

MILLIPEDES (DIPLOPODA) FROM KOREA, THE RUSSIAN  
FAR EAST, AND CHINA IN THE COLLECTION OF THE  
HUNGARIAN NATURAL HISTORY MUSEUM

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The collection of diplopods from Korea, the Russian Far East, and China in the Hungarian Natural History Museum appears to contain altogether 16 identifiable genera and 22 species. One genus and five species of them are described here as new to science: *Koreadesmus* gen. n., *Koreadesmus proprius* sp. n., *Tokyosoma hallum* sp. n., *Ansiulus aberrans* sp. n., *Skleroprotopus chollus* sp. n., *Skleroprotopus costatus* sp. n., One species (*Orientylla dahurica* (GERSTFELDT, 1859)) is new to the fauna of Korea. Remarks are provided for all species studied, including notes on the variation of both *Anaulaciulus golovatchi* MIKHALJOVA, 1982, and *Skleroprotopus ramuliferus* LIM et MIKHALJOVA, 2001.

Key words: Millipedes, Diplopoda, East Asia, new genus and species, faunistics, variation

INTRODUCTION

The present paper continues research in the East Asian millipede fauna, this time being confined to the collection of Diplopoda housed in the Hungarian Natural History Museum, Budapest. The main part of the examined material contains samples from Korea collected during 13 expeditions (1971–1994) by Hungarian Natural History Museum staff to both the North and South countries, as well as a small portion from the Russian Far East and China (MAHUNKA & STEINMANN 1971, PAPP & HORVATOVICH 1972, DELY & DELY-DRASKOVITS 1978, VOJNITS & ZOMBORI 1979, 1987, FORRÓ & TOPÁL 1981, FORRÓ & RONKAY 1983, KORSÓS & RONKAY 1988, CSORBA & DEMETER 1989, MERKL & SZÉL 1989, MÉSZÁROS & ZOMBORI 1992, RONKAY & VOJNITS 1992, PEREGOVITS & RONKAY 1994, PEREGOVITS *et al.* 1995).

The types described here have been shared between the collections of the Department of Zoology, Hungarian Natural History Museum, Budapest (HNHM), the Zoological Museum of the Moscow State University, Moscow (ZMUM) and the Institute of Biology and Soil Science of the Far Eastern Branch, Russian Academy of Sciences, Vladivostok (IBSV). Non-types are kept in the collections of HNHM, IBSV and the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZISP).

Korean collecting localities (and one more for the Russian Far East), which would appear repeatedly in the species section, are listed separately below, according to the sequence of their collecting numbers. These numbers are continuously given by the 13 expeditions of the Hungarian Natural History Museum to Korea.

- No. 1027. North Korea, Prov. North Pyongan, Mt. Myohyang-san, pathway Sangwon-am, 9.Oct. 1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1029. North Korea, Prov. North Pyongan, Mt. Myohyang-san, pathway Sangwon-am, 9.Oct. 1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1035. North Korea, Prov. North Pyongan, Mt. Myohyang-san, pathway Isonnam, 11.Oct.1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1039. North Korea, Prov. North Pyongan, Mt. Myohyang-san, pathway Isonnam, 12.Oct.1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1043. North Korea, Pyongyang City, Mt. Ryongak-san, 14.Oct.1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1065. North Korea, Prov. Kangwon, Mt. Kumgang-san, pathway Samson-am, 23.Oct.1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1067. North Korea, Prov. Kangwon, Mt. Kumgang-san, pathway Tongsok-dong, 24.Oct.1987, leg. KORSÓS Z. & RONKAY L.  
 No. 1356. North Korea, Prov. Ryanggang, NW of Samjiyon, 31 km on Paekdu-san, 2000 m, 28.June 1988, leg. MERKL O. & SZÉL GY.  
 No. 18. Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, hills on the SW part of territory, 300 m a.s.l., deciduous-coniferous forest, 6.July 1990, leg. SZIRÁKI GY.

## TAXONOMIC PART

### POLYZONIIDA

#### POLYZONIIDAE

**Angarozonium munsunum** MIKHALJOVA, GOLOVATCH et WYTWER, 2000 – 3 ♂♂, 3 ♀♀ – North Korea, De Sang-san, 10 km NE from Pyongyang, No. 350., 8.July 1977., leg. DELY O. GY. & DELY-DRASKOVITS Á.; 6 ♂♂, 6 ♀♀ – North Korea, Pyongyang City, Mt. Daesong-san, 10 km NE of Pyongyang, No. 630., 10.Sep.1980., leg. FORRÓ L. & TOPÁL GY.; 1 ♂ – North Korea, No.1027; 4 ♂♂, 6 ♀♀ – North Korea, No. 1043; 1 ♂, 2 ♀♀ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang, No. 1402., 26.May 1991., leg. RONKAY L. & VOJNITS A.

Remarks: This species is known only from North Korea, its terra typica. It is the only species of *Angarozonium* inhabiting in Korea (MIKHALJOVA 2002).

### CHORDEUMATIDA

#### MEGALOTYLIDAE

**Megalotyla glabra** MIKHALJOVA, GOLOVATCH et WYTWER, 2000 – 2 ♀♀ – North Korea, No. 1027.; 1 juv. – North Korea, Prov. Ryanggang, Mt. Paekdu-san, near Pochon, 7.Aug.1989., leg. Han, Eng Hi.; 1 ♂, 1 ♀ – Ibid., 22.Sep.

Remarks: Originally described from North Korea (MIKHALJOVA *et al.* 2000), this second congener to *Megalotyla brevichaeta* GOLOVATCH *et* MIKHALJOVA, 1978 has since never been rediscovered.

## DIPLOMARAGNIDAE

### **Tokyosoma hallum** sp. n.

(Figs 1–5)

1 ♂ (holotype), 3 ♂♂, 5 ♀♀ (paratypes) – South Korea, Cheju Prov., Halla-san National Park, ca. 1300 m, 126°00'E, 33°15'N, border zone between the mixed deciduous forest and the mixed evergreen (pine) forest, litter, from beneath stones and trunks, No. 1657., 30.Oct.1993., leg. PEREGOVITS L. & RONKAY L. Male holotype, 2 ♂♂, 3 ♀♀ paratypes are deposited in the HNHM, 1 ♂, 1 ♀ paratypes in ZMUM, 1 ♀ paratype in IBSV.

Etymology: The specific epithet refers to the locus typicus (Halla-san National Park).

Description: Male. Length 12–12.5 mm, width 1.7–1.8 mm with and 1.3–1.4 mm without paraterga.

Coloration: Body in alcohol light beige. Antennae brown, eyes black, legs brownish, increasingly darker distad.

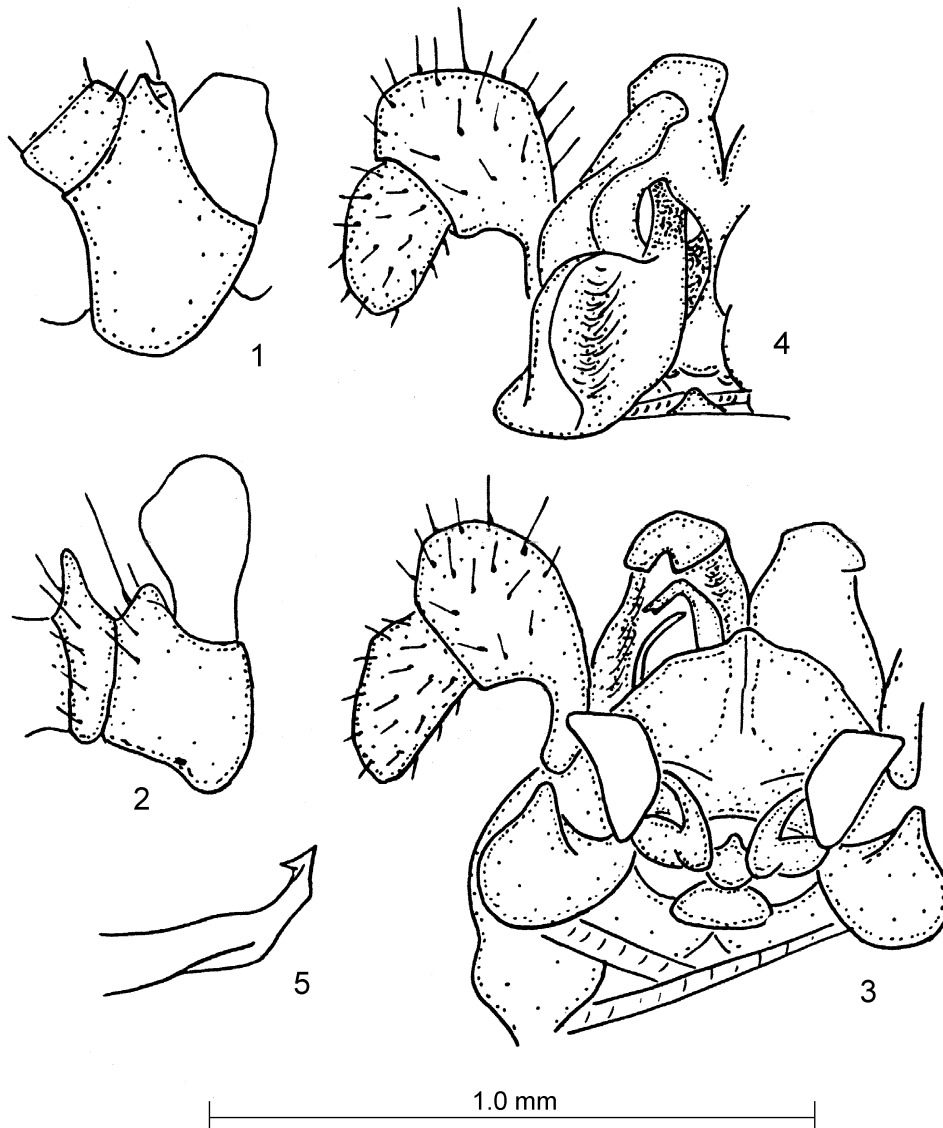
Body with 29 segments. Head setose, vertigial suture visible. Genae strongly convex, setose, labrum usual. Eye patches triangular, each composed of 22–23 ocelli. Antennae long and slender, antennomere 3 longest. Collum semicircular, with 3+3 macrochaetae. Head with genae subequal in width to somite 3. Gnathochilarium usual. Paraterga beginning from somite 2, well-developed on somites 7–25, like swellings on somite 26, missing on somites 27–29. Macrochaetae in a transverse row on somites 27–28, like a very extended triangle on somites 26, like an extended triangle on preceding somites. Macrochaetae long, pointed apically. Caudolateral and medial macrochaetae subequal in length, anterolateral ones shortest. Axial suture well-developed.

Legs long and slender, each claw with both two minute accessory claws dorsally and spinicle (= filament) ventrally at base. Legpairs 1 and 2 typically reduced, each with shortest claw spinicle. Legs 3–7 somewhat enlarged toward gonopods. Tarsal papillae absent. Legs 10 and 11 with coxal glands; both coxa 10 and one 11 with ventral small outgrowth (Figs 1–2); trochanter 11 with stick-shaped caudal process.

Anal valves obtusangular at caudal edge in lateral view, each with some marginal setae. Subanal scale suboval with 1+1 setae at caudal margin.

