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Terrestrial Hydrophilid Beetles of the Kuril Archipelago (Coleoptera, Hydrophilidae)

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Abstract Terrestrial hydrophilid beetles species (Coleoptera: Hydrophilidae) occurring in the Kuril Archipelago in the northwestern Pacific are reviewed. Based on literature records, museum collections and material from recent expeditions, 17 species (including 2 unidentified) are known from this archipelago. A detail report on 5 species is given on the basis of about 1,260 adult specimens collected in the Kuril Islands by International Kuril Island Project (IKIP). IKIP was a joint Japanese-Russian-American expedition conducted between 1994 – 2000.

Key words: Hydrophilidae, Coleoptera, Kruil Archipelago, Northwestern Pacific, IKIP

Introduction

Terrestrial hydrophilid beetles from East Asia (including Far East Russia, Japan and Korea) are rather poorly known. Despite the recent works by Shatrovskiy (1989, 1992) and Hoshina (2006), their taxonomy and distributions in the region remain unsatisfactorily studied.

There have been only scarce reports on terrestrial hydrophilids from the Kuril Islands Archipelago (the eastern boundary of the Okhotsk Sea and a bridge between Hokkaido and the Kamchatka peninsula of Russia) in the past 50 years. Kuwayama (1967) recorded 9 species of the family Hydrophilidae, mainly from the southern Islands. Six of them are terrestrial: *Cercyon quisquilius, C. setulosus, C.* sp. 1 and *C.* sp. 2 (undetermined), *Pachysternum haemorrhoum* and *P. h. sibiricum.* All the specimens were identified by Dr. Takehiko Nakane. Shatrovskiy (1989, 1992) recorded 10 additional species: *Cercyon laminatus, C. algarum, C. aptus, C. dux* (this is a questionable record), *C. numerosus, C. olibrus, C. rotundulus, C. symbion, C. vagus* and *C. verus.* Three of these, *C. numerosus, C. symbion* and *C. verus,* were new to science. In 1998, Ryndevich described a new species, *Cercyon saluki* from Kunashir Island. In total, records of 16 species and 1 subspecies of the terrestrial hydrophilidae from the Kuril Islands can be found in the literature (see Table 1).

During 1995 to 1997, the senior author (M.Ô.) participated as a Coleoptera specialist in the biodiversity research expedition to the Kuril Islands Archipelago, that is, the International Kuril Island Project (IKIP). IKIP was a joint Japanese-Russian-American expedition carried out between 1994 – 2000. He collected about 7,140 specimens of Coleoptera (18,559 specimens form the class Insecta), from 164 sites on 20 Islands. The total number of terrestrial hydrophilid beetles specimens collected was about 1,260.

In this paper, we record 5 species from 10 islands of the Kurils based on the IKIP-collected specimens as well as some additional specimens from Hokkaido University museum collection. Figures of the male genitalia and SEM photos of the external morphological characters are included.

Materials and Methods

The following list is based on a combination of literature records and the examination of specimens collected by 1994 – 2000 by IKIP expeditions. This material is deposited chiefly in SEHU (Laboratory of Systematic Entomology, The Hokkaido University Museum, Hokkaido University, Japan). Additional specimens already housed in the collections of SEHU were also studied. The list includes all species of terrestrial Hydrophilidae recorded from the Kurils so far. For detailed data of locality, date and collector see Appendix. A single asterisk (*) on the island of the "Distribution" indicates records based on the IKIP materials, and a double asterisk (**) shows new records from the island.

List of species

Subfamily Sphaeridiinae
Tribe Megasternini

Genus *Cercyon* Leach, 1817
Subgenus *Paracycreon* d'Orchymont, 1942

***Cercyon (Paracycreon) laminatus* Sharp, 1873**

Cercyon laminatus Sharp, 1873, 66 [Japan (Honshû: Hyôgo)].

Cercyon (*Paracycreon*) *laminatus*: Huijbregts, 1982, 146; Shatrovskij, 1989, 279 [southern Kurils]: Hansen, 1999, 274.

Cercyon sharpi Harold, 1878, 68 [Japan (Honshû: Tôkyô)].

Japanese name: Usumon-keshi-gamushi.

Specimens examined. No specimen from the Kurils has been available for this study.

Distribution. Kuril Islands (southern Kurils). Palearctic: Armenia, Austria, Belgium, Britain, Denmark, Estonia, Finland, France, Germany, Hungary, Israel, Italy, Japan, Lithuania, Netherlands, Russian Fed. (Far East), Spain, Sweden, Switzerland (the occurrence in western palearctis is due to introduction). Oriental: Taiwan. Pacific: Hawaiian Is.

Subgenus *Cercyon* Leach, 1817

***Cercyon* (*Cercyon*) *algarum* Sharp, 1873**

Cercyon algarum Sharp, 1873, 65 [Japan (Kyûshû: Nagasaki, Amakusa)].

Cercyon (*Cercyon*) *algarum*: Shatrovskiy, 1989, 281 [southern Kurils].

Cercyon (*Cyceron*) *algarum*: Shatrovskiy, 1992, 366 [designation of lectotype (Japan, male); Kunashir].

Japanese name: Hime-keshi-gamushi

Specimens examined. No specimen from the Kurils has been available for this study.

Distribution. Kuril Islands (southern Kuril: Kunashir). Palearctic: Japan (Hokkaidô; Honshû; Izu: Hachijô; Kyûshû), Russian Fed. (Far East).

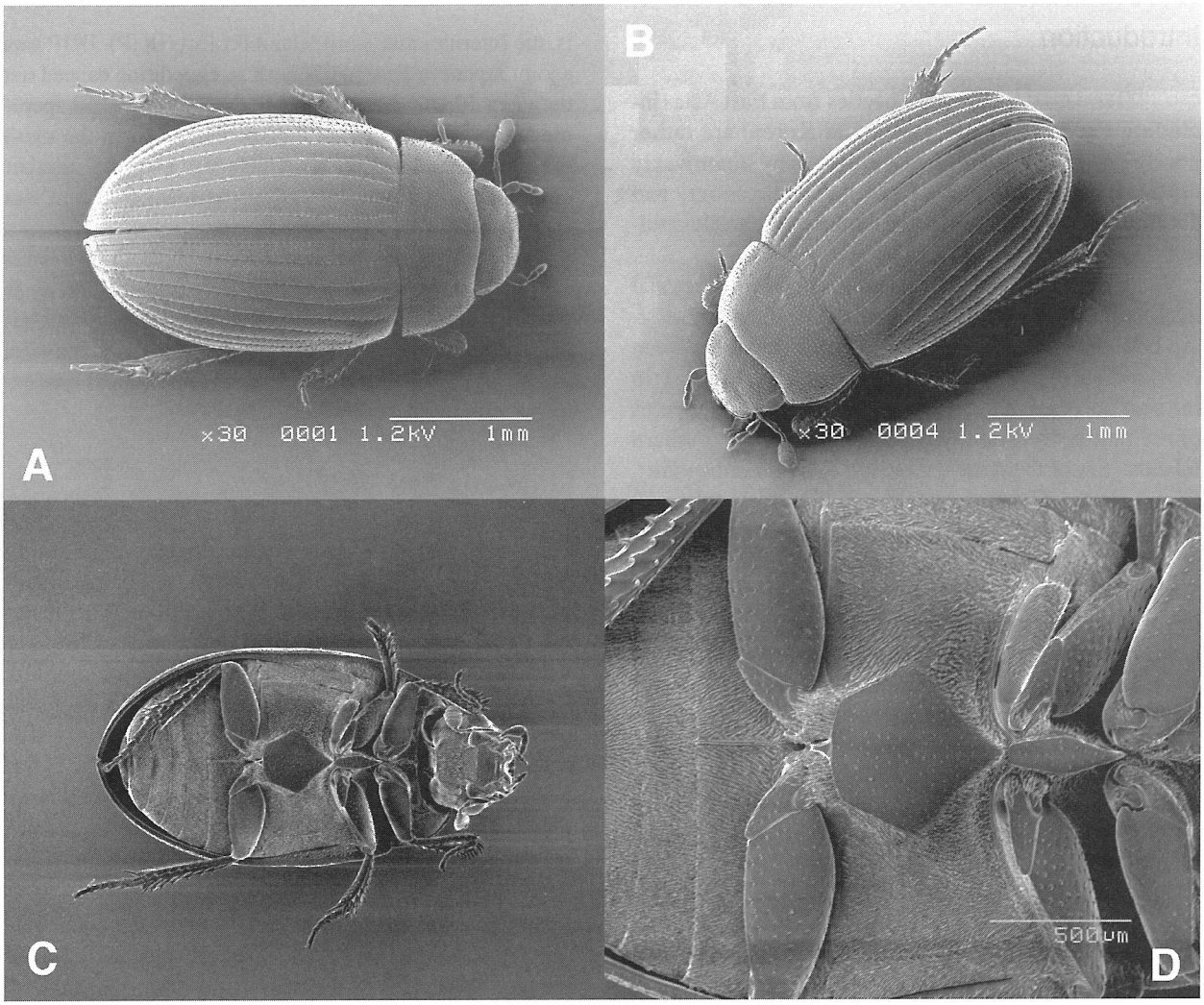

Figure 1. *Cercyon* (*Cercyon*) *aptus*. A: Habitus, dorsal view. B: Ditto, oblique view. C: Ditto, ventral view. D: Pro-, meso- and metasterna, ventral view. [A, B: MO-03-086 and C, D: -06-013 from Urup (UR95MO-066)]

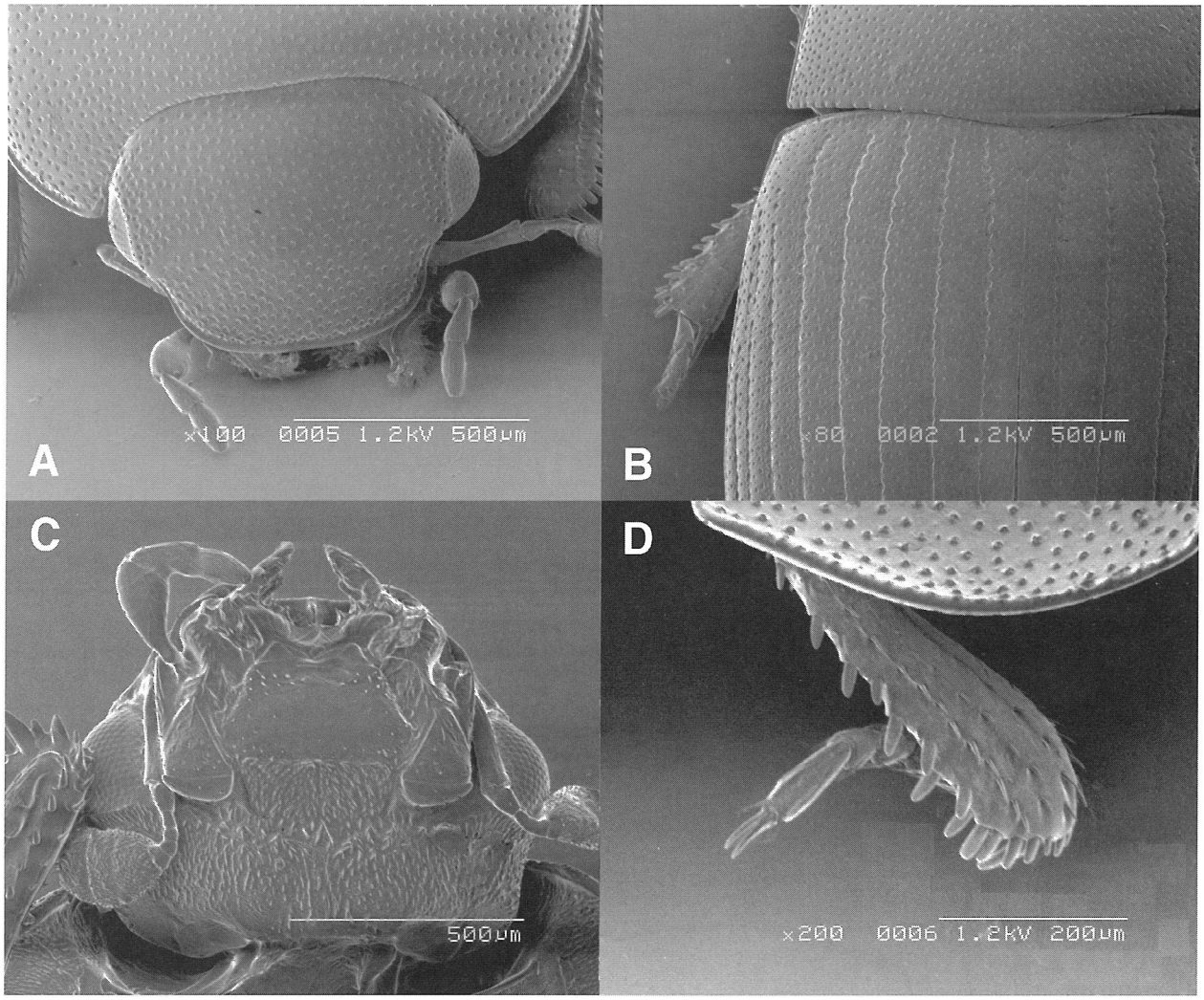

Figure 2. *Cercyon* (*Cercyon*) *aptus*. A: Head, dorso-frontal view. B: Basal portion of left elytron, dorsal view. C: Mouthparts, ventral view. D: Protibia, dorsal view. [A – B, D: MO-03-086 and C: -06-013 from Urup (UR95MO-066)]

***Cercyon* (*Cercyon*) *aptus* Sharp, 1873**

Cercyon aptus Sharp, 1873, 65 [Japan (Kyûshû, Honshû)].

Cercyon (*Cercyon*) *aptus*: Shatrovskiy, 1989, 281 [southern Kurils]; Hansen, 1999, 275.

Cercyon (*Cycreon*) *aptus*: Shatrovskiy, 1992, 367 [designation of lectotype (Japan, female); southern Kurils (Kunashir, Itrup, Urup)].

