

**REVIEW OF THE SUBGENUS *AINOCARABUS* MANDL, 1973 OF THE
RUSSIAN FAR EAST (COLEOPTERA: CARABIDAE)**

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Abstract – The two species of the subgenus *Ainocarabus* Mandl, 1973 are studied. One new subspecies, *Carabus (Ainocarabus) kolbei urupiensis* ssp. n., is described. Status, type localities and areas of some taxa are specified. A key to all species and subspecies of the group and a distribution map are presented. Color photos of all taxa of the subgenus are added.

KEY WORDS: Coleoptera, Carabidae, *Carabus (Ainocarabulus)*, taxonomy, distribution, Islands of the Far East Russia, Hokkaido.

Izveček – PREGLED PODRODU *AINOCARABUS* MANDL, 1973, RUSKEGA DALJNEGA VZHODA (COLEOPTERA: CARABIDAE)

Preučeni sta obe vrsti podrodu *Ainocarabus* Mandl, 1973. Opisana je nova podvrsta, *Carabus (Ainocarabus) kolbei urupiensis* ssp. n. Navedeni so status, tipske lokalitete in razširjenost nekaj taksonov. Podana sta ključ za vse vrste in podvrste te skupine in karta razširjenosti. Dodane so barvne fotografije vseh taksonov podrodu.

KLJUČNE BESEDE: Coleoptera, Carabidae, *Carabus (Ainocarabulus)*, taksonomija, razširjenost, otoki ruskega daljnega vzhoda, Hokaido.

Introduction

The subgenus *Ainocarabus* includes two species: *C. avinovi* Semenov-Tian-Shansky et Znojko, 1932 and *C. kolbei* Roeschke, 1887; the latter is represented by four subspecies in the fauna of the Russian Far East: *C. k. aino* Rost, 1908; *C. k. chishimanus* (Nakane, 1961); *C. k. ushishirensis* Obydov et Saldaitis, 1996 and *C. k. urupiensis* ssp. n.

Only the taxa represented in the islands of the Russian Far East and partially from Hokkaido are considered in this work. Distribution records are gained from collected material and partially from publications.

Subgenus *Ainocarabus* Mandl, 1973

Type species *C. aino* Rost, 1908 (Mandl designation, 1980).

Carabus (*Ainocarabus*) Mandl, 1973: 85.

Carabus (*Ainocarabus*): Lafer, 1989: 107; Shilenkov, 1994: 69; Březina, 1994: 70; Kryzhanovskij et al., 1995: 49; Obydov et Saldaitis, 1996: 1; Obydov, 1999: 114; Obydov, 2005: 69.

Carabus (*Megodontus*): Deuve, 1994: 250 (part.); Imura et Mizusawa, 1996: 70, 213 (part.); Ghiretti, 1996: 329 (part.); Schütze et Kleinfeld, 1997: 176 (part.); 1999: 214 (part.); Kleinfeld et Schütze, 1998: 39 (part.); 1999: 38 (part.); Březina, 1999: 73 (part.); Osawa et al., 2002: 112, 221 (part.); Deuve, 2004: 363 (part.).

Description: Small- to medium-sized beetles (20.0 - 27.0 mm). Head not thickened; mandibles slightly curved and sharply pointed at the apex; frons usually nearly smooth with few sparse punctures; antennae protruding beyond the base of pronotum by three or four apical joints. Labrum wider than clypeus, moderately notched. Palpi moderately dilated; penultimate joint of labial palpi with 3 to 5 setae. Mentum tooth pointed, narrow, longer or equal to lateral lobes. Submentum without setae. Prothorax usually cordiform, narrow. Pronotum with sparse and coarse punctures; lateral margin with two pairs of setae. Sides of pronotum narrowly margined; lobes of hind angles triangularly protruding, slightly bent downwards; median longitudinal line distinct. Elytra oblong-oval, convex. Elytral sculpture rather variable: primary elytral interspaces integral, keel-shaped; secondaries finely rugged, represented by rows of small tubercles; tertiaries reduced or primary elytral interspaces interrupted into long links by big and coarse foveoles, secondary interrupted into rather short links, tertiaries elytral interspaces represented by rows of small tubercles and partially reduced, all elytral interspaces conjugated transversely. Striae vary from coarsely punctured to transversely-wrinkled. Metepisternum slightly longer than wide; sternal sulci indistinct or absent. Legs of normal length; anterior male tarsi with four dilated segments bearing hairy pads. Apical lamella of aedeagus not dilated; endophallus with unilobate ostium lobe. Pronotum bronze, red, reddish bronze; elytra bronze, red, coppery red, green or greenish bronze, with metallic lustre. Mandibles, palpi, antennae, legs and ventral body surface black or blackish brown.

Distribution: South Sakhalin, Moneron Island, Shikotan Island, Hokkaido and Kuril Archipelago: Kunashir, Iturup, Urup, Simushir, Ketoy and Ushishir Islands: Yankicha Island.

Key to the subgenus *Ainocarabus*

1 (2) Elytral sculpture very rough, primary elytral interspaces interrupted into moderately long links by large and coarse foveoles, secondaries interrupted into rather

short links, tertiary elytral interspaces represented by rows of small tubercles, partially reduced, all elytral interspaces conjugated transversely; striae coarsely punctured; pronotum bronze or reddish bronze; elytra bronze, green, or greenish bronze, with metallic lustre. South Sakhalin and Moneron Island
.....*C. avinovi* Semenov-Tian-Shansky et Znojko

2 (1) Elytral sculpture moderately rough, primary elytral interspaces integral, keel-shaped, interrupted into very long links or sometimes into moderately long links, secondaries finely rugged, represented by rows of small tubercles, tertiaries reduced; striae transversely-wrinkled. Hokkaido and Kuril Archipelago (to the south from Ushishir Islands).....*C. kolbei* Roeschke (3)

3 (6) Pronotum cordiform, pronotal hind angles longer; body shorter.

