

# One New Species of Freshwater *Jesogammarus* (Crustacea, Amphipoda, Anisogammaridae) from South Korea

Kyung Sook Lee and In Soon Seo

Department of Biology, College of Natural Sciences, Dankook University, Ch'ungnam 330-714, Korea

The anisogammaridean specimens were collected in a swamp near the lake in Kangnŏng, Kang-won-do province in South Korea in June 1986 and November 1990. The examined specimens were identified as a new species belongs to *Jesogammarus* (*Jesogammarus*). It was fully described and illustrated under the name of *Jesogammarus* (*Jesogammarus*) *ilhoii*.

**KEY WORDS:** New species, Anisogammaridae, *Jesogammarus*, Korea

All known North Pacific gammaroidean genera and species have been assigned to 4 families, of which the family Gammaridae is holarctic and the Anisogammaridae is endemic to the North Pacific rim region (Bousfield, 1977, 1979). Bousfield (1979) revised three genera and newly described seven genera within the family Anisogammaridae. Also he has produced extensive new generic concepts within the family (Bousfield, 1979). As a consequence of studying Japanese anisogammarids, Morino (1985) ranked genus *Annanogammarus* Bousfield as a subgenus of *Jesogammarus*.

There has been few taxonomic studies of the Korean anisogammarids except Uéno (1940) and Lee & Seo (1990). Lee and Seo (1990) reported one new species [*J. (A.) koreaensis*] based on the specimens collected from various sites in South Korea.

We collected some anisogammarids specimens in a swamp near the lake in Kangnŏng and identified them as a new species which belongs to *Jesogammarus* (*Jesogammarus*). All the observed appendages of specimens were mounted on glass slides with polyvinyl lactophenol. Figures were drawn by a drawing attachment. The classification system in this study was based on those of Morino (1984, 1985, 1986) and Bousfield (1979). All the examined specimens are deposited in Department of Biology, Dankook University.

**Order Amphipoda** Latreille, 1816

**Family Anisogammaridae** Bousfield, 1977

***Jesogammarus* (*Jesogammarus*) *ilhoii* n. sp.**

(Figs. 1, 2)

**Material examined:** holotype: ♂ (DJIH 0001), Kangnŏng (body length: 13.2 mm), Nov. 1990 (I. H. Kim and I. S. Seo). allotype: ♀ (DJIA 0002), collection data same as holotype. paratypes: 9♂♂, 18♀♀ (DJIP 0003), collection data same as holotype: 1♀ (DJIP 0004), Kangnŏng, 22 Jun. 1986 (I. H. Kim).

**Diagnosis:** Mandibular palp segment 2 without groups of spines proximo-submarginally. Pleonites 2 and 3 with many marginal and submarginal spines.

**Description of male (holotype):** Eyes medium, subreniform. Antenna 1 (Fig. 2A) longer than antenna 2; peduncular segment 1 with a posterodistal spine; peduncular segment 2 shorter than peduncular segment 1 and with two bundles of short setae on each of the anterior margin and interior margin; accessory flagellum with six segments; flagellum with 32 segments. Antenna 2 (Fig. 2B), peduncular segments 4 and 5 subequal in length; peduncular segment 4 with four bundles of setae on each of anterior, interior and posterior margins; peduncular segment 5 with four bundles

