

**Littoral Isopod Crustaceans deposited at the
Toyama Science Museum***

Noboru Nunomura
Toyama Science Museum

富山市科学文化センター収蔵の北海道沿岸産等脚目甲殻類

布村 昇
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筆者は北海道沿岸の等脚目（甲殻類）について三度、採集旅行を行った。また、北海道大学の干川裕氏（現、北海道水産試験場）および石丸信一氏（現、石川県立鹿西高等学校）、北海道大学中尾繁氏、北海道網走水産試験場の丸山秀佳氏、北海道中央水産試験場長沢和也氏ならびに花村幸生氏らの寄贈標本を中心に相当数集積された。これらを調査したところ、ヘラムシ科、ワラジヘラムシ属 *Synidotea* の2が新種と判明し、それぞれ、*Synidotea ishimarui* ならびに *Synidotea ezoensis* と命名したほか、本邦初記録が2種あった。また種名決定にはいたらなかったが、未記載と思われる2種についても報告し、全部で26種を記録した。なお、内訳はウミナナフシ亜目1種、ヘラムシ亜目9種、ミズムシ亜目1種、有扇亜目11種、ハマダングムシ亜目1種、ワラジムシ亜目3種であった。

**Suborder Anthuridea
Family Paranthuridae**

***Paranthura japonica* RICHARDSON, 1909**

(Jap. name: Yamato-uminanafushi)

Material examined : 1 ex, Oshoro, Otaru City, coll. Tatsunori Ito, July 4 1975; 4 exs, Lake Notoroko, coll. Shigeru Nakao, June 1972; 3 exs, Ebisuiwa, Oshoro Bay, Otaru City, coll. Shin-ichi Ishimaru, June 14, 1982 ; 1ex, Notoro-misaki, Abashiri City, coll. Shin-ichi Ishimaru, May 21 1983; 3 exs, Oshoro, Otaru City, coll. Hiroshi Hoshikawa, Apr.23, 1984; 5 exs, Oshoro, Otaru City, coll. Noboru Nunomura, July 16, 1982; 3 exs, Akkeshi Bay, coll. Noboru Nunomura, July 13, 1982; 3 exs, Usu Bay, 15m in depth, *Zostera* zone, sandy bottom, coll. Shigeru Nakao, June, 1976.

**Suborder Valvifera
Family Idoteidae**

***Idotea ochotensis* BRANDT, 1856**

(Jap. name: Ohotsuku-heramushi)

Material examined : 1 ex, Oshoro, Otaru City, coll. Hiroshi Hoshikawa, Apr.22, 1982; 22

*Contributions from the Toyama Science Museum, No. 97

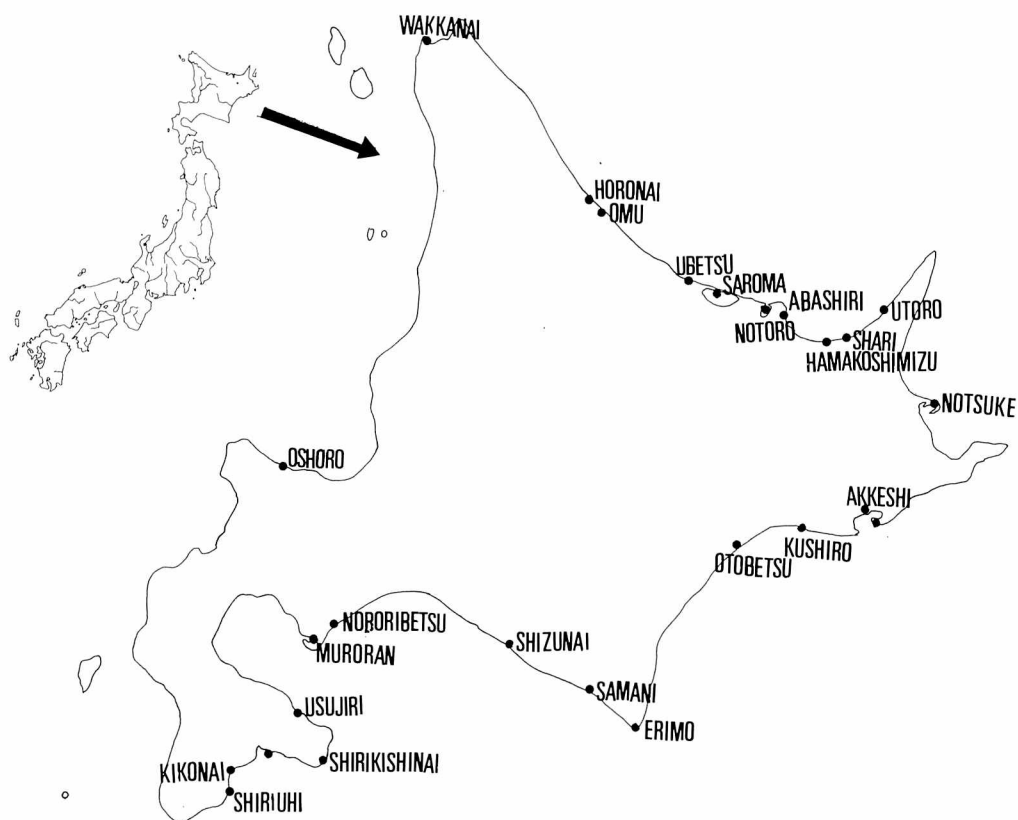


Fig.1 Map showing the main collection points.

exs, Sakanoshita, Wakkanai City, coll. Noboru Nunomura, July 27, 1984; 3 exs,

Noshappu, Wakkanai City, coll. Noboru Nunomura, July 27, 1984; 4 exs, Nishi-wakkanai harbour, Wakkanai City, coll. Noboru Nunomura, July 27, 1984; 15 exs, Hama-koshimizu, coll. Noboru Nunomura, July 22, 1982; 2 exs, Noto misaki, Abashiri City, coll. Shin-ichi Ishimaru, May 21, 1983; 3 exs, off Abashiri, coll. Wataru Nunomura, May 3, 1980; 1 ex, Noto, Abashiri City, coll. Hiroshi Hoshikawa, May 21, 1983; 1 ex, Utoro, Shari-cho, Shin-ichi, Ishimaru, June 3, 1984; 1 ex, Daikoku-jima, Akkeshi-cho, coll. Shin-ichi Ishimaru, May 16, 1983; 13 exs, Daikokujima, Akkeshi-cho, coll. Hiroshi Hoshikawa, May 16, 1983; 7 exs, Daikokujima, Akkeshi-cho, coll. Tatsunori Ito, July 12, 1975; 1 ex, Akkeshi, Katsutoshi Ito, July 9, 1988; 12 exs, Aikappu, Akkeshi-cho, coll. Noboru Nunomura, July 14, 1982; 1 ex, Kushiro City, coll. Jun Ohnishi, May 21, 1985; 2 exs, Bentenjima, Kushiro City, Noboru Nunomura, July 25, 1984; 4 exs, Enrumu Misaki, coll. Shin-ichi Ishimaru, May 14, 1983; 1 ex, Cape Tomoe-misaki, Muroran City, Hiroshi Hoshikawa, May 29, 1983; 1 ex, Noboribetsu-cho, coll. Noboru Nunomura, Oct. 10, 1988; 3 exs, Usujiri, Minamikayabe-cho, coll. Wataru Nunomura, Nov. 3, 1979; 8 exs, Usujiri, Minamikayabe-cho, Wataru Nunomura, July 13, 1980;

8 exs, Usujiri, Minamikayabe-cho, coll. Shigeru Nakao, Aug. 1983; 8 exs, Shirikishinai-cho, coll. Shigeru Nakao, Aug. 26, 1976.