Gonopods: Anterior gonopods with T-shaped coxal part of coxosternum; telopodite flagelliform, positioned on posterior face of posterior gonopod colpocoxites inside a narrow deep curved sheath groove (Fig. 3). Distal part of telopodite extending well beyond colpocoxite, tip pointed, unmodified. Colpocoxites broad, fused basally, each with a small excavation in curved posterad distal part and with lateral branch connected with angiocoxite frontally as well. Mesal sheath processes fused medially into a single lamina with medial outgrowth. Lateral sheath processes subtrapeziform. Angiocoxite with conical projection in posterior surface. Anterior angiocoxal process large, passing through foramina in colpocoxite (Fig. 4). Distal part of anterior angiocoxal process with subapical small tooth (Fig. 5). Posterior angiocoxal process absent. Telopodites of posterior gonopods 2-segmented, setose; femur short.

Female. Length 16–16.5 mm, width 1.8–1.9 mm with and 1.3–1.4 mm without paraterga. Body with 29 segments, ocelli 22–23. The spinicle at base of claws shorter than in male. Claws of legs 1 and 2 each with two dorsal and one ventral accessory claws. Other nonsexual characters as in male. Vulvae not dissected for examination.



**Figs 1–5.** *Tokyosoma hallum* sp. n.: 1 = legpair 10, caudal view, 2 = legpair 11, frontal view, 3–4 = gonopod, caudal and frontal view, 5 = anterior angiocoxal process, frontal view. Scale in mm

Remarks: It is the fourth species of the genus *Tokyosoma* VERHOEFF, 1932 distributed in Japan and Korea (MIKHALJOVA 2000). The species *Tokyosoma ronkayi* (SHEAR, 1990) (= *Diplomaragna ronkayi* SHEAR, 1990), formerly only known from North Korea, has recently also been recorded in South Korea (MIKHALJOVA & LIM 2000). However, a study of the holotype of this species housed in the Hungarian Natural History Museum proved that it was a misidentification. The material from South Korea mentioned in the paper above appears to belong *Tokyosoma hallum* sp. n.

Notably, the re-examination of *Tokyosoma ronkayi* holotype has revealed the body consisting of 29 segments. The original description of *Tokyosoma ronkayi* erred in ascribing 32 body segments to that species (cf. SHEAR 1990).

In addition, the type material of *Pterygostegia korsosi* (SHEAR, 1990) (= *Diplomaragna korsosi* SHEAR, 1990) housed in the HNHM was re-examined, too. The body of both male-holotype and females-paratypes is composed of 29 segments, not 32 as described in original description (cf. SHEAR 1990). Hence, the original diagnosis of these species must be corrected by the entry of 29 body segments instead of 32 somites.

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**Orientyla dahurica** (GERSTFELDT, 1859) – 1 ♂ – North Korea, Prov. Ryanggang, Konchang, 800 m, No. 1369., 30.June 1988., leg. MERKL O. & SZÉL GY.

Remarks: This species, originally described as *Craspedosoma dahuricum* from near the mouth of Shilka River, Chita Area, Siberia (GERSTFELDT 1859), is a senior subjective synonym of *Diplomaragna mikhailovae* SHEAR, 1990, a species described from the southern part of the Russian Far East (Amurskaya Area, Primorsky kray = Maritime Prov.) (SHEAR 1990), and later transferred to *Orientyla* (MIKHALJOVA 2000). The synonymy has been established by MIKHALJOVA and GOLOVATCH (2001). This is the first record of *O. dahurica* in Korea.

**Maritimosoma turova** (MIKHALJOVA, 1997) – 1 ♂, 1 ♀ – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, hills on the left side of river Komarovka, 200–500 m a.s.l., No. 39., 12.July 1990., leg. SZIRÁKI GY.

Remarks: This species, originally described in *Diplomaragna* (MIKHALJOVA 1997), and later transferred to *Maritimosoma* (MIKHALJOVA 2000), is currently known only from Primorsky kray (= Maritime Prov.), its terra typica.

## JULIDA NEMASOMATIDAE

**Orinisobates microthylax** ENGHOFF, 1985 – 1 ♀ – Russia, Far East, No. 18., leg. SZIRÁKI GY.; 1 ♀ – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, hills on the SW part of the territory, 300 m a.s.l., No. 34., 11.July 1990., leg. SZIRÁKI GY.

Remarks: This species is known from Siberia (Buryatia), the Far East of Russia (the territories of both Primorsky kray = Maritime Prov. and Khabarovsk Prov.), Sakhalin, Kuriles, and the Kamchatka Peninsula (MIKHALJOVA 1998). The species is characterized by parthenogenesis (ENGHOFF 1985).

## MONGOLIULIDAE

**Skleroprotopus coreanus** (POCOCK, 1895) – 1 ♂ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, along the pathway to Sang-wonam, No. 801, 15.July 1982., leg. FORRÓ L. & RONKAY L.; 1 ♂ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san, pitfall traps, No. 820., 17.July 1982., leg. FORRÓ L. & RONKAY L.; 2 juvs – North Korea, Prov. North Pyongan, Mt. Myohyang-san, pitfall traps, forest behind Hotel Myohyang, No. 841., 19.July 1982., leg. FORRÓ L. & RONKAY L.; 1 ♂, 1 ♀ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, No. 1024., 8.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♀, 1 juv. – North Korea, No. 1035.; 2 ♂♂, 5 ♀♀, 1 juv. – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san, No. 1037., 11.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 5 ♂♂, 8 ♀♀, 9 juvs, 6 fragm. – Ibid., No. 1041., 12.Oct.; 1 ♀, – North Korea, Prov. North Pyongan, Mt. Myohyang-san, pathway Isonnam, No. 1040., 12.Oct. 1987., leg. KORSÓS Z. & RONKAY L.; 2 ♀♀ – North Korea, No. 1067.; 2 ♂♂, 1 ♀ – North Korea, Prov. Ryanggang, Taehongdan, 1000 m, No. 1362., 29.June 1988., leg. MERKL O. & SZÉL GY.; 1 ♂, 1 ♀ – North Korea, Prov. Ryanggang, Mt. Paekdu-san, Unhung, 15.Sep.1989., leg. Han, Eng Hi.; 1 ♂, 2 ♀♀, 1 juv. – Ibid., 10.May.; 1 juv. – Russia, Far East, Primorsky kray, Krinichnaya Mt., 5 km S of Anisimovka, 300 m a.s.l., No. 1., 27.June 1990., leg. SZIRÁKI Gy.; 2 ♂♂, 2 ♀♀, 2 juvs – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, SW hills, 300 m a.s.l., No. 13., 4.July 1990., leg. SZIRÁKI Gy.; 2 ♂♂ – Russia, Far East, No. 18., leg. SZIRÁKI Gy.; 2 ♂♂, 1 juv. – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang, No. 1402., 26.May 1991., leg. RONKAY L. & VOJNITS A.

Remarks: Originally described from South East of Korea (Pocock 1895, 1903), this species appears to be widespread throughout Korea and the southern part of the Russian Far East (MIKHALJOVA 1998). It is the senior synonym of *S. similiserratus* GOLOVATCH, 1979, a species described from Primorsky kray (= Maritime Prov.), Far East of Russia (GOLOVATCH 1979). The synonymy was established by MIKHALJOVA (1982b).

### **Skleroprotopus chollus** sp. n.

(Figs 6–13)

1 ♂ (holotype), 5 ♂♂, 6 ♀♀, 2 juvs (paratypes) – South Korea, South Cholla Prov., Mt. Paekun-san, at the vicinity of the pass towards the Mts Chiri-san, 800–860 m, ca. 3 km NNW of Nonshil, under bark, stones and trunks, No. 1662., 31.Oct.1993., leg. PEREGOVITS L. & RONKAY L.

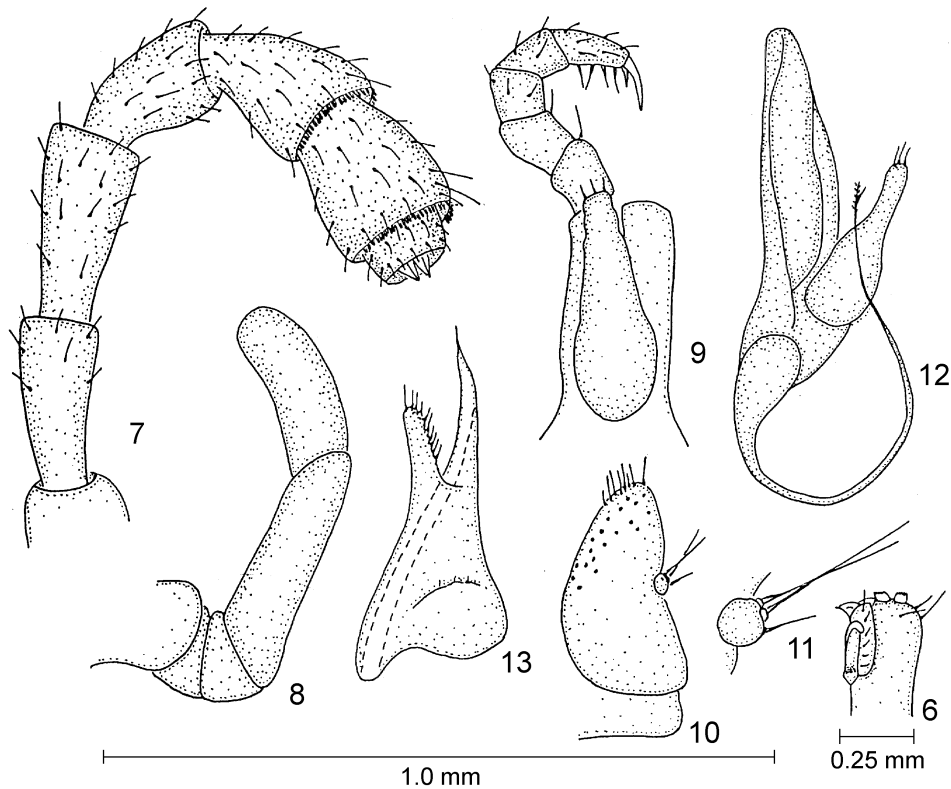
Male holotype, 3 ♂♂, 4 ♀♀, 2 juvs paratypes are deposited in the HNHM, 1 ♂, 1 ♀ paratypes in ZMUM, 1 ♂, 1 ♀ paratypes in IBSV.

Etymology: The specific epithet refers to the locus typicus (South Cholla Province).

Description: Male. Body 15–28 mm long, 0.8–0.9 mm in diameter. Body segments without telson 48(–1) (holotype), 45(–2) (two specimens), 47(–2), 54(–1), 61(–1).

Coloration: Prozona dark brown with a light anterior edge. Metazona dark brown with a light posterior edge. Transverse suture between pro- and metazona light. Each ring with a light spot around ozopore. Anterior part of body with metazona marble brown dorsally. Antennae brown. Legs light brown, eyes black.

