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Carrion Beetles (Agyrtidae, Leiodidae, Silphidae) Obtained during the Biological Expedition to the Kamchatka Peninsula and the North Kuril Islands

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Abstract Five species of carrion beetles belonging to the families Agyrtidae, Leiodidae and Silphidae are recorded from the Kamchatka Peninsula and North Kuril Islands. A small silphid beetle, *Phosphuga shakotana* Kôno, is synonymized with *Phosphuga atrata* (Linnaeus).

Key words: carrion beetles, Agyrtidae, Leiodidae, Silphidae, Kamchatka Peninsula, Kuril Islands

The Natural History Museum and Institute, Chiba, made the Biological Expedition to Kamchatka and the North Kuril Islands in 1996 and 1997. This is a part of a project entitled "The Origin and Biogeography of the Northeast Asian Biota", in co-operation with the Institute of Biology and Pedology and the Institute of Marine Biology belonging to the Far Eastern Branch of Russian Academy of Sciences, Vladivostok. Through the courtesy of Dr. Akiko Saito, one of the members of the expedition, I had an opportunity to examine some carrion beetles obtained during the expedition. Although almost all the beetles have already been known from somewhere in the Kamchatka Peninsula or North Kurils, I am going to record new collecting data in the present paper, because they may be important from the zoogeographical viewpoint. Citations are limited to only the references with records from the Kamchatka Peninsula or the Kurils, and those to the original descriptions of the species concerned. *Phosphuga shakotana* Kôno is synonymized with *Phosphuga atrata* (Linnaeus) and is now regarded herewith as an insular form of the latter. All the material examined are preserved in the Natural History Museum and Institute, Chiba.

List of Species Collected

Family Agyrtidae
Subfamily Agyrtinae

Lyrosoma suturale Lewis, 1893
(Fig. 1)

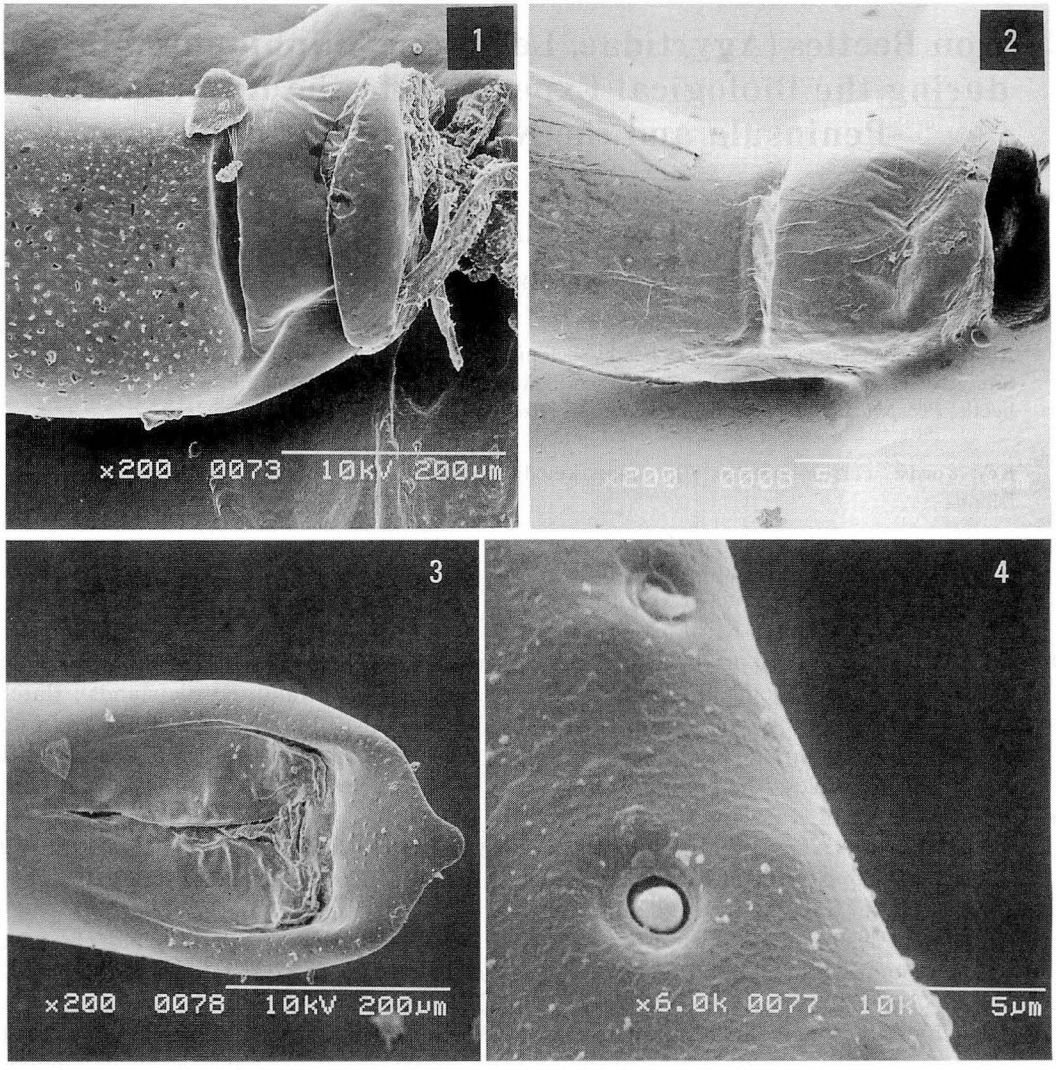
Lyrosoma suturale Lewis, 1893: 355 (type locality: Ketoi Island, Kuril Islands); Hatch, 1928: 71 (Kuril Is.); Nakane, 1955: 55 (Ketoi I., Kuril Is.); Kurosawa, 1985: 252 (Ketoi I., Kuril Is.); Newton, 1997: 149 (Ketoi I., Kuril Is.).