Japanese name: Ko-keshi-gamushi

Redescription. Body oval and convex; surface of head and pronotum shiny; elytra not shiny, with microsculpture. Body outline slightly interrupted between pronotum and elytra. There are several color patterns as follows: (1) head black; pronotum, scutellum and elytra blackish-brown; lateral margin of elytra broadly (1/3 of width) rufo-testaceous to testaceous; epipleura black, and pseudepiplera dark brown; underside black, posterior margin of mesosterna and sterna brown; antennae, maxillary palpi, mentum and tarsi of leg yellowish-brown; coxae, femora and tibiae of leg dark yellowish-brown, margin of femora blackish brown; (2) head black; pronotum, scutellum and elytra reddish-brown; posterior fifth of elytra bright yellowish-brown; epipleura and pseudepipleura reddish-brown; underside dark blackish-brown; (3) similar to (2), but basal area of elytra (around scutellum) and basal half of interval between suture and 1st elytral stria yellowish-brown; (4) all parts of body yellowish-brown except reddish-brown head; and (5) all parts of body black except yellowish-brown funicles of antennae, maxillary palpi and tarsi.

Clypeus truncated anteriorly, with anterior marginal stria; anterior corner regularly round. Eyes small, separated by 11.6 x their width. Mentum trapezoid, matte, with microsculptures; anterior margin round and carinate; area behind margin widely depressed roundly. Maxillary palpi 0.42 x as long as width of head; second segment swollen apically; last segment swollen and a little longer than penultimate. Antennae about 1.4 x as long as width of head; pedicel hardly 0.25 x as long as scape; club about 1.53 x as long as wide, compact. Head densely covered with coarse and deep punctures that are separated by 0.3 x their diameter, except for an area along epicranial suture; punctures becoming sparser posteriorly. Pronotum widest at basal 2/3 of its length; lateral side regularly round;

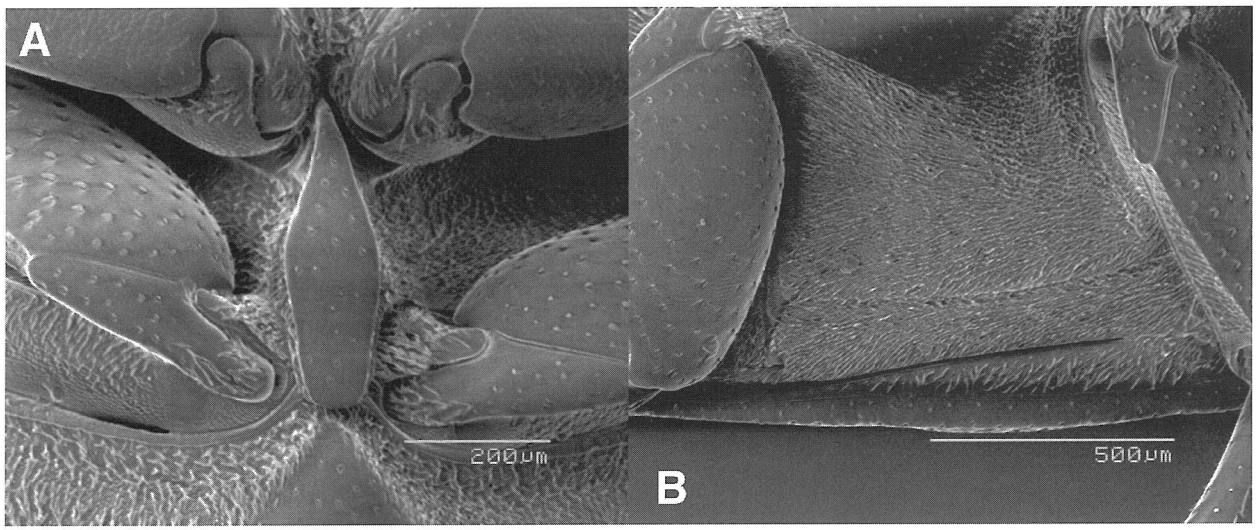

Figure 3. *Cercyon* (*Cercyon*) *aptus*. A: Mesosternal tablet, ventral view. B: Left elytral epipleura and metespisternum, ventral view. [MO-06-013 from Urup (UR95MO-066)].

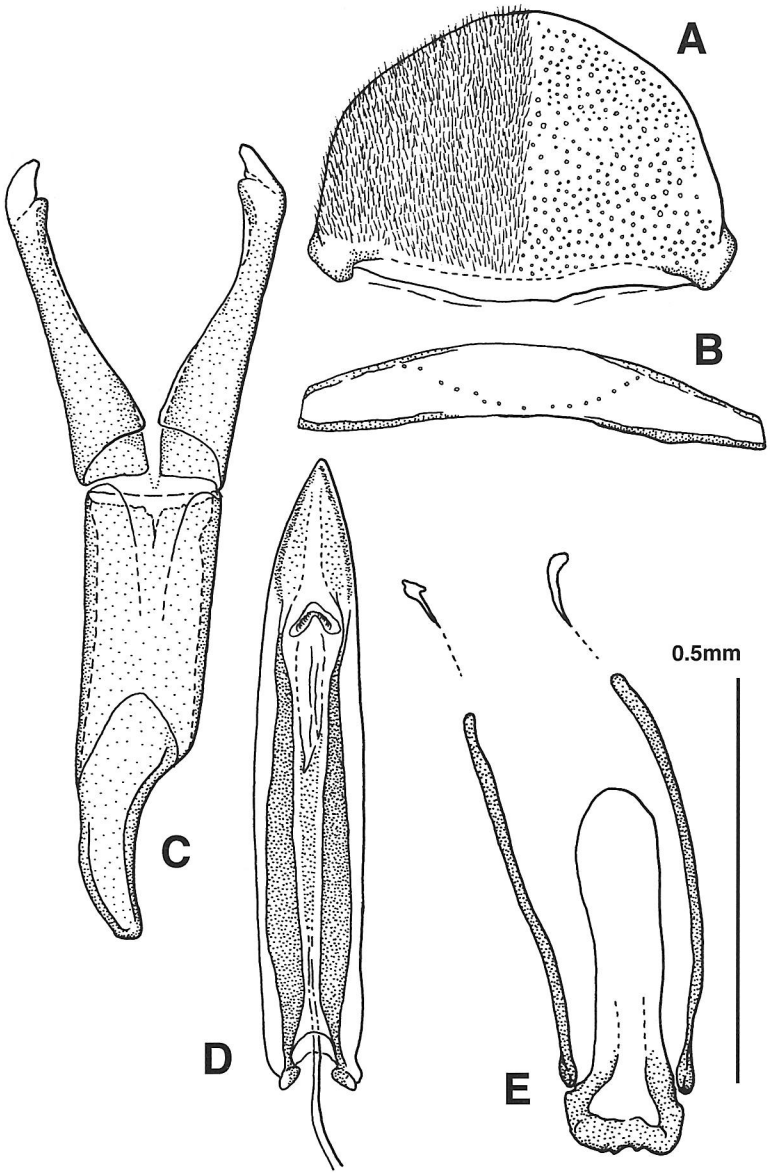

Figure 4. *Cercyon* (*Cercyon*) *aptus*. Male genitalia. A: Eighth tergite, dorsal view. B: Eighth sternum, ventral view. C: Aedeagus, dorsal view. D: Median lobe, dorsal view. E: Ninth sternum, dorsal view. [MO-03-035 from Chirpoi (CH95MO-048)].

surface densely covered with coarse punctures separated by 0.3 x their diameter medially and by their own diameter laterally. Elytral sides regularly curved, widest at half of their length; 10 distinct striae deeply impressed; 1st – 5th striae completely impressed; 6th shortened on basal 1/6; 7th – 10th shortened on basal 1/8; 10th only presented

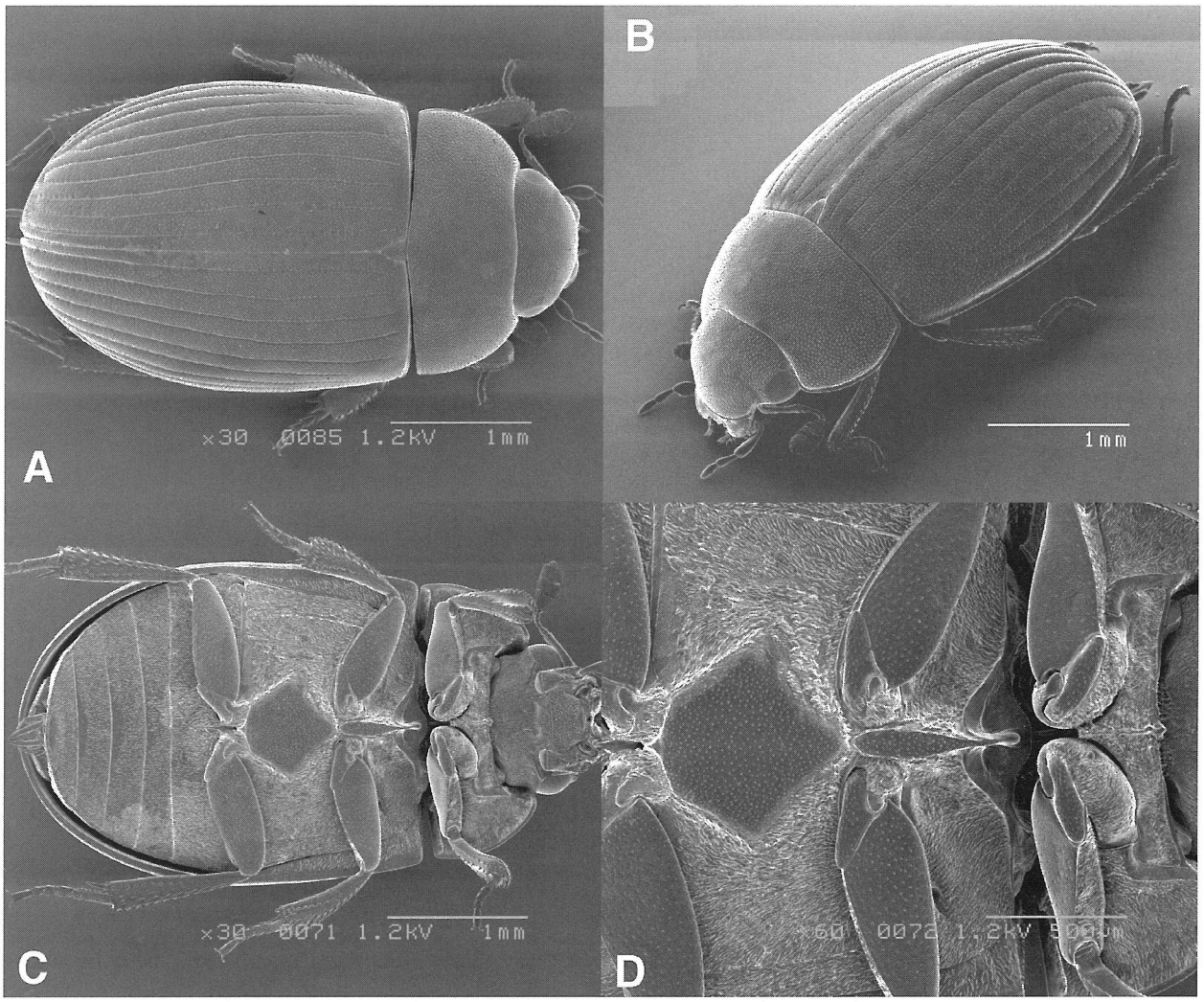

Figure 5. *Cercyon* (*Cercyon*) *numerosus*. A: Habitus, dorsal view. B: Ditto, oblique view. C: Ditto, ventral view. D: Pro-, meso- and metasterna, ventral view. [A, B: MO-03-088 and C, D: -082 from Urup (UR96MO-048A)].

on basal 2/3; posterior ends of 5th and 6th united; surface covered with fine punctures that are separated by 2 x their diameter; interspace among punctures densely covered with transverse micro-rugae; rugae becoming finer medio-basally, and densely covered with microsculpture along striae; surface of intervals convex and becoming strongly convex apically. Epipleura and pseudepipleura almost horizontal, glabrous.

Prosternum rather well-developed, tectiform and strongly carinate medially; middle portion not demarcated from antennal groove; antennal grooves well defined laterally and with pubescence, not reaching lateral prothoracic margin. Mesosternal tablet oblong (index length: width 3.33), strongly acute anteriorly and shortly truncated on its posterior end, widest point at anterior 1/3; surface shiny, flat and irregularly and sparsely covered with fine punctures (Fig. 3A); cavities for reception of procoxae very shiny, ending at anterior 2/3 of length of mesosterna. Metasternum with raised pentagonal plate, rather convex and glabrous middle portion of which is slightly projected anteriorly between mesocoxae, contacting the mesosternal tablet at a single point; pentagonal plate shiny, irregularly and sparsely covered with fine punctures that are separated by 1 – 4 x their diameter; lateral portion without punctures, densely furnished with pubescence. Metepisterna 4.4 x as long as wide, subparallel.

Anterior margin of protibia round. All femora evenly and sparsely covered with fine and setiferous punctures that are separated by 4 – 5 x their diameter; interspace among punctures filled with microscopic sculptures.

Aedeagus and genital segments as in Figure 4; ratio of paramera to basal piece = 0.73.

Body length 2.5 – 3.0 mm, width 1.55 – 1.9 mm.

Specimens examined. Kuril Islands. Iturup: IT96NM-027 (1 ex.). Urup: UR95MO-001 (3 exs.); UR95MO-006 (2 exs.); UR95MO-066 (1 male and 152 exs.); UR95BKU-061 (5 exs.). Chirpoi: CH95MO-048 (16 exs.).

Distribution. Kuril Islands (Kunashir, Itrup, Urup*, Chirpoi**). Palearctic: Japan, Russian Fed. (Far East).

Remarks. *C. aptus* has a middle sized and rather convex body. It is easily distinguished from the other species by the convex intervals of elytral striae.