***Synidotea laevidorsalis* (MIERS, 1833)**

(Jap. name: Waraji-heramushi)

Material examined : 2exs, Hakodate Bay, coll. Shigeru Nakao, Apr. 6, 1984; 1 ex, Otaru City, Mouth of Oshoro Bay, mud flat, 15m in depth, coll. Shin-ichi Ishimaru, 1982.

***Synidotea ishimarui* n.sp.**

(Jap. name: Ishimaru-waraji-heramushi, new)

Figs.2-3

Material examined : 1♂ (holotype, 19.0 mm in body length) and 3♀♀ (allotype, 13.8 mm in body length and 2♀♀, paratypes 11.6~13.2 mm in body length), Utoro facing Okhotsuk Sea, Hokkaido, coll. Shin-ichi Ishimaru, June 30, 1984. Type series is deposited at the Toyama Science Museum: holotype:(TOYA Cr-10797), allotype(TOYA Cr-10780), 2 paratypes (TOYA Cr-10781~10782).

Description of male: Body 2.3 times as long as wide. Body reaches 19 mm in length in largest specimen. Color gray with brown patterns. Cephalon with a shallow medial concavity at the medial rostral point, and with a pair of projections at the anterolateral corners. Eyes large subcircular, each eye composed of about 70 ommatidia. Pleotelson with a small medial concavity of hind corner.

Antennula (Fig.3 A) composed of 4 segments, segment 1 stout; segment 2 rectangular; segment 3 longest, terminal segment a little shorter than the third, and with 17 aesthetascs.

Antenna(Fig.3 B) reaching peduncular segment 3. Peduncle five-segmented. Flagellum composed of 10 segments.

Mandible (Fig.2 B) with two-toothed incisor; lacinia mobilis two-headed molar process wide with many teeth.

Maxillula(Fig.2 C) with stout 2 plumose spines on exopod and endopod with about 9 stout spines.

Maxilla(Fig.2 D) trilobate, endopod heavily hairy, with 19~20 setae, inner lobe of exopod with 12 setae along distal margin; outer lobe of exopod with 12~14 setae.

Maxilliped(Fig.2 E) with numerous setae, although only a few on the lateral margin, and with a coupling hook.

Pereopod 1(Fig.2 F); basis rectangular; ischium triangular with more than 9~10 setae on inner margin with 7~8 setae on outer most tip; merus almost square with 9~10 setae; carpus short with 10 setae; propodus stout with 15~16 setae on basal half of inner margin; propodus long.

Pereopod 2(Fig. 2 G); basis rectangular; ischium triangular with 6~7 long setae on outerdistal margin; merus trapezoid with 7~8 setae on outer distal area; carpus rounded;

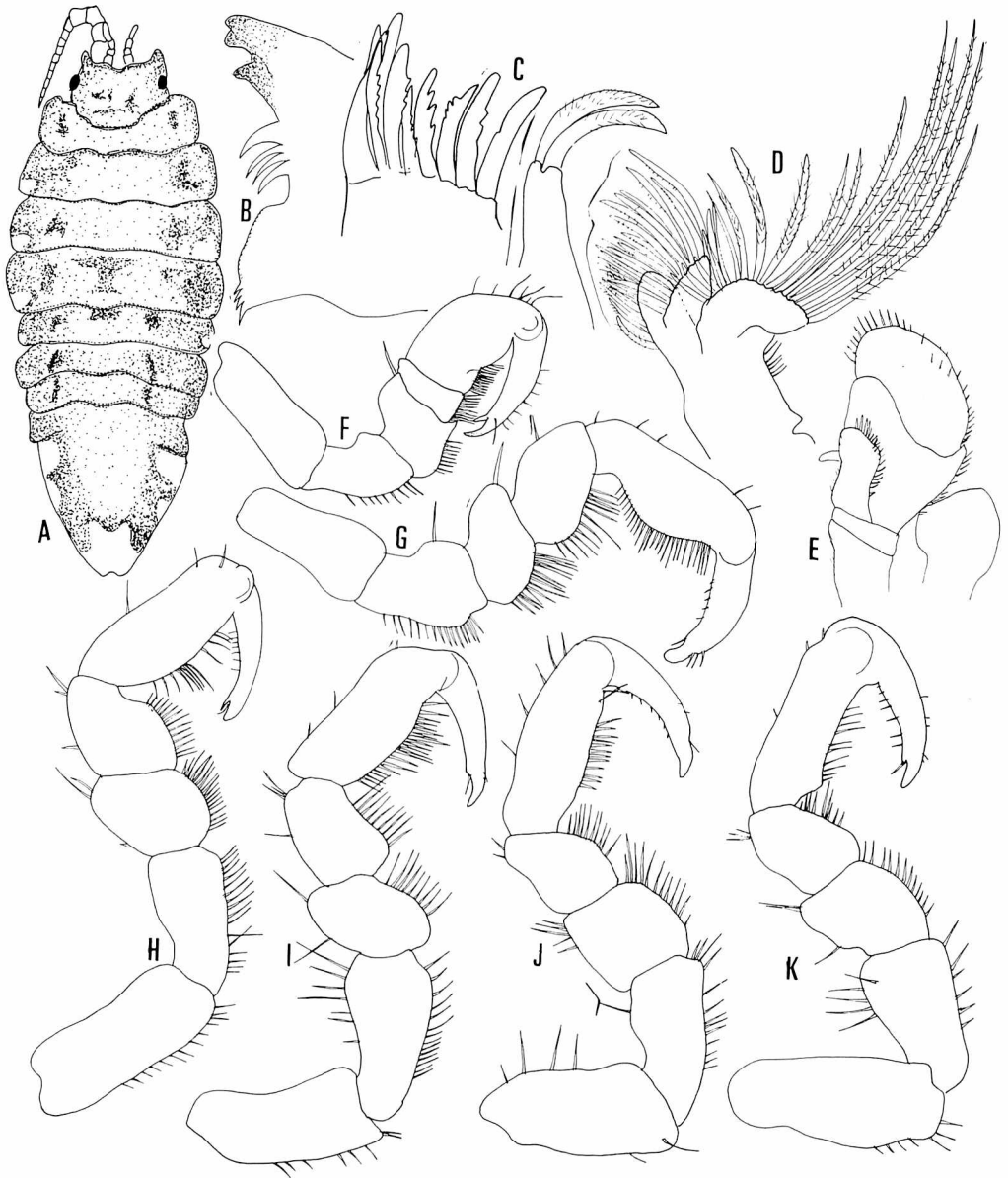


Fig.2 *Synidotea ishimarui* n.sp.

A. Dorsal view; B. Mandible; C. Maxillula; D. Maxilla; E. Maxilliped; F-J. Pereopods 1-5. K. Pereopod 7. (All: Holotype male).

propodus twice as long as carpus, with a swollen part on inner margin.

Pereopod 3(Fig.2 H); basis stout; ischium rectangular; merus rectangular with more than 20 setae on inner margin area; carpus almost square; propodus rather stout.

Pereopod 4(Fig.2 I); basis rectangular; ischium a little longer than basis; merus almost square; carpus square; propodus with many setae on inner margin.

Pereopod 5(Fig.2 J); basis rectangular; ischium as long as basis; merus almost square; carpus square; propodus rectangular.

Pereopod 6; basis oblong; ischium elongated triangular; merus rectangular with more than 10 setae on inner margin; carpus shorter than merus, with 12~13 setae on inner margin; propodus rectangular.

