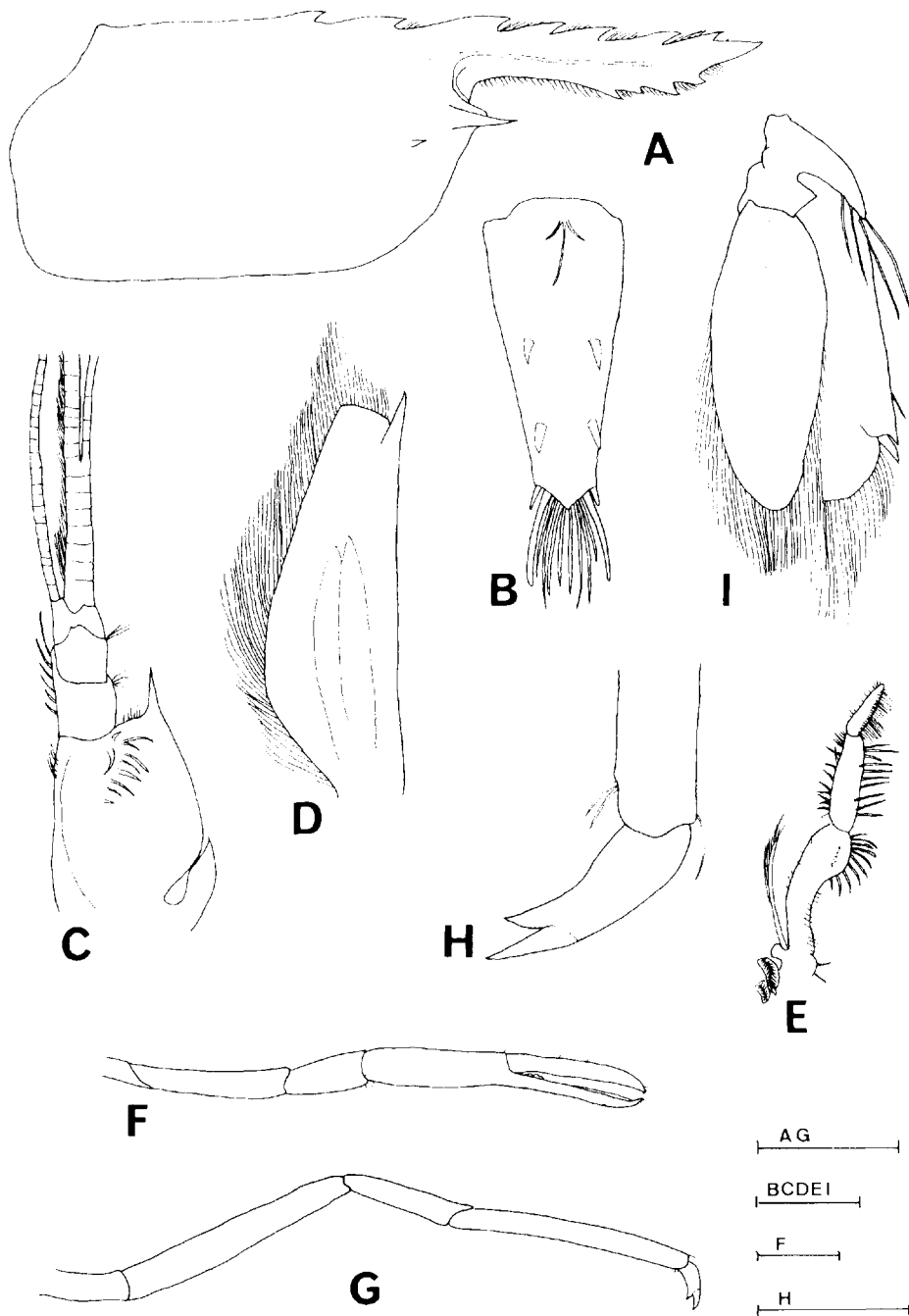


Fig. 2. *Brachycarpus biunguiculatus* (LUCAS). Female (5.0 mm CL, NSMT-Cr 1815). A, carapace with rostrum; B, telson; C, antennular peduncle; D, antennal scale; E, third maxilliped; F, second pereopod; G, third pereopod; H, dactylus of third pereopod; I, uropod. Scales for A, G, F: 2 mm; B-E, I: 1 mm; H: 0.5 mm.

First pereopod cheliped, extending well beyond rostral apex by anterior margin of carpus; chela 0.4–0.6 times as long as carapace, with sparse setae on tips of both fingers; carpus 1.1–1.3 times as long as chela.