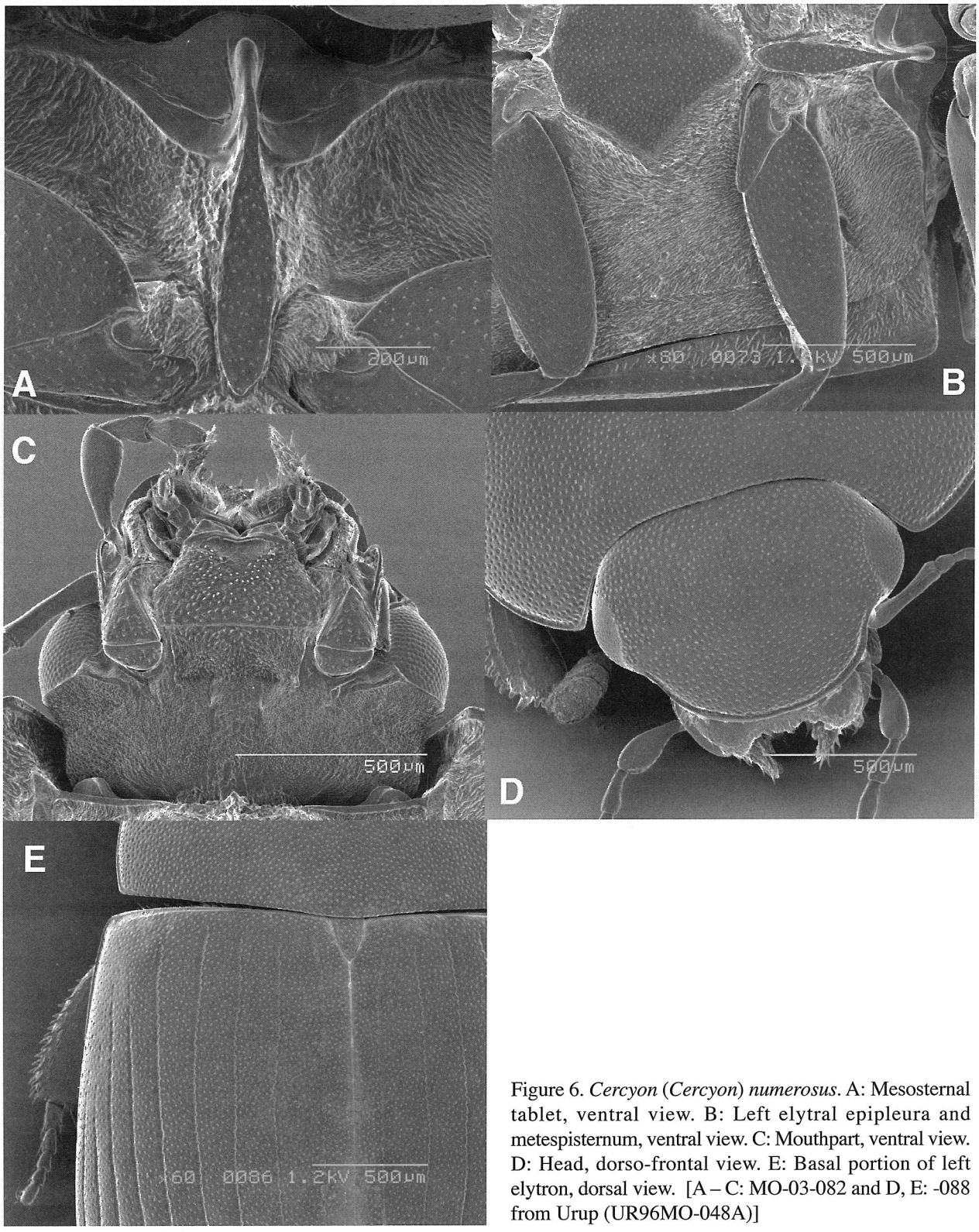

Figure 6. *Cercyon* (*Cercyon*) *numerosus*. A: Mesosternal tablet, ventral view. B: Left elytral epipleura and metespisternum, ventral view. C: Mouthpart, ventral view. D: Head, dorso-frontal view. E: Basal portion of left elytron, dorsal view. [A – C: MO-03-082 and D, E: -088 from Urup (UR96MO-048A)]

Cercyon (*Cercyon*) *dux* Sharp, 1873

Cercyon dux Sharp, 1873, 65 [Japan (Kyûshû)].

Cercyon (*Cyceron*) *dux*: Shatrovskiy, 1992, 366 [designation of lectotype].

Cercyon (*Cercyon*) *dux*: Shatrovskiy, 1989, 281 [? southern Kuril]; Hansen, 1999, 278.

Japanese name: Fuchitori-keshi-gamushi.

Specimens examined. No specimen from Kurils has been available for this study.

Distribution. Kuril Islands (southern Kuril) [questionable]. Palearctic: Japan, Russian Fed. (Far East).

Cercyon (*Cercyon*) *numerosus* Shatrovskiy, 1989

Cercyon (*Cercyon*) *numerosus* Shatrovskiy, 1989, 281 [Primorskiy Kray, southern Kurils, Japan]; Hansen, 1999, 285.

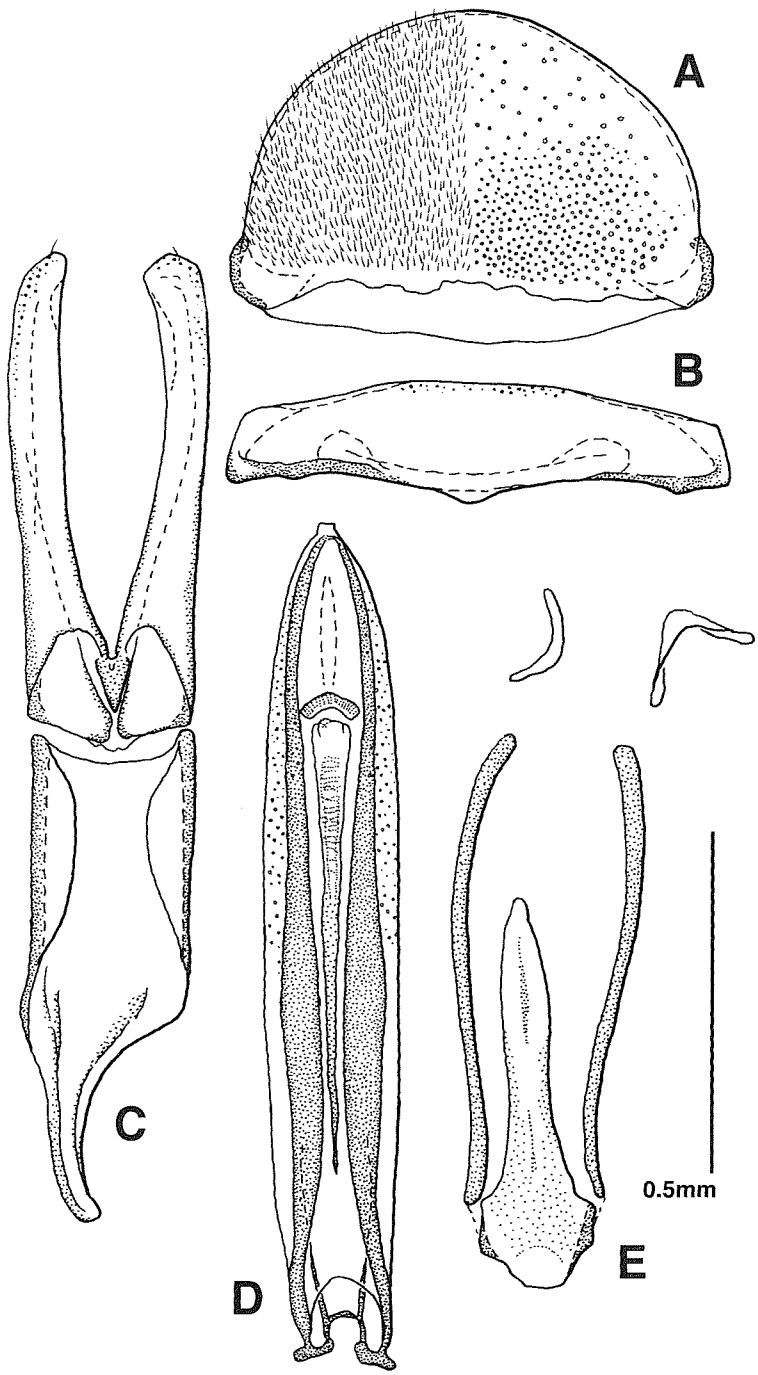

Figure 7. *Cercyon* (*Cercyon*) *numerosus*. Male genitalia. A: Eighth tergite, dorsal view. B: Eighth sternum, ventral view. C: Aedeagus, dorsal view. D: Median lobe, dorsal view. E: Ninth sternum, dorsal view. [MO-03-041 from Urup (UR95MO-005)]

Cercyon (*Cyceron*) *numerosus*: Shatrovskiy, 1992, 366 [Primorskiy, Japan (Kyûshû: Misaki)].

Japanese name: Ezo-keshi-gamushi.

Redescription. Body oblong, moderately convex and slightly depress medially; surface not shiny, with microsculpture. Body outline interrupted between pronotum and elytra. There are several color patterns as follows: (1) head and pronotum black; pronotum broadly (1/4 of width) rufo-testaceous to testaceous laterally, inflexed portion of pronotum yellowish-brown; scutellum, elytra and epipleura black; lateral (1/4 of width) and posterior (about 1/4 of length) margins of elytra, and pseudepiplera bright yellowish-brown; underside dark blackish-brown; posterior margin of mesosterna and sterna testaceous; antennae except club, maxillary palpi, coxae, femora, tibiae and tarsi of leg yellowish-brown; margin of femora blackish-brown; club of antenna black; labium yellow; and (2) head black; pronotum dark brown but broadly (1/4 of width) reddish-brown laterally; inflexed portion of pronotum dark brown; scutellum black; elytra and epipleura bright yellowish-brown, but sometimes only apical spot (between 4th to 6th striae) and narrow sutural margin on posterior 1/4 black.

Clypeus truncated anteriorly, with anterior marginal stria; anterior corner regularly round. Eyes small, separated by 8.6 x their width. Mentum trapezoid, densely covered with deep punctures; interspace among punctures with microsculptures; anterior margin round and with long

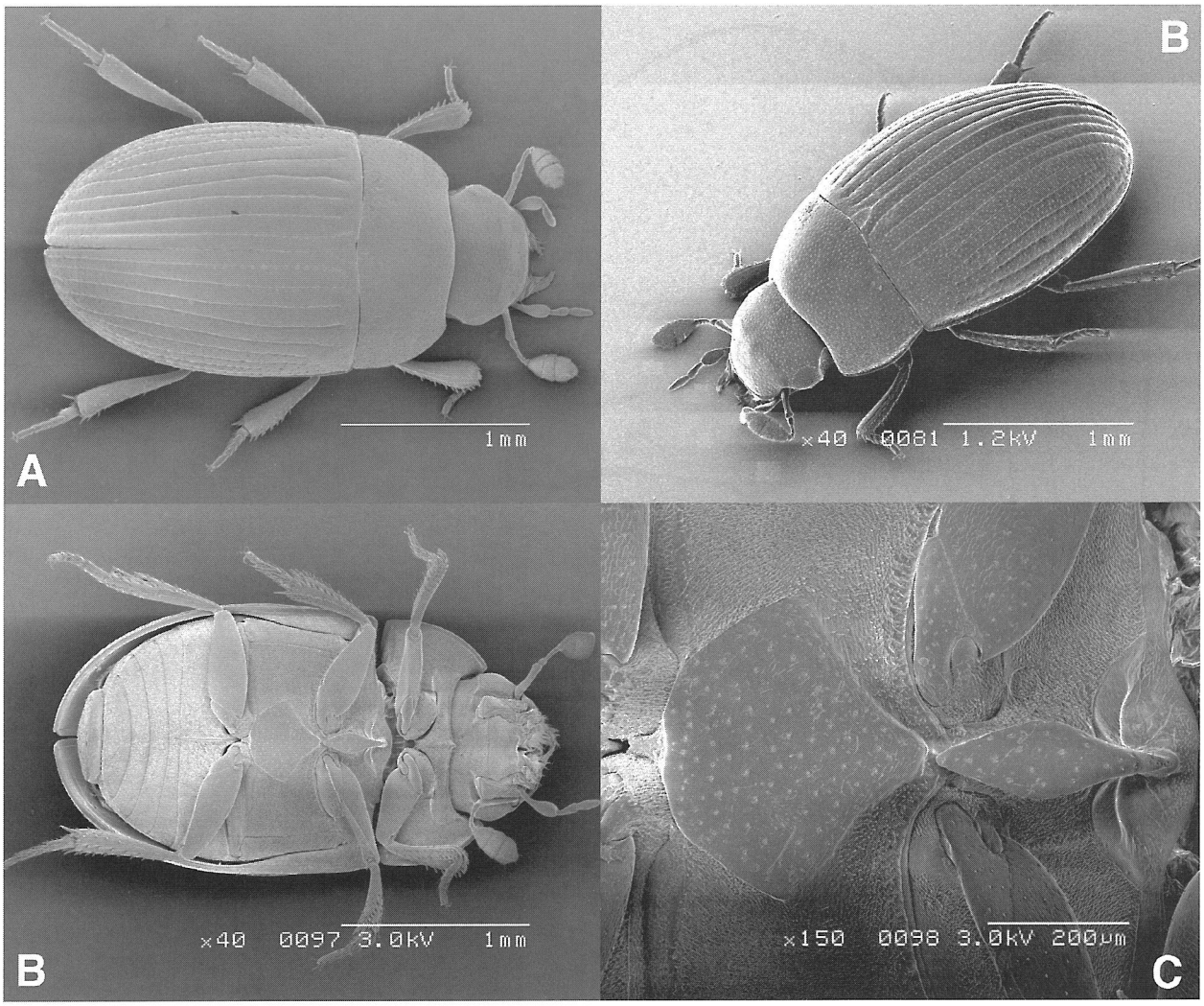

Figure 8. *Cercyon* (*Cercyon*) *setulosus*. A: Habitus, dorsal view. B: Ditto, oblique view. C: Ditto, ventral view. D: Pro-, meso- and metasterna, ventral view. [A, B: MO-03-049 from Ekarma (EK96MO-032A) and C, D: -085 from Urup (UR95MO-070)].

setae, widely depressed roundly. Maxillary palpi 0.5 x as long as width of head; second segment swollen apically; last segment swollen and a little longer than penultimate. Antennae about 0.75 x as long as width of head; pedicel hardly 0.21 x as long as scape; club about 1.8 x as long as wide, compact. Head densely covered with fine and deep punctures separated by their own diameter, except for an area along epicranial suture. Pronotum widest at basal 2/3 of its length; lateral side regularly round; with same punctures as those on head. Elytral sides subparallel on anterior half and then convergent on posterior half; 10 distinct, punctated striae present; 1st – 5th striae completely impressed; 6th – 7th shortened on basal 1/6; 8th and 9th shortened on basal half; 10th rudimentary, represented by a row of coarse punctures on basal half; posterior ends of 4th and 5th, and those of 8th and 9th united respectively; secondary stria shortly present on basal 1/6 on interval between 1st and 2nd striae; surface covered with the same fine punctures of head and pronotum; interspaces among punctures with alutaceous microsculpture; surface of intervals flat on anterior half and rather convex posterior. Epipleura and pseudepipleura almost horizontal, glabrous.