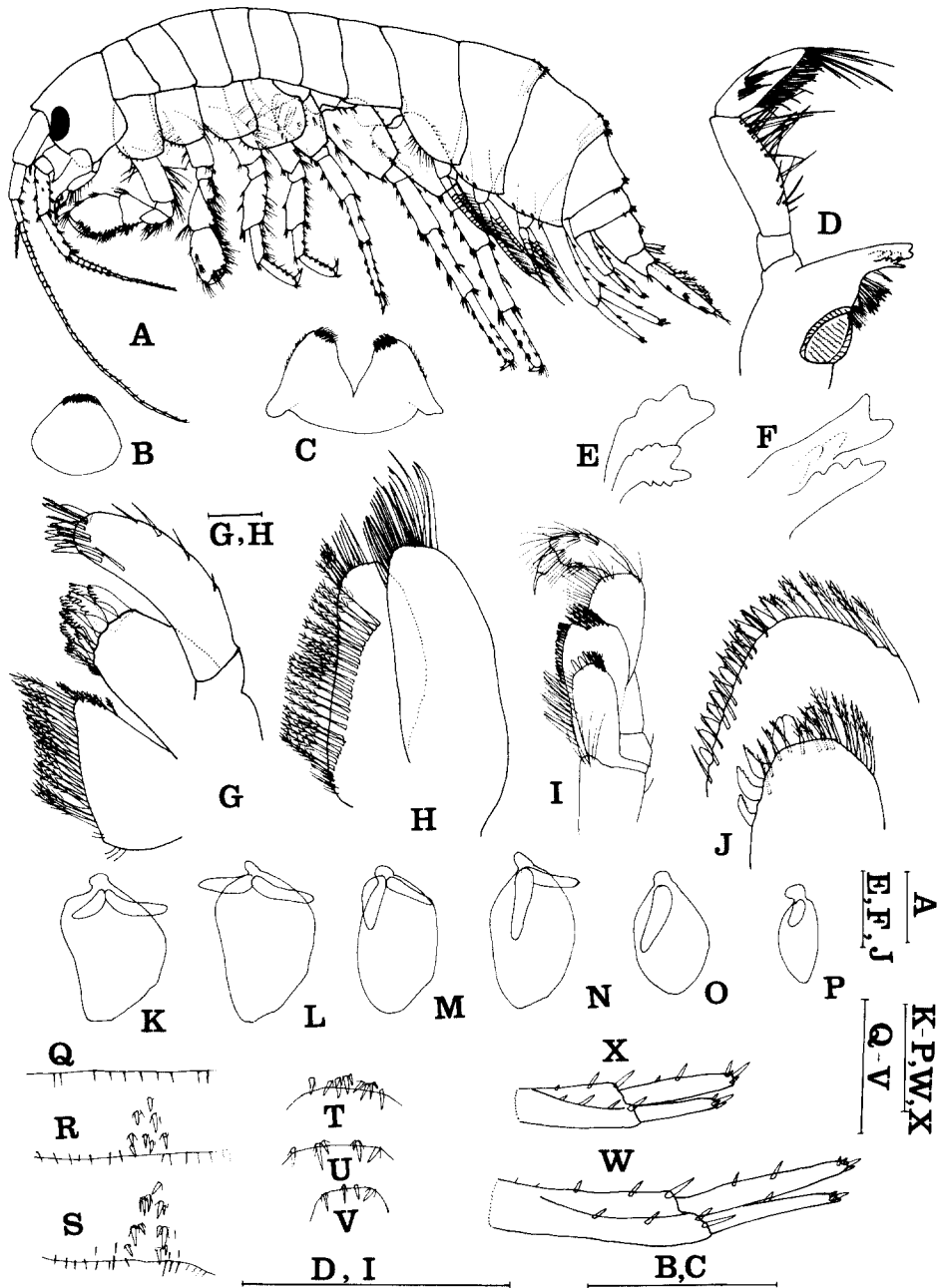


Fig. 1. *Jesogammarus (Jesogammarus) ilhoii* n.sp. A, paratype male; B-X, holotype male: B, upper lip; C, lower lip; D, left mandible; E, incisor and lacinia mobilis of right mandible; F, incisor and lacinia mobilis of left mandible; G, maxilla 1; H, maxilla 2; I, maxilliped; J, maxilliped, inner and outer plates; K, right coxal gill 3; L, right coxal gill 4; M, right coxal gill 5; N, right coxal gill 6; O, right coxal gill 7; P, right coxal gill 7; Q-S; dorsal view of dorsodistal part of pleon; Q, pleonite 1; R, pleonite 2; S, pleonite 3; T-V; dorsal view of dorsodistal part of urosome; T, urosomite 1; U, urosomite 2; V, urosomite 3; W, right uropod 1; X, right uropod 2. Scale bars: E-H, J = 0.1 mm; A-D, I, K-X = 1 mm.

