

## The Second Species of *Ochridacyclops* Kiefer, 1937 (Copepoda, Cyclopoida) from Japan

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**Abstract.** *Ochridacyclops iriomotensis* sp. nov. is described from a puddle by the Urauchi River (Iriomote I., the Ryukyu Is, southernmost Japan). This is the fourth species of the genus known in the world, and the second species from Japan. This species is similar to *O. nipponensis* Karaytug *et al.*, 1996, but easily distinguishable by the longer medialmost terminal seta of the caudal ramus (2.5 times as long as the lateralmost terminal seta versus these setae being subequal).

**Key words:** taxonomy, copepod, *Ochridacyclops*, Iriomote I., Japan.

### Introduction

The genus *Ochridacyclops* comprises *Ochridacyclops arndti* Kiefer, 1937 found in an endemic species of freshwater sponge in Lake Ohrid, *O. arndti* f. *prespensis* Petkovski, 1954 found in other sponge species near Lake Ohrid, *O. brevicaudatus* (Shen and Tai, 1964) from streams in Guangdong, China, and *O. nipponensis* Karaytug *et al.*, 1996 from small streams in Japan. I collected many females and males of *Ochridacyclops* species from a puddle by the Urauchi River on Iriomote I., southernmost Japan. They are similar to *O. nipponensis*, but clearly different in the length of the medialmost terminal caudal seta, the length of the medial terminal spine of leg 4 endopodite 3, and other features. They clearly represent a new species, which I describe herein.

### Material and Methods

Specimens were collected by myself on 15 April 1999 from a puddle on a small rock terrace by the Kanpira Falls of the Urauchi River on Iriomote Island (24° 20' N 123° 48' W), 1.5 km above the innermost tidal reaches. Specimens were preserved in formalin

until they were mounted on slides. Drawings and measurements were done in glycerin before dissection, and in gum-chloral medium after dissection. The objective lenses mainly used were × 40 (phase contrast) and × 60. Types are deposited in the National Science Museum (Tokyo) (NSMT-Cr), and the Division of Biological Sciences, Graduate School of Science, Hokkaido University (ZIHU). Other specimens are in my collection.

### Taxonomic account

#### *Ochridacyclops iriomotensis* sp. nov.

(Figs 1–3)

Material: Holotype, ♀, dissected on 1 slide, NSMT-Cr 14387. Paratypes, 2 ♂ and 2 ♀, dissected on 3 slides. NSMT-Cr 14388–14390; 10 ♀ and 5 ♂, undissected specimens in 70% ethanol, ZIHU 2111, all from puddle by Urauchi River, Iriomote I., the Ryukyu Is, Japan, 15 April 1999, coll. T. Ishida.

Description. Female (holotype): Length of holotype, excluding caudal setae, 0.59 mm; of paratypes, 0.57–0.63 mm, mean 0.60 mm. Fourth pedigerous somite with lateral patch of short setules at

