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Gulcamptus jesoanus, a New Harpacticoid Copepod (Crustacea) from Hokkaido, Northern Japan[1)]

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ABSTRACT A new species of harpacticoid copepod, *Gulcamptus jesoanus*, is described from Hokkaido, northern Japan. This species was previously recorded as *Gulcamptus* sp. S from Hokkaido by the senior author. The new species is the second species of the genus, of which the type species *Gulcamptus uenoi* was described from Korea.

During our studies on freshwater harpacticoid copepods, a species of the genus *Gulcamptus* was collected from Hokkaido, northern Japan. The junior author found it from moistened moss clumps on the shore of Shubuto Creek, Taisei, Kuromatsunai. The senior author collected many specimens from moss clumps in a small stream flowing to Lake Shikotsu, and reported it as *Gulcamptus* sp. S (ISHIDA, 1987).

In the present paper *Gulcamptus jesoanus* n. sp. is described based on this material. For description, specimens were drawn with the aid of a drawing tube before dissection in glycerine and after dissection in gum-chloral medium. Lengths were measured from the anterior tip of the rostrum to the end of the caudal ramus. Specimens were deposited in the National Science Museum, Tokyo (NSMT) and the National Museum of Natural History, Smithsonian Institution (USNM).

Gulcamptus jesoanus sp. nov.

(Figs. 1–17)

Gulcamptus sp. S. ISHIDA, 1987, p. 84: pl. 16.

Types. Holotype, female, dissected on 7 slides, NSMT-Cr 11357. Paratypes: 2♂♂, dissected on 4 slides, NSMT-Cr 11358, 11359; 4♀♀, 1♀, 1♀, habitus on 3 slides, NSMT-Cr 11360, 11389, 11390; 4♂♂, 1♂, 1♂, habitus on 3 slides, NSMT-Cr 11391, 11392, 11393; 15♀♀ and 5♂♂, undissected specimens preserved in 70% ethanol, USNM 259760. All material collected by T. ISHIDA from a small stream flowing into Lake Shikotsu, Hokkaido; 42°46.6′N 141°24.1′E, 9 Sept. 1985.

Description. Female: Length of holotype excluding caudal setae 0.38 mm: range of lengths of 6 paratypes 0.37–0.45 mm. Hyaline frills of cephalothorax and 2nd thoracic somite smooth; those of 3rd thoracic and following somites except anal somite finely serrated (Figs. 1–3); cephalosome with subcircular nuchal organ. Fourth and 5th thoracic and urosomal somites except anal somite each with 1 or 2 rows of spinules near posterior margin, these rows continuous or discontinuous dorsally and ventrally (Figs. 1–3). Anal somite (Figs. 2, 3) with 5 spinules anterior

