

BANNER, A.H. + Dora M. Banner

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Contributions to the Knowledge of the Alpheid Shrimp
of the Pacific Ocean

Part XVI. A New Shrimp of the Genus *Synalpheus*
(Decapoda, Alpheidae) from Palau¹

ALBERT H. and DORA M. BANNER²

A single specimen of a new synalpheid was collected in Palau in the Western Pacific. It was a 29 mm female from Malakal Harbor, Urukthapel, Palau Island collected by K. R. H. Read, March, 1971. It came from an unidentified sponge in five meters of water where it was found in the canals along with small crabs and brittle stars.

Synalpheus readi n. sp.

Diagnosis: Rostrum 1.6 times as long as broad at base, curved upwards at tip and reaching near end of first antennular article, without carina. Ventral side bearing 2 hairs slightly proximal to tip. Tip of orbitorostral process expanded and bearing a "U"-shaped groove; ocular beak heavy and rounded. (The orbitorostral process is a structure protruding ventrally from near the base of the rostrum, and contacting the ocular beak, a highly chitinized structure arising from the sclerite bearing the eyestalks. These and the growths on the eyestalks, the ocular bossae, and their significance to alpheid systematics will be discussed in a forthcoming paper.) Corneas of eyes without pigment after preservation in alcohol, but pigmented in life; eyestalks with large, rounded ocular bossae on anteromedial side, lying next to orbitorostral process and ocular beak. Orbital teeth slightly longer than rostrum, also turned upwards at tips. Orbital hoods carrying knife-like dorsolateral carinae which curve with profile of hoods in lateral view, terminating anteriorly at tip of orbital teeth, posteriorly abruptly at end of hoods. Regions between orbital carinae and base of rostrum flat.

Visible part of first antennular article and second article subequal, third a little shorter. Second antennular article 1.3 times as long as broad. Stylocerite acute, reaching just past end of first antennular article. Scaphocerite with outer margins slightly curved, squamous portion narrow and reaching near end of antennular peduncle, lateral spine reaching to end of antennular peduncle. Carpocerite reaching well past end of antennular peduncle, 5.8 times as long as broad in lateral view. Inferior spine of basicerite reaching the end of the first antennular article, superior

¹ Contribution No. 398, Hawaii Institute of Marine Biology.

² Department of Zoology, University of Hawaii, Honolulu, Hawaii 96822.

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tooth acute, 0.2 as long as inferior tooth. Third maxilliped as usual, tip of ultimate article bearing a circle of short acute spines.

Large chela 3.0 times as long as broad, fingers about one-half length of palm. Terminal tooth of superodistal margin of palm subacute and upturned. Carpus cup-shaped, with flattened and extended edge proximal to inferior surface of chela. Merus 2.5 times as long as wide, superodistal margin inermous; inferointernal and inferoexternal margins terminating in short subacute teeth. Small chela 3.8 times as long as broad. Fingers laterally expanded, slightly shorter than palm. Pollex terminating distally in one rounded tooth, dactylus terminating in two rounded teeth lying lateral to the tooth of the pollex; opposing surfaces of dactylus and pollex slightly excavate. Length of margin of inner face of dactylus bearing sparse fringe of stiff setae directed forward and downward; opposing margin of pollex with similar fringe which meet those of dactylus in a crisscross pattern. Margin of outer face of dactylus with a more dense fringe of finer setae directed downward; opposing surface of pollex bearing short stiff setae which meet those of dactylus in no fixed pattern. Carpus cup-shaped 0.4 as long as chela. Merus 3.5 times as long as wide, margins distally inermous, but inferoexternal margin bearing long fine setae along its entire margin.

Carpal articles of second leg with ratio 10: 1: 1: 1: 4. Chela as long as last three articles.

Merus of third leg inermous, 4.6 times as long as broad. Carpus 0.4 as long as merus; superodistal margin terminating in broad tooth, inferodistal margin terminating in small spine. Propodus 0.8 as long as merus, bearing on its inferior margin 8 spines and a pair distally. Dactylus biunguiculate, 0.4 as long as propodus and 1.8 times as long as broad when measured from tip of superior unguis to superodistal margin of dactyl. Superior unguis slightly longer and slightly more narrow at base than inferior unguis; superior unguis curved and held at about a right angle to propodus. Notch between ungui "U"-shaped.

Telson 2.6 times as long as posterior margin is broad, 2 times as wide anteriorly as posteriorly. Dorsal surface bearing 2 pair of strong spines near lateral margins with posterior pair slightly posterior to middle. Dorsal surface slightly concave medially. Posterior margin strongly arcuate, bearing the usual 2 pairs of spines, medial slightly shorter than dorsal spines. Uropods as typical for the genus.

Habitat: The sponge was not identified, but to judge from Dr. Read's color photographs, it was a massive grey-white sponge of subspherical shape about 40 cm in diameter, with a rough surface; a photograph of a section through the sponge revealed it to be quite coherent and firm, perhaps almost cartilagenous in texture.

Color: A color slide by Dr. Read showed the body to be largely transparent with the green-colored contents of the digestive tract plainly visible through the exoskeleton. The integument carried small, scattered red chromatophores in no particular patterns, but most concentrated mid-dorsally; the brachiostegites and

large abdominal plerua are quite transparent. The only conspicuous pigmentation appears in the tip of the large chela, reddish brown in color, and in the eyes.

