

Occurrence of *Periclimenes tenuirostris* Bruce, 1991 (Crustacea: Decapoda: Palaemonidae) in the Northwestern Pacific, with Description of its Coloration in Life and Record of New Host

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Abstract A pontonine shrimp, *Periclimenes tenuirostris* Bruce, 1991, previously known only from New Caledonian waters, is recorded for the first time from the northwestern Pacific on the basis of a single female specimen collected from Izu-ohshima Island, northern Izu Islands, Japan. The present specimen allows us to describe the live coloration of the species for the first time. The host animals of *P. tenuirostris* have previously not been recorded, but we found that the species is associated at least with the sea anemone, *Dofleinia armata* Wassilieff, 1908, and an unidentified species of sea anemone at Izu-ohshima Island.

Key words: Crustacea, Decapoda, Palaemonidae, *Periclimenes tenuirostris*, new record, northwestern Pacific, coloration, host animals.

At present, the *Periclimenes aesopius* species group of the palaemonid shrimp genus *Periclimenes* Costa, 1844 consists of 15 species from the Indo-Pacific (Okuno, 2004; Bruce, 2005; 2007; 2008). The general morphological features of these species are similar to each other, but the coloration in life, especially of the marking on the third abdominal tergum, is species specific. Except for *Periclimenes tonga* Bruce, 1989, *P. tenuirostris* Bruce, 1991, and *P. amirantei* Bruce, 2007, the living coloration of 12 described species have been clarified (Okuno, 2002, 2004, 2005; Bruce, 2005, 2007, 2008). *Periclimenes tenuirostris* was originally described by Bruce (1991a) on the basis of a female holotype and an ovigerous female paratype collected from New Caledonia at the depths of 73-85 m. In the original description, the coloration of *P. tenuirostris* was not indicated. In same year, Bruce (1991b) briefly described its coloration of the first and second pereopods remaining on a preserved specimen, which was additionally collected from other locality at New Caledonia. Although the detailed coloration in life has not been clear, *P. tenuirostris* is readily distinguishable from other species of the species group by the long and straight rostrum, instead of the feebly arched rostrum as in the other species (Bruce, 1991a). In February 2007, a female specimen referred to *P. tenuirostris* was captured by one of us (SI) from Izu-ohshima Island, the northern Izu Islands, Japan. This species has been

recorded only from New Caledonian waters (Bruce, 1991a, b), and its host animal has not been recorded. Thus, our specimen represents the first record of *P. tenuirostris* not only from Japanese waters but also from the northwestern Pacific. Furthermore, the coloration in life is described for the first time, and its host animals are identified.

Material and Methods

The present specimen was collected with SCUBA equipment just after underwater photographs were taken by one of us (SI). The abbreviation CL is used for postorbital carapace length. The specimen was deposited at the Coastal Branch of Natural History Museum and Institute, Chiba (CMNH).

Taxonomy

Periclimenes tenuirostris Bruce, 1991

[New Japanese name: Akinohama-kakure-ebi]
(Figs. 1, 2)

Periclimenes tenuirostris Bruce, 1991a: 247, figs. 13-16;
Bruce, 1991b: 315; Okuno, 2002: 221 (in key);
Bruce, 2005: 354 (in key).

Material examined. CMNH-ZC 02195, 1 ♀, CL 5.4 mm, Akinohama, Izu-ohshima Island, Izu Islands, Japan, 48 m, with SCUBA, 27 February 2007, coll. S. Imazeki.

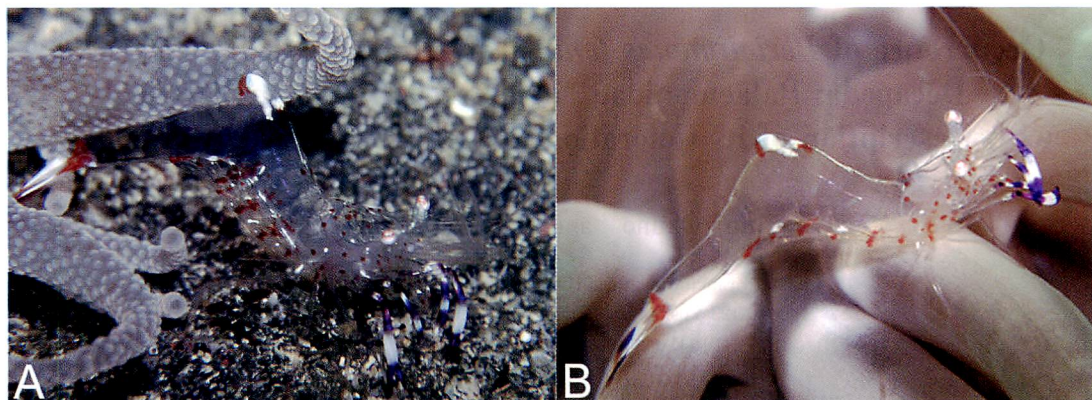


Fig. 1. *Periclimenes tenuirostris* Bruce, 1991. Living individuals found at Akino-hama, Izu-ohshima Island, Japan. A, female (CMNH-ZC 02195), in association with *Dofleinia armata* Wassilieff, 1908, 48 m, 27 February 2007; B, possibly male (specimen not collected), in association with an unidentified sea anemone, 26 m, 23 June 2006. Photo by S. Imazeki.