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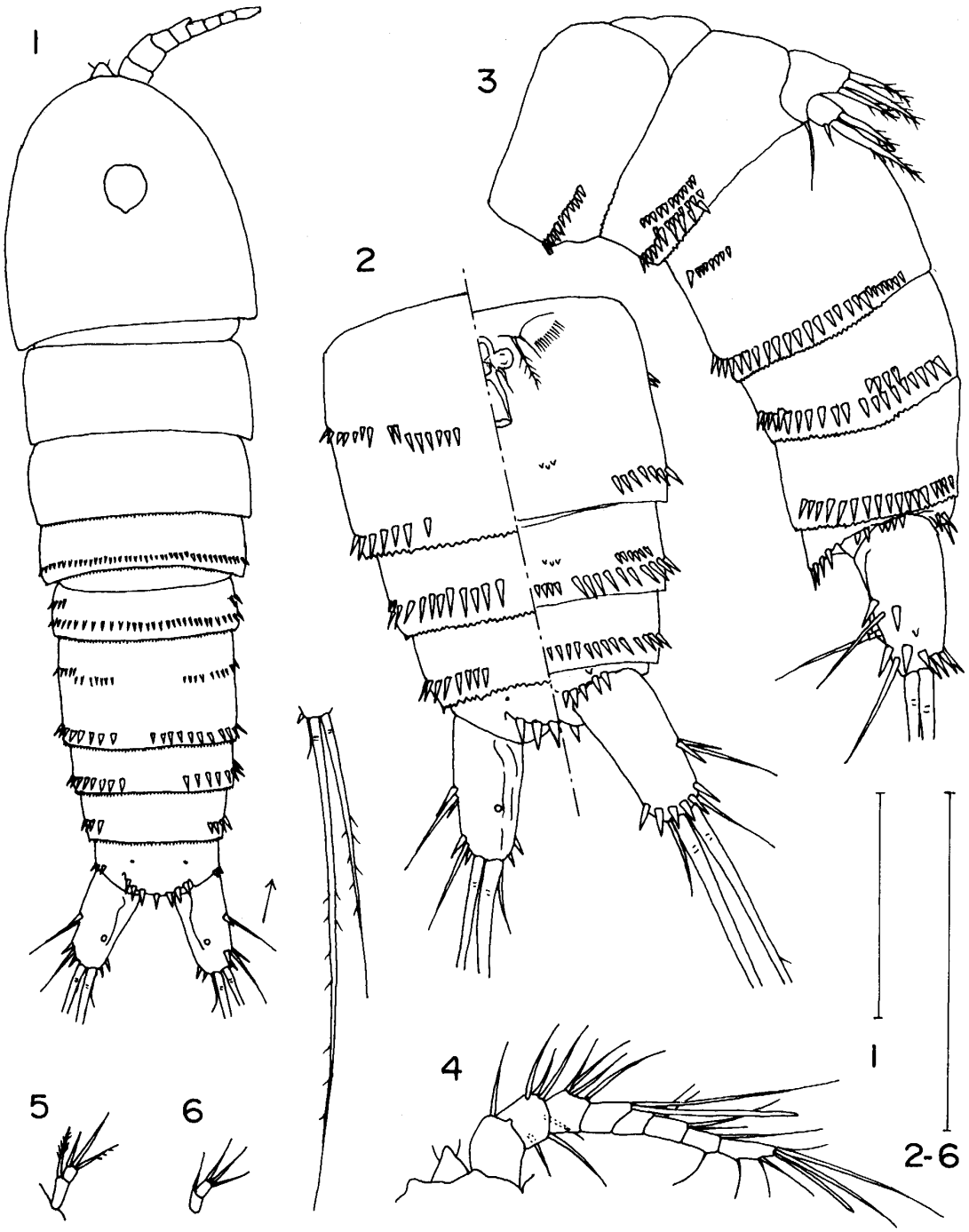
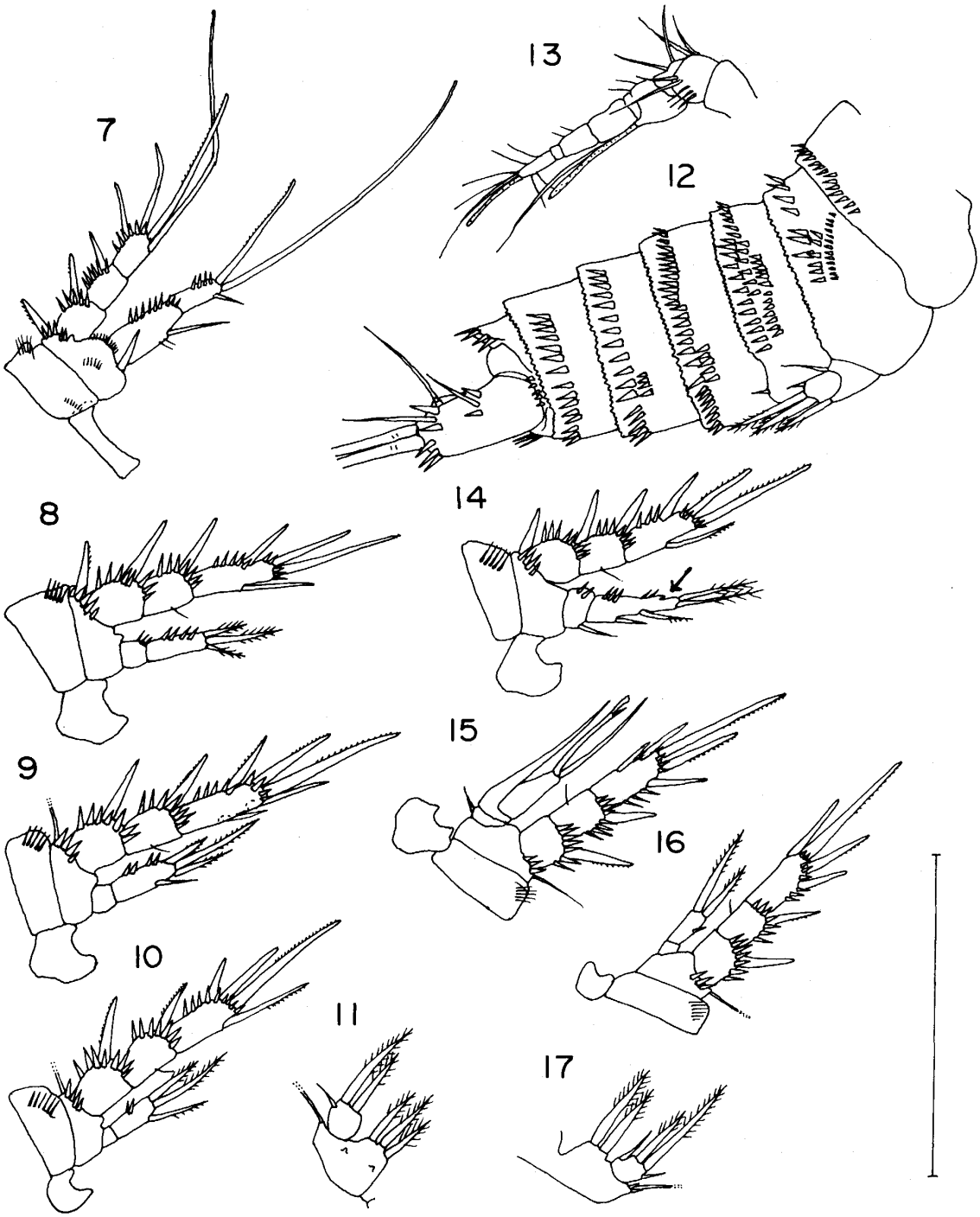