Pereopod 7(Fig. 2 K); basis wide with about 6~7 setae on outer margin ischium rectangular; merus and carpus almost square with about 12 setae on inner margin; propodus and rectangular.

Penes (Fig. 3 I) almost rectangular; distal margin rounded.

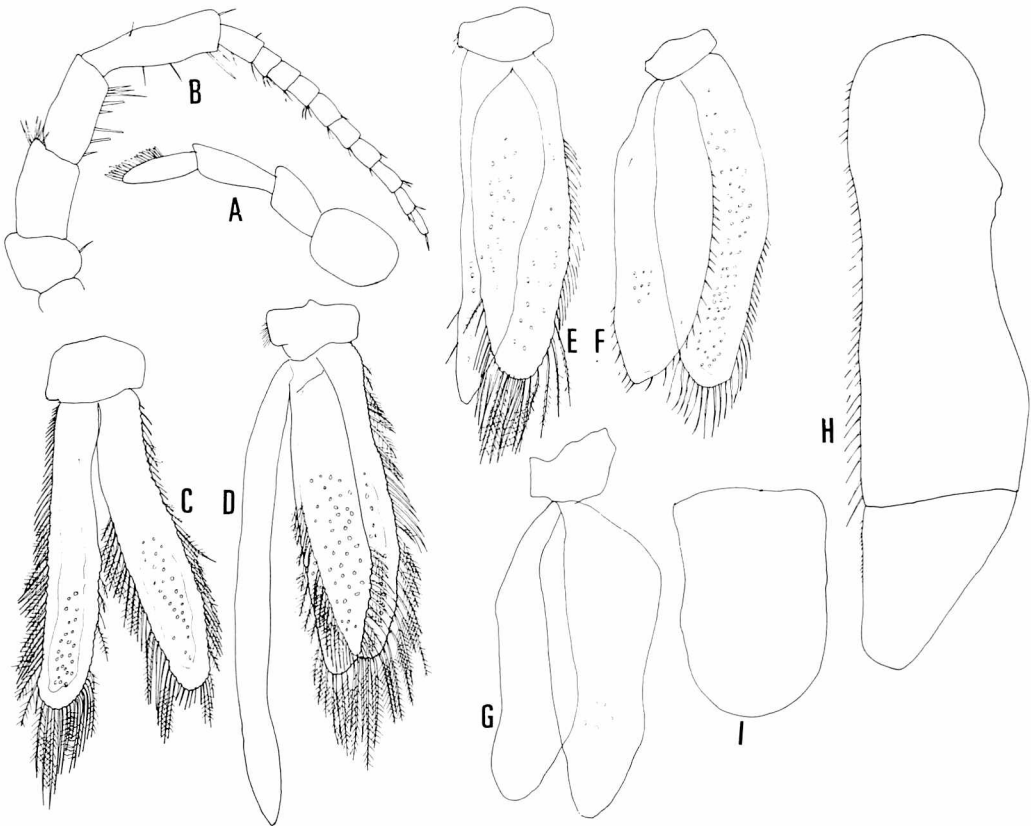


Fig.3 *Synidotea ishimarui* n. sp.

A. Antennula; B. Antenna; C-G. Pleopods 1~5, H. Uropods; I. Penes(All: Holotype male).

Pleopod 1 (Fig.3 C) both rami with many plumose setose around the margin and similar in size and shape.

Pleopod 2 (Fig.3 D) stylus elongated, exceeds far beyond both rami.

Pleopod 3 (Fig.3 E) exopod with setae; endopod without seta.

Pleopod 4 (Fig.3 F) similar to pleopod 3, but are narrower than those of pleopod 3.

Pleopod 5 (Fig.3 G) shorter than pleopod 3; both rami without seta.

Uropod (Fig.3 H); basis rectangular; terminal segment trapezoid in shape.

Description of female: Almost as the male, but differs other than in the sexual characters.

Remarks: The present new species is most closely allied to *Synidotea lata* Gurjanova but the former is separated from the latter in the following features: (1) straight stylus on male second pleopod, (2) more numerous aesthetascs on first antenna and (3) less numerous segments of second antenna, and (4) stouter segments of pereopods.

***Synidotea ezoensis* n.sp.**

(Jap. name: Ezo-waraji-heramushi, new)

Figs. 4-5

Material examined : 16♂♂ (1♂ holotype, 15.0 mm in body length and 15 ♂♂ paratypes, 13.2~15.2 mm in body length): off 60 m of Horonai, Okhotsuk Sea, coll. Shuka Maruyama, Aug. 18, 1982; 2♂♂, off Akkeshi. Holotype (TOYA Cr-10801), 15 paratypes (TOYA Cr-9377~9388, 10802~10804) deposited at the Toyama Science Museum (TOYA Cr-10802~10804).

Description of male : Body about 2.4 times as long as wide. Body reaches 15.2 mm in length in largest specimen. Color gray with brown patterns. Cephalon with a minute medial triangular concavity at the medial rostral point and with a pair of acute projections at the anterolateral corners. Eyes large subcircular, each eye composed of about 260 ommatidia. Pleotelson with semicircular concavity at the middle area of hind corner.

Antennula (Fig.4 B) composed of 4 segments, segment 3 longest, terminal segment a little shorter than the pereopod 3 with 7 aesthetascs.

Antenna (Fig.4 C) reaching peduncular segments 3 longest, equal in length. Flagellum composed of 14 segments.

Mandible (Fig.4 D) with 4-headed incisor; molar process wide; lacinia mobilis with 5 teeth and a complex seta.

Maxillula (Fig.4 E) with 11 stout plumose spines on endopod gnathal surface; exopod with about 5 stout spines.

Maxilla (Fig.4 F) trilobate; endopod heavily setose, with 20 inner setae; inner lobe of exopod with 5 setae and outer lobe with 12 setae.

Maxilliped (Fig.4 G); palp with numerous setae; endite with a coupling hook.

Pereopod 1 (Fig.4 H); basis rectangular with a seta on outer margin; ischium triangular, merus and carpus short; propodus stout with more than 15 setae on inner margin.

Pereopod 2 (Fig.4 I); basis oblong; ischium triangular with 20 long setae on inner margin;