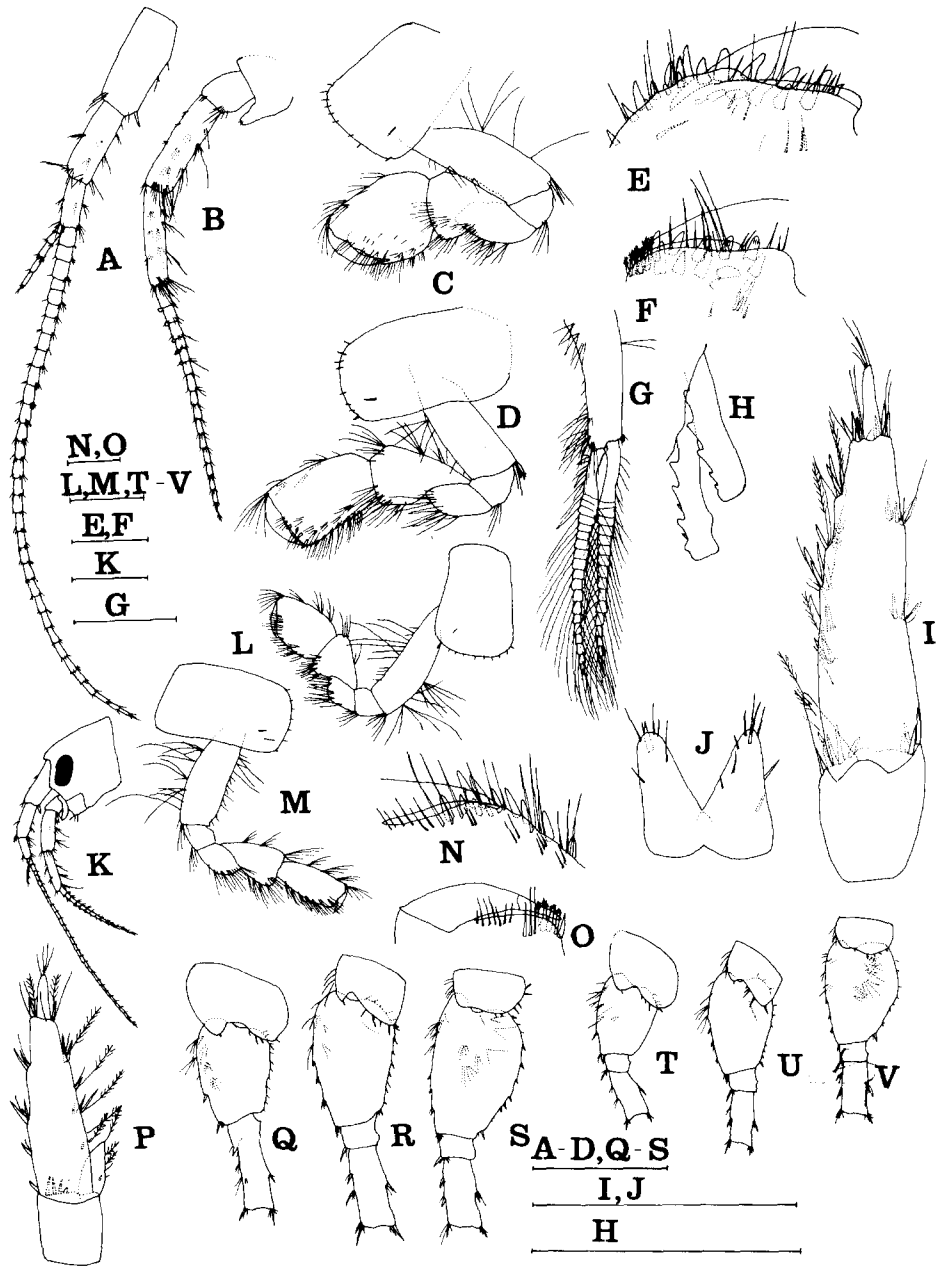


Fig. 2. *Jesogammarus (Jesogammarus) ilhoii* n.sp. A-J, Q-S, holotype male: A, antenna 1; B, antenna 2; C, gnathopod 1; D, gnathopod 2; E, gnathopod 1, palmar margin of propod; F, gnathopod 2, palmar margin of propod; G, pleopod 1; H, coupling spines of right pleopod 1; I, uropod 3; J, telson. K-P, T-V, allotype female: K, left head part; L, gnathopod 1; M, gnathopod 2; N, gnathopod 1, palmar margin of propod; O, gnathopod 2, palmar margin of propod; P, uropod 3; Q, pereopod 5; R, pereopod 6; S, pereopod 7; T, pereopod 5; U, pereopod 6; V, pereopod 7 (all right appendages, except I, J, P). Scale bars: H, N, O = 0.1 mm, A-G, I-M, P-V = 1 mm.