Figs. 1–6. *Gulcamptus jesoanus* n. sp., female, 1, paratype; 2–11, holotype. 1, Habitus, dorsal; 2, abdomen, dorsal/ventral; 3, 4th and 5th prosomites and abdomen, lateral; 4, antennule and rostrum; 5, exopodite of antenna; 6, palp of mandible. Scales =100 μm.

to each caudal ramus on ventral surface; and with spinule row on each posterolateral margin. Anal operculum convex, with 6 (7, 8 in two paratypes, respectively) large spinules (Figs. 1–3). Caudal rami (Figs. 1–3) slightly divergent, 2.2× longer than broad, each with dorsal keel on anterior 2/3 with dorsally directed seta near end.



Figs. 7–17. *Gulcamptus jesoanus* n. sp., female. 7, Leg 1 and coupler; 8, leg 2 and coupler; 9, leg 3 and coupler; 10, leg 4 and coupler; 11, leg 5. Male: 12, 4th and 5th prosomites and abdomen, lateral; 13, antennule; 14, leg 2 and coupler; 15, leg 3 and coupler; 16, leg 4 and coupler; 17, leg 5. Scale=100 μm.

Lateral surface of ramus with seta and 2 spinules inserted at midlength; seta and 2 spinules also at distolateral corner. Outer terminal seta subequal to length of urosome except caudal rami; inner terminal seta very fine. half length of ramus.

Middle terminal seta about 1/2 length of body. Terminal setae with extremely sparse setules.

Rostrum (Fig. 1) short, subtriangular, with two sensilla. Antennule (Fig. 4) of eight articles, article 4 with long broad esthetasc reaching past end of antennule, article 8 with shorter slender esthetasc. Exopodite of antenna (Fig. 5) biarticulate, proximal and distal articles with one and three setae respectively. Mandibular palp (Fig. 6) biarticulate, proximal and distal articles with one and three setae respectively. Remaining mouth parts not examined.

Legs 1–4 (Figs. 7–10) each with triarticulate exopodite; endopodites of legs 1–4 each biarticulate. Formula for major armament as follows:

Leg 1	basis 1–1	exp 0–1; 0–1; 0, 2, 2
		enp 1–0; 1, 2, 0
Leg 2	basis 0–1	exp 0–1; 0–1; 1, 1, 2
		enp 0–0; 0, 2, 1
Leg 3	basis 0–1	exp 0–1; 0–1; 2, 1, 2
		enp 0–0; 1, 2, 1
Leg 4	basis 0–1	0–1; 0–1; 1, 1, 2
		enp 0–0; 1, 2, 0

Outer distal setae of legs 2–4 stout, almost spiniform, but inner distal setae of these absent. Legs 2–4 exopodite 2 each with medial hairlike spinule. Couplers of all legs without ornament.

Leg 5 (Fig. 11), medial expansion of basoendopodite reaching 1/2 length of exopodite. Basoendopodite with 3 short stout setae. Exopodite with 2 distal stout setae and one slender outer seta.

No variation was observed between the three dissected specimens, except in the number of spinules on the anal operculum.