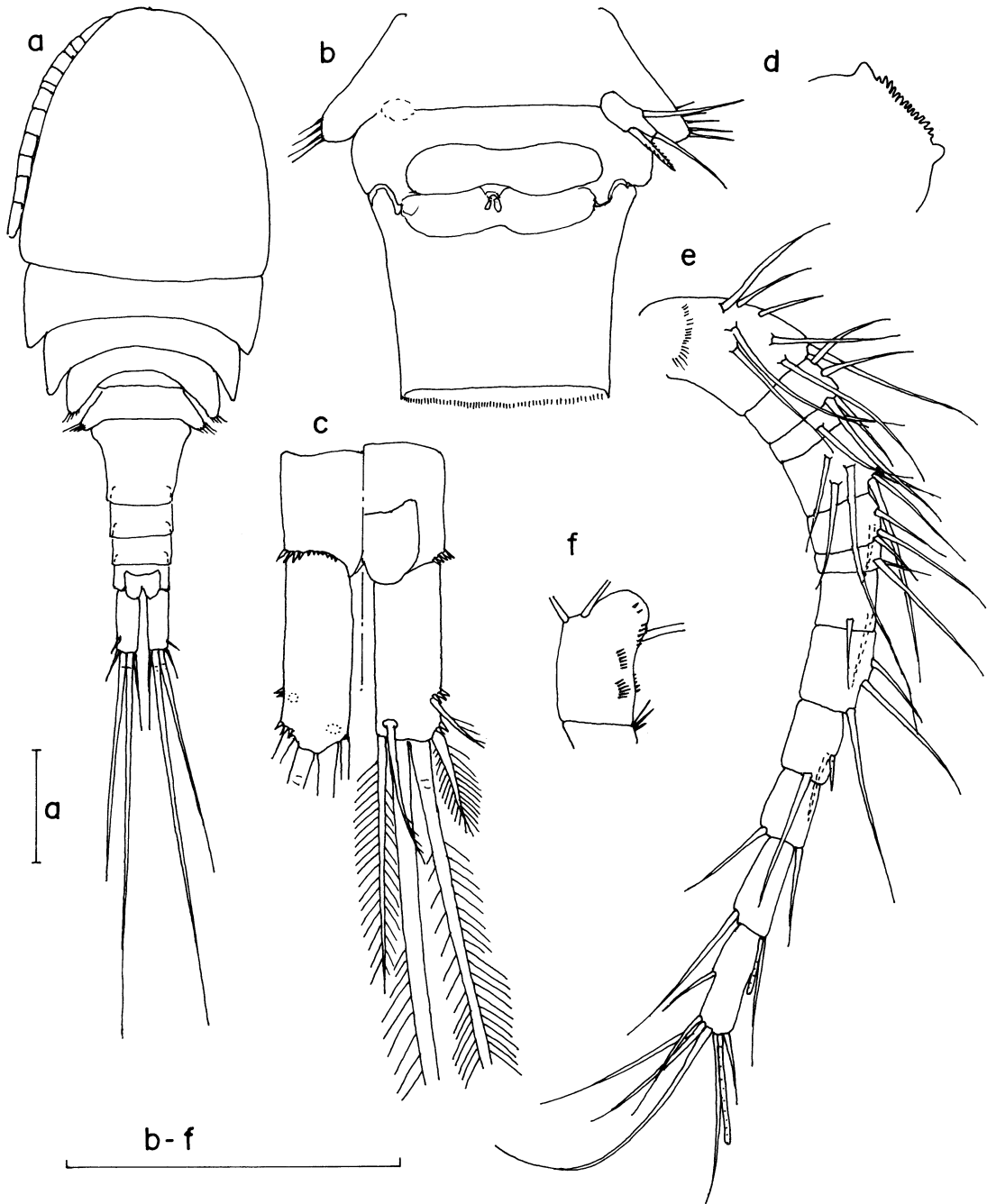


Fig. 1. *Ochridacyclops iriomotensis* sp. nov., holotype female. a: habitus, dorsal; b: pedigerous somite 5 and genital double-somite, ventral; c: anal somite and caudal ramus, dorsal/ventral; d: labrum; e: antennule, ventral; f: antenna basis, posterior. Scales: 100  $\mu$ m.