of setae on each of anterior, interior and posterior margins; flagellum with 16 segments and proximal segments with weak developed cup-calceoli. Maxilla 1 (Fig. 1G), inner plate with 19 plumose setae on medial margin and outer plate distally with 11 pectinate spines; palp segment 2 distally with four setae and apical seven spines. Maxilla 2 (Fig. 1H), inner plate with 24 facial plumose setae. Maxilliped (Figs. 1I, J), inner plate shorter than outer plate in length, with apical three simple spines and with distal three serrate spines; outer plate marginally with three simple spines and 11 serrate spines. Mandible (Fig. 1D), palp segment 1 unarmed; segment 2 with 5 marginal long setae and 14 disto-submarginal setae; palp segment 3 subequal to segment 2 in length, with two groups of setae on outer face. Gnathopod 1 (Figs. 2C, E), coxa with nine setules on lower margin, inner face with one spinule; propod palmar margin lined with 11 inner and eight outer striated spines. Gnathopod 2 (Figs. 2D, F), coxa with eight setules on lower margin, inner face with one spinule; propod palmar margin lined with six inner and five outer striated spines and proximal three pairs of pectinate spine. Pereopod 3, coxa posterior margin without setae, posterodistal corner with one spinule and two setules and anterodistal margin with five setules. Pereopod 4, coxa posterodistal margin with five spinules, anterodistal margin with four setules. Pereopod 5 (Fig. 2Q), coxa anterior lobe with one spinule, posterior lobe with lower marginal five spinules; basis anterior margin with two bundles of setae and three spines, posterior margin with 11 spinules and inner face with three bundles of setae. Pereopod 6 (Fig. 2R), coxa anterior margin with four long marginal setae, coxa anterior lobe with one spinule, coxa posterior margin with five spinules; basis inner face with two bundles of setae, posterior margin with 13 spinules and posterodistal corner with one spine and anterior margin with two bundles of setae and two groups of spines and two spines. Pereopod 7 (Fig. 2S), coxa anterior margin with four long setae, coxa with six posteromarginal spinules; basis inner face with six bundles of setae and posterior margin with six spinules and seven spines. Coxal gills 2-5 (Figs. 1K-N) longer than bases of pereopods 2-5, respectively. Gill 6 (Fig. 1O) longer than 1/2 of the basis of pereopod 6.

Gill 7 (Fig. 1P) as long as 1/2 of basis of pereopod 7. Accessory lobes of gills 2-5 subequal in length. Accessory lobes of gills 2-4 shorter than 1/2 of main lobes, accessory lobe of gill 5 as long as 1/2 of main lobe and accessory lobe of gill 6 longer than 1/2 main lobe. Epimeral plate 1 anteriorly with 13 long setae; plates 2 and 3 distinctly pointed posterodistally, plates 2 and 3 anterior — submarginally with three spines. Pleonite 1 (Fig. 1Q), posterodorsally with 10 marginal setae. Pleonite 2 (Fig. 1R), posterodorsally with eight submarginal spines (three rows bearing following formula: {1, 2, 5}) and 14 marginal setae. Pleonite 3 (Fig. 1S), posterodorsally with 12 submarginal spines (four rows bearing following formula: {1, 4, 4, 3} and 15 marginal setae. Urosomites 1 and 2 (Figs. 1T, U), posterodorsally with four groups of spines bearing following formula: {(1, 4, 4, 1), (1, 2, 2, 1)}. Urosomite 3 (Fig. 1V), posterodorsally with four spines. Pleopod 2, posteromarginally with seven bundles of setae, eight facial bundles of setae, outer ramus with 21 segments and inner ramus with 17 segments. Pleopod 3, posteromarginally with six bundles of setae, five facial bundles of setae, outer ramus with 20 segments and inner ramus with 18 segments. Uropod 1 (Fig. 1W), rami shorter than peduncle, outer ramus with one inner marginal spine, inner ramus with two inner marginal spines. Uropod 2 (Fig. 1X), outer ramus marginally bare, inner ramus with two inner marginal spines. Uropod 3 (Fig. 2I), inner ramus as long as 1/4 of outer ramus, outer margin with one spine, two plumose setae and two simple setae; outer ramus foliaceous, outer margin with three groups of spines, inner margin with five groups of spines and four plumose setae, terminal segment distinct. Telson (Fig. 2J), as long as basal width each lobe, with one apical spine and distolateral setae.

**Description of female (allotype):** Smaller than male. Antenna 1 (Fig. 2K) longer than antenna 2; peduncular segment 1 with posterodistal spine. Antenna 2, peduncular segments 4 and 5 with three bundles of long setae on anterior margin. Flagellum proximal segments without cup-calceoli. Propods of gnathopods 1 and 2 smaller than those of male; gnathopod 1 (Figs. 2L, N), coxa posterior margin without setae, lower margin with 10 setae, inner face with one seta, palmar

margin of propod with seven inner and four outer simple spines. Gnathopod 2 (Figs. 2M, O), coxa posterior margin without setae, lower margin with seven setae, inner face with two setae, palmar margin of propod with five pectinate spines. Gills 2-5 longer than the bases of pereopods 2-5, respectively. Gills 6-7 longer than 1/2 of the bases of pereopods 6, 7, respectively. Uropod 3 (Fig. 2P), smaller than that of male; inner margin of outer ramus with three groups of spines and six plumose setae and outer margin with three groups of spines; inner ramus as long as 1/3 of outer ramus, outer margin with one spine and four plumose setae.