Male: Range of lengths of 7 paratypes 0.32–0.37 mm. Body form similar to female. Ornamentation of fourth and fifth thoracic and urosomal somites except 1st and 2nd ones as in female; 1st urosomite with 1 row of spinules on posterodorsolateral margin and two rows of spinules on lateral surface; 2nd urosomite, posterior margin with continuous row of spinules, and each lateral surface with row of about 4 spinules (Fig. 12). Caudal ramus same as that of female (Fig. 12). Middle caudal seta about 3/4 length of body. Antennule of 8 articles, geniculate, with esthetascs on articles 4 and 8 (Fig. 13).

Leg 1 and legs 2–4 exopodites as in female (Figs. 14–16); leg 2 endopodite (Fig. 14), article 1 with inner seta, article 2 with 2 inner and 2 terminal setae, marked groove near distal end of outer margin (indicated by arrow in Fig. 14); leg 3 endopodite as in Fig. 15, inner terminal seta with diagonal blunt tip and tiny subterminal setule; leg 4 endopodite (Fig. 16), distal article differing from that of female by bare inner margin; leg 5 (Fig. 17), basal expansion with 2 stout setae, exopodite with 1 inner bare seta, 2 distal stout setae and 1 slender outer seta.

Etymology. For the specific epithet we propose the classical name of Hokkaido, where the species seems to be endemic.

Geographical distribution. At present, the species was collected only from 4 localities; Shikotsu, Taisei, Kunnui, and Iwanai (Fig. 18). The distribution range of this species seems to be restricted to the west of the Ishikari Depression. Because extensive sampling has not been carried out on the Oshima Peninsula, its occurrence there may be possible.

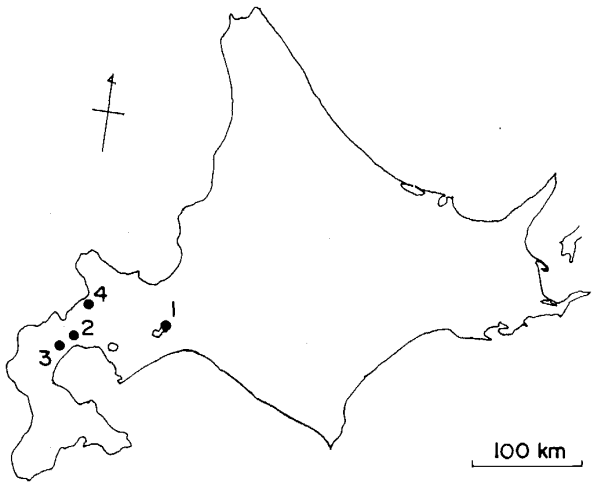


Fig. 18. Map of Hokkaido showing the sampling sites of the specimens. 1, Shikotsu-kohan; 2, Taisei; 3, Kunnui, 4. Iwanai.

Range of habitats. *Gulcamptus jesoanus* inhabits wetlands and small streams in mountainous regions. The species was highly abundant in the moss in the stream of the type locality. Occurrence on the moistened moss clumps on the shore of stream suggests that the species is also semi-terrestrial. Further observation may be needed.

Variation. Some specimens collected from Taisei and Kunnui are armed with a inner seta on the endopodite article 1 of leg 2.

Affinities. This species is similar to *Gulcamptus uenoi* MIURA, 1969, in the structure of the exopodite of antenna and mandibular palp, and the armament of legs 1–5 with a few differences. The main differences are the absent inner terminal setae of the leg 2–4 exopodites (versus incompletely degenerated remnant ones in *G. uenoi*), the normal terminal setae of male leg 2 endopodite (versus basally fused [unarticulated] terminal seta, MIURA, 1969, Fig. 41), the peculiar inner terminal seta on the distal article of male leg 3 endopodite (versus normal one), and rows of relatively large spinules on the somites (versus smaller spinules). The species is also close to *Neomaraenobiotus laurentiacus* FLÖSSNER, 1992, and *Maraenobiotus brucei* (RICHARD, 1898). However, *N. laurentiacus* differs from *Gulcamptus* species in having uniarticulate exopodite of the antenna and mandibular palp, and *M. brucei* in having biarticulate exopodite of the leg 1.

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摘　　要

石田昭夫（北海道余市町）・菊地義昭（茨城大学潮来臨湖実験所）——北海道から得られたソコミジンコ（甲殻類）の新種 *Gulcamptus jesoanus*.

北海道に分布するソコミジンコ（甲殻類）の1種 *Gulcamptus jesoanus* を記載した．本種は著者（石田）により *Gulcamptus* sp. S として記録されている．本新種は韓国から新属新種として記載された *Gulcamptus uenoi* につぎ，本属の2番目の種である．

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