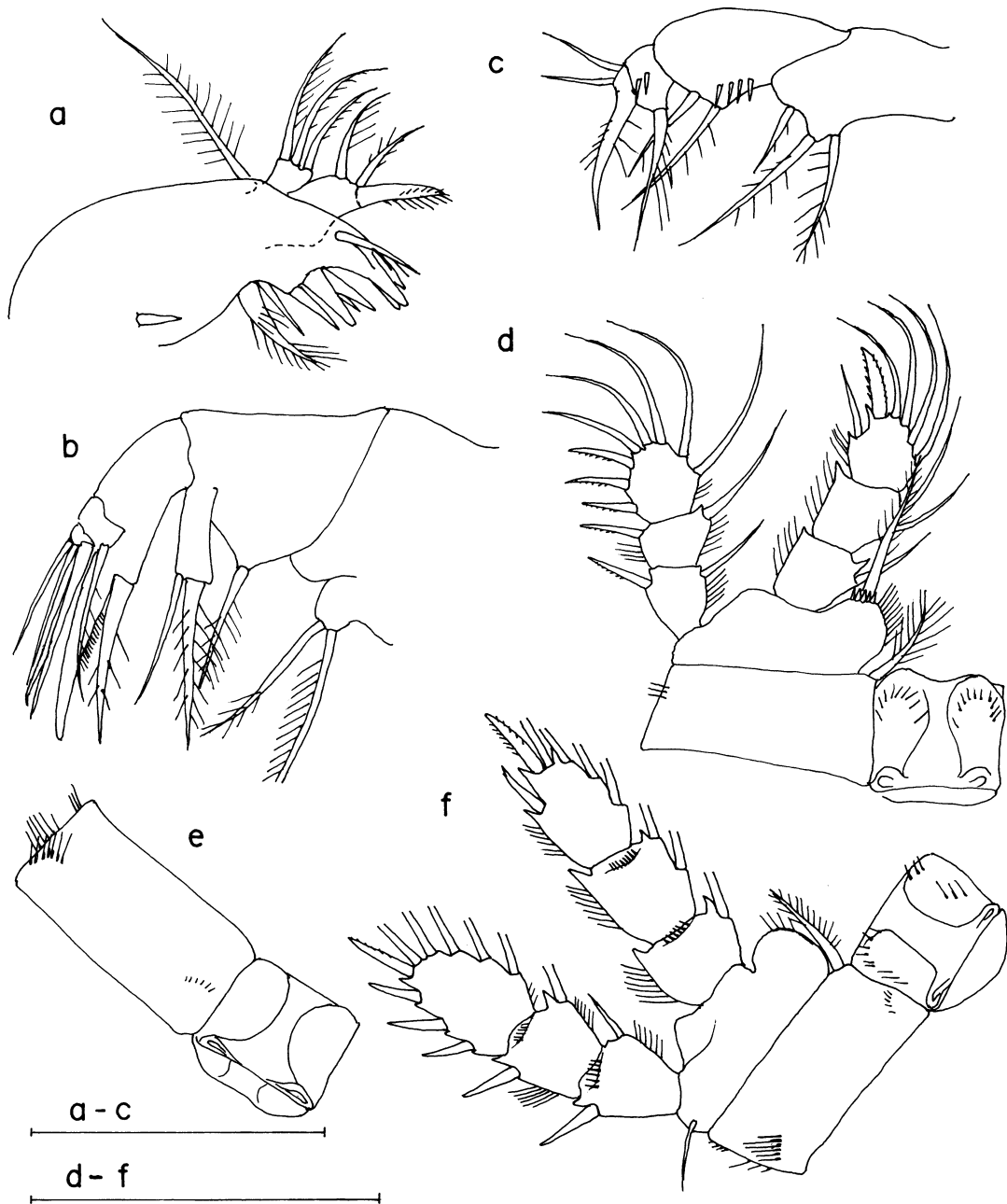


Fig. 2. *Ochridacyclops iriomotensis* sp. nov., holotype female. a: maxillule; b: maxilla; c: maxilliped; d: leg 1 and coupler, anterior; e: leg 2 coxa and coupler, posterior; f: leg 3 and coupler, posterior. Scales: 100  $\mu$ m.