Prosternum (Fig. 5D) rather well-developed, moderately tectiform and carinate medially; middle portion not demarcated from antennal groove; antennal grooves well defined laterally and with pubescence, not reaching lateral prothoracic margin. Mesosternal tablet (Fig. 6A) narrowly elongate oval (index length: width 4.66), strongly acute anteriorly and shortly truncated on its posterior end; surface feebly concave and densely covered with fine and setiferous punctures; cavities for reception of procoxae ending at anterior 2/3 of mesosternal tablet. Metasternum with raised pentagonal plate, rather convex and glabrous middle portion of which is slightly projected anteriorly between mesocoxae, contacting the mesosternal tablet at a single point; pentagonal plate covered with fine, longitudinal oblong punctures that are separated by 1 – 2 x their diameter, and medially with a pair of longitudinal impressions that are diverse posteriorly; lateral portion without punctures, densely furnished with pubescence. Metepisterna 6.16 x as long as wide, subparallel.

Anterior margin of protibia round. All femora evenly covered with fine and setiferous punctures; interspace among punctures filled with microscopic sculptures.

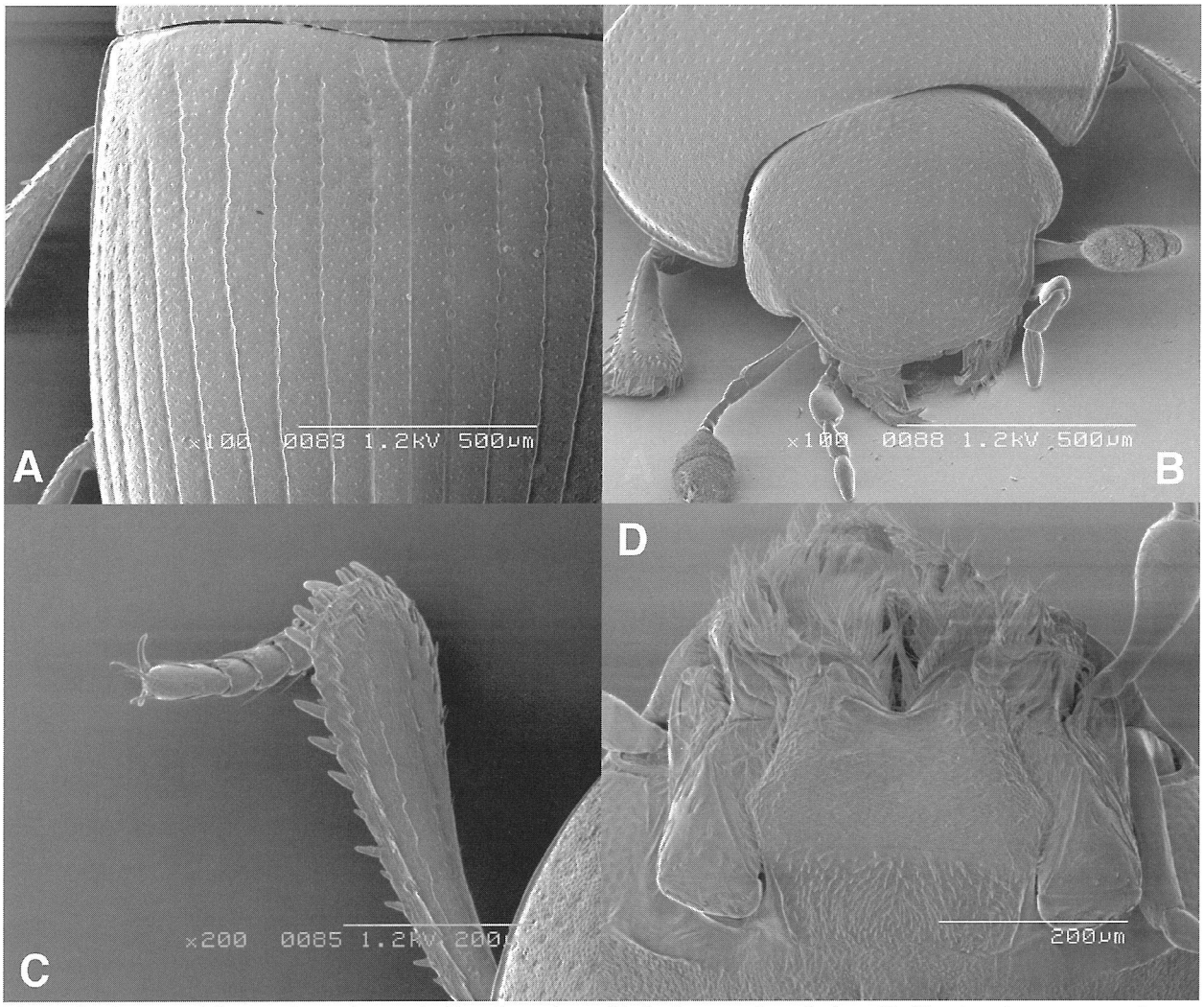

Figure 9. *Cercyon* (*Cercyon*) *setulosus*. A: Basal portion of left elytron, dorsal view. B: Head and pronotum, dorsofrontal view. C: Left protibia, dorsal view. D: Mouthpart, ventral view. [A – C: MO-03-049 from Ekarma (EK96MO-032A) and D: -085 from Urup (UR95MO-070)].

Aedeagus and genital segments as in Figures 7; ratio of paramera to basal piece = 1.00.

Body length 3.1 – 3.8 mm, width 2.0 – 2.5 mm.

Specimens examined. Kuril Islands. Urup: UR95MO-005 (1 male); UR95MO-051 (1 male); UR95MO-066 (4 males); UR95MO-070 (1 male); Tokotan, 9 – 23.VIII.1923, Y. Sugihara leg. (2 males). Chirpoi: CH95MO-048 (1 male). Simushir: SI95MO-045 (1 male).

Distribution. Kuril Islands (Urup*, Chirpoi**, Simushir**). Japan (Kyûshû), Russia Fed. (Far East).

Remarks. *C. numerosus* has a rather large and moderately convex body. It is very similar to *C. symbion*, but the latter is dominant in the northern area of the Kuril Archipelago and its color of the body is more blackish. The ratio of paramera to basal piece of the male genitalia is larger (1.00) and the median lobe is rather long than those of the latter (0.71).

Cercyon (*Cercyon*) *olibrus* Sharp, 1874

Cercyon olibrus Sharp, 1874, 418 [Japan].

Cercyon (*Cercyon*) *olibrus*: Shatrovskiy, 1989, 285 [southern Kurils (Kunashir), Khabarovskiy, Amurskiy, Primorskiy Kray]; Hansen, 1999, 286.

Japanese name: Aka-keshi-gamushi.

Specimens examined. No specimen from the Kurils has been available for this study.

Distribution. Kuril Islands (Kunashir). Japan, Russia Fed. (Far East: Khabarovskiy Kray, Amurskiy Kray, Primorskiy Kray, southern Kurils).

Cercyon (*Cercyon*) *quisquilius* (Linné, 1761)

Scarabaeus quisquilius Linné, 1761: 138.

Cercyon quisquilius: Kuwayama, 1967, 134 [Iturup]; Smetana, 1978, 97; Smetana, 1988, 150.

Japanese name: Kibane-keshi-gamushi.

Specimen examined. Kuril Island. Iturup: Rubetsu, 2 – 10.VII.1935, Y. Sugihara (1 ex.).

Distribution. Kuril Islands (Iturup). Palearctic Region. Nearctic Region (introduced). Neotropical Region (introduced). Australian Region (introduced).

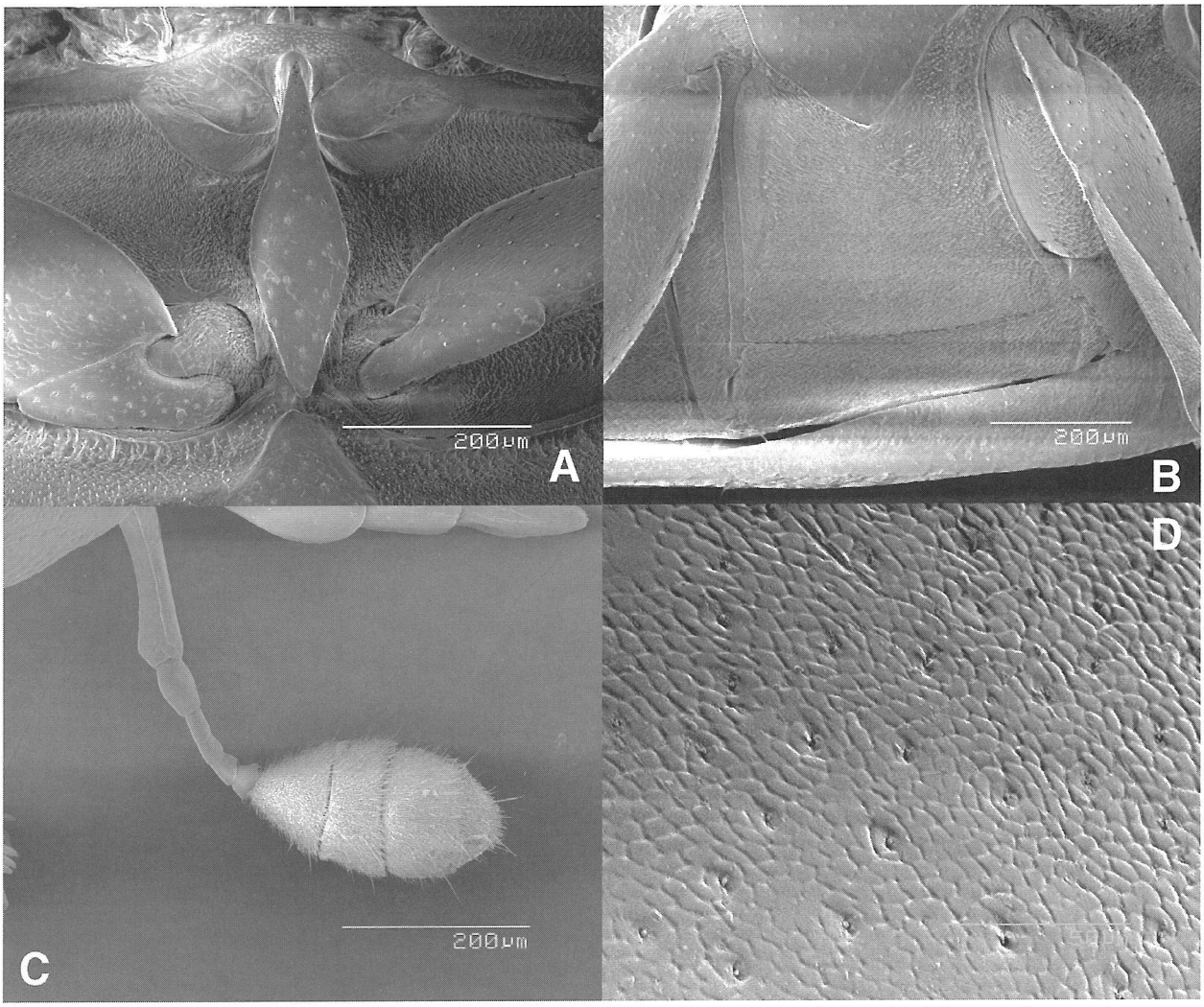

Figure 10. *Cercyon* (*Cercyon*) *setulosus*. A: Mesosternal tablet, ventral view. B: Left elytral epipleura and metespisternum, ventral view. C: Right antenna, dorsal view. D: Microstructure of surface of elytra, dorsal view. [A – C: MO-03-085 from Urup (UR95MO-070) and D: -049 from Ekarma (EK96MO-032A)].

Pacific Region (introduced).

Cercyon (*Cercyon*) *rotundulus* Sharp, 1884

Cercyon rotundulus Sharp, 1884, 460 [Japan: Miyanoshita; Ciuzenji].

Cercyon (*Cercyon*) *rotundulus*: Shatrovskiy, 1989, 285 [southern Kurils (Kunashir)]; Hansen, 1999, 286.

Japanese name: Maru-keshi-gamushi.

Specimens examined. No specimen from the Kurils has been available for this study.

Distribution. Kuril Islands (Kunashir). Japan, Russia Fed. (Far East: Amurskiy Kray, Primorskiy Kray, southern Kurils).

Cercyon (*Cercyon*) *saluki* Ryndevich, 1998

Cercyon saluki Ryndevich, 1998, 68 [Russian Fed., Far East, Kurilskiye Ostrova (Kuril Island), Kunashir Is., Mendeleevo]; Hansen, 1999, 288.

Japanese name: Saluki-keshi-gamushi.

Specimens examined. No specimen from the Kurils has been available for this study.

Distribution. Kuril Islands (Kunashir).

Cercyon (*Cercyon*) *setulosus* Sharp, 1884

Cercyon setulosus Sharp, 1884, 458 [Japan]; Kuwayama, 1967, 134 [Kunashir].

Cercyon (*Cercyon*) *setulosus*: Hansen, 1999, 289; Shatrovskiy, 1989, 281 [southern Kurils].

Cercyon (*Cyrceon*) *setulosus*: Shatrovskiy, 1992, 367 [designation of lectotype; southern Kurils (Kunashir, Shikotan, Urup)].

Cercyon tolfino Hatch, 1965, 41; Smetana, 1978, 150, synonymized by Shatrovskiy, 1992, 367.

Japanese name: Naga-keshi-gamushi.