**Remark:** The present new species is closely related to *Jesogammarus (Jesogammarus) jesoensis* Schellenberg, 1937 in antennae 1, 2, accessory lobes of coxal gills and pereopods 5-7. But, the present new species is distinguished from *J. (J.) jesoensis* by following characteristics: (1) Pleonites 2 and 3 of this new species have many spines (20), whereas those of *J. (J.) jesoensis* have a few spines (10). (2) Proximo-submargin of segment 2 of mandibular palp in this new species has not spines, whereas that part in *J. (J.) jesoensis* has spines. (3) Some spines of palmar margin of gnathopod 2 of male in this new species is pectinated, whereas all spines of that part in *J. (J.) jesoensis* is naked.

The present new species is easily distinguished from *J. (J.) hokurikuensis* Morino, 1985 in the following characteristics: (1) Outer ramus of uropod 2 in *J. (J.) hokurikuensis* has marginal spine, whereas that part in this new species has not spine: (2) Pleonites 2 and 3 in this new species have many spines (20), whereas those *J. (J.) hokurikuensis* have a few spines (7). The present new species is easily distinguished from *J. (J.) spinopalpus* Morino, 1985 in the following characteristics: (1) Pleonites 2 and 3 in this new species have spines, whereas those parts in *J. (J.) spinopalpus* have not spines. (2) Dorsodistal parts of urosomites 1 and 2 in *J. (J.) spinopalpus* have singly inserted spines, whereas those in this new

species have groups of spines. (3) Outer ramus of uropod 3 in *J. (J.) spinopalpus* is slender, whereas that of this new species is foliaceous. The present new species is easily distinguished from *J. (J.) paucisetulosus* Morino, 1984 in the following characteristics: (1) Peduncular segments of antenna 2 in *J. (J.) paucisetulosus* have many bundles of long setae posteromarginally, whereas those parts in this new species have a few bundles of setae. (2) Outer ramus of uropod 3 in *J. (J.) paucisetulosus* is slender, whereas that of this new species is foliaceous.

**Etymology:** The specific name is from Dr. Il Hoi Kim of Department of Biology, Kangnung University who donated the present specimens to us.

## References

- Bousfield, E. L., 1977. A new look at the systematics of gammaroidean amphipods of the world. *Crustaceana Suppl.* 4: 282-316.
- Bousfield, E. L., 1979. The Amphipod superfamily Gammaroidea in the northeastern Pacific region: systematics and distributional ecology. *Bull. Biol. Soc. WASH.* 3: 297-357.
- Lee, K. S. and I. S. Seo, 1990. One new species of freshwater *Jesogammarus* (Crustacea, Amphipoda, Anisogammaridae) from South Korea. *Korean J. Syst. Zool.* 6: 251-260.
- Morino, H., 1984. On a new freshwater species of Anisogammaridae (Gammaroidea: Amphipoda) from central Japan. *Publ. Itako Hydrobiol. Stn.* 1: 17-23.
- Morino, H., 1985. Revisional studies on *Jesogammarus-Annogammarus* group (Amphipoda: Gammaroidea) with description of four new species from Japan. *Publ. Itako Hydrobiol. Stn.* 2: 9-55.
- Morino, H., 1986. A new species of subgenus *Annogammarus* (Amphipoda: Anisogammaridae) from Lake Suwa, Japan. *Publ. Itako Hydrobiol. Stn.* 3: 1-11.
- Uéno, M., 1940. Some freshwater amphipods from Manchoukuo, Corea and Japan. *Bull. Biogeogr. Soc. Japan* 10: 63-85.

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한국 담수산 *Jesogammarus*(Crustacea, Amphipoda, Anisogammaridae)의 1신종  
이경숙 · 서인순(단국대학교 자연과학대학 생물학과)

1986년 6월과 1990년 11월에 강원도 강릉에서 담수산 옆새우류를 채집하여 관찰한 결과 *Jesogammarus (Jesogammarus)*의 1신종임이 확인되어 *Jesogammarus ilhoii*라고 명명하고 기재한다.