Body subcylindrical, smooth. About 40 ocelli in a subtriangular eyepatch on each side of head. Vertical setae absent. Supralabral setae 2+2, labral ones 10+10. Mandibular stipes subtriangular with two small tubercles on lower border. Gnathochilarium with three distal setae on stipes and six setae on each lamella linguales; stretched promentum with low tubercle at base and apical process (Fig. 6). Antennae (Fig. 7) relatively short, clavate, 5th and 6th antennomeres with a distal corolla of tiny bacilli, ventrally these corolla incomplete. Prozona with uneven striations directed obliquely laterally and increasingly transversely dorsad. Metazona with distinct striae below ozopores. Collum with 6–7 striae. Ozopores small, beginning from somite 6, lying behind and far set off from suture dividing pro- and metazona. Telson with some setae along hind margin, without tail. Each anal valve and an oval subanal scale with two setae.



**Figs 6–13.** *Skleroprotopus cholus* sp. n.: 6 = gnathochilarium, 7 = antenna, 8 = legpair 1, lateral view, 9 = legpair 2 and penes, caudal view, 10 = legpair 7, frontal view, 11 = telopodite remnant of legpair 7 (enlarged not to scale), 12 = anterior gonopod, caudal view, 13 = posterior gonopod, mesal view. Scales in mm

Legs moderately long, slender, claws long with an additional claw at base. Legpair 1 (Fig. 8) relatively enlarged, modified, curved forward. Penes (Fig. 9) elongated, with three short setae apically. Leg-pair 7 (Fig. 10) with the remnant of telopodite bearing long setae apically (Fig. 11) and a small coxal process covering with setae mesally and apically.

Gonopods: Anterior gonopods (Fig. 12) with 1-segmented telopodites bearing out some setae apically. Coxal process flat, lateral edge curved caudally. Parabasal long flagella with thin spines apically. Posterior gonopods (Fig. 13) with very low sublateral tubercle bearing tiny setae. Distocoxal portion biramous, posterior branch setose, anterior one bare with pointed apex.

Female. Body 21–23 mm long, 0.8–1.0 mm in diameter. About 45 ocelli. Body segments without telson up to 53(–1) (paratype from IBSV). Mandibular stipes oval without tubercles on lower border. Promentum of gnathochilarium without tubercle at base and apical process. Vulva not dissected for examination.

Remarks: Legpair 7 of one of male paratypes is devoid of left telopodite remnant while right such remnant is expressed.

### **Skleroprotopus costatus sp. n.**

(Figs 14–25)

1 ♂ (holotype), 1 ♂, 1 ♀ (paratypes) – North Korea, South Hwanghae Prov., Haeju, Mt. Suyong-san, deciduous forest of the SE slope, No. 1049., 16.Oct.1987., leg. KORSÓS Z. & RONKAY L. Male holotype, 1 ♂, 1 ♀ paratypes are deposited in the HNHM.

Etymology: Named after the rib of the front portion of anterior gonopod coxal process.

Description: Male. Body 46–47 mm long, 1.9–2.0 mm in diameter. Body segments of holotype without telson up to 65(–1). Paratype consists of four fragments without posterior portion.

Coloration: Usual coloration dark brown or gray-brown. Anterior portion of body marble-brown dorsally. Metazona with light hind margin. Ozopore placed in the middle of a small dark brown spot. Legs and antennae brown, eyes black.

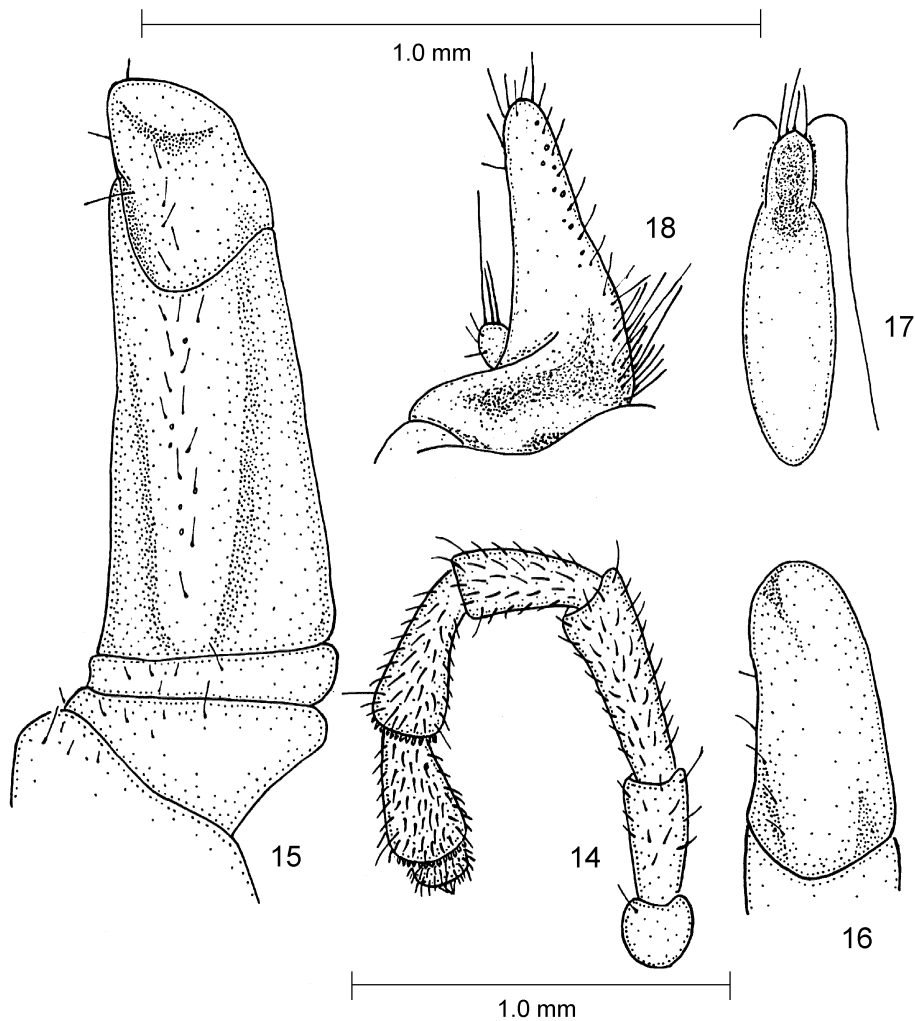
Body subcylindrical, smooth. About 85 ocelli in a subtriangular eye-patch on each side of head. Vertigial setae absent. Supralabral setae 2+2 or 2+3, labral ones 9+9 or 9+10. Mandibular stipes subtriangular with two short and broad outgrowths on lower border. Gnathochilarium with three distal setae and basal prominent on stipes, 8 setae on each lamella linguales and stretched ridge-shaped promentum. Antennae (Fig. 14) relatively short, clavate, 5th and 6th antennomeres with a distal corolla of tiny bacilli, ventrally these corolla incomplete. Prozona with uneven striations directed obliquely laterally and increasingly transversely dorsad. Metazona with distinct striae below ozopores. Collum with 8–9 striae of varying length laterally. Ozopores small, beginning from segment 6 on, lying behind and set off from suture dividing pro- and metazona. Telson with several setae along hind margin, without tail. Each anal valve and an oval subanal scale with two setae.

Legs moderately long, slender, claws long with additional claw at base. Legpair 1 (Fig. 15) very strongly enlarged, dorsoventrally flattened, curved forward; terminal segment with thin setae frontally and distomesally (Fig. 16). 3th segment longest. Penes subconical, with four long setae apically (Fig. 17). Legpair 7 (Fig. 18) with a tongue-shaped coxal process bearing setae frontally, mesally and laterally.

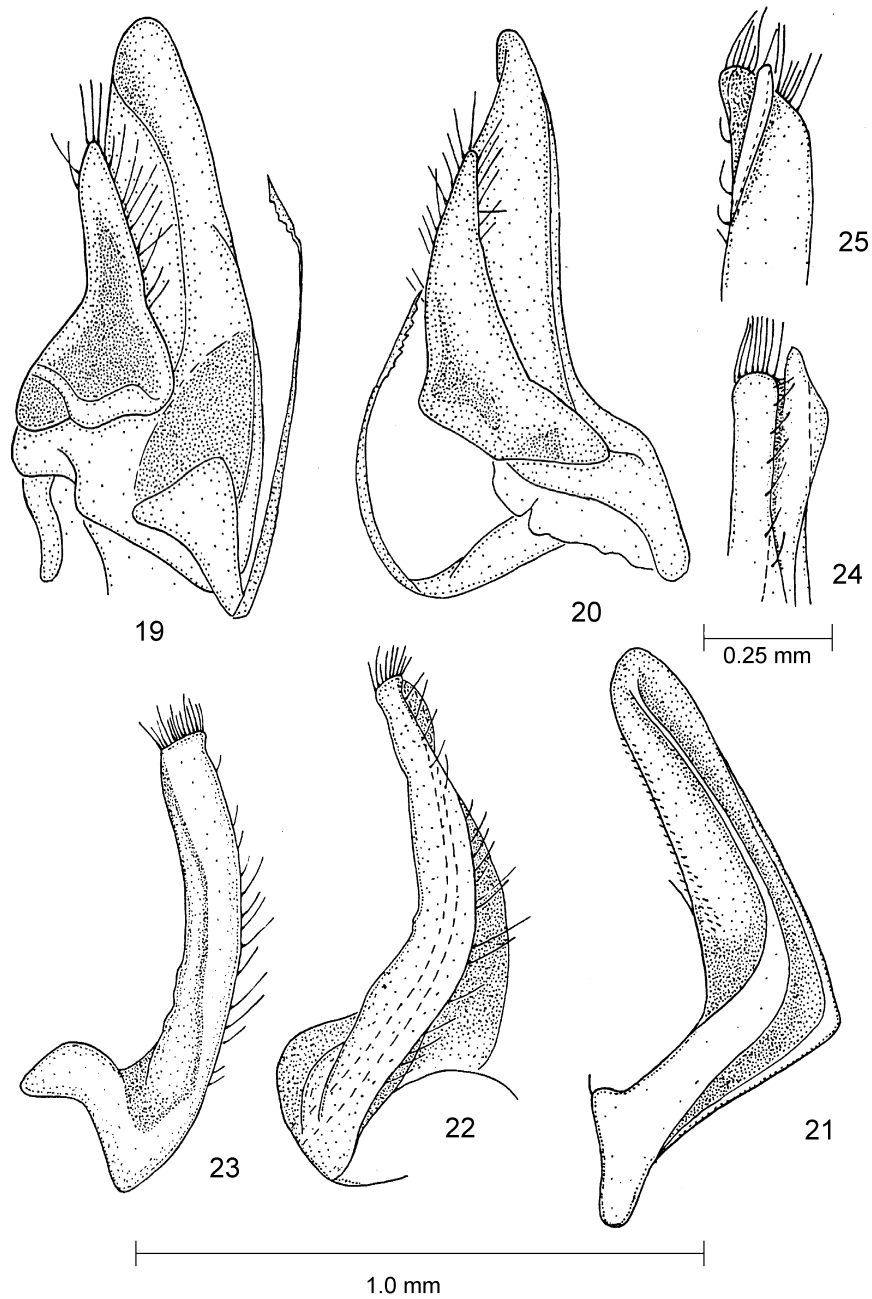


Gonopods: Anterior gonopods (Figs 19–20) with 1-segmented, slightly flattened telopodites subtriangular at base, bearing long setae subapically, apically, mesally and laterally. Coxal process flat with low longitudinal rib and tiny lateral setae on front portion (Fig. 21), lateral edge curved caudally. Parabasal flagella with cristate apex. Posterior gonopods (Figs 22–23) entire with dense setae apically. Mesal edge of seminal groove bearing long setae; anteromesal one as a bare blade (Figs 24–25).