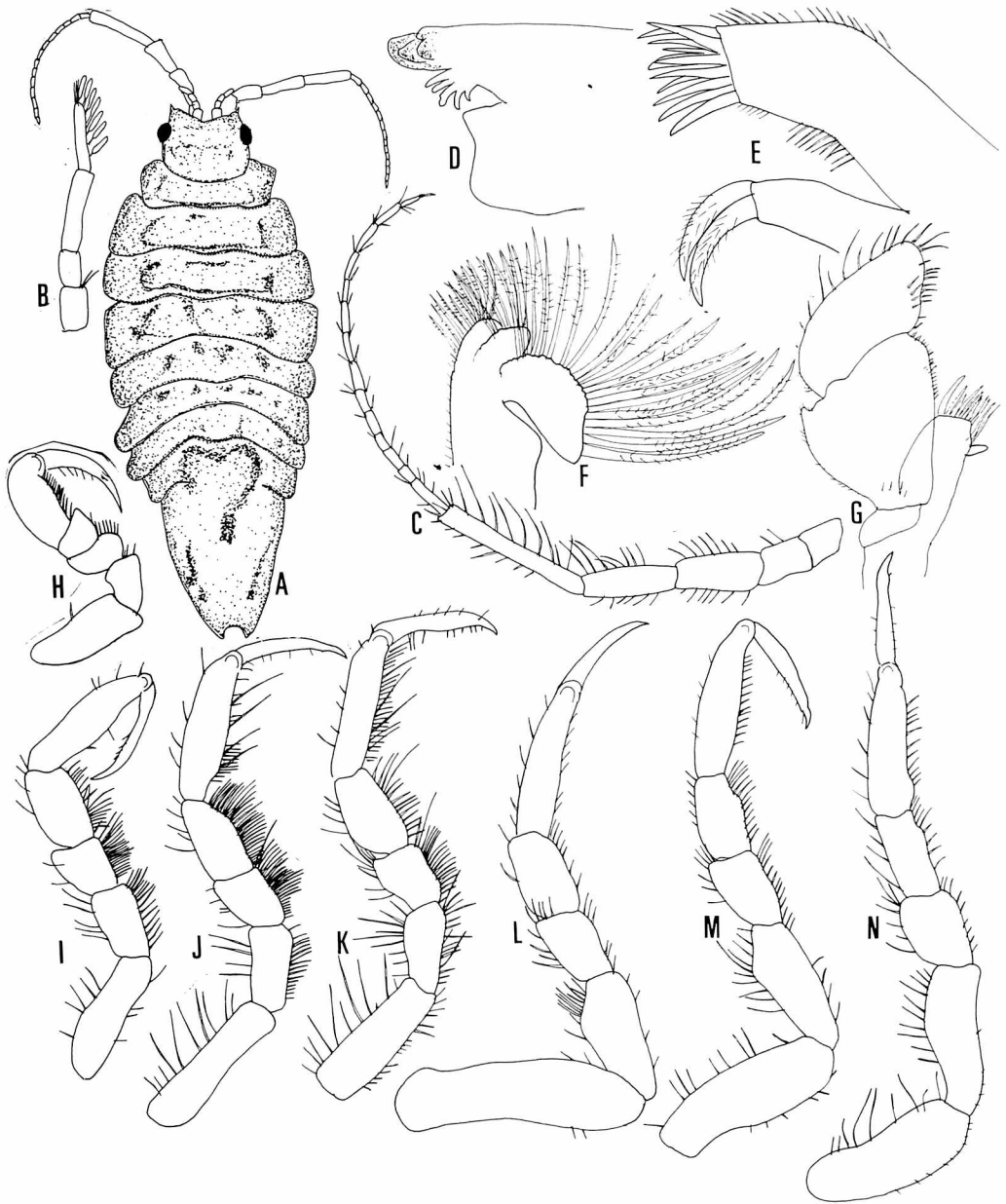


Fig.4 *Synidotea ezoensis* n. sp.

A. Dorsal view; B. Antennula; C. Antenna; D. Mandible; E. Maxillula; F. Maxilla G. Maxilliped; H-N. Pereopods 1~7 (All. Holotype male).

merus trapezoid with more than 28 setae on inter margin; carpus rectangular with more than 20 setae on inner margin; propodus rectangular with a few setae.

Pereopod 3 (Fig.4 J); basis oblong; ischium rectangular; merus and carpus rectangular with many setae on inner margin; propodus long.

Pereopod 4 (Fig.4 K); basis rectangular; ischium rectangular with many long setae; merus almost square; carpus oblong; propodus rectangular.

Pereopod 5 (Fig.4 L); basis oblong and longer than other segment; ischium about half the length of basis; merus almost square; carpus square; propodus slender.

Pereopod 6 (Fig.4 M); basis stout with about 15 marginal setae; ischium elongated triangular; merus square; carpus slender; propodus slender.

Pereopod 7 (Fig.4 N); basis wide with about 9 setae on outer margin; ischium oblong; merus and carpus rectangular; propodus slender.

Penes (Fig.5G) pentagonal, tip rounded.

Pleopod 1 (Fig.5 A); both rami with many plumose setae around the margin and similar in size and shape.

Pleopod 2 (Fig.5 B); stylus greatly elongate, exceeds far beyond both rami.

Pleopod 3 (Fig. 5 C); exopod with setae; endopod without seta.

Pleopod 4 (Fig. 5 D) similar to pleopod 3, but each ramus is shorter than that of pleopod 3.

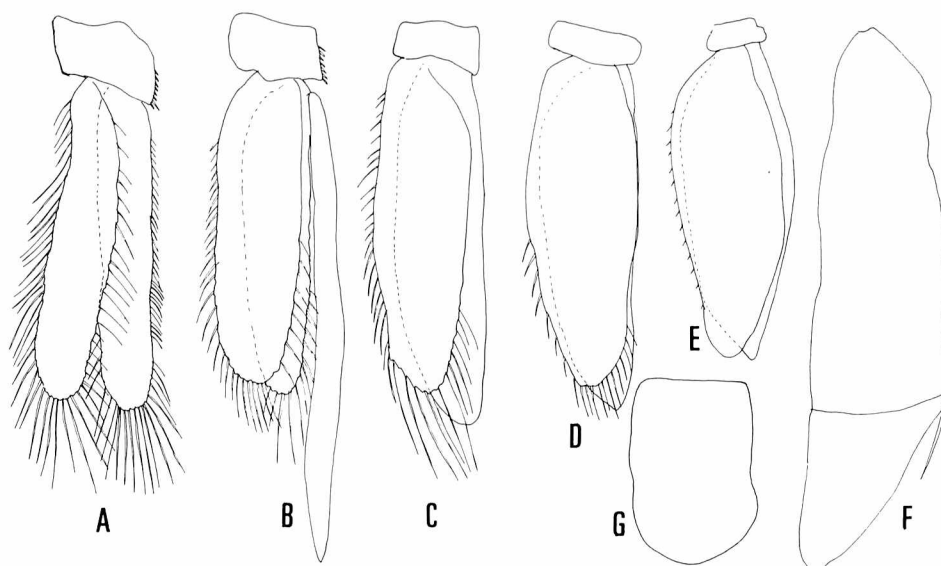


Fig.5 *Synidotea ezoensis* n. sp.

A.-E. Pleopods 1~5; F. Uropods; G. Penes (All: Holotype male).

Pleopod 5 (Fig.5 E) shorter than pleopod 3; exopod with only a few setae.

Uropod (Fig.5 F); basis oblong; terminal segment triangular.

*Remarks:*The present new species is most closely to *Synidotea lata* GURJANOVA 1933, but the former is separated from the latter in the following features: (1) straight stylus on male second pleopod, (2) longer body shape, and (3) bigger eyes.

***Synisoma pacificus* NUNOMURA, 1974**

(Jap. name: Kuroshio-naga-heramushi)

Material examined: 1 ex, Kikonai, coll. Shin-ichi Ishimaru, Apr. 28 1983; 1 ex, Otaru City, Oshoro, coll. Hiroshi Hoshikawa, Apr.22,1982.

***Cleantoides planicauda* (BENEDICT, 1899)**

(Jap. name: Hoso-heramushi)

Material examined: 1 ex, Kikonai, Izumisawa, coll. Noboru Nunomura, June 17, 1983.

***Cleantiella isopus* (GRUBE, 1883)**

(Jap. name: Iso-heramushi)

Material examined: 1 ex, Oshoro, Otaru City, coll. Noboru Nunomura, July 16, 1982; 7 exs, Oshoro Bay, Otaru City, Hiroshi Hoshikawa, Apr.22 1982; 1 ex, Port of Oshoro Bay, Otaru City, coll. Shin-ichi Ishimaru, Apr. 22 1982; 1 ex, Utoro, Shari cho, coll. Shin-ichi Ishimaru, June 3, 1984; 1 ex, Aikappu, Akkeshi-cho, coll. Tatsunori Ito, 1975, 1 ex, Funka Bay, Teruaki Nishikawa, Mar. 16, 1976; 10 exs, Usujiri, Minamikayabe-cho, Wataru Nunomura, July 13, 1980.