Lyrosoma pallidum: Schawaller, 1998: 129 (partim). Not Eschscholtz, 1829.

Material examined. Kuril Islands: 3 males, 2 females, 50°22.012′ N, 155°36.377′ E–50°21.764′ N, 155°34.228′ E, 0–100 m in alt., Shelekhovo-Shimoyur River, Paramushir I., 17.VII.1997, A. Saito leg.; 1 female, 50°22.012′ N, 155°36.677′ E–50°22.694′ N, 155°39.380′ E, 0–10 m in alt., Shelekhovo-Medvezhiy Waterfall, Paramushir I., 18.VII.1997, A. Saito leg.

Distribution. Kuril Islands.

Notes. This is the first record of a *Lyrosoma* species from Paramushir Island. This species was originally described from Ketoi Island of the Middle Kuril Islands. The specimens examined are almost identical with the topotypical ones, except for the unicolorous elytra. However, the identification with the Ketoi species is tentative. This *Lyrosoma* sp. is characterized by a peculiar aedeagal shape: the median lobe is longitudinally carinate on the dorsal side of the basal portion, which is widely laminate in the lateral view, with a



Figs. 1–4. Aedeagus of *Lyrosoma* spp. 1, *Lyrosoma suturale* Lewis, 1893, from Paramushir I., Kuril Is.; 2–4, *L. pallidum* (Eschscholtz, 1829)?, from Hakodate, Hokkaido, Japan. 1, 2, basal portion of median lobe, left lateral view; 3, apical portion of median lobe, ventral view, showing distribution of sensory setae; 4, same, close-up of setae.

pair of vertical sulci transversely located near the base (Fig. 1). A *Lyrosoma* species from Hokkaido lacks such a laminate carina on the median lobe, and has a pair of comparatively broad, gentle sulci (Fig. 2).

Recently, Newton (1997) listed eight species of the genus *Lyrosoma* in the worldwide, though Schawaller (1998) revised the genus and reduced the number of species to only two, *L. opacum* Mannerheim and *L. pallidum* (Eschscholtz). However, so far as the aedeagal characters are concerned, at least three congeneric species exist in the present region. Further examination is needed before an accurate classification of the species can be proposed.

It is worth noting also that there are sensory setae on the median lobe which are particularly noticeable in the apical portion of the ventral surface, as shown in figures 3 and 4. This finding supports the illustrations of *Ipelates indicus* (Hlisnikovský) and *I. sikkimensis* (Portevin) as made by Schawaller (1991: figs. 5, 7).