Female. Body about 55 mm long, 2.0–2.1 mm in diameter. About 85 ocelli. Body segments without telson up to 60(–1). Legpair 1 massive. Ventral border of mandibular stipes without out-growths. Other non-sexual characters as in male. Vulva not dissected for examination.



**Figs 14–18.** *Skleroprotopus costatus* sp. n.: 14 = antenna, 15 = legpair 1, frontal view, 16 = terminal segment of legpair 1, ventral view, 17 = penes, caudal view, 18 = legpair 7, frontal view. Scales in mm



**Figs 19–25.** *Skleroprotopus costatus* sp. n.: 19–20 = anterior gonopod, caudal and lateral view, 21 = anterior gonopod coxite, frontal view, 22–23 = posterior gonopod, mesal and caudal view, 24–25 = distal part of posterior gonopod, frontomesal and frontal view. Scales in mm

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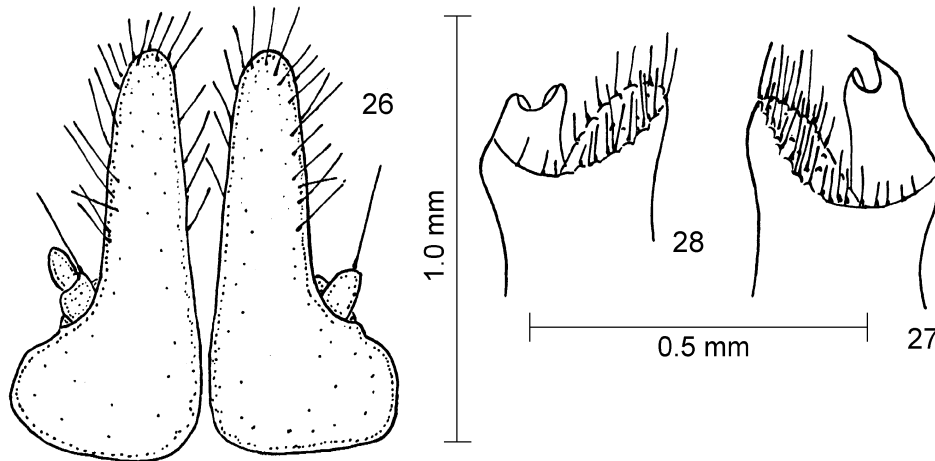
**Skleroprotopus ramuliferus** LIM et MIKHALJOVA, 2001 (Figs 26–28) – 1 ♂ (HMHN) – North Korea, Kangwon Prov., Hotel Kumgang-san, bamboo-pine forest, 22.Nov.1986., leg. CSORBA G. & DEMETER A.; 1 ♂, 5 ♀♀ (HMHN) – North Korea, Kangwon Prov., Mt. Kumgang-san, Lake Samil-po, No. 1062., 22.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♂ (paratype) (IBSV) – South Korea, Gyeonggi-do, Yangpyeong, 18.May 1991., leg. LIM K.Y.

Remarks: In addition to normal specimens, the material contains males deviating morphologically from the typical gonopod structure. So, left telopodite remnant of the legpair 7 of the male paratype from South Korea consists of two segments while the right one is only one-segmented (Fig. 26). The right posterior gonopod of male from North Korea has the serrate apical twig, but the left one does not (Figs 27–28). Thus, this species is morphologically quite variable.

#### JULIDAE

**Anaulaciulus koreanus boninensis** (VERHOEFF, 1939) – 1 ♂, 1 ♀ – North Korea, Prov. Kangwon, Mt. Kumgang-san, No. 585., 26.Sep.1979., leg. STEINMANN H. & VÁSÁRHELYI T.; 4 ♂♂, 5 ♀♀ – North Korea, Prov. Kangwon, Mt. Kumgang-san, pathway Kuryong, No. 1058., 21.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 5 ♀♀ – North Korea, No. 1067.; 17 ♂♂, 15 ♀♀ – South Korea, Prov. Cheju, Halla-san National Park, ca. 1000 m, 126°00'E 33°15'N, No. 1654., 27.Oct.1993., leg. PEREGOVITS L. & RONKAY L.; 1 ♂ – South Korea, Prov. Cheju, Mt. Halla-san, Yongshil route, 1050 m, edge of Halla-san National Park, 126°30'E 33°21'N, No. 1687., 30.Apr.1994., leg. PEREGOVITS L., RONKAY L. & VOJNITS A.

Remarks: This is one of the four subspecies of *A. koreanus*, all confined to Korea and Bonin Islands (MIKHALJOVA & Kim 1993, KORSÓS 1996). However, according to the opinion of PAIK (1958), VERHOEFF's original record from the Bonin Islands was mislabelled.



**Figs 26–28.** *Skleroprotopus ramuliferus* LIM et MIKHALJOVA, 2001: 26 = legpair 7, caudal view, ♂ paratype from South Korea, 27–28 = distal part of posterior gonopod, lateral view, ♂ from North Korea. Scales in mm

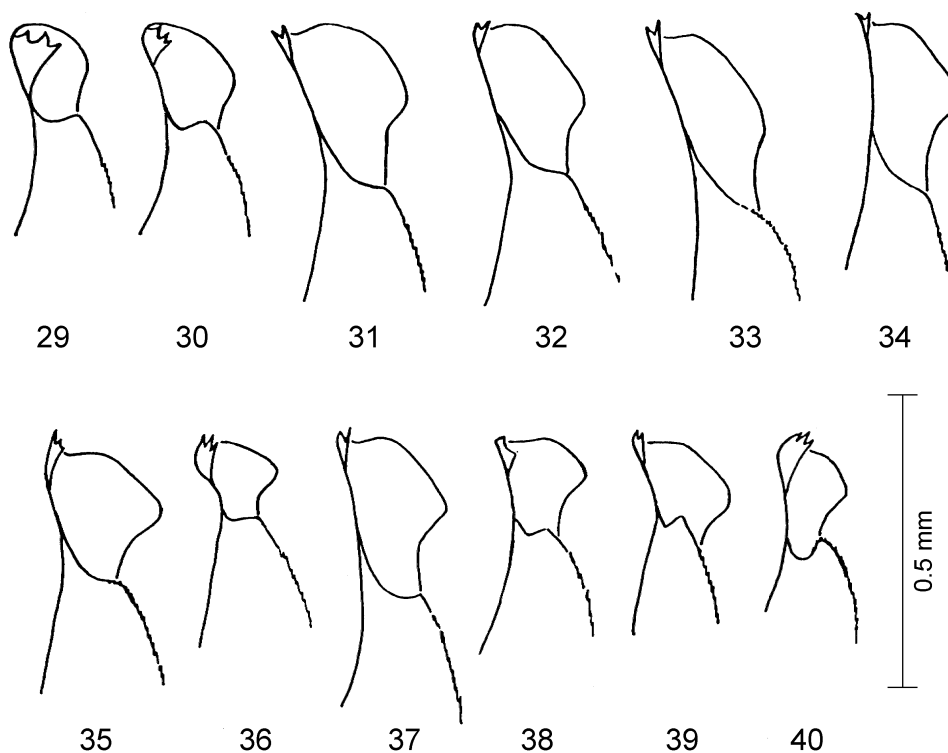
**Table 1.** Measurements of *Anaulaciulus golovatchi* MIKHALJOVA, 1982

| Locality  | Sex    | Number of podous somites | Vertical diameter of somite 23 (mm) |
|---|--------|--------------------------|-------------------------------------|
| North Korea, Ryanggang Prov., Mt. Paekdu-san, Unhung        | ♂      | 52                       | 2.3                                 |
|   | ♂      | 50                       | 2.0                                 |
|   | ♂      | 47                       | 1.65                                |
|   | ♂      | broken                   | 1.6                                 |
|   | ♂      | broken                   | 2.2                                 |
|   | ♂      | broken                   | 2.05                                |
|   | ♀      | 49                       | 2.7                                 |
|   | ♀      | 50                       | 2.7                                 |
|   | ♀      | 44                       | 2.0                                 |
|   | ♀      | 50                       | 2.65                                |
|   | ♀      | 51                       | 2.7                                 |
|   | ♀      | 44                       | 2.0                                 |
|   | ♀      | 43                       | 1.8                                 |
|   | ♀      | broken                   | 2.0                                 |
|   | ♀      | broken                   | 2.0                                 |
|   | ♀      | broken                   | 1.8                                 |
| ♀   | broken | 1.45                     |                                     |
| ♀   | broken | 1.8                      |                                     |
| ♀   | broken | 1.8                      |                                     |
| South Korea   | ♂      | 38                       | 1.2                                 |
| Russian Far East, Primorsky kray, Ussuriysky Nature Reserve | ♂      | 42                       | 1.6                                 |
|   | ♂      | 44                       | 1.6                                 |
|   | ♂      | 48                       | 1.75                                |
|   | ♂      | 41                       | 1.5                                 |
|   | ♂      | 43                       | 1.6                                 |
|   | ♂      | 39                       | 1.5                                 |
|   | ♂      | 51                       | 1.95                                |
|   | ♂      | 48                       | 1.6                                 |
|   | ♂      | 51                       | 2.05                                |
|   | ♂      | 41                       | 1.55                                |
|   | ♂      | 46                       | 1.7                                 |
|   | ♂      | 48                       | 1.7                                 |
|   | ♂      | 48                       | 1.8                                 |
|   | ♂      | 45                       | 1.6                                 |
| ♂   | 42     | 1.5                      |                                     |