Redescription. Body oblong and feebly convex; surface of head and pronotum matte with microsculpture; elytra weakly shiny. Body outline slightly interrupted between pronotum and elytra. There are several color patterns as follows: (1) head black; pronotum, scutellum

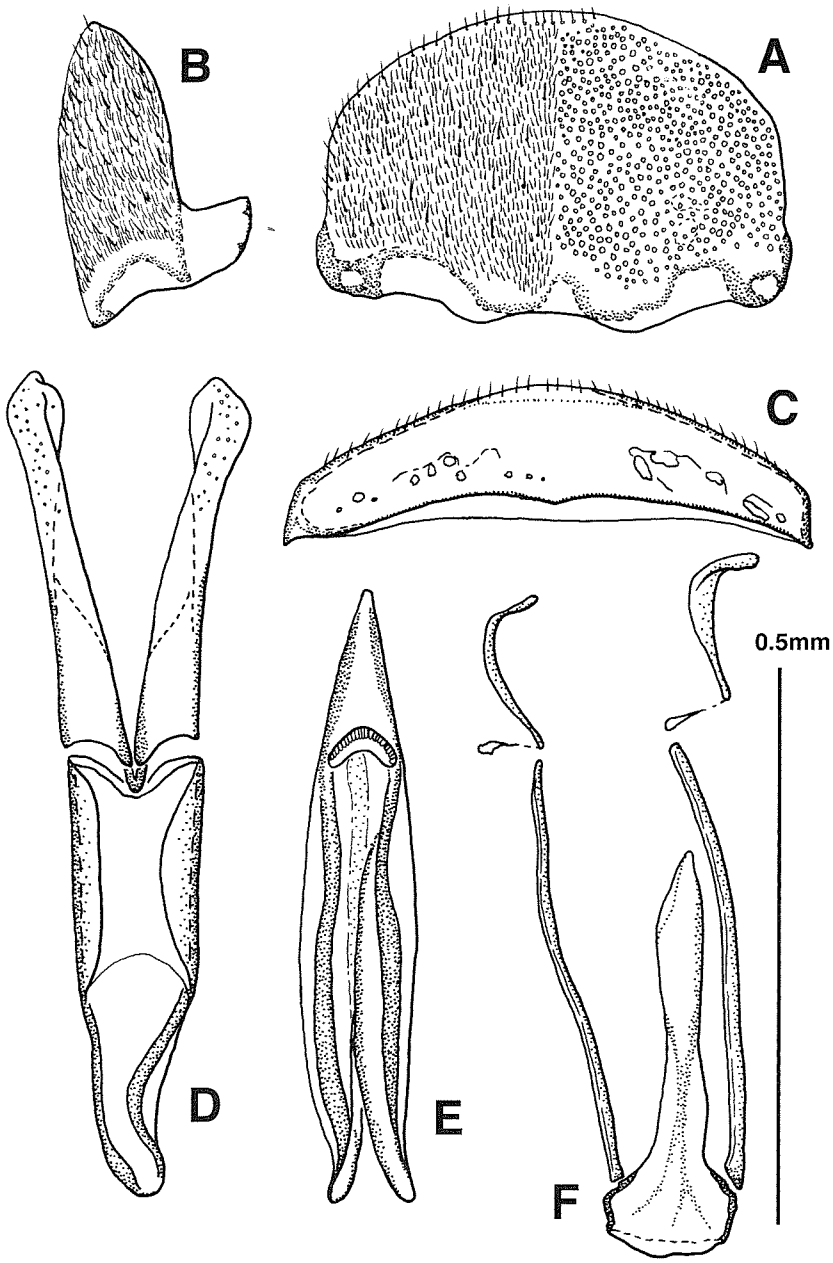

Figure 11. *Cercyon* (*Cercyon*) *setulosus*. Male genitalia. A: Eighth tergite, dorsal view. B: Ditto, lateral view. C: Eighth sternum, ventral view. D: Aedeagus, dorsal view. E: Median lobe, dorsal view. F: Ninth sternum, dorsal view. [MO-03-048 from Ekarma (EK96MO-032A)].

and elytra blackish-brown, but lateral margin of elytra broadly (1/3 of width) rufo-testaceous to testaceous; epipleura black, and pseudepiplera black to dark brown; underside dark brown; posterior margin of mesosterna and sterna reddish-brown; antennae, maxillary palpi, margin of clypeus, mentum and tarsi of leg yellowish-brown; coxae, femora and tibiae of leg dark reddish-brown; margin of femora blackish-brown; and (2) all parts of body bright reddish-brown, except black head.

Clypeus truncated anteriorly, with anterior marginal stria, the anterior corner regularly round. Eyes small, separated by 10 x their width. Mentum trapezoid, matte, with microsculptures; anterior margin round and carinate, area behind margin widely depressed roundly. Maxillary palpi 0.52 x as long as width of head (between outer margin of eyes); second segment swollen apically; last segment swollen and a little longer than penultimate. Antennae about 0.68 x as long as width of head; pedicel hardly 0.23 x as long as scape; club 2 x as long as wide, compact. Head evenly covered with fine punctures that are separated by their own diameter, except for an area along epicranial suture; interspace among punctures densely filled with granulate microsculptures. Pronotum widest at base; lateral side regularly round; surface densely covered with fine punctures separated by 1 – 3 x their diameter. Elytral sides regularly curved, widest at half of length; 10 distinct striae deeply impressed; 1st – 5th striae completely impressed; 6th and 7th shortened on basal 1/8; 8th – 9th shortened on basal 1/6; 10th represented as a row of coarse punctures on medio-basal 1/4; posterior ends of 6th and 8th, or of 6th and 7th, and of 5th and 8th united, respectively; surface covered with fine punctures separated by 2 x their diameter; interspaces among punctures densely filled with transverse micro-rugae; surface of intervals almost flat. Epipleura and pseud-epipleura almost horizontal, glabrous.

Prosternum rather well-developed, tectiform and carinate medially; middle portion not demarcated from

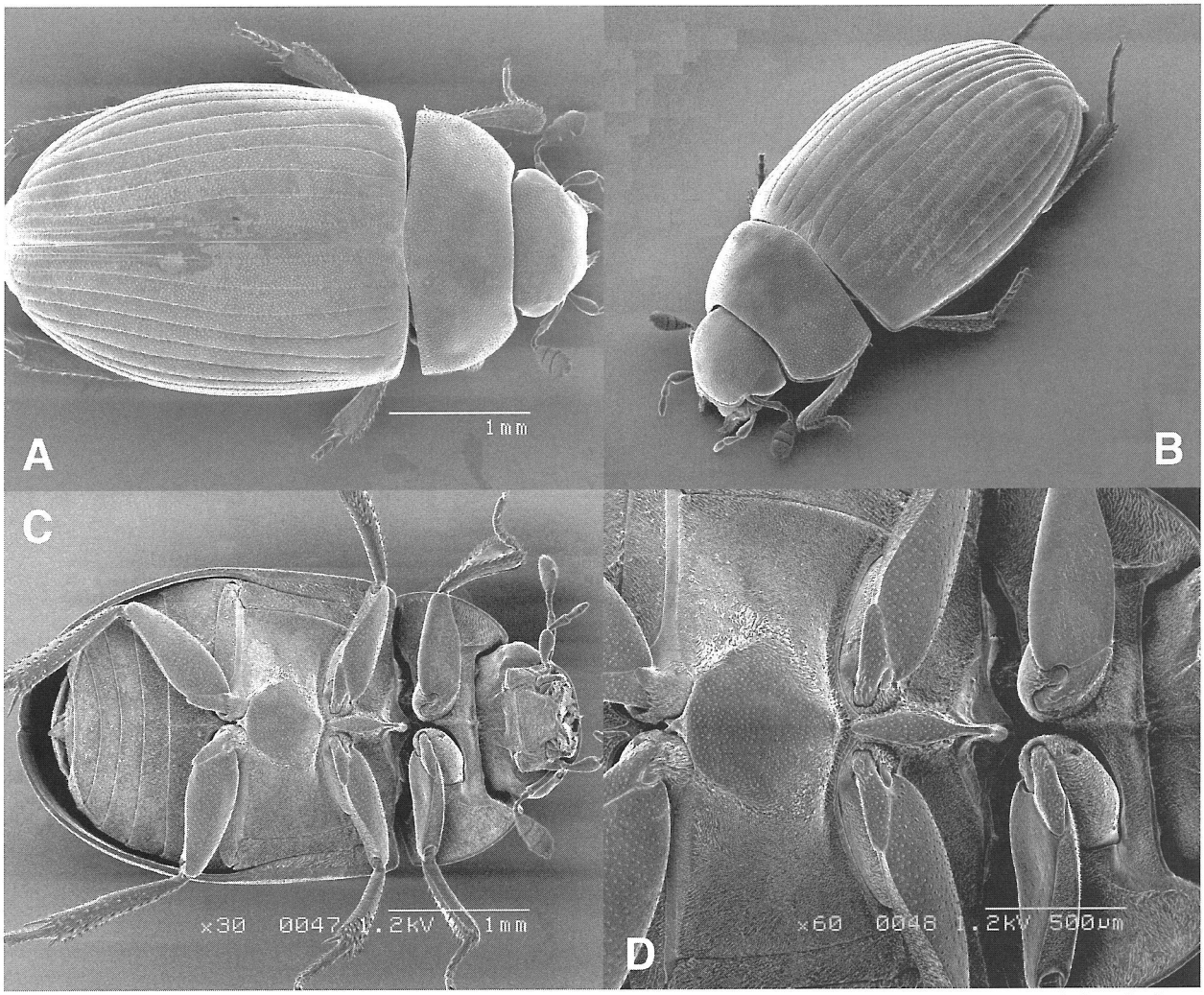

Figure 12. *Cercyon* (*Cercyon*) *symbion*. A: Habitus, dorsal view. B: Ditto, oblique view. C: Ditto, ventral view. D: Pro-, meso- and metasterna, ventral view. [A, B: MO-03-083 from Urup (UR96MO-048A) and C, D: -068 from Kharimkotan (KH96MO-022A)].

antennal groove; antennal grooves well defined laterally and with pubescence, not reaching lateral prothoracic margin. Mesosternal tablet fusiform-shaped (index length: width 3.33), strongly acute anteriorly and posteriorly, widest point in the middle; surface shiny, flat, irregularly and sparsely covered with fine punctures (Fig. 10A); cavities for reception of procoxae strongly shiny, ending at anterior 1/3 of length of mesosterna. Metasternum with raised pentagonal plate, rather convex and glabrous middle portion of which is slightly projected anteriorly between mesocoxae, contacting the mesosternal tablet at a single point; pentagonal plate irregularly and sparsely covered with fine punctures separated by 2 – 5 x their diameter; lateral portion without punctures, densely furnished with pubescence. Metepisterna 5.8 x as long as wide, subparallel.

Anterior margin of protibia round. All femora evenly and sparsely covered with fine and setiferous punctures that are separated by 4 – 5 x their diameter, and interspaces among punctures with microscopic sculptures.

Aedeagus and genital segments as in Figures 11; ratio of paramera to basal piece = 0.92.

Body length 2.16 – 2.41 mm, width 1.27 – 1.39 mm.

Specimens examined. Kuril Islands. Urup: UR95MO-007 (2 exs.), UR95MO-069 (12 exs.), UR95MO-070 (1 male and 68 exs.), UR95YK-046 (1 ex.); UR95VR-035A (1 ex.); UR96MO-051 (3 exs.). Ekaruma: EK96MO-032A (1 male and 5 exs.).

Distribution. Kuril Islands (Shikotan, Kunashir, Urup*, Ekaruma**). Japan, Russia Fed. (Far East).

Remarks. *C. setulosus* is a rather small and flat species. The microsculptures on surface of head and pronotum are peculiar character-states of this species.

Cercyon (Cercyon) symbion Shatrovskiy, 1989

Cercyon (*Cercyon*) *symbion* Shatrovskiy, 1889, 281 [Primorskiy Kray, Sakhalin, southern Kurils, Japan]; Hansen, 1999, 290.

Cercyon (*Cyceron*) *symbion*: Shatrovskiy, 1992, 366 [Russian Fed.: Primorskiy Kray, Sakhalin, Kuril Islands (Kunashir, Shikotan, Iturup,); Japan (Kyûshû: Misaki)].

Japanese name: Kita-keshi-gamushi.

Redescription. Body oblong, moderately convex and slightly depress medially; surface not shiny, with

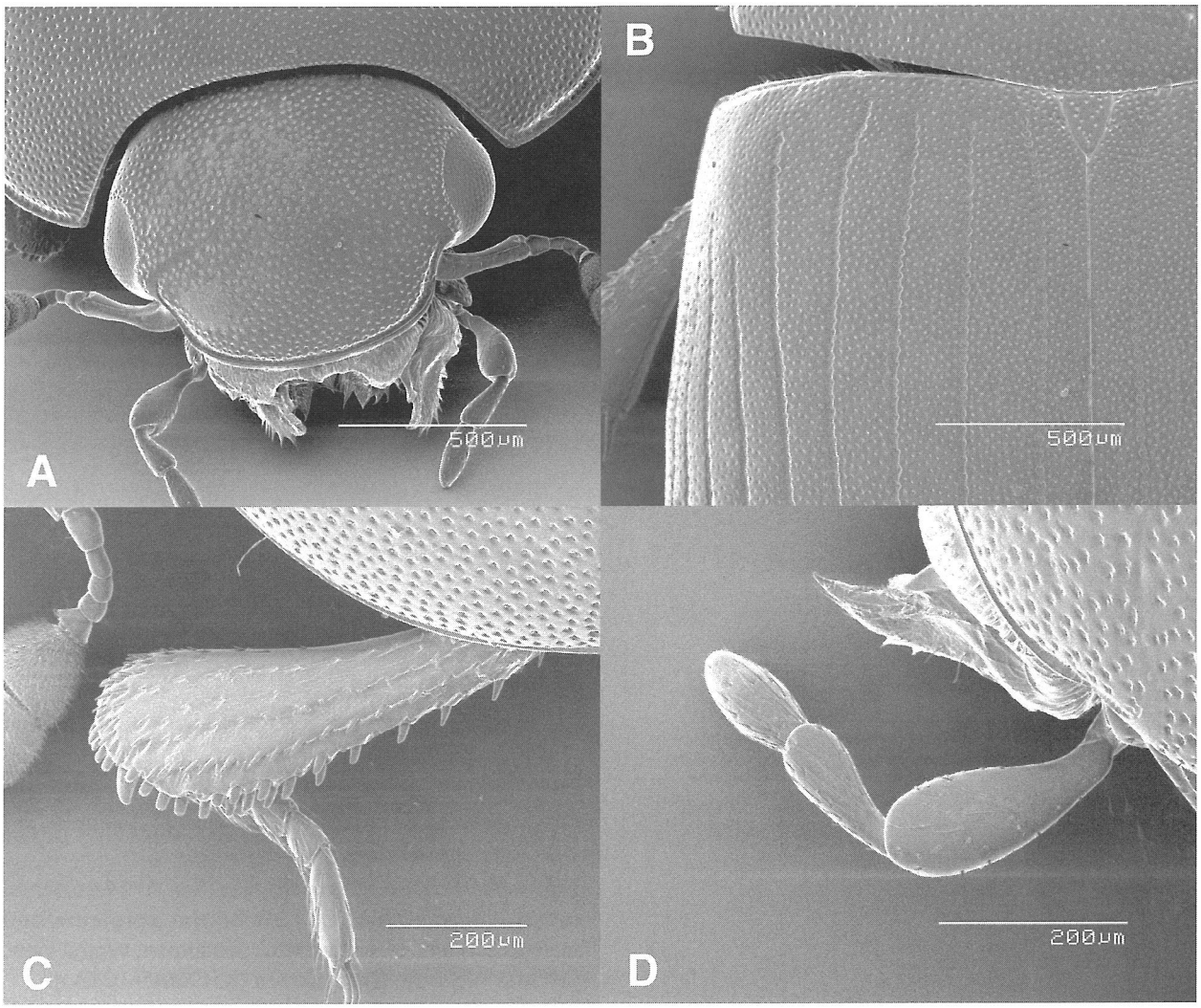

Figure 13. *Cercyon* (*Cercyon*) *symbion*. A: Head, front view. B: Basal part of left elytron, dorsal view. C: Left protibia, dorsal view. D: Maxillary palpi, dorsal view. [MO-03-083 from Urup (UR96MO-048A)].