***Cleantiella strasseni* (THIELEMANN, 1910)**

(Jap name: Ohirakiheramushi)

Material examined: 1 ex, Cape Tachimachi misaki Hakodate City, coll. Daisuke Fujita, Apr. 14, 1980.

The specimen lacks any projection on its cephalon.

Family Arcturidae

***Pleuropriion* sp. (aff. *toporoki* KUSSAKIN, 1972)**

(Fig. 6)

Material examined: 1 ♀, 30m in depth, off Akkeshi-cho, Hokkaido, coll. Yoshio Hanamura, The specimen is deposited at the Toyama Science Museum (TSM-Cr-10808).

Description: Body reaches 7.9 mm. Color dull yellow in alcohol. The dorsal surface of cephalon bears a strong medial process and 2 pair of dorsal and a blunt projections. The dorsal surface bears 2 pairs of dorsal spines and a pairs of lateral row. Eyes rounded and relatively small. Pereonal somite 1 is separated from the cephalon by an acute spine situated

on both anterolateral angle and with a medial spine. Pereonal somites 2 and 3 are rather short; each segment with dorsal surface with 2 pairs of spines and a medial spine. Pereonal somite 4 is longer than the preceding pereonal somites, and subdivided into 2 parts; dorsal surface with more than 6 pairs of spines. Pereonal somite 5 subequal to the somite 3; its surface with 2 pairs spines. Pereonal somite 6 with 2 pairs of bigger spines, 4 pairs of small spines and a pair of relatively large lateral spines. Pereonal somite 7 with 2 pairs on lateral and 2 pairs of lateral spines. All the pleonal somites and telson fused. There are 4 pairs of larger and pairs of smaller setae on dorsal surface with 3 medial processes. And there are 2 pairs of lateral spines of various length. Posterior end not so strongly protruded.

Antennula (Fig.6 B) composed of 4 segments; segment 1 stout; segments 2 and 3 rectangular; terminal segment oblong with with 5 aesthetascs at the tip.

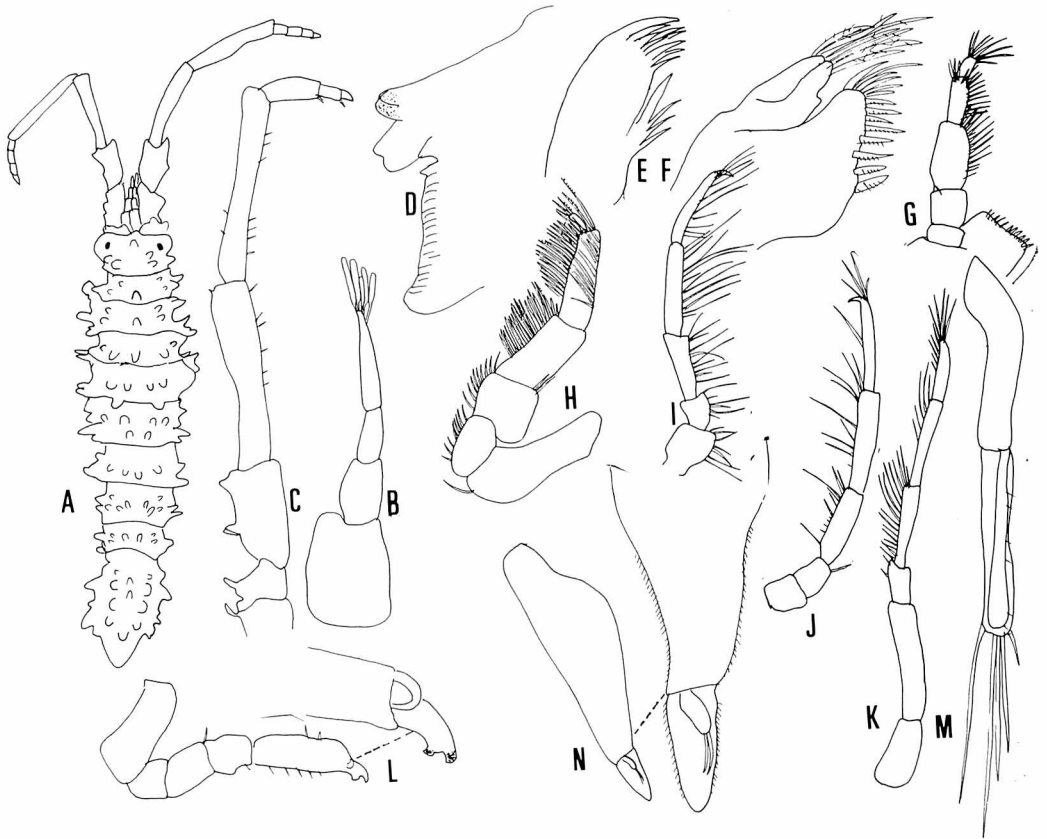


Fig.6 *Pleuropriion* sp. (aff. *toporokii* KUSSAKIN)

A. Dorsal view; B. Antennule; C. Antenna; D. Mandible; E. Maxillula; F. Maxilla; G. Maxilliped; H. Pereopod 1; I. Pereopod 2; J. Pereopod 3; K. Pereopod 4; L. Pereopod 7; M. Pleopod 5; N. Uropod (Female specimen from Akkeshi)

Antenna (Fig.6 C); reaching the sixth pereonal segment; first and second segments short; third segment rectangular; segments 4 and 5 long. Flagellum composed of 4 segments; first segments longer than the sum of second and terminal segments.

Mandible(Fig.6 D); incisor relatively small and 2-headed; lacinia mobilis weakly 2-headed; processus molaris wide.

Maxillula(Fig.6 E); outer lobe with 9 setae on the distal margin; inner lobe with 4 teeth at the tip.

Maxilla (Fig. 6 F) trilobate, endopod with 14 setae, innermost 8 setae are comb-like ; inner lobe of exopod with 3 setae; outer lobe of exopod with 4 setae.

Maxilliped (Fig. 5G); endite rectangular with about a dozen setae on the distal margin. Palp 5 segments; segment 1 short; segment 2 square; segment 3 biggest with 13 setae on inner margin; segment with 17~18 segments; terminal segment small, with 8 setae.

Pereopod 1 (Fig.6 H); basis rectangular; ischium short and small; merus square with many on inner margin; carpus rectangular with many long setae on inner margin; propodus rectangular with many setae on inner margin.

Pereopod 2 (Fig.6 I); basis rounded; ischium short; merus rectangular; carpus a little longer than merus; propodus as long as carpus; each segment has many setae on inner margin.

Pereopod 3 (Fig.6 J); basis and ischium short; merus, carpus and propodus rectangular and similar in length each other. Each segment has sparsely long setae.

Pereopod 4 (Fig.6 K) longer the preceding 3 pairs; basis oblong; ischium rather short; merus to propodus hairy and subequal in length.

Pereopods 5-7 (Fig. 6 L) similar in shape; basis rectangular; ischium short and almost square, without spine; merus and carpus rectangular, slightly longer than ischium; propodus oblong with 5~8 long setae on inner margin.

Pleopods (Fig. 6 M); basis oblong; exopod as long as basis with 4 long setae on distal margin; endopod narrower and shorter than exopod.