**Table 1** (continued)

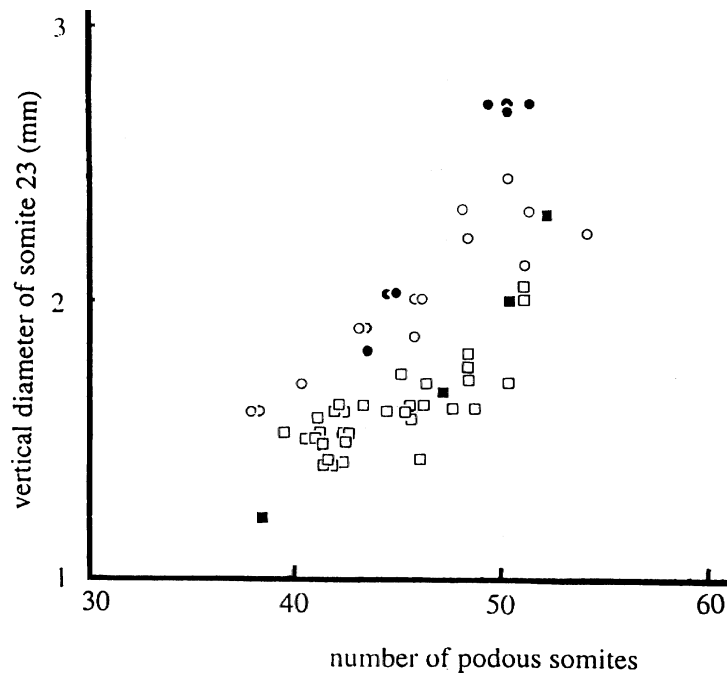
| Locality   | Sex | Number of podous somites | Vertical diameter of somite 23 (mm) |
|--|-----|--------------------------|-------------------------------------|
| Russian Far East, Primorsky kray, Ussuriysky Nature Reserve      | ♂   | 41                       | 1.45                                |
|  | ♂   | 42                       | 1.45                                |
|  | ♂   | 41                       | 1.5                                 |
|  | ♂   | 42                       | 1.4                                 |
|  | ♂   | 46                       | 1.6                                 |
|  | ♀   | 46                       | 1.85                                |
|  | ♀   | 43                       | 1.9                                 |
|  | ♀   | 40                       | 1.65                                |
|  | ♀   | 48                       | 2.2                                 |
|  | ♀   | 45                       | 1.95                                |
|  | ♀   | 45                       | 1.95                                |
|  | ♀   | 43                       | 1.9                                 |
| ♀  | 50  | 2.4                      |                                     |
| Russian Far East, Primorsky kray, Lazovsky Nature Reserve        | ♂   | 42                       | 1.45                                |
|  | ♂   | 50                       | 1.7                                 |
|  | ♀   | 54                       | 2.2                                 |
| Russian Far East, Primorsky kray, "Kedrovaya Pad" Nature Reserve | ♂   | 45                       | 1.6                                 |
|  | ♂   | 45                       | 1.5                                 |
|  | ♂   | 47                       | 1.55                                |
|  | ♂   | 46                       | 1.35                                |
|  | ♀   | 38                       | 1.6                                 |
|  | ♀   | 48                       | 2.3                                 |
|  | ♀   | 51                       | 2.3                                 |
|  | ♀   | 38                       | 1.55                                |
|  | ♀   | 51                       | 2.1                                 |
| Russian Far East, Primorsky kray, Vladivostok                    | ♂   | 42                       | 1.55                                |
|  | ♂   | 41                       | 1.45                                |
|  | ♂   | 42                       | 1.4                                 |
|  | ♂   | 42                       | 1.4                                 |
|  | ♂   | 45                       | 1.7                                 |
|  | ♂   | 42                       | 1.6                                 |
| Russian Far East, Primorsky kray, Russky Island                  | ♂   | 42                       | 1.4                                 |

**Anulaciulus golovatchi** MIKHALJOVA, 1982 (Figs 29–40) – 1 ♂, 1 ♀ (ZISP) – Russia, Far East, Primorsky kray (= Maritime Prov.), “Kedrovaya Pad” Nature Reserve, middle flow of Kedrovaya River, 17–18.May 1968., leg. POPOV F. Z. [published material re-examined, (MIKHALJOVA 2002)]; 1 ♂ (IBSV) – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, *Quercus mongolica* & *Pinus koraiensis* forest, 29.June 1976., leg. MIKHALJOVA E. V.; 3 ♂♂ (IBSV) – Ibid., 23.Sep.1977.; 4 ♂♂, 6 ♀♀ (IBSV) – Ibid., 14.Oct.; 1 ♂ (IBSV) – Ibid., 17.July 1978. [published material re-examined, (MIKHALJOVA 2002)]; 3 ♂♂ (IBSV) – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, *Abies holophylla* forest, 19.May 1977., leg. FJODOROVA R. G.; 3 ♂♂ (IBSV) – Ibid., 27.Aug.; 1 ♂, 1 ♀ (IBSV) – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, valley *Pinus koraiensis* forest, 26.Sep.1977., leg. KURCHEVA G. F. and MIKHALJOVA E. V.; 1 ♂ (IBSV) – Ibid., 30.Sep.; 1 ♀ (IBSV) – Ibid., Sep.–Oct., leg. MIKHALJOVA E. V.; 1 ♂, 1 ♀ (IBSV) – Russia, Far East, Primorsky kray, Lazovsky Nature Reserve, Sokolovka Kordon, *Quercus mongolica* forest, 11.June 1978., leg. MIKHALJOVA E. V.; 1 ♂ (IBSV) – Ibid., 12.June.; 1 ♂ (IBSV) – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, *Abies holophylla* forest, 6.July 1978., leg. MIKHALJOVA E. V. [published material re-examined, (MIKHALJOVA 2002)]; 1 ♂ (IBSV) – Ibid.,



**Figs 29–40.** *Anulaciulus golovatchi* MIKHALJOVA, 1982, variation in shape of opisthomerite apex: 31, 32, 33, 34, 37 = ♂♂ from North Korea, 29, 30, 39 = ♂♂ from Russian Far East, Primorsky kray, Ussuriysky Nature Reserve, 35 = ♂ from Russian Far East, Primorsky kray, Lazovsky Nature Reserve, 36, 38 = ♂♂ from Russian Far East, Primorsky kray, “Kedrovaya Pad” Nature Reserve, 40 = ♂ from South Korea. Scale in mm

9.July.; 2 ♂♂ (IBSV) – Russia, Far East, Primorsky kray, Vladivostok City, Okeanskaya Station, *Quercus mongolica* forest, litter, 20.May 1979., leg. MIKHALJOVA E. V.; 1 ♂ (IBSV) – Russia, Far East, Primorsky kray, “Kedrovaya Pad” Nature Reserve, *Abies holophylla* forest, 6.July 1979., leg. MIKHALJOVA E. V.; 3 ♀♀ (IBSV) – Ibid., 11.July.; 1 ♂ (IBSV) – Ibid., 12. July.; 1 ♂, 1 ♀ (IBSV) – Ibid., 15.July.; 1 ♂ (IBSV) – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, 7.Sep.1982., leg. KUZNETSOV V. N.; 1 ♂, 3 ♀♀, 1 juv. (HNHM) – North Korea, North Pyongan, Mt. Myohyang-san, pathway Manpoktong, No. 1032., 10.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♀ (HNHM) – North Korea, No.1039.; 3 ♂♂ (HNHM) – North Korea, Ryanggang Prov., Mt. Paekdu-san, near Pochon, 7.Aug.1989., leg. Han, Eng Hi.; 1 ♂ (HNHM) – North Korea, North Pyongan Prov., Mt. Myohyang-san, Sangwon valley, 17.Aug.1989., leg. DOBOLYI K. & SZOLLÁT GY.; 6 ♂♂, 13 ♀♀, 3 juvs (HNHM) – North Korea, Ryanggang Prov., Mt. Paekdu-san, Unhung, 10.May 1990., leg. HAN, ENG HI.; 1 juv. (HNHM) – Russia, Far East, Ussuriysky Nature Reserve, valley of Komarovka River, 50 m a.s.l., No. 16., 5.July 1990., leg. SZIRÁKI GY.; 2 juvs (HNHM) – Russia, Far East, No. 18.; 1 ♂ (HNHM) – North Korea, North Pyongan Prov., Mt. Myohyang-san, Hotel Myohyang, No. 1402., 26.May 1991, leg. RONKAY L. & VOJNITS A.; 1 ♂ (HNHM) – South Korea, South Cholla; 2 ♂♂ (IBSV) – Russia, Far East, Primorsky kray, Vladivostok City, Sedanka Station, on mushroom, 13.Sep.1997., leg. TIUNOV M. P.; 2 ♂♂ (IBSV) – Russia, Far East, Primorsky kray, Vladivostok City, Okeanskaya Station, deciduous forest, 43°13.40'N 132°01.18'E, 2.Oct.1997., leg. MARUSIK Yu. M.; 1 ♂ (IBSV) – Russia, Far East, Primorsky kray, Russkii Island, deciduous forest, litter, 23.Nov.2001., leg. MIKHALJOVA E. V.



**Fig. 41.** Scatterplot of vertical diameter of somite 23 to number of podous somites in various populations of *Anaulaciulus golovatchi* MIKHALJOVA, 1982. □ = males from Russian Far East; ■ = males from Korea; ○ = females from Russian Far East; ● = females from Korea

Remarks: Originally described from the southern part of Primorsky kray (= Maritime Prov.), Russian Far East (MIKHALJOVA 1982a), this species appears to be widespread in this territory. It has also been reported from North Korea (MIKHALJOVA & KIM 1993). Recently, the study of the single male paratype from North Korean *Anaulaciulus riedeli* JEĐRYCZKOWSKI, 1982 established it to be a subjective junior synonym to *A. golovatchi* MIKHALJOVA, 1982 (MIKHALJOVA 2002).

This species appears to be quite variable and variation of the gonopod promere shape was reported in the original description. The material here has permitted to illustrate the variation of different specific characters. The gonopod opisthomere apical blade ranges from narrow to broad, the distal edge of the opisthomere mesal longitudinal blade from sloping to excavated (Figs 29–40), the coloration (in alcohol) from dark brown or brown without or with characteristic pattern to light brown without or with pattern. Body length of males and females varies between 15.0 to 36.0 mm, diameter between 0.8 to 2.5 mm. The vertical diameter of somite 23/number of podous somites ratio in *A. golovatchi* from various populations are presented in Table 1 and Fig. 41. As a gradual transition is seen between the Far Eastern and the North Korean specimens neither is sharply delimited in dimensions (in spite of the small number of the measured males from North Korea).

However, it is necessary to note that both the large dark brown specimens prevail among North Korean populations and medium brown specimens among the Far Eastern populations. Accordingly, only one male from South Korea is slightly separated. It differs by a smaller body size, a more slender opisthomere and a more curved border to the opisthomere mesal blade. However, to estimate the variation of the South Korean specimens, additional material needs to be studied.

### ***Ansiulus aberrans* sp. n.**

(Figs 42–49)

1 ♂ (paratype) – North Korea, North Pyongan Prov., Mt. Myohyang-san, Hotel Myohyang-san, near Hotel, No. 1037., 11.Oct.1987., leg. KORSÓS Z. and RONKAY L.; 1 ♂ (paratype) – North Korea, North Pyongan Prov., Mt. Myohyang-san, pathway Isonnam, on the pathway from under stones, No.1039., 12.Oct.1987., leg KORSÓS Z. & RONKAY L.; 1 ♂ (holotype) – North Korea, Ryanggang Prov., Mt. Paekdu-san, Unhung, 15.Sep.1989., leg. HAN, ENG HI.

Holotype male and 1 male paratype are deposited in the HNHM, 1 male paratype in ZMUM.

Etymology: The specific epithet refers to the extreme variability of the species.

Description: Male. Length 33–43 mm. Diameter 2.0–3.0 mm. Body segments without telson 50(–3)–56(–2).