microsculpture. Body outline interrupted between pronotum and elytra. There are several color patterns as follows: (1) head and pronotum black; pronotum broadly (1/4 of width) rufo-testaceous to testaceous laterally; inflexed portion of pronotum yellowish-brown; scutellum, elytra and epipleura black, but lateral (1/4 of width of elytron) and posterior (about 1/4 of length) margins of elytra, and pseudepiplera bright yellowish-brown; underside dark blackish-brown; posterior margin of mesosterna and sterna testaceous; antennae except club, maxillary palpi, coxae, femora, tibiae and tarsi of leg yellowish-brown; margin of femora blackish-brown; club of antenna black; labium yellow; and (2) all character-states are the same as with (1) except follows: inflexed portion of pronotum black; lateral (1/10 of width) and apical spot (between 6th to 9th striae) of elytra bright yellowish-brown.

Clypeus truncated anteriorly, with anterior marginal stria; anterior corner regularly round. Eyes small, separated by 7.85 x their width. Mentum trapezoid, densely covered with deep punctures; interspaces among punctures with microsculptures; anterior margin round and with long setae, widely depressed roundly. Maxillary palpi 0.50 x as long as width of head; second segment swollen apically; last segment swollen and a little longer than penultimate. Antennae about 0.71 x as long as width of head; pedicel hardly 0.2 x as long as scape; club about 1.6 x as long as wide, compact. Head densely covered with fine and deep punctures separated by their own diameter, except for an area along epicranial suture. Pronotum widest at basal 2/3 its length; lateral sides regularly round; with the same punctures as those on head. Elytra subparallel on anterior half and then convergent on posterior half; with 9 distinct, punctated striae; 1st – 5th striae completely impressed; 6th – 7th shortened on basal 1/6; 8th and 9th shortened on basal half; 10th absent; posterior ends of 5th and 8th, and the ones of 6th and 7th united respectively; secondary striae shortly present on basal 1/4 on intervals between 1st to 4th striae; surface covered with the same fine punctures of head and pronotum; interspaces among punctures with alutaceous microsculpture; surface of intervals flat on anterior half and rather convex on posterior. Epipleura and pseudepipleura almost horizontal, glabrous.

Prosternum rather well-developed, moderately tectiform and carinate medially; middle portion not

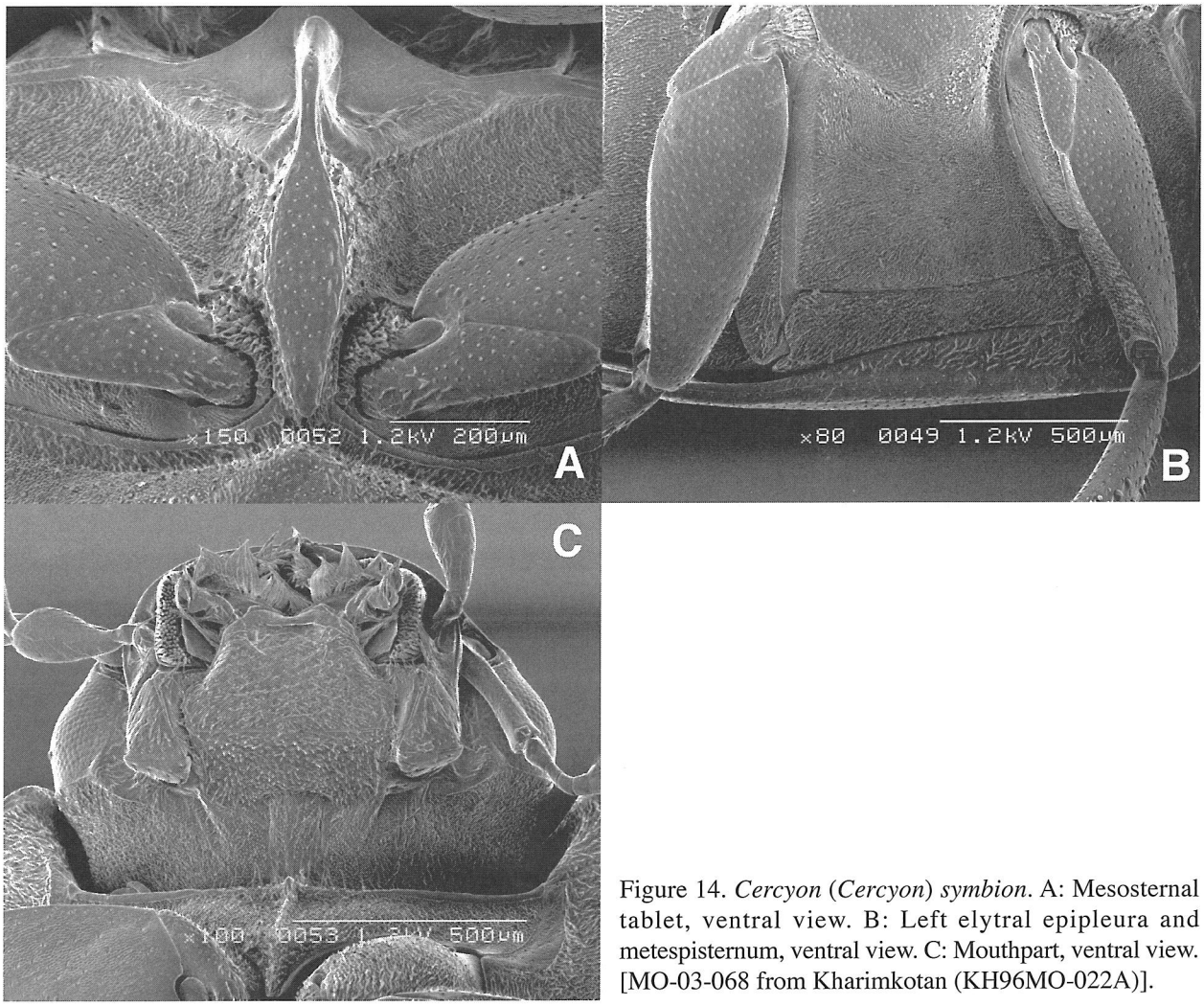

Figure 14. *Cercyon* (*Cercyon*) *symbion*. A: Mesosternal tablet, ventral view. B: Left elytral epipleura and metespisternum, ventral view. C: Mouthpart, ventral view. [MO-03-068 from Kharimkotan (KH96MO-022A)].

demarcated from antennal groove; antennal grooves well-defined laterally and with pubescence, not reaching lateral prothoracic margin. Mesosternal tablet narrowly elongate oval (index length: width 3.33), more narrowly and strongly tapered anteriorly than posteriorly; posterior end rounded; surface feebly concave and densely covered with fine punctures (Fig. 14A); cavities for reception of procoxae ending at anterior 2/3 of mesosternal tablet. Metasternum with raised pentagonal plate, rather convex and glabrous middle portion of which is bluntly projected anteriorly between mesocoxae; pentagonal plate covered with fine and longitudinal oblong punctures that are separated by 1 – 2 x their diameter, and with other microscopic punctures intermingled on marginal area of pentagonal plate, and medially with a pair of longitudinal impressions that are diverse posteriorly; lateral portion without punctures, densely furnished with pubescence. Metepisterna 5.87 x as long as wide, subparallel.

Anterior margin of protibia round. All femora evenly covered with fine and setiferous punctures, and interspaces among punctures filled with microscopic sculptures.

Aedeagus and genital segments as in Figures 15; ratio of paramera to basal piece = 0.71.

Body length 3.2 – 3.6 mm, width 2.0 – 2.4 mm.

Specimens examined. Kuril Islands. Urup: UR95MO-005 (1 male); UR95MO-007 (1 male), UR95MO-070 (1 male). Simushir: SI95MO-045 (1 male). Shashkotan: SA96MO-033A (2 males). Kharimkotan: KH96MO-022A (5 males). Alaid: AL97MO-024A (2 males). Paramushir: Murakami-wan, 7.VII.1941, H. Kôno (1 male); PA96MO-005 (3 males); PA97MO-025D (2 males); PA97BKU-034 (2 males). Shumshu: SU97MO-010A (2 males).

Distribution. Kuril Islands (Shikotan, Kunashir, Itrup, Urup**, Alaid**, Kharimkotan**, Paramushir**, Shumshu**); Japan (Kyûshû); Russia Fed. (Far East).

Remarks. *C. symbion* has a rather large sized and moderately convex body. This species is very similar with *C. numerosus* (see Remarks of *C. numerosus*).

Cercyon vagus Sharp, 1884

Cercyon vagus Sharp, 1884, 418 [Japan: Miyanoshita, Oyama].

Cercyon (Cercyon) vagus: Shatrovskiy, 1989, 281 [southern Kuril (Kunashir)].

Japanese name: Atoaka -keshi-gamushi.

Distribution. Kuril Islands (Kunashir). Japan; South

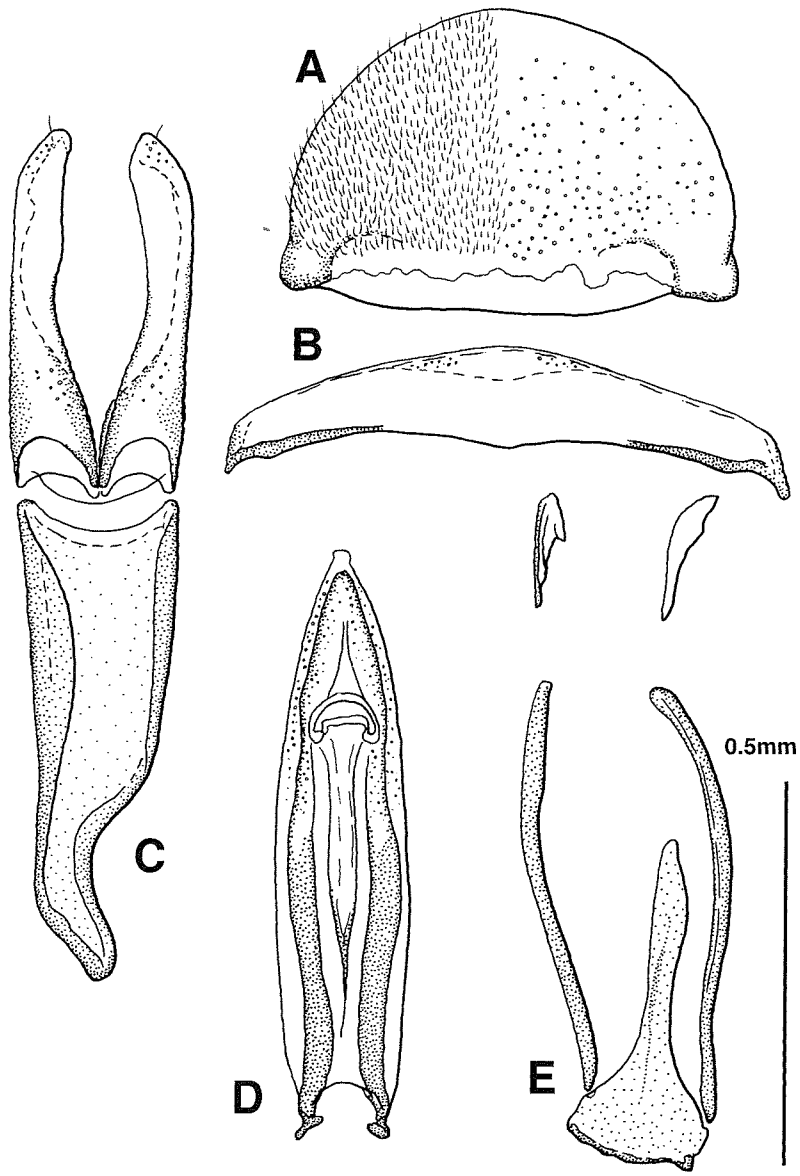

Figure 15. *Cercyon* (*Cercyon*) *symbion*. Male genitalia. A: Eighth tergite, dorsal view. B: Eighth sternum, ventral view. C: Aedeagus, dorsal view. D: Median lobe, dorsal view. E: Ninth sternum, dorsal view. [MO-03-042 from Urup (UR95MO-007)]

Korea.

***Cercyon* (*Cercyon*) *verus* Shatrovskiy, 1989**

Cercyon (*Cercyon*) *verus* Shatrovskiy, 1989, 282 [Sakhalin, southern Kurils (Kunashir)]; Shatrovskiy, 1992, 364 [Kurils: Kunashir, Shikotan; Sakhalin]; Hansen, 1999, 292.

Japanese name: Sedaka-kibane-keshi-gamushi.

