

A New Species of *Oithona* (Copepoda, Cyclopoida) from the Central Pacific

By

Shuhei NISHIDA

Ocean Research Institute, University of Tokyo, Tokyo

(Communicated by Tadashige HABE)

During the course of a study on the family Oithonidae collected from the Pacific Ocean by R/V Hakuho-Maruo of the Ocean Research Institute, University of Tokyo, several female specimens of an *Oithona* which differs from all the known species were encountered. It is named and described as a new species.

Oithona fragilis sp. nov.

(Figs. 1-2)

Material. All the samples were collected by the vertical net haul from 150 m depth to the surface with the Norpac net, 45 cm in mouth diameter and 0.10 mm in mesh openings. Following specimens were measured and examined: 1 female, 30°01'N, 150°05'E, Dec. 13, 1967; 1 female, 25°01'N, 149°57'E, Dec. 14, 1967; 3 females, 20°06'N, 149°58'E, Dec. 18, 1967; 1 female, 29°59'N, 155°03'W, Sept. 8, 1969; 1 female, 24°58'N, 155°00'W, Sept. 10, 1969; 2 females, 13°55'N, 146°02'W, Dec. 3, 1971; 1 female, 7°59'S, 146°00'W, Dec. 10, 1971; 1 female, 32°03'S, 141°04'W, Dec. 23, 1971; 1 female, 7°01'N, 100°05'W, Feb. 13, 1972.

Type-series. The specimens of the type-series are deposited in the National Science Museum, Tokyo. Holotype: 1 female (NSMT-Cr. 5656), 24°58'N, 155°00'W, Sept. 10, 1969. Paratypes: 3 females (NSMT-Cr. 5657), 20°06'N, 149°58'E, Dec. 18, 1967; 1 female (NSMT-Cr. 5658), 13°55'N, 146°02'W, Dec. 3, 1971.

Description. Female. Total length 0.46-0.50 mm (holotype 0.46 mm). Prosome length 0.25-0.28 mm (holotype 0.25 mm). Prosome width 0.09-0.10 mm (holotype 0.09 mm).

Proportional lengths of prosomal segments 53.5: 14: 10.5: 11: 11. Head rounded in dorsal view; in lateral view bent ventrally into sharply pointed rostrum with small swelling at the base of rostrum, anteriorly. Prosome elongate, oval, 2.7 times as long as wide, greatest width situated at posterior end of cephalosome.

Proportional lengths of urosomal segments including caudal ramus 13.5: 28.5: 14: 13: 16: 15. Length to width ratios of each urosomal segment 1.2, 2.1, 1.5, 1.4 and 1.5, respectively. Genital segment nearly rectangular and slightly swollen

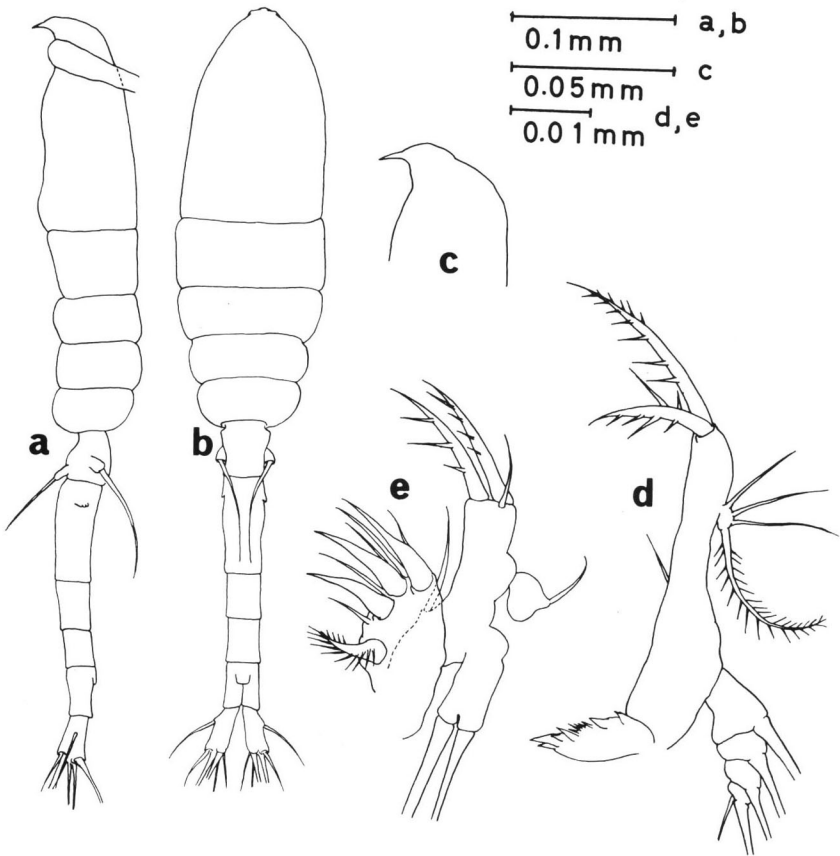


Fig. 1. *Oithona fragilis* sp. nov., female; a, lateral view; b, dorsal view; c, rostrum, lateral view; d, mandible; e, first maxilla.