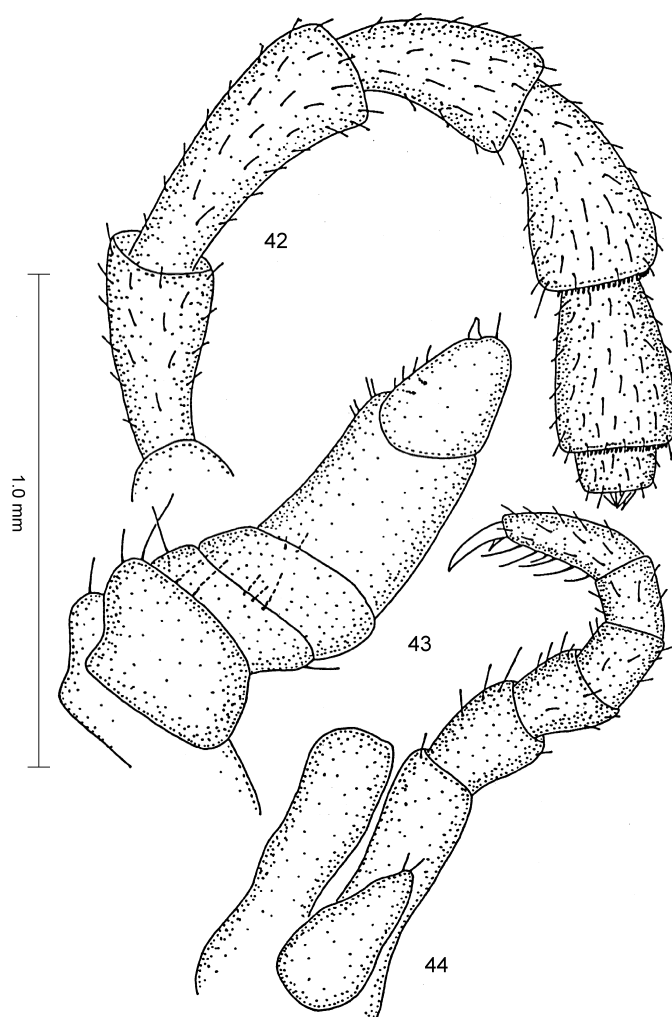
Coloration: Prozona dark brown with marbled spots antero-laterally. Metazona dark brown with several marbled spots dorsally and laterally. Caudal edge of each metazona yellowish. Antennae brown, legs light brown, eyes black.

Body subcylindrical, smooth. About 40 ocelli in a subtriangular eyepatch on each side of head. Vertical setae absent. Supralabral setae 2+2, labral ones 12+12. Mandibular stipes subtriangular with lower border as broad “M”. Gnathochilarium usual, three distal setae and a very low basal knob on stipes. Antennae (Fig. 42) relatively short, clavate. Both 5th and 6th articles of antenna with a distal corolla of tiny and dense bacilli apiece; ventrally these corolla incomplete. Collum with 10 striae which are more expressed ventrad than dorsad. Striae on metazonites 2 to 7 especially well developed, rather dense and deep ventrad, sparser and faint dorsad. Prozona with very thin striation directed obliquely laterally and increasingly transversely dorsad. Metazona with thin striae below

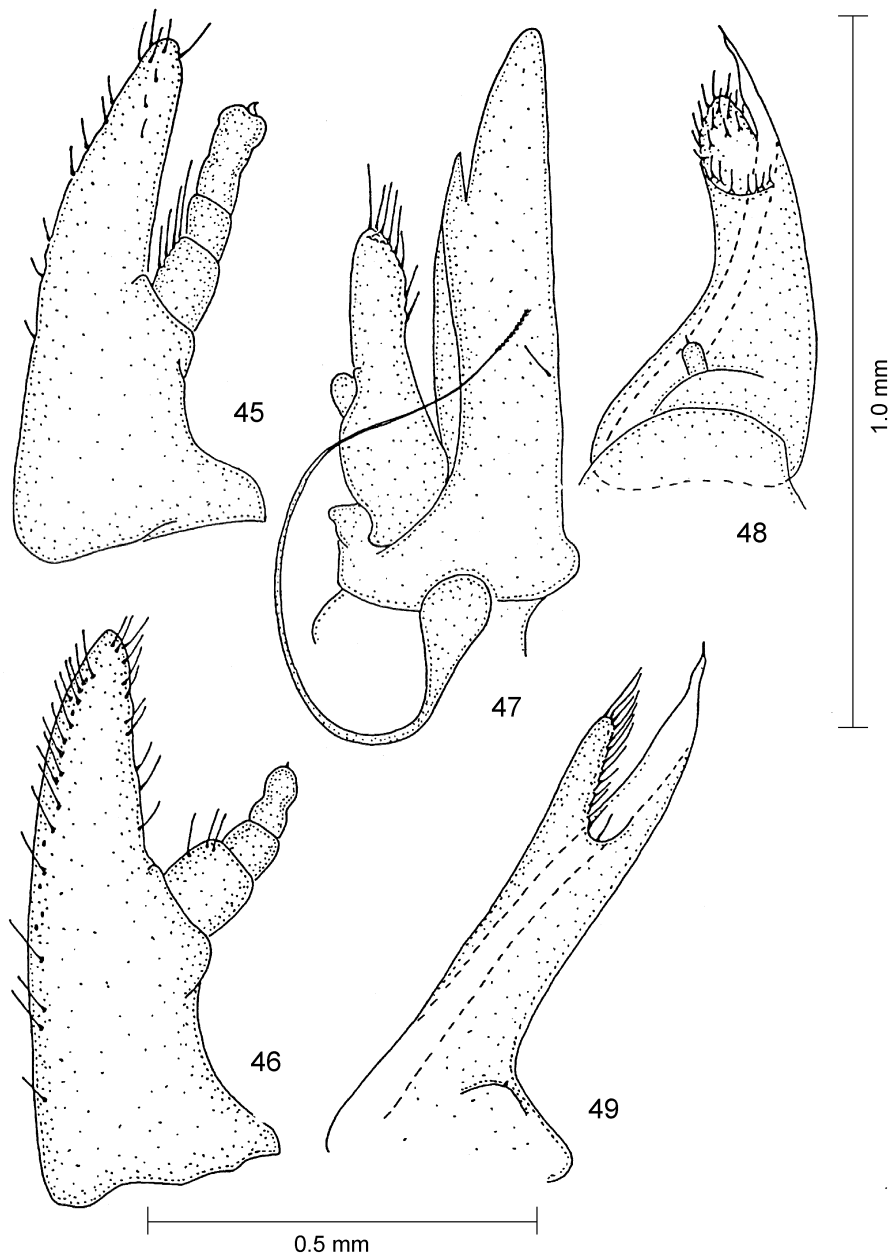


ozopores. Ozopores small, beginning from somite 6, lying behind and set off from a shallow suture dividing pro- and metazona.

Legs moderately long, slender, claw long, with an additional minute claw at base. Legpair 1 (Fig. 43) enlarged, with 5-segmented telopodites and blunt claw subapically. Penes (Fig. 44) subconical relatively short, with apical setae. Legpair 7 (Figs 45–46) reduced, with 3-segmented telopodites, 3rd segment the longest, moniliform in appearance with apical claw, 1st segment with long setae mesally. Coxa of legpair 7 with long tongue-shaped process bearing setae both mesally and apically.



**Figs 42–44.** *Ansiulus aberrans* sp. n.: 42 = antenna, 43 = legpair 1, caudal view, 44 = legpair 2 and penes, caudal view. Scales in mm



**Figs 45–49.** *Anisulus aberrans* sp. n.: 45 = legpair 7, frontal view, ♂ from Ryanggang Prov., 46 = legpair 7, frontal view, ♂ from North Pyongan Prov., 47 = anterior gonopod, caudomesal view, 48 = posterior gonopod, lateral view, ♂ from Ryanggang Prov., 49 = posterior gonopod, lateral view, ♂ from Pyongan Prov. Scales in mm

Gonopods: Anterior gonopods (Fig. 47) with an apically setose telopodite 1 and a rudimentary 2nd segment. Coxal process flat, lateral edge curved caudally, pointed apically; mesal edge with seta. Long flagella without or with tiny spines apically. Posterior gonopods (Figs 48–49) with a sublateral tubercle or 1-segmented remnant of telopodite, each latter with a small or tiny apical seta. Distocoxal portion biramous, anterior branch pointed, posterior one setose.

Female unknown.

Remarks: This species appears to be rather variable. The flagella of anterior gonopods are longer in a specimen from North Pyongan Prov., Mt. Myohyang-san, Hotel Myohyang-san, in contrast to the length of flagella in the males from both the other places of the North Pyongan Prov. and the Ryanggang Prov. Length of the 3rd segment of legpair 7 telopodite varies in different populations too. In addition, the posterior gonopods in the male from Ryanggang Prov. have a remnant of posterior gonopod telopodite (Fig. 48) instead of a sublateral tubercle carrying a tiny apical seta of posterior gonopods as in the male from Pyongan Prov. (Fig. 49). The genus *Ansiulus* TAKAKUWA, 1940 is most closely related to *Skleroprotopus* ATTEMS, 1901 and differs from it mainly by the presence of poly-segmented telopodites in the male legpair 7, as well as reduced telopodites of the posterior gonopods (TAKAKUWA 1940). Both the setigerous sublateral tubercle and the telopodite remnant of the posterior gonopods of *Ansiulus aberrans* sp. n. testify to the necessity of a revision of *Ansiulus*.

## POLYDESMIDA

### POLYDESMIDAE

**Epanerchodus koreanus** VERHOEFF, 1937 – 2 ♂♂, 3 ♀♀, 1 juv., 1 fragment – North Korea, De Sang-san, 10 km NE from Pyongyang, No. 350., 8.July 1977., leg. DELY O. GY. & DELY-DRASKOVITS Á.; 1 ♂, 2 juvs – North Korea, Prov. South Pyongan, Mt. Lyong-ak-san, 15 km W of Pyongyang, No. 618., 9.Sep.1980., leg. FORRÓ L. & TOPÁL GY.; 1 ♂, 1 ♀ – North Korea, Pyongyang City, Mt. Daesong-san, No. 971., 1.June 1985., leg. VOJNITS A. & ZOMBORI L.; 5 juvs – North Korea, Prov. North Pyongan, Mt. Myohyang-san, No. 1024., 8.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♂, 1 ♀, 1 juv. – North Korea, Prov. North Pyongan, Mt. Myohyang-san, No. 1031., 8.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♀, 4 juvs – North Korea, No. 1035.; 1 ♀, 18 juvs – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san, No. 1037., 11.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 3 fragments – Ibid., No. 1041., 12.Oct.; 1 ♀, 1 juv. – North Korea, No. 1039.; 1 juv. – North Korea, Prov. South Hwanghae, Haeju, Mt. Suyong-san, deciduous forest, No. 1049., 16.Oct. 1987., leg. KORSÓS Z. & RONKAY L.; 2 ♀♀ – North Korea, Prov. South Hwanghae, Haeju, Mt. Suyong-san, on light, No. 1050., 16.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 7 ♂♂, 5 ♀♀, 2 juvs – North Korea, No. 1065.; 1 ♀ – North Korea, Prov. Ryanggang, Chong-bong, 900 m, No. 1366., 30.June 1988., leg. MERKL O. & SZÉL GY.; 1 ♀ – North Korea, Prov. Ryanggang, Konchang, 800 m, No. 1369., 30.June 1988., leg. MERKL O. & SZÉL GY.; 1 ♂ – North Korea, Prov. Ryanggang, Mt. Paekdu-san, near Pochon, 7.Aug.1989., leg. HAN, ENG HI; 2 ♂♂, 2 ♀♀, 3 juvs – Ibid., 21.Aug.; 2

juvs – Ibid., 21.Sep.; 1 ♀ – North Korea, Prov. Kangwon, Mts. Kumgang-san, Okrindong valley, 9.Aug.1989., leg. DOBOLYI K. & SZOLLÁT GY.; 13 ♀♀ – North Korea, Prov. Ryanggang, Mt. Paekdu-san, Unhung, 1990., leg. HAN, ENG HI.; 4 ♀♀ – North Korea, Pyongyang City, Mt. Ryongak-san, No.1380., 22.May 1991., leg. RONKAY L. & VOJNITS A.; 1 ♀ – Ibid., No. 1447., 8.June.; 1 ♀ – North Korea, Prov. Kangwon, Mts. Kumgang-san, Manmulsang Rocks, 750 m, No. 1458., 11.June 1991., leg. RONKAY L. & VOJNITS A.