Uropod (Fig. 6 N); basis rounded; endopod gradually tapers lanceolate, to an evenly rounded distal end; exopod small, about 37% as long as endopod, bearing 2 setae.

Remarks: The present specimen is allied to *Pleuropirion toporoki* KUSSAKIN 1972, collected from Kurile Island. But the present specimen is different from *toporoki* in the following features: (1)number and arrangement spines on dorsal surfaces and (2)absence of spine on basis on posterior pereopods.

Suborder Asellota

Family Janiridae

***Janirata kurilensis* KUSSAKIN, 1962**

(Fig.7)

(Jap. name: Chishima-minasoko-mizumushi, new)

Materila examined : 2 ♀♀ (less than 1.5 mm in body length), off Akkeshi, coll. Yukio

Hanamura, Apr. 19, 1990. The specimens are deposited at the Toyama Science Museum (TOYACr-10806~10807)

Description : Body 2.0 times as long as wide. Color white in alcohol. Cephalon rectangular with a midial projection on anterior margin. All the surface smooth. Eyes mediocre in size, each eye composed of 33 ommatidia.

Antennula(Fig.7 B) with 9 segments; terminal and subterminal segments with 5 and 2 aesthetacs, respectively.

Antenna(Fig. 7 C) long with 19 flagellar segments.

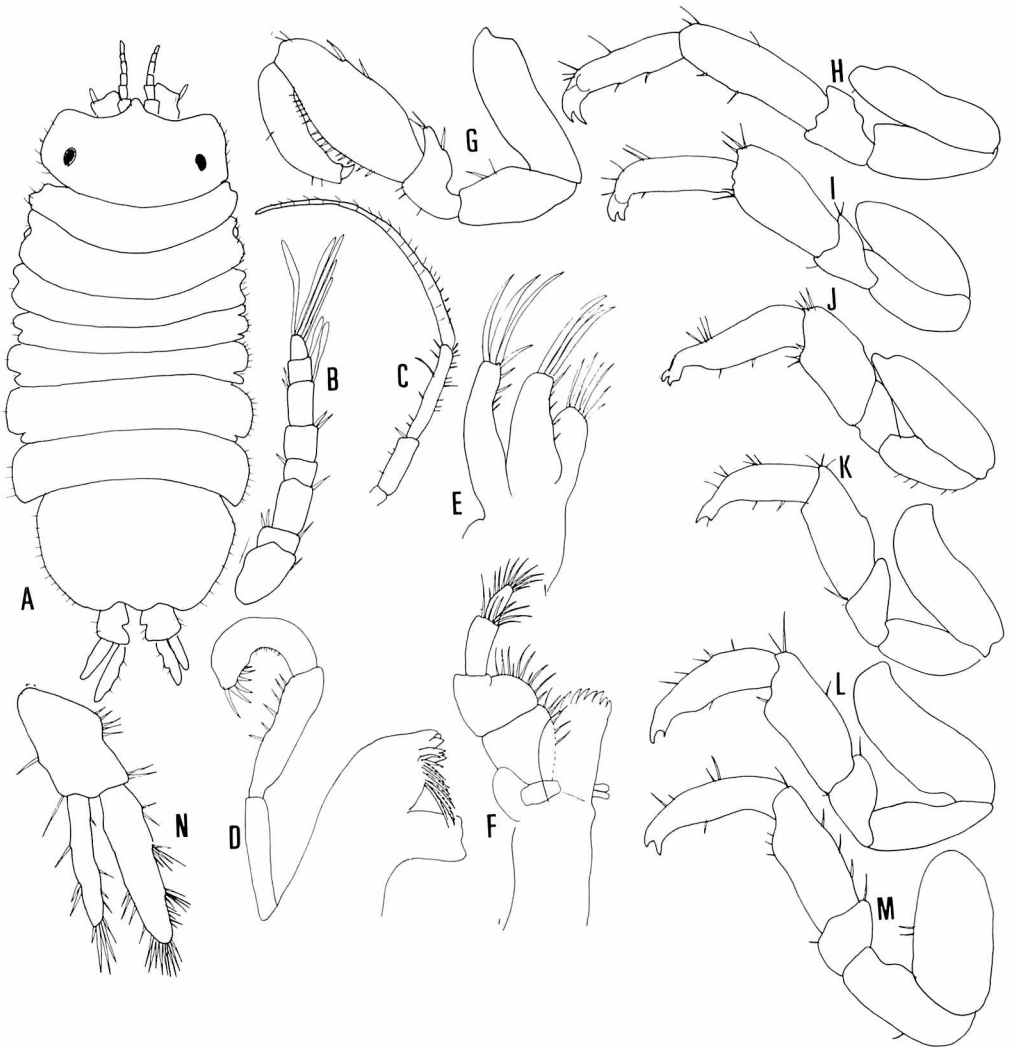


Fig.7 *Janirata kurilensis* KUSSAKIN, 1962

A. Dorsal view; B. Antennula; C. Antenna; D. Mandible; E. Maxilla; F. Maxilliped;
G-M. Pereopods 1~7; N. Uropod (All: Female from Akkeshi)

Mandible(Fig. 7 D); pars incisiva composed 3 teeth; lacinia mobilis 3-headed; 8 penicils between lacinia mobilis and processus molaris; processus molaris is represented by a stout projection.

Maxilla(Fig. 7 E); endopod with 6 setae; each ramus of exopod with 3 longer setae and some shorter setae.

Maxiliped(Fig.7 F): endite rectangular with 7 setae at the distal end; 2 coupling hooks on the inner border. Palp 5-segmented; segment 1 small; segments 2 and 3 broad with 6,10 setae on inner margin respectively, segments 4 and 5 slender with 7 and 10 setae respectively.

Pereopod 1(Fig.7 G); basis and ischium rectangular; merus triangular; carpus big and swollen with many setae on inner margin; dactylus recurved.

Pereopods 2~7 (Fig. 7 H-M) similiar in shape; basis oblong; ischium 3/4 as long as basis; merus short and triangular; carpus rectangular; propodus almost as long as carpus; dactylus bifid.

Uropod(Fig.7); basis rectangular; endopod fusiform; exopod a little shorter than endopod.

Remarks: The present specimen agrees with the original description by KUSSAKIN but has some differences in the following features: (1) less numerous segmentation of antennula and (2) less numerous setae on maxilla.

Suborder Flabellifera

Family Sphaeromatidae

***Cymodoce acuta* RICHARDSON, 1904**

Material examined: 1ex, Lake Saroma-ko, coll. Yukio Hanamura, July 11 1986; 2 exs, Lake Saroma-ko, coll. Yukio Hanamura, Aug. 9, 1985; 3 exs, Tohoro, Notsuke Bay, July 8, 1986; 39 exs, Akkeshi Bay, Akkeshi-cho. coll. Noboru Nunomura, July 13, 1982.

***Gmorimosphaeroma ovatum* (GURJANOVA, 1933)**

(Jap. name: Maru-kotsubumushi)

Material examined: 14exs, Kikonai-cho, coll. Shin-ichi Ishimaru, Apr. 28, 1983; 5 exs, Abashiri City, coll. Shin-ichi Ishimaru, May 21, 1983; 5 exs, Abashiri, Notoro- misaki, coll. Hiroshi Hoshikawa, May 20, 1983; 11 exs, Utoro, Shari-cho, coll. Shin-ichi Ishimaru, June 3, 1984; 8 exs, Akkeshi, Akkeshi-cho, coll. Shin-ichi Ishimaru May 17, 1983; 14 exs, Akkeshi-cho, Daikoku-jima, coll. Hiroshi Hoshikawa, May,16, 1983; 10 exs, Akkeshi cho, coll. Noboru Nunomura, July 12, 1982; 9 exs, Samani-cho, coll. Hiroshi Hoshikawa, May 31, 1983; 4 exs, Etomo-cho, Muroran City, coll. Hiroshi Hoshikawa, May 29,1983; 12 exs, Usujiri, Minamikayabe-cho, coll. Wataru Nunomura, Mar. 3, 1980; 6 exs, Usujiri, Minamikayabe-cho, coll. Noboru Nunomura, June 17,1983.