laterally toward anterior end, having greatest width between a pair of genital openings situated at about $1/4$ of length of genital segment from anterior margin. Caudal ramus with one stout dorsal seta, one stout and 3 finer apical setae, and one outer marginal seta situated at $1/2$ of length of inner margin of caudal ramus from distal end of outer margin.

First antenna 0.7 times as long as total length, extending to anterior end of genital segment. Posterior margin of 1st to 6th segments armed with a row of small teeth.

Second antenna 4-segmented. Posterior margin of 1st and last segments with a row of fine setae.

Mandible with 2 hook-like spines with spinules on distal end of 2nd basal segment, the longer one of which is 1.7 times as long as the shorter. Endopod with 4 setae, outermost one long and stout with setules. Exopod with 5 setae, outermost

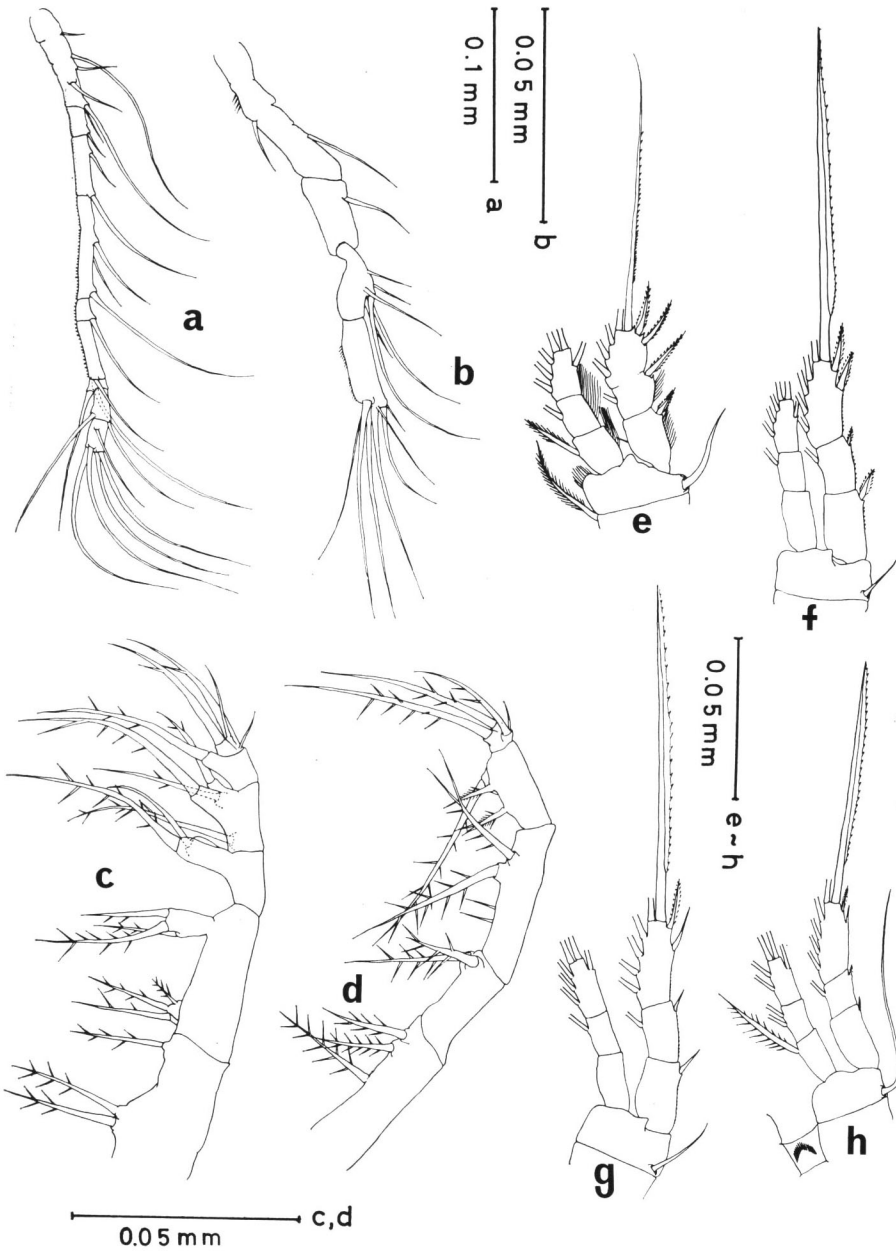


Fig. 2. *Oithona fragilis* sp. nov., female; a, first antenna; b, second antenna; c, second maxilla; d, maxilliped; e, first swimming leg; f, second swimming leg; g, third swimming leg; h, fourth swimming leg.

one very slender. Second basal segment with one minute seta in the middle of inner margin.