Redescription. Body oval, rather convex, shiny, without microsculpture. Head and pronotum black; pronotum narrowly rufo-testaceous to testaceous laterally; elytra, inflexed portion of pronotum and elytral epipleura and pseudepiplera bright yellowish-brown; anterior margin, narrow sutural margin and round spot in centre of elytra black; underside piceous black; posterior margin of sterna testaceous; antennae except club, maxillary palpi, tibiae and tarsi of leg yellowish-brown; coxae of leg, club of antenna and scutellum black; femora yellowish-brown but basal half black.

Clypeus truncated anteriorly, with anterior marginal stria; anterior corner regularly round. Eyes rather small, separated by 5 x their width. Mentum glabrous, trapezoid, with transverse rugae; anterior margin truncate. Maxillary palpi almost as long as width of head; second segment swollen apically; last segment swollen and a little longer than penultimate. Antennae about 2/3 x as long as width of head; pedicel hardly 1/4 x as long as scape; club about 2 x as long as wide, compact. Head densely covered with fine and deep punctures that are separated by their own diameter. Pronotum widest at base, moderately narrowed anteriorly, evenly convex, with the same punctures as those of head. Elytra widest at anterior quarter; with 10 distinct, punctated striae; 1st – 6th striae completely impressed; 7th – 10th shortened basally; 10th very short on basal half; surface covered with fine punctures separated by about 3 x their diameter; interspaces among punctures without microsculpture; surface of intervals flat. Epipleura and pseudepipleura weakly oblique on anterior half and almost horizontal on posterior, glabrous.

Prosternum rather well-developed, moderately tectiform and carinate medially; middle portion not

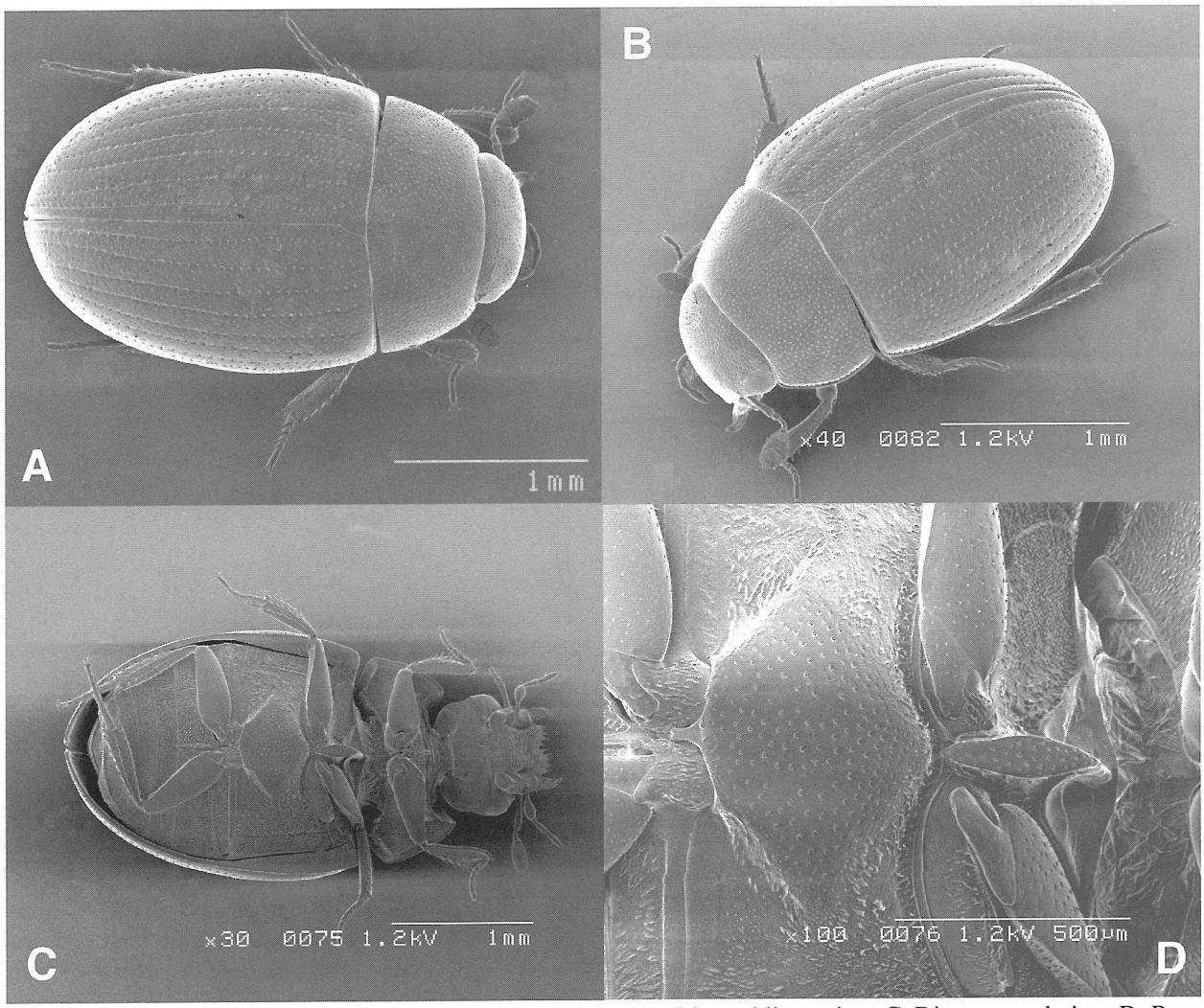

Figure 16. *Cercyon* (*Cercyon*) *verus*. A: Habitus, dorsal view. B: Ditto, oblique view. C: Ditto, ventral view. D: Pro-, meso- and metasterna, ventral view. [A, B: MO-03-087 from Urup (UR95MO-064) and C, D: -089 from Urup (UR95MO-008)].

demarcated from antennal groove; antennal grooves well-defined laterally, not reaching lateral prothoracic margin. Mesosternal tablet elongate oblong (index length: width 3.25), acute both anteriorly and posteriorly; surface feebly concave and densely covered with fine and deep punctures (Fig. 17C); cavities for reception of procoxae ending well before mesosternal tablet. Metasternum with raised pentagonal plate, rather convex and glabrous middle portion of which is slightly projected anteriorly between mesocoxae, contacting the mesosternal tablet at a single point; pentagonal plate covered with fine and deep punctures that are separated by 1 – 4 x their diameter; lateral portion without punctures. Metepisterna 5.62 x as long as wide, subparallel.

Anterior margin of protibia not round, obliquely truncated. All femora glabrous and sparsely covered with microscopic punctures; interspaces among punctures without microscopic sculptures.

Aedeagus and genital segments as in Figures 18; ratio of paramera to basal piece = 0.76.

Body length 1.95 – 2.57 mm, width 1.36 – 1.58 mm.

Specimens examined. Kuril Islands. Kunashir: KU95YMM-115A (1 ex.). Iturup: Rubetsu, 2 – 10.VII.1935, Y. Sugihara (6 exs.). Urup: UR95MO-008 (1 male, 2 females and 56 exs.); UR95MO-009 (4 exs.); UR95MO-055 (1 male and 4 exs.); UR95MO-064 (1 male, 1 female and 18 exs.). Simushir: SI95MO-011 (1 male, 2 females and 35 exs.).

Distribution. Kuril Islands (Shikotan, Kunashir*, Iturup**, Urup**, Simushir**); Russia Fed. (Far East).

Remarks. *C. verus* is a small and convex species, and is easily distinguished from the other species by the black-yellow coloration of the pronotum and elytra.

Cercyon sp. 1

Cercyon sp. 1: Kuwayama, 1967, 134 [Kunashir].

Distribution. Kuril Islands (Kunashir).

Cercyon sp. 2

Cercyon sp. 2: Kuwayama, 1967, 135 [Iturup].

Distribution. Kuril Islands (Iturup).

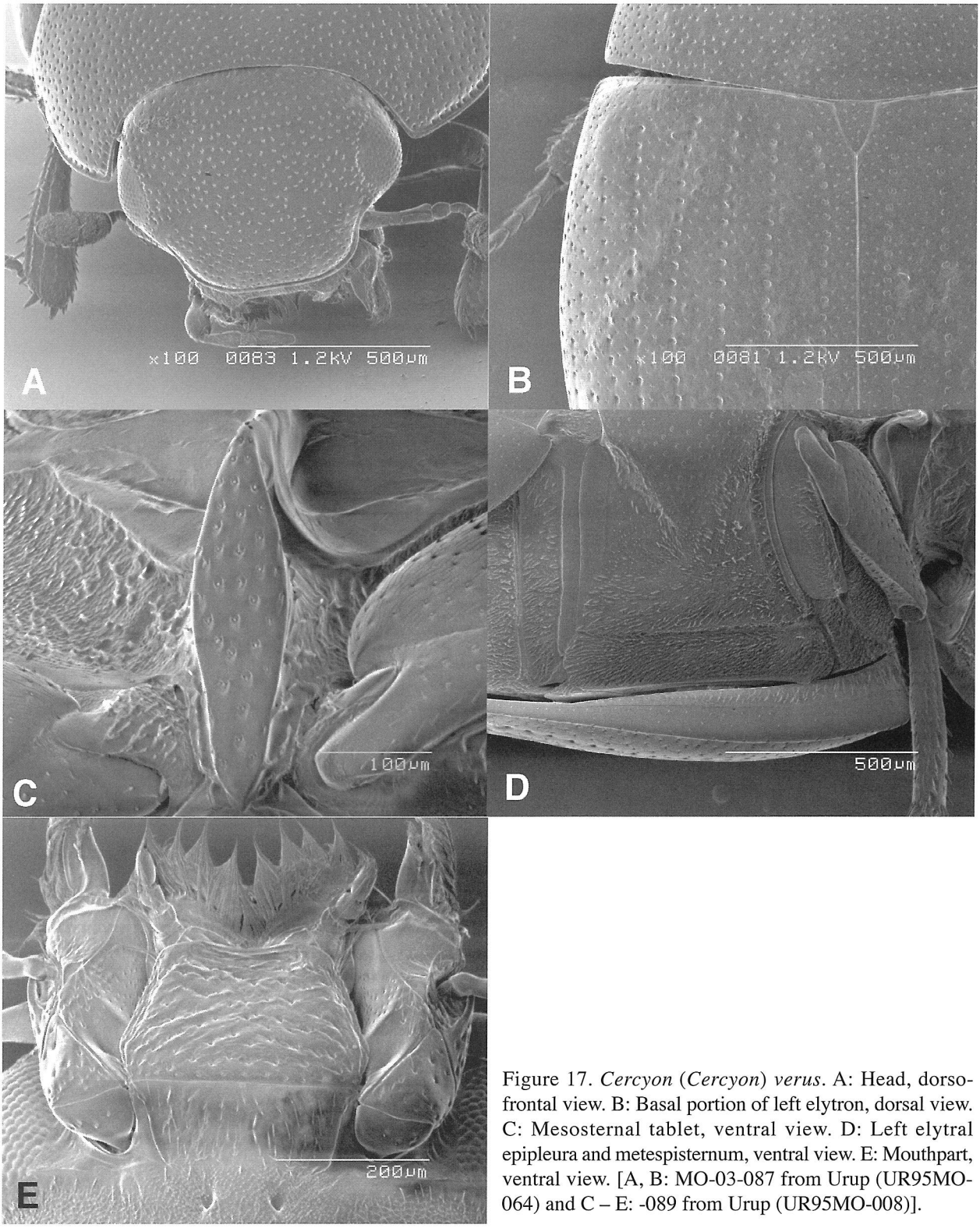

Figure 17. *Cercyon* (*Cercyon*) *verus*. A: Head, dorsofrontal view. B: Basal portion of left elytron, dorsal view. C: Mesosternal tablet, ventral view. D: Left elytral epipleura and metespisternum, ventral view. E: Mouthpart, ventral view. [A, B: MO-03-087 from Urup (UR95MO-064) and C – E: -089 from Urup (UR95MO-008)].

Genus *Pachysternum* Motschulsky, 1863

***Pachysternum haemorrhoum* Motschulsky, 1866**

Pachysternum haemorrhoum Motschulsky, 1866, 168 [Japan]; Kuwayama, 1967, 135 [Shikotan]; Shatrovskiy, 1989, 287 [southern Kurils (Kunashir, Shikotan)]; Hansen, 1999, 307.

Megasternum distinctum Sharp, 1873, 66 [Japan], synonymized by Harold, 1878, 69; d'Orchymont, 1926, 373.

Japanese name: Maguso-gamushi.

Distribution. Kuril Islands (Shikotan, Kunashir). Palearctic: China, Japan, Korea, Mongolia, Russia Fed. (East Siberia, Far East). Oriental: Philippines.

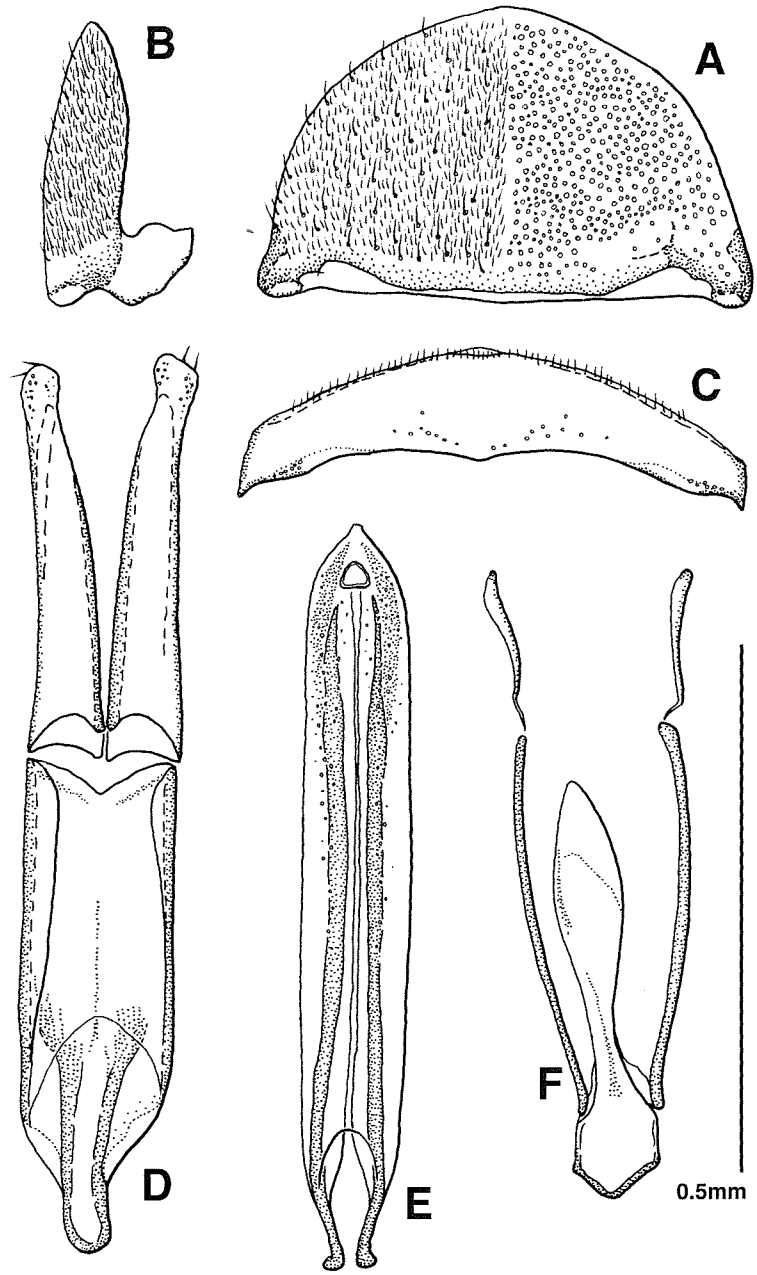

Figure 18. *Cercyon* (*Cercyon*) *verus*. Male genitalia. A: Eighth tergite, dorsal view. B: Ditto, lateral view. C: Eighth sternum, ventral view. D: Aedeagus, dorsal view. E: Median lobe, dorsal view. F: Ninth sternum, dorsal view. [MO-03-046 from Simushir (SI95MO-011)].