***Gnorimosphaeroma naktongense* KWON et KIM, 1987**

(Jap. name: Chosen-kotsubumushi, new)

Material examined: 2exs, Oshoro, Otaru City, coll. Noboru Nunomura, July 12, 1982; 9 exs, Notoro misaki, Abashiri City, coll. Hirosho Hoshikawa, May 21, 1983; 10 exs, Notsuke Peninsula, coll. Shin-ichi Ishimaru, May 18, 1983.

***Gnorimosphaeroma rayi* HOESTLANDT, 1969**

(Jap. name: Iso-kotsubumushi)

Material examined: 14 exs, Moheji, coll. Kamiiso-cho, Noboru Nunomura, June 19, 1983; 6 exs, Izumisawa, Kikonai, coll. Noboru Nunomura, June 17, 1983; 6 exs, Shizunai, coll. Shin-ichi Ishmaru, May 3 1983.

***Leptosphaeroma gottschei* HIRGENDORF, 1885**

(Jap. name: Hirataumisemi)

Material examined: 2 exs, Kikonai-cho, coll. Shin-ichi Ishimaru, Apr. 28, 1983; 2 exs, Izumisawa, Kikonai-cho, coll. Noboru Nunomura, June 17, 1983; 1 ex, Oshoro Bay, Otaru City, coll. Hiroshi Hoshikawa, Sep. 25, 1983; 1 ex, Usujiri, Minami-kayabe cho, coll. Wataru Nunomura, July 13, 1980.

***Tecticeps glaber* GURJANOVA, 1933**

(Jap. name: Shio-mushi)

Material examined: 1 ex, estuary of Uonbetsu River, Shari cho, coll. Yukio Hanamura, May 31,1990; 15 exs, Aikappu, Akkeshi cho, coll. Noboru Nunomura, July 13, 1982; 5 exs, Akkeshi, coll. Hiroshi Hoshikawa, May 16, 1983.

***Dynoides dentisunus* SHEN, 1929**

(Jap. name: Shiriken-umisemi)

Material examined: 14exs, Tachimachi-misaki, Hakodate City, coll. Daisuke Fujita, Apr. 14, 1980; 3 exs, Kikonai-cho, coll. Shin-ichi Ishimaru, Apr.28, 1983; 7exs, Kikonai,coll. Shin-ichi Ishimaru, Apr. 28, 1983; 10exs, Oshoro Bay, Otaru City, coll. Shin-ichi,Ishimaru, Apr. 22, 1982; 34 exs, Gangan-iwa, out of Oshoro Bay, Otaru City, coll. Shin-ichi, Ishimaru, Apr. 22, 1982; 4 exs, Oshoro, Otaru City, coll. Noboru Nunomura, July 12,1982; 3 exs, among the mussel bed, Oshoro, Otaru City, coll. Shin-ichi Ishimaru, July 1, 1982; 5 exs, Notoro misaki, Abashiri City, coll. Hiroshi Hoshikawa, May 20, 1983; 3 exs, Notoro misaki, Abashiri City, coll. Shin-ichi Ishimaru, May 21 1983; 1ex, Utoro, Shari- cho, coll. Shin-ichi Ishimaru, June 3, 1984; 1ex, Aikappu Misaki, Akkeshi Misaki, May 17,1983; 3 exs, Akkeshi machi, coll. Shin-ichi Ishimaru, May 17, 1983; 5 exs, Notoro Misaki,Abashiri City, coll. Hiroshi Hoshikawa, May 21, 1983; 2 exs, Aikappu, Akkeshi-cho, Noboru Nunomura, July 12, 1982; 4exs, Akkeshi-cho, coll. Noboru Nunomura, July 12, 1982; 8 exs, Tomoe-misaki, Muroran City,

coll. Hiroshi Hoshikawa, May 29, 1983; 2 exs, Usujiri, Minamikayabe-cho, coll. Wataru Nunomura, Nov. 3. 1979.

***Holotelson tubercuratus* RICHARDSON, 1909**

(Jap. name Chibi-umisemi)

Material examined: 2exs, Tachimach-imisaki, Hakodate City, coll. Daisuke Fujita, Apr. 14, 1980; 1ex, Otaru City, Oshoro, coll. Shin-ichi Ishimaru, Apr. 22, 1982; 2 exs, Otaru City, Oshoro Bay, coll. Hiroshi Hoshikawa, Sep. 25, 1983; 4 exs, Otaru City, coll. Oshoro, Hiroshi Hoshikawa, Apr. 23, 1984; 12 exs, Otaru City, Oshoro, coll. Noboru Nunomura, July 12, 1982; 3exs, Otaru City, Oshoro, Hiroshi Hoshikawa, Apr. 23, 1984; 1 ex, Notoro Misaki, Abashiri City, coll. Hiroshi Hoshikawa, May 21, 1983; 1ex, Utoro, Shari-cho, coll. Shin-ichi Ishimaru, June 3, 1984; 1 ex, Noshappu, Wakkanai City, coll. Noboru Nunomura, July 27, 1984; 3 exs, Akkeshi, coll. Noboru Nunomura, July 12, 1982; 1 ex, Samani-cho, coll. Shin-ichi Ishimaru, May 31, 1983; 1ex, Usujiri, Minamikayabe-cho, coll. Wataru Nunomura, July 13, 1980.

Family Cirolanidae

***Exciorolana chiltoni* RICHARDSON, 1912**

(Jap. name: Hime-sunahori-mushi)

Material examined: 1ex Zenibako, Otaru City, coll. Yukio Hanamura, July 11, 1990; 1 ex, Horikappu, Tomari mura, coll. Yukio hanamura, Aug. 2, 1988; 7 exs, Sakanoshita, Wakkanai City, coll. Noboru Nunomura, July 27, 1984, 1 ex, East harbour of Tomakomai, coll. Yukio Hanamura; 1 ex, Oshamanbe, coll. Yukio Hanamura July ,1990.

Family Aegidae

Rocinela maculata

(Jap. name. Tarano-shirami)

Material examined: 3exs, off Yubetsu, coll. Shigeru Nakao Aug. 1985; 2 exs, off Omu, Sep. 8, 1986; 2exs, off Omu, Sep. 7, 1986; 7exs, Akkeshi-cho, Off Daikokujima 45m in depth, coll. Shin-ichi Ishimaru, June. 6, 1984.

***Rocinela* sp.**

(Fig.8)

Material examined: 1 ♀ (43.9 mm in body length), off Kushiro, coll. Kazuya Nagasawa, Feb.1, 1982. This specimen is deposited at the Toyama Science Museum (TOYA Cr- 10808)

Description: Body rectangular 2.8 times as long as wide. Eyes big, each eye composed of about 110 ommatidia. Anterior margin of cephalon rounded, not protruded.

Antennula (Fig.8 B) with 3 peduncular segments and 5 flagellar segments.