Discussion: Were it not for the strong crests on the orbital hoods, this species would be associated with the group of species in the Biunguiculatus Group of Coutière, for the chelae and other characteristics are quite like those of *S. amabilis* de Man, *S. coutierei* Banner and *S. pachymeris* Coutiere and additional similarities can be found with other species in this group. However, from all of those in that group it is distinguished by the orbital crests. On the other hand *S. carinatus* (de Man) and *S. comatularum* (Haswell) within the genus have orbital crests, but these two species can be easily distinguished from *S. readi* by many characteristics which include the form of the dactylus of the third leg, the form of the chelae and telson, the lack of an orbitorostral process, but especially by the prolongation of the orbital crests behind the hoods and the presence of a strong rostral carina. In this species the orbital crests terminate at the posterior margin of the hood and the rostrum is lacking any trace of crest.

We can offer no explanation for the loss of corneal pigment upon preservation; this loss does not occur in other species.

This species is named in honor of its collector Dr. K. R. H. Read, Biological Science Center, Boston University. The type specimen will be preserved in the Bernice P. Bishop Museum, Honolulu (BPBM-S8038).

Alpheus readi n. sp.

- a, b. anterior region, dorsal and lateral view;
- c. anterior region, lateral view, showing orbitorostral process;
- d. anterior view of carapace, eyes and associated structures *in situ*: *oc*—crest of orbital hood; *r*—rostrum; *ot*—orbital teeth; *ob*—ocular bossae; *c*—cornea; *orp*—orbitorostral process; *obk*—ocular beak;
- e. third maxilliped;
- f. large cheliped, inner face;
- g. large chela, outer face;
- h. small cheliped, outer face;
- i. small chela, outer face, enlarged;
- j. distal end of small chela, inner face;
- k. second leg;
- l, m. third leg; dactylus;
- n. telson.

a, b, d, e, j, n	scale a
c, e, m	scale b
f, g, h, k, l	scale c

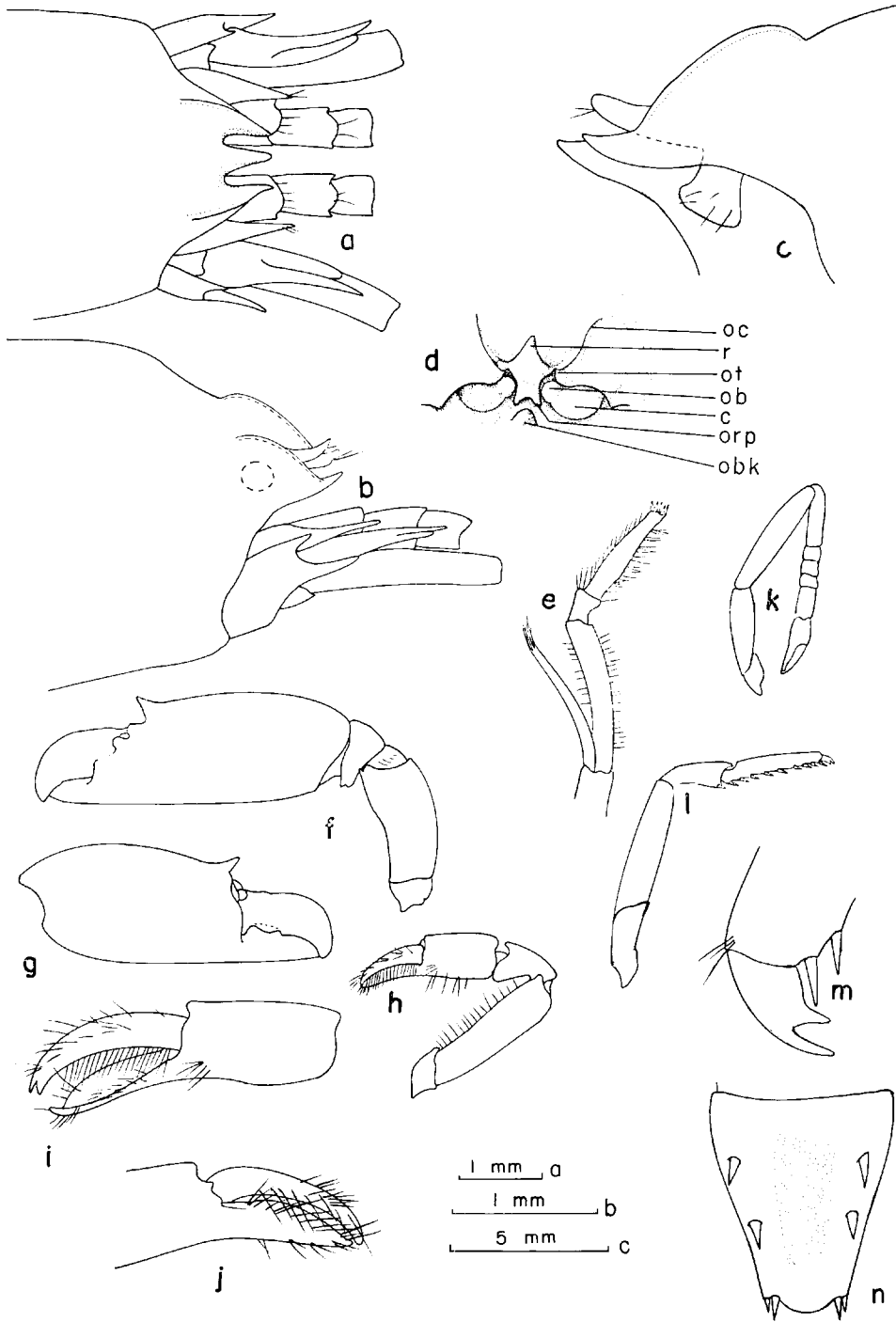


Fig. 1. *Alpheus readi* n. sp.