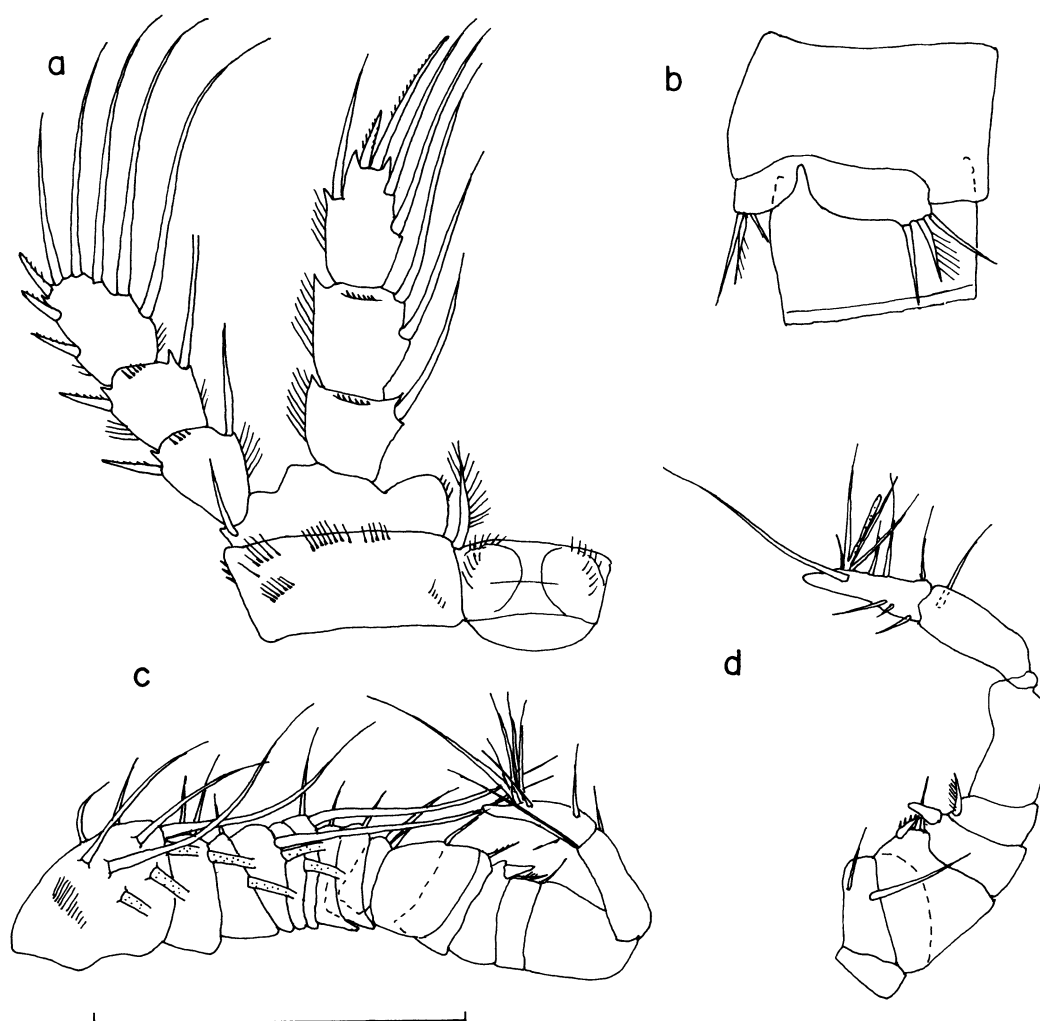


Fig. 3. *Ochridacyclops iriomotensis* sp. nov.: a: leg 4 and coupler, posterior (holotype, female); b: urosomites 1 and 2, ventro-lateral (paratype, male); c: antennule, ventral (paratype, male); d: antennule, 9–16th segment, dorsal (paratype, male). Scale: 100  $\mu$ m.

posterolateral angles (Fig. 1a). Fifth pedigerous somite with fringe-like array of elongate setules along posterolateral margins (Fig. 1a, b). Genital double-somite (Fig. 1b) about as long as broad. Seminal receptacle divided into nearly equal-sized anterior and posterior lobes. Anal operculum weakly convex. Caudal rami almost parallel; about 2.7 times longer than broad. Lengths of 4 terminal caudal setae of holotype, from medialmost to lateralmost 75, 340, 208, and 21  $\mu$ m.

Antennule 12-segmented (Fig. 1e). First segment with ventral row of spinules. Apical segment lacking marginal membrane. Setal formula 8, 4, 2, 6, 4, 2, 2, 3, 2 + 1 aesthetasc, 2, 2 + 1 aesthetasc, 7 + 1 aesthetasc. Antenna 4-segmented, comprising coxobasis (Fig. 1f) and 3-segmented endopodite. Labrum (Fig. 1d) with 14 teeth between lateral protuberances.

Maxillule (Fig. 2a), maxilla (Fig. 2b), and maxilliped (Fig. 2c) as illustrated.

Swimming legs 1–4 (Figs 2d–f, 3a) with 3-segmented rami. Setation formula as follows:

	Basis	Exopodite	Endopodite
Leg 1	I-1	I-1; I-1; III, 1, 4	0-1; 0-2; 1, I, 4
Leg 2	I-0	I-1; I-1; III, 1, 5	0-1; 0-2; 1, I, 4
Leg 3	I-0	I-1; I-1; III, 1, 5	0-1; 0-2; 1, I, 4
Leg 4	I-0	I-1; I-1; II, 1, 5	0-1; 0-2; 1, II, 2

Length of medial terminal spine of leg 4 endopodite 3 one third that of lateral one. Leg 5 (Fig. 1b) comprising single free segment, armed with medial spine as long as segment (without spinules on segment at base of this spine) and 2 setae (about equal in length).

Male: Lengths of 7 paratypes 0.51–0.57 mm, mean 0.54 mm; caudal ramus about 2 times longer than broad. Antennule 16-segmented and armed as in Fig. 3c, d). Leg 6 (Fig. 3b) with medial spine and 2 setae, each of them shorter than urosomite 2.

Etymology. The specific epithet is based on the name of the type locality in the Ryukyu Is.

Affinities. The new species differs from *Ochridacyclops arndti* and *O. brevicaudatus* in its 12-segmented antennule, both other species having 11-segmented antennules. The new species is similar to *O. nipponensis*, however, the medialmost terminal caudal seta is three times longer than the lateralmost one in the present form, *versus* about equal in *O. nipponensis*, the medial terminal spine of leg 4 endopodite 3 is three times longer than the lateral one, *versus* two times longer in *O. nipponensis*; and there are no spinules at the base of the medial spine of leg 5, in contrast to the minute spinules there in the latter species (Ishida, 1993; Karaytug *et al.*, 1996).

Habitat and co-occurring species. The new species inhabited shallow (less than 10 cm in depth) stagnant water of a shallow puddle covering several square meters. *O. arndti* and *O. arndti* f. *prespensis*

are commensals of freshwater sponges (Kiefer, 1937; Petkovski, 1954), *O. brevicaudatus* and *O. nipponensis* inhabit streams (Shen and Tai, 1964; Ishida, 1993; Karaytug *et al.*, 1996). It must be clarified whether the new species inhabits streams, too. The new species co-occurred with cyclopids (*Paracyclops fimbriatus* (Fischer, 1853), *Ectocyclops* sp., and *Metacyclops ryukyuensis* Ishida, 1995, and harpacticoids (*Attheyella nakaii* (Brehm, 1927), *Attheyella orientalis* Chappuis, 1929, *Moraria* sp., *Bryocamptus zschokkei* (Schmeil, 1893) and *Bryocamptus pacificus* Ishida, 1992).

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