First maxilla armed on distal end of 2nd basal segment with one short seta and 2 strong spines; 2 spines with spinules and about equal in length. Endopod swollen posteriorly, terminating in one seta 1.3 times as long as endopod. Setation of exopod not exactly made out, but at least 2 stout setae present on distal end.

Second maxilla 5-segmented, armed with stout spines with spinules as in Fig. 2 c.

Maxilliped 5-segmented, 3rd segment with 2 stout spines armed with spinules and 2 short spines without spinules. Other segments as in Fig. 2 d.

Swimming legs with one outer marginal seta on 2nd basal segment. Endopod and exopod of 1st to 4th swimming legs 3-segmented. Exopod with 1, 1, 2; 1, 1, 2; 1, 1, 2; 1, 1, 2 outer marginal spines and 1, 1, 4; 0, 1, 5; 0, 1, 5; 0, 1, 5 inner marginal setae. Proportional length of terminal spine to exopod 1.9, 1.7, 1.8 and 1.7, respectively. Endopod with 0, 0, 1; 0, 0, 1; 0, 0, 1; 0, 0, 1 outer and 1, 1, 5; 0, 1, 5; 0, 1, 5; 1, 2, 4 inner marginal setae.

First swimming leg with inconspicuous articulation between 2nd and terminal segments of exopod. First basal segment with one thick and plumose seta at distal end of inner margin. Inner marginal seta of 1st segment of exopod very minute. Outer margin of 1st and 2nd segments of both rami armed with fine setae.

Second and 3rd swimming legs with a row of small teeth on outer margin of exopod.

Fourth swimming leg with 1st endopodal segment armed with thick and plumose seta. Outer marginal spines of exopod minute. Connecting plate with a V-shaped row of setae on posterior side.

Male. Unknown.

Etymology. The specific name is derived from the fragility of this species, whose specimens were often seriously damaged in the course of sampling.

Remarks. This species is clearly distinguished from other species of *Oithona* by the following characters:

1) The number and arrangement of the outer marginal spines of exopods of swimming legs are unique, not found in the females of any other known species of *Oithona*.

2) The rostrum resembles that of *O. decipiens*, *O. similis* and *O. fallax*, but there is no swelling at the base of rostrum in these three species (cf. GIESBRECHT, 1892, pl. 34, fig. 18; FARRAN, 1913, pl. 28, figs. 1, 4).

3) The swelling of the anterior part of genital segment is inconspicuous as compared with that of the other species, such as *O. plumifera*, *O. setigera*, *O. similis*, *O. brevicornis* and *O. tenuis* (cf. GIESBRECHT, 1892, pl. 34, figs. 3, 6, 21, 22; ROSENDORN, 1917, p. 14, fig. 3-a).

The setae on the connecting plate of the 4th swimming leg have not been taken into account as a diagnostic character of *Oithona*. According to the author's observation, however, there are clear differences in this character among several species.

In *O. robusta* and *O. vivida* these setae are thick and about as long as the inner margin of the 1st basal segment, while those of *O. setigera*, *O. decipiens* and *O. tenuis* are very minute or almost lacking. In the present species these setae are moderate; thinner than those of *O. robusta* and *O. vivida* and shorter than half the length of the inner margin of the 1st basal segment.

Acknowledgement

The author wishes to express his deepest appreciation to Prof. R. MARUMO, Ocean Research Institute, for his kind direction through the course of this study. Particular thanks are due to Dr. M. MURANO, Tokyo University of Fisheries, and to Dr. F. FERRARI, Smithsonian Oceanographic Sorting Center, Smithsonian Institution, for their kind advice in the preparation of the manuscript.

References

- FARRAN, G. P., 1913. Plankton from Christmas Island, Indian Ocean. II. On Copepoda of the genera *Oithona* and *Paroithona*. *Proc. zool. Soc. Lond.*, **1913**: 181–193, pls. 27–31.
- GIESBRECHT, W., 1892. Systematik und Faunastik der pelagischen Copepoden des Golfes von Neapel und der angrenzenden Meeresabschnitte. *Fauna Flora Golf. Neapel*, **19**, 831 pp., 54 pls.
- ROSENDORN, I., 1917. Copepods 1. Die Gattung *Oithona*. *Wiss. Ergebn. dtsch. Tiefsee-Exped. 'Valdivia'*, **23**: 1–58, 27 figs., 1 map.