***Pachysternum haemorrhoum sibiricum* Kuwert, 1890**

Pachysternum sibiricum Kuwert, 1890: 172; Kuwayama, 1967, 135 [Shikotan].

Pachysternum haemorrhoum sibiricum: Hansen, 1999, 307.

Distribution. Kuril Islands (Kunashir). China (Heilongjiang), Mongolia, Russian Fed. (Far East).

Key to the species of the terrestrial family Hydrophilidae in the Kuril islands

1 (2) Prosternum without distinct antennal grooves, with no more than shallow concavities, which are only defined laterally by a very obsolete ridge situated very close to the notosternal suture. Mesosternum very narrowly and linearly raised medially, or even simply tectiform. ..... Genus *Cercyon*

2 (1) Prosternum with well defined antennal grooves extending some distance across the hypomeron, and defined laterally or posterolaterally by a well defined arcuate ridge; if antennal groove are indistinct, then the mesosternal elevation forms a well defined tablet, that is either elongate oval or broadly pentagonal .... Genus *Pachysternum* ..... *P. haemorrhoum* Motsch.

3 (4) Mesosternal tablet highly carinate medially, narrow, without flat area. .... Subgenus *Paracercyon* ..... *C. laminatus* Sharp

4 (3) Mesosternal tablet rather broad; its shape usually species-specific. .... Subgenus *Cercyon*

5(16) Protibia broad, the apex round; outer margin

Table 1. A list of the terrestrial hydrophilid beetels and their records from Kuril Islands.

Species	IU	TA	PO	ZE	SH	KU	IT	UR	CH	SI	KE	US	RY	RA	MA	SA	EK	CR	KH	ON	MK	AL	PA	SU	Notes
Cercyon laminatus																									SK(89)
Cercyon algarum						92																			
Cercyon aptus						92	92	92*	*																
Cercyon dux																									?SK(89)
Cercyon numerosus								c*	*	*															
Cercyon olibrus						89																			
Cercyon quisquilius							c67																		
Cercyon rotundulus						89																			
Cercyon saluki						98																			
Cercyon setulosus					92	67		92*									*								
Cercyon symbion					92	92	92	*		*						*			*			*	c*	*	
Cercyon vagus						89																			
Cercyon verus					92	89*	c	*		*															
Cercyon sp. 1						67																			
Cercyon sp. 2							67																		
Pachysternum haemorrhoum					67	89																			
Pachysternum haemorrhoum sibiricum						67																			

*: recorded based on specimens from IKIP

c: recorded based on specimens from collection in Museums

SK: southern Kurils; could not detect the name of island

67: recorded in Kuwayama 1967

89: recorded in Shatrovskiy 1989

92: recorded in Shatrovskiy 1992

98: recorded in Ryndevich 1998

with one to three rows of strong setae that are pointed downwards. Body longitudinal oblong; surface simple. Elytra with deep punctuated striae (at least on apical half). Habitat under seaweed.

6(11) Elytra sparsely punctate; 2nd interspace with less than 6 rows of punctures. Mesosternal tablet, mesosternal pentagonal plate and femur shiny and sparsely punctated.

7 (8) Interspaces among elytral striae with a longitudinal shiny and convex area in the middle; area along stria with microscopic structures and matte. ..... *C.* (*C.*) *aptus* Sharp

8 (7) Interspaces among elytral striae convex only on apical half; surface entirely covered with microscopic structures.

9(10) Space among punctures of head and pronotum with microscopic structures. Body black; apex of elytra, antennae, maxillar palpi and legs reddish-brown. Body length 2.0 – 2.5 mm. .... *C.* (*C.*) *setulosus* Sharp

10 (9) Space among punctures of head and pronotum smooth. Body basically reddish-brown; head black; pronotal lateral sides very bright, the median area with vaguely-outlined blackish macula; ventral side black; antennae and maxillar palpi yellow. Body length 2.6 – 2.8 mm. ..... *C.* (*C.*) *algarum* Sharp

11 (6) Elytra densely punctated; 2nd interspace with more than 8 various rows of punctures. Surface of femur with microscopic structures. Mesosternal tablet and metasternal pentagonal plate densely punctated, the punctures separated by less than their own diameters. Secure identification of the species is confirmed only by the examination of male genitalia.

12(13) Body length more than 4.2 mm. Labrum of male with dense and short oily hairs. Body length 4.2 – 4.3 mm. ..... *C.* (*C.*) *dux* Sharp

13(12) Body length less than 4.2 mm. Labrum of male without dense hairs.

14(15) Body length 3.2 – 3.8 mm. Median lobe of male genitalia rather short. .... *C.* (*C.*) *symbion* Shatrovskiy

15(14) Body length 3.3 – 4.1 mm. Median lobe of male genitalia rather long. .... *C.* (*C.*) *numerosus* Shatrovskiy

16 (5) Protibia rather narrow, the apex not round; outer margin with a row of long, various setae that are not pointed downwards. Body various shape.

17(18) Interspaces among elytral striae convex. Body length, 2.4 mm ..... *C.* (*C.*) *vagus* Sharp

18(17) Interspaces among elytral striae flat.

19(22) Elytra more bright color than the pronotum; yellow, brownish-yellow, red, or reddish-brown; sometimes with black macula on base or middle of elytra.

20(21) Body rather oval. Body length, 2.6 – 2.9 mm. ..... *C.* (*C.*) *verus* Shatr.

21(20) Body oblong; lateral margins of elytra rather parallel. Body length, 1.9 – 2.6 mm. .... *C.* (*C.*) *quisquilius* L.

22(19) Color of elytra darker than that of head and pronotum, or appear in the same color of elytra and pronotum; sometimes apex of elytra become brighter.

23(24) Color of elytra darker than that of head and pronotum. Body length, 2.2 – 2.9 mm. .... *C.* (*C.*) *saluki* Ryndevich

24(23) Same color of elytra and pronotum.

25(26) Body color yellowish-brown; head and ventral thoraces darkish-brown; apex of elytra very bright. Dorsal side of body with fine punctures. Body length, 1.9 – 2.4 mm. .... *C.* (*C.*) *olibrus* Sharp

26(25) Body color rather dark, reddish-brown. Body length, 2.4 – 2.9 mm. .... *C.* (*C.*) *rotundulus* Sharp

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Appendix

KUNASHIR

KU95YMM-115A: 44°00.72'N, 145°46.28'E, Y. M. Marusik. 1/9/1995, CE Part, Lesnaya River, Kisly CK, mixed forest with coniferous dominance, litter: moss and bamboo, hand sifting

ITURUP

IT96NM-027: 44°46.00'N, 147°11.07'E, N. Minakawa, 8/22/1996, Lesozavodsky; Dabroye Nachalo Bay, hand picked, under seaweeds on sandy beach, about 1 – 3 m from water

URUP

UR95MO-001: 45°51.49'N, 149°46.95'E, M. Ôhara, 8/4/1995, inland coastal margin of Otkrytyi Bay; environs of Shabalina river, under logs and rocks along shoreline, by hand with aspirator

UR95MO-005: 45°51.04'N, 149°46.12'E, M. Ôhara, 8/5/1995, inland coastal margin of Otkrytyi Bay; environs of Shabalina river valley, under seaweeds, kelp, and rocks along shoreline, by hand with aspirator

UR95MO-006: 46°05.38'N, 50°08.33'E, M. Ôhara, 8/6/1995, inland coastal margin of Natalie Bay; environs of Vesolaya river mouth, under logs and rocks along river banks and coastal shoreline, by hand with aspirator

UR95MO-007: 46°05.38'N, 150°08.33'E, M. Ôhara, 8/7/1995, inland coastal margin of Natalie Bay; environs of Obzhitaya river valley, sandy bars along the river and in adjacent riparian forest, pit fall traps, bait trap, aspirator

UR95MO-008: 46°12.84'N, 150°18.69'E, M. Ôhara, 8/8/1995, inland coastal margin of Novo-kurilskaya Bay; environs of Bystraya river valley, under logs in grassland with adjacent forest, pit fall traps, bait trap, aspirator

UR95MO-009: 46°12.84'N, 150°18.69'E, M. Ôhara, 8/9/1995, inland coastal margin of Novo-kurilskaya Bay; environs of Bystraya river valley, under logs; grassland; forest next to wetland

UR95MO-055: 46°01.29'N, 149°59.67'E, M. Ôhara, 8/24/1995, inland coastal margin of Smuglyi Bay; environs of Rybnaya river valley, under leaves of *Petasites japonicus*, by hand

UR95MO-064: 45°34.67'N, 149°24.33'E, M. Ôhara, 8/27/1995, inland coastal margin of Katayeva Bay; environs of Van-der-linda point lighthouse, under faces of cows and pigs, by hand with aspirator

UR95MO-066: 45°48.14'N. 149°54.44'E, M. Ôhara, 8/28/1995, inland coastal margin of Barkhatny Bay; environs of Lopukhovaya river valley, under seaweeds and logs along sandy coastline, by hand with aspirator

UR95MO-069: 45°56.63'N. 150°10.52'E, M. Ôhara, 8/29/1995, inland coastal margin of Negodnaya Bay; environs of Vestrechnyi river

valley, under rocks at base of cliff, by hand with aspirator

UR95MO-070: 45°56.63'N, 150°10.52'E, M. Ôhara, 8/29/1995, inland coastal margin of Negodnaya Bay; environs of Vestrechnyi river valley, under seaweeds along sandy coastline, by hand with aspirator

UR95YK-046: 45°56.64'N, 150°10.56'E, M. Ôhara, 8/29/1995, inland coastal margin of Negodnaya Bay; environs of Vestrechnyi river by hand; vegetative litter of coastal grassland

UR96MO-051: 45°38.81'N, 149°27.87'E, M. Ôhara, 8/21/1996, Tetyva Bay

UR95BKU-061: 45°47.76'N, 149°54.35'E, B.K. Urbain, 8/28/1995, Inland coastal margin of Barkhatny Bay; environs of Lopukhovaya river, by hand with aspirator, under logs at vegetated margin of coast

UR95VR-035A: 45°56.60'N, 150°10.44'E, V. Roth, 8/29/1995, Inland coastal margin of Negodnaya Bay; environs of Vstrechnyi river, by hand and forceps

SIMUSHIR

SI95MO-011: 46°51.36'N, 151°47.19'E, M. Ôhara, 8/11/1995, inland coastal margin of Kitoboynaya Bay, coastal grassland on the hills close to shoreline, by hand with aspirator

SI95MO-045: 46°59.16'N, 152°01.21'E, M. Ôhara, 8/22/1995, inland coastal margin of Srednaya Bay, under seaweeds along sandy coastline, by hand with aspirator

SHASHKOTAN

SA96MO-033A: 48°46.84'N, 154°02.23'E, M. Ôhara, 8/11/1996, inland from Zakatnaya Bay; hand pickup, under seaweed on beach

CHIRPOI

CH95MO-048: 46°32.53'N, 150°54.22'E, M. Ôhara, 8/23/1995, inland coastal margin of Peschanaya Bay, under seaweeds along sandy coastline, by hand with aspirator

EKARUMA

EK96MO-032A: 48°57.77'N, 153°55.29'E, M. Ôhara, 8/10/1996, unnamed bay just of the east of cape Shpilevoy, northern corner of island, under seaweed on beach

KHARIMKOTAN

KH96MO-022A: 49°10.51'N, 154°27.59'E, M. Ôhara, 8/8/1996, Severgina Bay; northern end of Kharimkotan

ALAID

AL97MO-024A: 50°49.68'N, 155°40.35'E, M. Ôhara, 8/12/1997, inland from Alaidskaya Bay; near abandoned settlement of Atlasova, under seaweed and wood, hand picked

PARAMUSHIR

PA96MO-005: 50°01.17'N, 155°23.79'E, M. Ôhara, 8/3/1996, Brynkhanovo Bay, south end of Paramushir, hand pickup, under seaweed, Laminalia

PA97MO-025D: 50°22.50'N, 155°35.50'E, M. Ôhara, 8/13/1997, inland from Shelekhova Bay; near Shelekhova river and Shelekhovo settlement, under seaweed

PA97BKU-034: 50°43.95'N, 156°08.82'E, B.K. Urbain Date: 8/4/1997, northeast corner of island; environs of unnamed lake fed by Savushkina river; near Putyatino settlement on coast; along coastline, sucked from under driftwood and within *Honkenya peploides* plants along sandy beach, aspirator

SHUMUSHU

SU97MO-010A: 50°49.19'N, 156°30.07'E, M. Ôhara, 8/8/1997, about 2 kilometers south of Pochtareva cape; environs of first river north of Koshkina river, on shore; under seaweed, hand picked