Remarks: Originally described from North Korea (VERHOEFF, 1937), this species is widespread all over Korea as well as in the adjacent parts of Primorsky kray (= Maritime Prov.), Russian Far East (MIKHALJOVA 1998, MIKHALJOVA & LIM 2000), and South Japan. It is a senior subjective synonym of both *Epanerchodus dichotomus* TAKAKUWA, 1954 and *E. bifidus* TAKAKUWA, 1954 (MIKHALJOVA & LIM 2002).

**Epanerchodus beroni** MIKHALJOVA et KIM, 1993 – 1 ♂ – North Korea, Prov. North Pyongan, Mts. Myohyang-san, Isonnam valley, No. 1393., 24.May 1991., leg. RONKAY L. & VOJNITS. A.

Remarks: The species is known solely from its terra typica, i.e. North Korea (MIKHALJOVA & Kim 1993). There is no reliable information concerning the find of this species in South Korea. The dentiform caudal process of the gonopod femorite represents the sole difference between this specimen and the holotype, but this variation is obviously infraspecific.

**Epanerchodus polymorphus** MIKHALJOVA et GOLOVATCH, 1981 – 1 ♂ – Russia, Far East, Primorsky kray, Ussuriyskiy Nature Reserve, hills on the SW part of the territory, 300 m a.s.l., No. 18., 6.July 1990., leg. SZIRÁKI GY.

Remarks: Originally described from the southern part of the Russian Far East (Primorsky kray = Maritime Prov.) (MIKHALJOVA & GOLOVATCH 1981), this species appears to be quite widespread there and has been recorded in North Korea as well (MIKHALJOVA *et al.* 2000). The species is polymorphic with two distinct male morphs (forma *digitata* and forma *simplificata*), and a continuous variation range of females, all coexisting.

## XYSTODESMIDAE

**Levizonus thaumasius** ATTEMS, 1898 – 1 ♀ – Russia, Far East, Primorsky kray, Ussuriyskiy Nature Reserve, valley of river Komarovka, No. 27., 10.July 1990., leg. SZIRÁKI Gy.

Remarks: This species occurs throughout the southern part of the Primorsky kray (= Maritime Prov.) (MIKHALJOVA 1998).

## PARADOXOSOMATIDAE

### **Koreadesmus** gen. n.

Type-species: *Koreadesmus proprius* sp. n.

Etymology: The generic name refers to Korea as the terra typica.

Diagnosis: Body with 20 segments, poreformula normal. Head normal; antennae relatively short, weakly clavate. Somites smooth dorsally, microgranulate

only below paraterga. Ventrums very delicately shagreened. Metatergites with a transverse sulcus. Tergal setae 2+2. Pleurosternal carinae developed on somites 2–7. Paraterga narrow, bordered only dorsally, with blunt caudolateral corners; their level horizontal. Sternites without modifications. Lamina between male coxae 4 present. Legs long, with tarsal brushes present almost throughout.

Gonopods with complex telopodite. Femorite without evidence of torsion, with a mesal groove. Postfemoral part with lateral process, tooth and flattened process at base of solenomere. Solenophore directed laterad, relatively broad, somewhat coiled, with long parabasol lobe bearing process. Solenomere long, flagelliform, mostly sheathed by solenophore.

Remarks: *Koreadesmus* gen. n. is a member of the tribe Sulciferini because of its solenomere mostly sheathed by the solenophore, bearing lamellae and postfemoral processes. It seems closely related to *Sichotanus* ATTEMS, 1898, *Cawjeekelia* GOLOVATCH, 1980, and *Tylopus* JEEKEL, 1968, judged from the relatively complex telopodite with flattened solenophore, postfemoral processes, femoral groove, narrow paraterga, and the presence of solenophore parabasol outgrowths. However, *Koreadesmus* gen. n. differs by the solenophore parabasol lobe bearing process, the number (two) and place of postfemoral processes, the absence of a distinct postfemoral lamina, the shape of the solenophore and other peculiarities of gonopod morphology.

### ***Koreadesmus proprius* sp. n.**

(Figs 50–57)

1 ♂ (holotype), 2 ♀♀ (paratypes) – North Korea, Ryanggang Prov., Konchang, 800 m, stream valley with shrubs of willow and rich under wood, beneath stones along the bank of river, No. 1369., 30 June 1988., leg. MERKL O. & SZÉL GY.

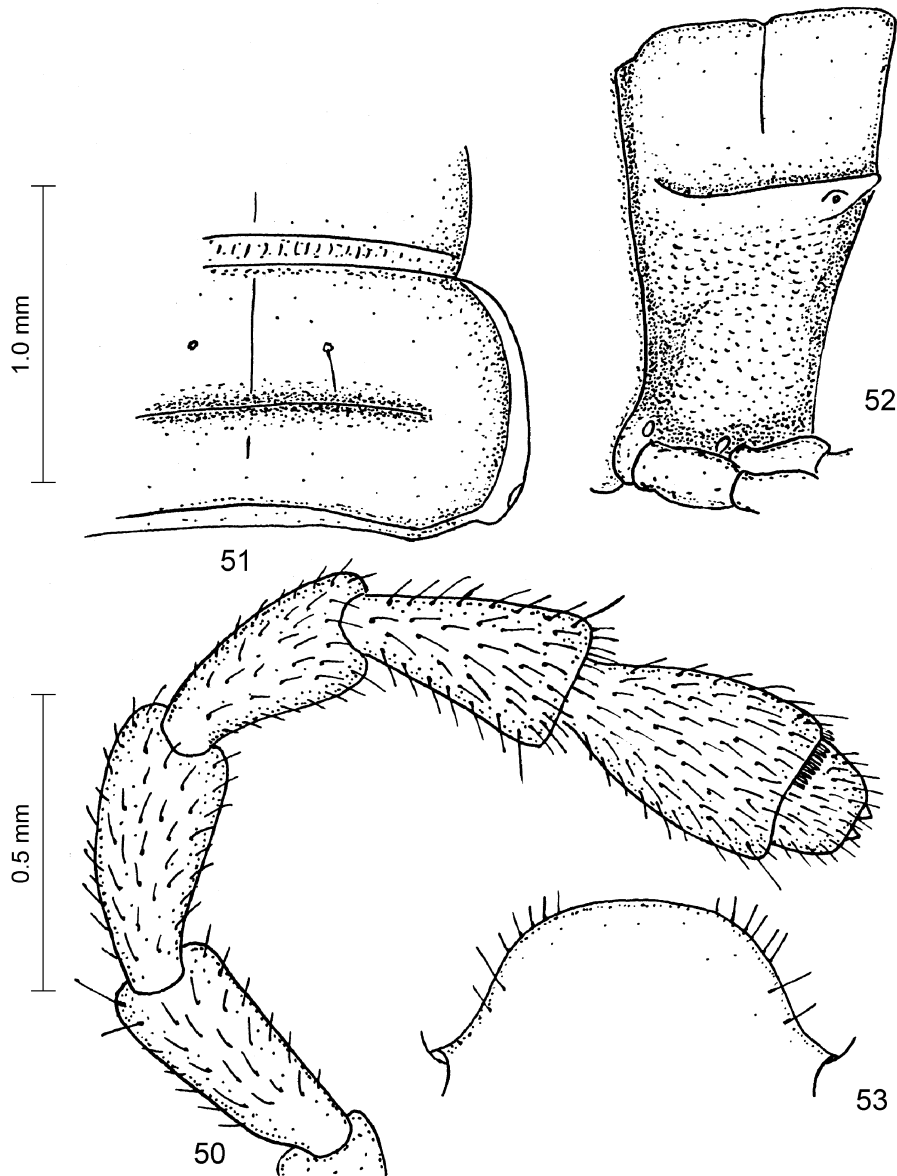
Male holotype, 2 ♀♀ paratypes are deposited in the HNHM.

Etymology: The specific epithet refers to the originality of this species.

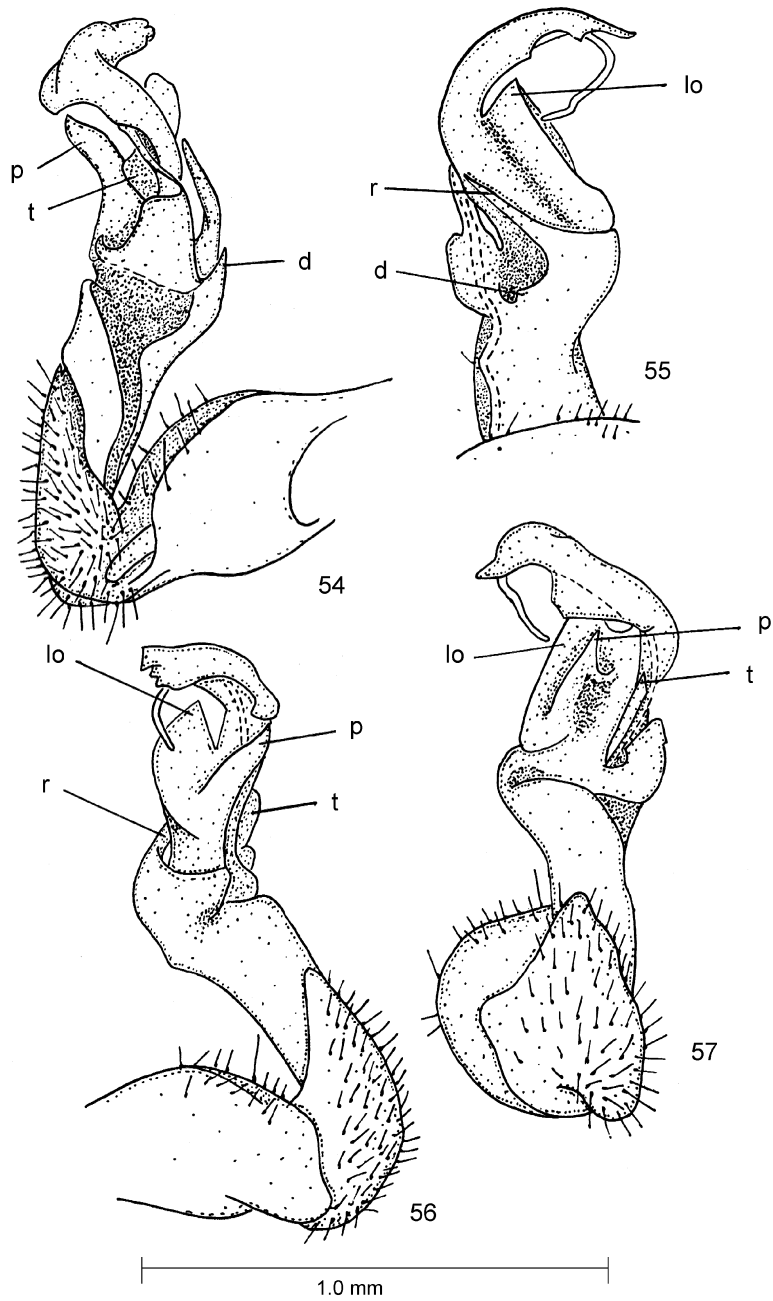
Description: Male. Length 18.5 mm, width of midbody pro- and metazona 1.6 and 1.7 mm, respectively.