Family Leiodidae
Subfamily Cholevinae

Catops alsiosus mongolicus Jeannel, 1936

Catops alsiosus mongolicus Jeannel, 1936: 366 (type locality: North Mongolia); Lafer, 1989: 316, fig. 198, 5, 6 (Kamchatka).

Material examined. Kuril Islands: 1 female, 50°46.230′ N, 156°15.339′ E, 15 m in alt., Lake Bol'shoye, Shumushu I., 22–23.VII. 1997, baited pit trap, A. Saito & R. B. Kuranishi leg.

Distribution. Mongolia, Russian Far East.

Notes. According to G. Lafer (pers. comm. in 1996), one male specimen of a *Catops* species separately obtained from Paramushir Island is very similar to the present subspecies, though the aedeagal shape of the former is slightly different from that of the latter. Unfortunately, as only a single female specimen was available to me for examination, the present determination is tentative.

Family Silphidae
Subfamily Silphinae

Phosphuga atrata (Linnaeus, 1758)

Silpha atrata Linnaeus, 1758: 360 (type locality: Europe).

Silpha (*Phosphuga*) *atrata*: Kôno, 1944: 84 (Shumushu I., Kunashir I., Iturup I.).

Phosphuga atrata: Kryvolutskaja, 1973: 72 (Kunashir I., Iturup I.); Lafer, 1989: 343 (Kamchatka; Paramusir I., Iturup I., Kunashir I., Sikotan I.); Lafer, 1999: 4 (Kunashir I.).

Silpha (*Phosphuga*) *shakotana* Kôno, 1929: 160 (type locality: Shakotan (and Nasauki)) [type depository: Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo], syn. nov.; Kano, 1933: 100 (footnote) (Shikotan I., Paramushir I.).

Phosphuga shakotana: Nakane, 1955: 48 (Shikotan I.); Kuwayama, 1967: 136 (Shikotan I., Paramushir I.); Kryvolutskaja, 1973: 72. Not Kôno, 1929.

Material examined. Kamchatka Peninsula: 1 female, 53°10′ N, 158°33′ E, Bystraya River, 10.VII.1997, A. Saito leg.; 1 female, 53°04.864′ N, 157°55.044′ E, 550 m in alt., Mt. Vachkazhets, upper part of Takhkoloch River Basin of Plotnikova, 4.VIII.1997, baited pit trap, A. Saito leg.

Kuril Islands: 1 ex. (thorax and elytra), 50°42.954′ N, 156°07.865′ E, 100 m in alt., 4 km north of Severo-Kuril'sk, Paramushir I., 24.VII.1997, A. Saito leg.

Distribution. Palearctic Region.

Notes. Kôno (1929) described *Silpha* (*Phosphuga*) *shakotana* on the basis of a pair of specimens from Shakotan and Nasauki. The former locality lies on Shikotan Island off the Nemuro Peninsula, Hokkaido, while the exact location of the latter locality is not certain. Possibly, Nasauki is a locality lying on either Paramushir or Shumushu Island of the northern Kuril Islands, judging from the itinerary of Kyusaku Doi, the collector of the type specimens (cf. Kano, 1933; Kôno, 1944; Kuwayama, 1967). However, Kôno (1944) pointed out that *S.* (*P.*) *shakotana* recorded by Kano (1933) from Paramushir seems to be a misidentification of *P. atrata*, and that the latter from Shumushu Island has a small body size. He also recorded *P. atrata* from Kunashir and Itrup Islands. Nakane (1955) speculated that *P. shakotana* might be an insular subspecies of *P. atrata*. Recently, S. Nomura referred to it by pointing out its taxonomic problem (cf. Nomura, 1997). To understand more clearly the so-called diagnostic characters of *S.* (*P.*) *shakotana* such as the body size, pronotal shape and punctuation of the scutellum, I have compared the morphology among *Phosphuga* specimens from Hokkaido and Honshu in Japan, Russian Far East and Europe. I have also digitized photographs of the type specimen of *S.* (*P.*) *shakotana* from Shakotan deposited at the Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo. From these studies I have concluded that the two nominal taxa should be considered conspecific, and that the populations from the Kamchatka Peninsula and Kuril Islands could be recognized as an insular form characterized by a reduction of body size, which is the similar to the tendency as was pointed out by Kurosawa (1986) for *Silpha perforata* Gebler from Yagishiri-jima Island and Sakhalin. This trend towards a decrease of the body size in the insular popu-

lations is interesting in relation to the island rule (Foster, 1964).