Second pereopod (Fig. 2F) with well developed cheliped, extending well beyond rostral apex by middle of carpus; chela 1.2–1.4 times as long as carapace, 3.3–3.7 times longer than carpus, cutting edges with blunt teeth proximally; carpus very short, 0.4 times as long as carapace.

Last three pereopods rather slender, similar to each other. Outer surface of ischia, meric and carpi glabrous; propodi with sparse spinule at inner margin; dactylus of each pereopod with strong acute horny claw at its apex, with a similar acute claw posterior to terminal claw; merus 0.6–0.7 times as long as carapace, 1.4–2.5 times as long as carpus, propodus 0.5–0.7 times as long as carapace. Third pereopod (Fig. 2G) usually extending beyond rostral apex by middle of propodus. Fourth pereopod reaching to tip of antennal scale. Fifth pereopod extending to middle of rostrum.

Outer margin of uropodal exopod (Fig. 2I) with an articulated acute spine and a non-articulated short tooth; proximal part of exopod with sparse long setae.

Coloration (based on the Hachijo-jima Island's specimen). Ground color pale grayish brown, without conspicuous patches or stripes. Abdominal surface with five indistinct transverse brown bands. Second pereopods with dark rings on the distal part of carpus and proximal part of the movable and fixed fingers. Antennular peduncle, antennal scale and third to fifth pereopods pale brown, more or less hyaline.

Remarks. *Brachycarpus biunguiculatus* is readily distinguished from the related shrimps belonging to the genus *Macrobrachium* by the two acute horny claws on each dactylus of third to fifth pereopods, while *Macrobrachium* species possess a single horny claw on the dactyli of the walking legs (HOLTHUIS, 1952). In addition, *B. biunguiculatus* inhabits marine habitats, whereas the shrimps of the genus *Macrobrachium* usually occur in freshwater although a few species (e.g. *M. equidens* DANA) occur in brackish water.

The type localities of *B. biunguiculatus* are Oran and Bône in Algeria, in the Mediterranean Sea. Subsequently the present species has been recorded from the several widely separated localities which are not only in the Mediterranean and Atlantic Ocean but also in Indo-Pacific regions (HOLTHUIS, 1952). However, the present species is poorly known from the Indo-West Pacific regions. The first record of *B. biunguiculatus* from the Indo-West Pacific was that by NOBILI (1905) as *B. advena*. In the same year, PEARSON (1905) reported this species from Muttuvaratu Paar, Ceylon (Sri Lanka) as *Bithynis savignyi*. HOLTHUIS (1952) recognized that the specimens recorded as *Palaemonella orientalis* from Oahu and Molokai of Hawaiian Islands (RATHBUN, 1906) and as *Palaemonella rathbunensis* from Wake Island (EDMONDSON, 1925) belonged also to *B. biunguiculatus*. Additionally, BRUCE (1965) recorded this species based on specimens caught from Latham Island, off the eastern coast of Africa. The specimens recorded herein are collected from the intermediate area between previous records, and the morphological and their meristical characters agree well with those represented from elsewhere (BATE, 1888; NOBILI, 1906; SCHMITT, 1939). It seems to be a pantropical species because there are also records of *B. biunguiculatus* from the eastern Pacific region (SCHMITT, 1939; CHACE, 1962; HOLTHUIS, 1972).

According to MANNING and CHACE (1990), the life-coloration of Atlantic materials was "orange with black eyes and the chelae were ochre with darker rings". However, the color of the Hachijo-jima Island's specimen shows grayish brown ground color with pale brown transverse bands on the abdominal segments. These differences suggested that *B. biunguiculatus* may show some variations in its life-color.

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摘 要

奥野淳児 (日本大学農獣医学部)・大澤正幸 (東京水産大学) — 日本初記録のフウライテナガエビ (新称) *Brachycarpus biunguiculatus* (LUCAS, 1849)

八重山列島および伊豆諸島八丈島の沿岸より採集した3個体に基づき、フウライテナガエビ (新称) *Brachycarpus biunguiculatus* (LUCAS, 1849) を記載した。本種は地中海をはじめ、大西洋、インド洋および太平洋の熱帯・亜熱帯など極めて広範囲に分布する。しかし、本邦産フウライテナガエビに関する記載は今までに無く、本論文が本種の日本初記録となる。本種はテナガエビ属 *Macrobrachium* エビ類と酷似するが、第3—第5歩脚の指節に明瞭な2骨質歯を有すること(テナガエビ属では1歯)、および海産であること(テナガエビ属は淡水・汽水(水産))から容易に識別できる。

なお、従来本種には和名がみられないため、全大洋に広く分布する汎熱帯種であることから風来坊にちなんでフウライテナガエビとし、また *Brachycarpus* はフウライテナガエビ属と呼びたい。

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