Coloration: Body yellowish-brown with weak spots on 1–6 metazona dorsally. Ventrums somewhat paler, legs and paraterga pale. Antennae brown, tip of antennomere 6–7 dark brown, proximal and distal part of each antennomere light. Anterior half of head moderately densely setose with medium-sized setae. Somite 2 subequal in width to collum, somewhat narrower than head with genae and somewhat wider than somite 3 and 4. 2–4 metazonites subequal in width with each other and shorter than the rest of the somites. Body parallel-sided on somites 5–15, then very gently and gradually tapering to the telson.

Antennae (Fig. 50) relatively short, weakly clavate, in situ only a little surpassing somite 3 dorsally, densely setose. Antennomere 6 with group of tiny bacilli dorsally. Paraterga narrow, bordered only dorsally, lying in parallels to ventrum (Figs 51–52). In dorsal view caudolateral corners of



**Figs 50–53.** *Koreadesmus proprius* gen. sp. n.: 50 = antenna, 51–52 = somite 10, dorsal and lateral view, 53 = lamina between coxae 4. Scales in mm



**Figs 54–57.** *Koreadesmus proprius* gen. sp. n.: 54–57 = gonopod, mesal, frontal, lateral and caudal view, r – postfemoral process, d – postfemoral tooth, t – flattened outgrowth of postfemorite, lo – lobe, p – process. Scales in mm

paraterga blunt on each somite including somites 18–19. Ozopores lying inside a shallow ovoid groove on somites 5, 7, 9, 10, 12, 13, 15, 16, 17, 18, 19. Dorsum smooth, microgranulate only below the paraterga. Ventrums very delicately shagreened. Axial line only very weakly traceable. Tergal setae medium-sized, 2+2 in a single presulcus row. Suture dividing pro- and metazonites well-developed. Transverse metatergal sulcus starting from somite 5, fully developed on somites 6–18, missing on somite 19. Pleurosternal carinae developed on somites 2–7, each microgranulate; following carinae gradually turning into low bulges, missing on somite 19. Tail relatively long, somewhat flattened dorsoventrally, tip emarginate with medium-sized setae. Subanal scale subtrapeziform with a seta on each caudolateral corner.

Sternites moderately densely setose, without modification. Lamina between coxae 4 subtrapeziform, covered in short setae (Fig. 53).

Legs long, with tarsal brushes present almost throughout, especially well-developed on pregonopodal legs and missing on two last leg-pairs.

Gonopods (Figs 54–57) with a relatively stout coxite and a complex telopodite. Ventral part of coxite setose distally. Prefemur prominent, strongly setose. Femorite without evidence of torsion, slightly enlarged distally with a clear-cut mesal groove. Postfemoral part with anterior, directed side-long process (r) pointed apically, a small tooth (d) and a small flattened outgrowth (t) at base solenomere but without distinct postfemoral lamina (“lamina l”), demarcated by clear groove as in *Tylopus* and *Oxidus* genera (GOLOVATCH & ENGHOFF 1993). However, an anterior dent at base of process “r” and a thin brown strip separate this portion like a lamina. Solenophore relatively broad, in situ directed laterad, somewhat coiled, with flattened caudal edge and a long parbasal lobe (lo) bearing process (p). Tip of solenophore serrate. Solenomere long, flagelliform, mostly sheathed by solenophore, at base thick. Seminal groove follows a straight course along mesal side of femorite, towards base of solenomere.

\*

**Sichotanus eurygaster** (ATTEMS, 1898) – 2 juvs – North Korea, Prov. North Pyongan, Mt. Myohyang-san, pitfall traps, No. 841., 18.July 1982., leg. FORRÓ L. & RONKAY L.; 1 ♂ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san, No. 1037., 11.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 3 ♂♂, 4 ♀♀ – North Korea, Prov. Ryanggang, Samjiyon, No. 1347., 26.June 1988., leg. MERKL O. & SZÉL GY.; 1 ♂, 5 ♀♀ – Ibid., pitfall traps, No. 1352., 26–30.June.; 3 ♂♂, 3 ♀♀ – North Korea, Prov. Ryanggang, Paekdu-san-milyong, 1500 m, No. 1354., 27.June 1988., leg. MERKL O. & SZÉL GY.; 1 ♂ – North Korea, Prov. Ryanggang, Chong-bong, 900 m, No. 1366., 30.June 1988., leg. MERKL O. & SZÉL GY.; 8 ♂♂, 3 ♀♀ – North Korea, Prov. Ryanggang, Konchang, 800 m, No. 1369., 30.June 1988., leg. MERKL O. & SZÉL GY.; 2 ♂♂ – North Korea, Prov. Ryanggang, Mt. Paekdu-san, Unhung, 15.Sep.1989., leg. HAN, ENG HI.; 4 ♀♀ – Ibid., 10.May 1990.; 1 ♂ – North Korea, Prov. Ryanggang, Mt. Paekdu-san, Pochon, 22.Sep.1989., leg. HAN, ENG HI.; 1 ♀ – North Korea, Prov. Kangwon, Mts. Kumgang-san, Manmulsang Rocks, 750 m, No. 1458., 11.June 1991., leg. RONKAY L. & VOJNITS A.; 1 ♀ – Russia, Far East, Primorsky kray, Krinichnaya Mt., 5 km S of Anisimovka, 300 m a.s.l., No. 1., 27.June 1990., leg. SZIRÁKI Gy.; 1 ♀ – Russia, Far East, Primorsky kray, Pestsanyi Peninsula, 20 km NW of Vladivostok, 150 m a.s.l., *Quercus mongolica* forest, No. 5., 30.June 1990., leg. SZIRÁKI Gy.; 1 ♂ – Russia, Far East, Primorsky kray, Ussuriysky Nature Reserve, hills on the SW part of the territory, 300 m a.s.l., No. 31., 11.July 1990., leg. SZIRÁKI Gy.

Remarks: This species is widespread in the southern part of the Far East of Russia and Korea; it has also been recorded in adjacent territory of NE China (MIKHALJOVA 1998).

**Cawjeekelia gloriosa** GOLOVATCH, 1980 – 1 ♂ – North Korea, Prov. Ryanggang, Samjiyon, No. 1347., 26.June 1988., leg. MERKL O. & SZÉL GY.



Remarks: The species has only been known from North Korea, its terra typica (GOLOVATCH 1980a, 1995, MIKHALJOVA *et al.* 2000).

**Orthomorphella pekuensis** (KARSCH, 1881) – 1 ♂, 1 ♀ – North Korea, Pyongyang City, Mt. Ryongak-san, No. 776., 12.July 1982., leg. FORRÓ L. & RONKAY L.; 7 ♂♂, 5 ♀♀ – Ibid., No. 845., 20.July.; 1 ♀ – Ibid., No. 967., 31.May 1985., leg. VOJNITS A. & ZOMBORI L.; 6 juvs – North Korea, Pyongyang City, Pyongyang, Hotel Potonggang, No. 1018., 5.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 2 ♂♂, 4 ♀♀, 2 juvs – North Korea, Pyongyang City, Mangyongdae, No. 1021., 7.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♀, 3 juvs – North Korea, Pyongyang City, Pyongyang, at the border of the city on the road to Nampo, No. 1046., 15.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 1 ♀ – North Korea, Pyongyang City, Pyongyang, small park around the Hotel Potonggang, No. 1311., 13–15. June 1988., leg. MERKL O. & SZÉL GY.; 3 ♂♂, 3 ♀♀ – North Korea, Pyongyang City, Pyongyang, No. 1312., 14–15.June 1988., leg. MERKL O. & SZÉL GY.; 1 ♂, 1 ♀ – Ibid., Botanical Garden, No. 1316., 16.June.; 2 ♀♀ – North Korea, Pyongyang City, Pyongyang, No. 1423., 31.May 1991., leg. RONKAY L. & VOJNITS A.; 2 ♂♂, 1 juv. – China, Beijing NW, Xisanhuanbeilu, from beneath stones on bordering field, No. 4., 11.Sep.1993., leg. FARKAS B.; 1 ♀ – China, Beijing SW, Xisanhuanzhonglu, Yuyuantan Park, No. 11., 17.Sep.1993., leg. FARKAS B.; 5 ♂♂, 3 ♀♀, 1 fragm. – China, Shaanxi Prov., Lintong, 30 km E of Xi'an, No. 30., 6.Oct.1993., leg. FARKAS B.

Remarks: The species is widespread in North and South Korea, the eastern part of China and Japan.

**Oxidus gracilis** (C. L. KOCH, 1847) – 1 ♀ – North Korea, Prov. South Pyongan, Za-mo san, 60 km NE from Pyongyang, No. 186., 18.Aug.1971., leg. PAPP J. & HORVATOVICH S.; 18 ♂♂, 14 ♀♀ – North Korea, De Sang-san, 10 km NE from Pyongyang, No. 350., 8.July 1977., leg. DELY O. GY. & DELY-DRASKOVITS Á.; 1 ♀, 1 juv. – North Korea, Pyongyang City, Mt. Ryongak-san, No. 762., 10.July 1982., leg. FORRÓ L. & RONKAY L.; 11 ♂♂, 33 ♀♀ – Ibid., No. 870., 27.July.; 30 ♂♂, 24 ♀♀ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san, No. 804., 16.July 1982., leg. FORRÓ L. & RONKAY L.; 9 juvs – North Korea, Pyongyang City, Pyongyang, Hotel Potonggang, No. 1018., 5.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 21 juvs – Ibid., No. 1020., 6.Oct. 58 juvs – North Korea, Pyongyang City, Pyongyang, at the border of the city on the road to Nampo, No. 1046., 15.Oct.1987., leg. KORSÓS Z. & RONKAY L.; 6 ♂♂, 5 ♀♀, 3 juvs – North Korea, Pyongyang City, Pyongyang, No. 1312., 14–15.June 1988., leg. MERKL O. & SZÉL GY.; 3 ♂♂, 8 ♀♀, 7 juvs – North Korea, Prov. Kangwon, Mt. Kungang-san, Samil-po, No. 1325., 18.June 1988., leg. MERKL O. & SZÉL GY.; 3 ♀♀ – Ibid., Onjong-ri, No. 1332., 20.June.; 1 ♂, 1 ♀ – North Korea, Pyongyang City, Michon-ho, No. 1375., 3.July 1988., leg. MERKL O. & SZÉL GY.; 1 ♀ – North Korea, Pyongyang City, Hotel Pyongyang, 14.Aug.1989., leg. DOBOLYI K. & SZOLLÁT GY.; 5 ♂♂, 6 ♀♀ – North Korea, Pyongyang City, Pyongyang, No. 1478., 29 June 1991., leg. MÉSZÁROS F. & ZOMBORI L.; 1 ♀ – North Korea, Prov. North Pyongan, Mt. Myohyang-san, Hyangsan, No. 1525., 7.July 1991., leg. MÉSZÁROS F. & ZOMBORI L.

Remarks: This nearly ubiquitous species is usually very abundant in the collections of Diplopoda from Korea.

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