Antenna (Fig.8 C), reaching second pereonal segment, composed of 5 peduncular seg-

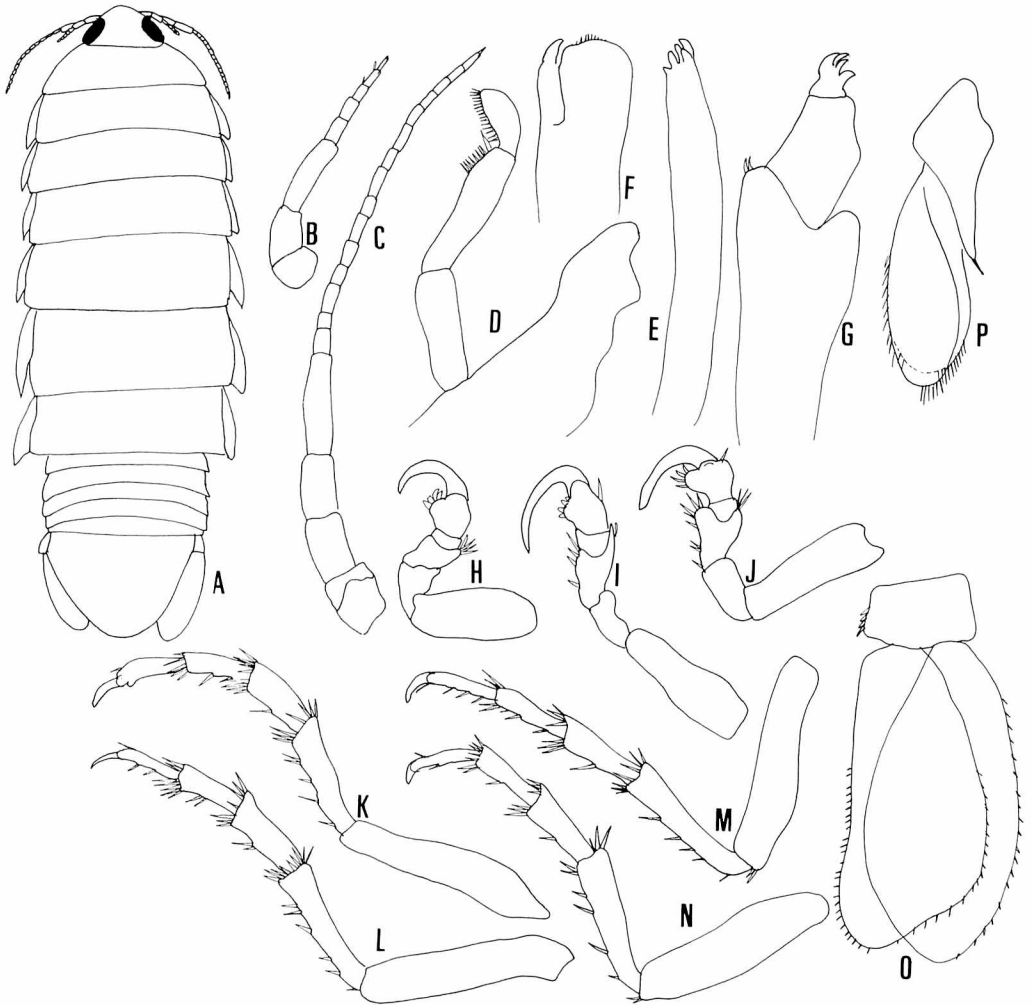


Fig.8 *Rocinela* sp.

A. Dorsal view; B. Antennula; C. Antenna; D. Mandible; E. Maxillula, F. Maxilla; G. Maxilliped; H-N. Pereopods 1~7; O. Pleopod 1; P. Uropod (All: Female from Kushiro)

ments and 15 flagellar segments.

Mandible (Fig.8 D); pars incisiva strong and composed of 2 teeth. lacinia mobilis; palp composed of 3 segments, distal half of inner segments and terminal segments with a row of setae inner lobe.

Maxillula (Fig.8 E); outer lobe with 5 setae.

Maxilla (Fig.8 F) rectangular with a single tooth.

Maxilliped (Fig.8 G); endite small; palp well developed and 3-segmented; terminal segment with 4 teeth.

Pereopod 1 (Fig.8 H) short, basis rectangular; ischium and merus triangular; carpus short; propodus round with a protruded inner projection bearing 4 spines; dactylus long and recurved.

Pereopods 2~3(Fig.8 I-J); basis oblong; ischium half the length of basis; merus triangular; carpus short; propodus almost square with a projections bearing 4 spines; dactylus long and recurved.

Pereopods 4~7(Fig.8 K-N); basis oblong; ischium oblong with 6~7 setae on inner margin;merus rectangular and 2/3 as long as ischium; carpus rectangular and a little shorter than merus; propodus as long as carpus but very narrow; dactylus shorter than the preceding 3 pairs.

Pleopods in female(Fig.8 O); basis rectangular; both rami lanceolate.

Uropod(Fig.); basis pentagonal; both rami lanceolate.

Remarks: The present specimen is closely allied to *Rocinela angustata* RICHARDSON distributed from North Pacific (California to Japan), but the former is separated from the latter in the following features:(1)less protruded anterior projection of cephalon, (2)less numerous segmentation of antennula, (3)less numerous setae on pereopods, and (4) shape of uropod. But only one female specimen was at my disposal, so the determination must be left to the future study.

Suborder Tyloidea

Family Tylidae

Tylos granuriferus, BUDDE-LUND, 1885

(Jap. name: Hama-dangomushi)

Material examined: 1 ex, Otobetsu-cho, coll. Hiroshi Tokumoto, Aug. 1, 1980

Ligia cinerascens BUDDE-LUND, 1885

(Jap. name: Kita-funamushi)

Material examined: 3 exs, Shiriuchi-cho, coll. Noboru Nunomura, June 17, 1983; 1 ex Oshoro, Otaru City, coll. Noboru Nunomura, July 16, 1982; 1 ex, Kamiennai-mura, Aug. 2, 1976; 5 exs, Kamiennai-mura, Shigeru Nakao, Aug. 2, 1976; 1 ex, Usujiri, Minamikayabe-cho, coll. Wataru Nunomura 1980. 9 exs, Usujiri, Minami-kayabe-cho, coll. Shigeru Nakao; 1ex, Kamiiso-cho, Shigeru Nakao, June 1, 1976; 18 exs, Kamiiso-cho, coll. Shigeru Nakao, July 1, 1976; 7 exs, Pon Oshoro, Oshoro, Otaru City, coll. Hiroshi Hoshikawa, June, 18, 1982; 11 exs, Usu-mura, coll. Shigeru Nakao Aug. 1, 1976; 7 exs Kamiennai cho, coll. Shigeru Nakao, Aug. 2, 1976; Usujiri, Minamikayabe-cho, coll. Shigeru Nakao, July 1976; 9 exs, Usujiri, Minamikayabe-cho, Shigeru Nakao, July 1976.

Suborder Oniscidea
Family Scyphacidae

***Detonella japonica* NUNOMURA, 1984**

(Jap. name: Hamabe-warajimushi)

Material examined: 7 exs, Shiri'uchi, coll. Noboru Nunomura, June, 17, 1983; Shiuchi-cho, 3 exs, Tobetsu, Kamiiso-cho, coll. Noboru Nunomura, June 17, 1983; 2 exs, Moheji, Kamiiso-cho, coll. Noboru Nunomura. June 17, 1983.

Family Porcellionidae

***Porcellio scaber* LATREILLE, 1804**

(Jap. name: Warajimushi, new)

Material examined: many specimens from the various areas of seashore of Hokkaido.

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