Host. *Dofleinia armata* Wassilieff, 1908 (Cnidaria: Anthozoa: Actiniaria: Actiniidae). The host specimen was not collected.

Coloration in life (Fig. 1). Body and appendages generally transparent. Carapace with sparse small red spots, lateral part also with few white spots. Second abdominal somite with or without a small red spot on either side of dorsal midline. Third abdominal somite with white longitudinal stripe on dorsal midline in anterior half; midpoint of dorsal carina with small white patch anteriorly tinged with red; subcarinate part of posterior half with large white patch anteriorly tapering, extending obliquely ventrad, posterior margin of patch fringed with short red stripe. Pleura of first to third abdominal somites with or without red spots. Posterior margin of sixth somite with transverse red band. Telson white. Ophthalmic somite without distinct transverse white stripe dorsally. Fingers and distal part of palms of first and second pereopods bluish purple, remaining parts of palms white; carpi largely bluish purple, remaining parts white, meri generally transparent, distally with white and purple bands. Protopodites of first to fifth pleopods with red spots. Uropods generally white, distal part of exopod with large, round purple patch.

Distribution. Type locality: Grand Récif Sud, New Caledonia (Bruce, 1991a). Also known from other localities of New Caledonia at the depths of 65–120 m (Bruce, 1991b), and Japan (present study).

Remarks. The present specimen is identified without hesitation with *P. tenuirostris* on account of the following morphological features: rostrum straight, tapering distally, directed upwardly, armed dorsally with 7 equidistantly spaced teeth, ventrally with 3 teeth on distal 0.2 (Fig. 2B); carapace with median carina

armed with single postrostral tooth (Fig. 2A), inferior orbital margin strongly produced, with a reflected inner flange (Fig. 2B); ophthalmic somite with minute interocular beak (Fig. 2A); third abdominal tergum elevated in midline in posterior half, but not sharply carinate (Fig. 2C); dorsal margin of antennal basicerite with angular process (Fig. 2A); first pereopod with dactylus very slightly longer than palm (Fig. 2D); second pereopod with carpus shorter than palm (Fig. 2E), cutting border of fixed finger armed with minute tooth at proximal third of length, borders of both fingers without distinct proximal concavities as in *P. holthuisi* Bruce, 1969 (see Okuno, 2004: 873, fig. 6C, D) and without large acute teeth as in *P. grandidens* Bruce, 2005 (see Bruce, 2005: 349, fig. 9H) (Fig. 2F); propodi of third and fourth pereopods armed ventrally with 4 well-spaced sets of single spines proximal to 2 distoventral sets consisting of paired spines (Fig. 2G); dactyli of ambulatory pereopods biunguiculate (Fig. 2G).

Based on morphological similarity, Okuno and Nomura (2002) suggested that *Periclimenes kobayashii* Okuno and Nomura, 2002 is closest to *P. tenuirostris*. These two species are indeed similar in the armature of the carapace, structure of the ophthalmic somite, shape of the third abdominal tergum and second pereopod, and spinulation of propodi and dactyli of the third and fourth pereopods as mentioned above. The present study shows that the general coloration in life is also rather similar between the two species, but the absence of a transverse white band on the posterior part of the carapace readily distinguishes *P. tenuirostris* from *P. kobayashii* (Fig. 1).

As in the case of other species of the *Periclimenes aesopius* species group, we confirmed that *P.*