Subfamily Nicrophorinae

Nicrophorus investigator Zetterstedt, 1824

Necrophorus investigator Zetterstedt, 1824: 154 (type locality: Sweden).

Nicrophorus investigator: Portevin, 1926: 245–255 (Kamchatka); Hatch, 1928: 139 (Kamchatka); Kôno, 1944: 84–85 (Shumushu I., Araido I., Paramushir I.).

Nicrophorus maculifrons: Kano, 1933: 100–101 (Shumushu I.) [misidentification of *N. investigator sensu* Kôno, 1944]; Kryvolutskaja, 1973: 71.

Material examined. Kuril Islands: 1 female, 50°22.012′ N, 155°36.677′ E-50°22.694′ N, 155°39.380′ E, 0–10 m in alt., Shelekhovo-Medvezhiy Waterfall, Paramushir I., 18.VII. 1997, A. Saito leg.

Distribution. Holarctic Region.

Nicrophorus vespilloides Herbst, 1783

Nicrophorus vespilloides Herbst, 1783: 32 (type locality: Berlin, Germany); Kôno, 1944: 84–85 (Shumushu I., Paramushir I.); Lafer, 1989: 338, figs. 205, 5, 6, 206, 6 (Kamchatka).

Necrophorus vespilloides: Kryvolutskaja, 1973: 71 (Shikotan I., Kunashir I., Paramushir I.).

Nicrophorus vespilloides f. *borealis*: Kôno, 1929: 161–162 (Shumushu I., Paramushir I., Shikotan I.). Not Portevin, 1914.

Nicrophorus vespilloides borealis: Kano, 1933: 101 (Shumushu I., Paramushir I.). Not Portevin, 1914.

Nicrophorus (*Necropter*) *vespilloides sylvaticus*: Kuwayama, 1967: 135 (Shikotan I., Kunashir I., Paramushir I., Shumushu I.). Not Reitter, 1895.

Material examined. Kamchatka Peninsula: 1 male, riverside, 25 km west of Klyuchi, 10.VII.1996, R.B. Kuranishi leg.; 1 female, 53°23.300′ N, 157°41.130′ E, 320 m in alt., Poperechnaya River, Bystraya River basin, 17 km from main road, 28.VII.1997, baited pit trap, A. Saito leg.

Distribution. Holarctic Region.

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カムチャツカ半島・北千島生物相調査で得られたシデムシ類（甲虫目：ツヤシデムシ科，タマキノコムシ科チビシデムシ亜科，シデムシ科）

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千葉県立中央博物館とロシア科学アカデミー極東支部が共同で実施した，カムチャツカ半島・北千島生物相調査で得られたシデムシ類5種（ツヤシデムシ科1種，タマキノコムシ科チビシデムシ亜科1種，シデムシ科3種）を記録した．これらのいずれもが同半島および同列島からすでに記録されているが，動物地理学的な視点から，新たな標本に基づいた記録は重要だと思われる．同時にこの論文では，次の事柄についても論じた：1) パラムシル島で得られたツヤシデムシ科ホソシデムシの一種を，暫定的にケトイ島産で記載された *Lyrosoma suturale* Lewis として記録し，雄交尾器を北海道函館産の *L. pallidum* (Eschscholtz) チシマホソシデムシ？と比較・図示したうえで，少なくともこの地域に3種が分布することを明らかにし，Schawaller (1998) による，既知種を2種と看做す同物異名の処理に対して，より慎重な検討の必要性を指摘した．なお，雄の交尾器中片先端部に顕著な感覚毛群が認められたので走査電子顕微鏡写真を付した．2) シャコタンとナサウキ産の標本に基づいて記載された *Silpha* (*Phosphuga*) *shakotana* Kôno シャコタンヒラタシデムシを，旧北区に広く分布する *Phosphuga atrata* (Linnaeus) クロヒラタシデムシの同物異名として扱った．しかし，カムチャツカ半島と千島列島産の個体群が極小の体サイズを示すことは事実であり，焼尻島やサハリン島産の *Silpha perforata* Gebler ヒラタシデムシ（黒沢，1986）と同じ傾向にあることは興味深い．