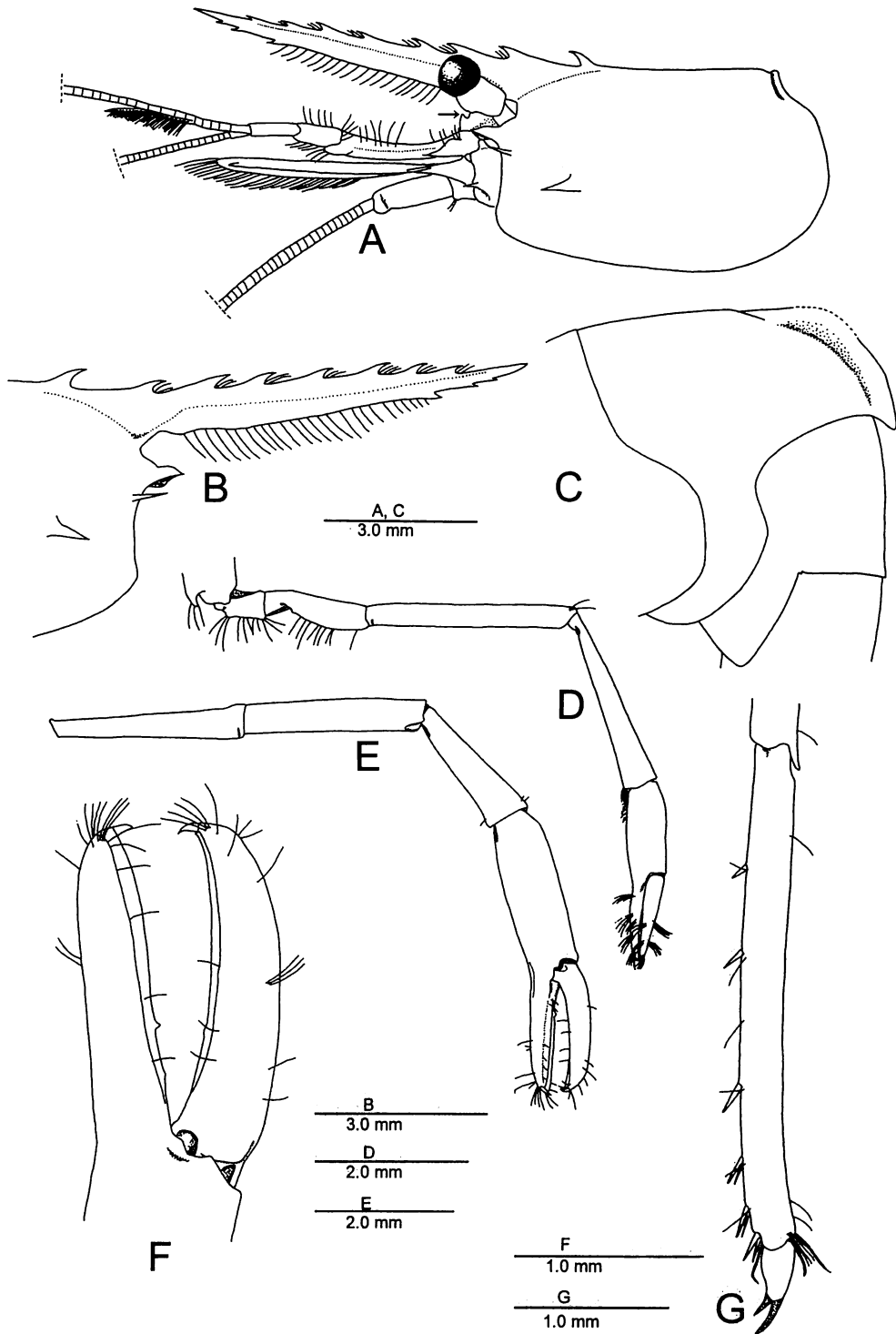


Fig. 2. *Periclimenes tenuirostris* Bruce, 1991. Female (CMNH-ZC 02195). A, carapace and cephalic appendages, lateral, arrow indicating interocular beak; B, anterior part of carapace and rostrum, lateral; C, second to fifth abdominal somites (posterior part of third abdominal tergum somewhat broken), lateral; D, right first pereiopod, lateral; E, right second pereiopod, lateral; F, same, fingers, mesial; G, propodus and dactylus of right third pereiopod, lateral.

tenuirostris is an anthozoan associate. The specimen examined here was associated with a sea anemone, *Dofleinia armata* at a depth of 48 m (Fig. 1A). In the collection site of the present specimen, other individuals assignable to *P. tenuirostris* were observed by one of us (SI). The hosts of these individuals appeared represent an unidentified sea anemone clearly distinct from *D. armata* characterized by the absence of numerous pale papillae on the tentacles (K. Yanagi, pers. comm.) (see Fig. 1B).

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Periclimenes tenuirostris Bruce, 1991 (甲殻上綱：十脚目：テナガエビ科) の 北西太平洋からの初記録，生時の色彩， および宿主について

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相模灘南部に位置する伊豆大島の秋の浜地先で採集された雌 1 個体に基づき，テナガエビ科ホンカクレエビ属アカホシカクレエビ種群の *Periclimenes tenuirostris* Bruce, 1991 を報告する。本種はこれまでにニューカレドニアのやや深い水深帯 (65~120 m) からのみ記録されており，生時の色彩と宿主は知られていなかった。本報告は日本ばかりでなく，北西太平洋における本種の初記録となる。また本種の生時の色彩は，形態的に類似するハクセンアカホシカクレエビ *P. kobayashii* Okuno and Nomura, 2002 によく似ているが，頭胸甲後方を横走る白線がないことで容易に識別されることが明らかになった。本種は，ハクセンアカホシカクレエビと同じく刺胞動物のスナイソギンチャク *Dofleinia armata* を宿主とする他，未同定のイソギンチャクの 1 種にも共生していることが伊豆大島において確認された。*P. tenuirostris* にはこれまでに標準和名が与えられていなかったため，日本で初めて本種が採集された伊豆大島のダイビングポイント名にちなみ，アキノハマカクレエビ (新称) の標準和名を提唱する。