4 (5) Elytra and pronotum narrower; secondary elytral interspaces more distinct, elytral striae less rough; pronotum bronze, reddish bronze, or greenish bronze; elytra green or greenish bronze, with metallic lustre. North-eastern Hokkaido, Kunashir and Shikotan.....*C. kolbei aino* Rost

5 (4) Elytra and pronotum broader, secondary elytral interspaces less distinct, elytral striae more rough; pronotum bronze or reddish-bronze; elytra reddish-bronze, bronze, or green, with metallic lustre. Iturup Island (South Kuril Archipelago)
.....*C. kolbei chishimanus* (Nakane)

6 (3) Pronotum not cordiform or weakly cordiform, pronotal hind angles shorter; body larger and more robust.

7 (8) Pronotum less convex, median longitudinal line distinct; secondary elytral interspaces finely rugged, represented by rows of small tubercles; tertiaries reduced; elytral striae more coarse; sternal sulci shallow, but well marked; pronotum red, elytra reddish bronze, bronze, or greenish bronze. Ushishir Islands (Central part of Kuril Archipelago).....*C. kolbei ushishirensis* Obydov et Saldaitis

8 (7) Pronotum more convex, median longitudinal line usually indistinct; secondary and tertiary elytral interspaces reduced; elytral striae less coarse; sternal sulci absent; pronotum red, elytra reddish bronze, red, bronze, greenish bronze or green. Urup and Simushir Islands (Kuril Archipelago).....
..... *C. kolbei urupiensis* ssp. n.

Carabus (Ainocarabus) avinovi Semenov-Tian-Shansky et Znojko, 1932 (Fig. 1)

Carabus (Acoptolabrus) avinovi Semenov-Tian-Shansky et Znojko, 1932: 187 ("Central Sakhalin").

Carabus (Ainocarabus) avinovi: Lafer, 1989: 107; Březina, 1994: 70; Shilenkov, 1994: 69; Kryzhanovskij et al., 1995: 49; Obydov, 1999: 115; Obydov, 2005: 70.

Carabus (Megodontus) avinovi: Deuve, 1991: 153; Deuve, 1994: 251; Imura et Mizusawa, 1996: 71, 213; Ghiretti, 1996: 330; Schütze et Kleinfeld, 1997: 16, 176; 1999: 214; Kleinfeld et Schütze, 1998: 39; 1999: 39; Březina, 1999: 73; Osawa et al., 2002: 149, 221; Deuve, 2004: 364 (part.).

Type locality: The species has been described from central Sakhalin Island, from the area of the Russian-Japanese border (50°N lat.).

Description: Body length 20.0-23.5 mm. Head not thickened or slightly thickened; eyes strongly convex; mandibles elongate, slightly curved; retinaculum of the right and left mandibles triangular, moderately prominent; surface of mandibles smooth. Frontal furrows relatively long and shallow; sometimes conjugated, inside smooth or with sparse coarse punctures. Frons smooth, vertex and neck coarsely-punctured, sometimes with few coarse wrinkles. Labrum much wider than clypeus, slightly notched, without lateral setae. Antennae long, protruding beyond the base of pronotum by 4-5 apical joints; palpi slightly or moderately dilated; penultimate joint of the labial palpi with 4-5 setae. Mentum tooth very narrow, longer than lateral lobes; submentum without setiferous pores.

Prothorax narrow, broadest at about middle. Pronotum with coarse punctures and wrinkles. Median longitudinal line distinct; basal foveae oval, deep, inside coarsely-punctured. Sides of pronotum narrowly margined, its margin broader and slightly bent upwards posteriorly; lobes of hind angles very short, slightly bent downwards. Lateral margin with 2 setiferous pores: one pore at about middle and one pore near hind angle.

Elytra oblong-oval, moderately convex, widest at about middle; shoulders slightly prominent; sides of elytra broadly margined. Elytral sculpture heterogeneous, very rough: primary elytral interspaces interrupted into long links by big and coarse foveoles, secondary interrupted into rather short links, tertiary elytral interspaces represented by rows of small tubercles and partially reduced, all elytral interspaces conjugated transversely; striae coarsely punctured.

Metepisternum smooth, longer than its width. Abdominal sternites smooth; sternal sulci absent. Legs long; fore male tarsi with four dilated segments bearing hairy pads.

Aedeagus evenly curved; apical lamella of aedeagus not dilated; endophallus with narrow unilobate ostium lobe.

Pronotum bronze, red, or reddish bronze; elytra bronze, green, or greenish bronze, with metallic lustre. Mandibles, palpi, antennae, legs and ventral body surface black or blackish-brown.

Distribution: Endemic of South Sakhalin and Moneron Island. The species was not found in the central part of Sakhalin Island (type locality) by recent collectors.

Habitat: The species inhabits mixed forests and fir forests at altitudes from 100 to 800 m above sea level, rarely it occurs in dwarf-pine elfin wood and bamboo brakes; it is a rare species.

Type material examined: Holotype of *Carabus avinovi*: female with three labels "Sakhalin, D. Bekendorf", "*Carabus (Acoptolabrus) avinovi* Sem. et Zn., typ., Semenov-Tian-Shansky et Znojko det., XII.931", "Holotypus" (ZIN).

Additional material examined: 3 males, 3 females, South Sakhalin, Chekhova Mt., dwarf-pine elfin wood, VII.1970, L. Molodova leg. (ZIN); female, Sakhalin, Uzhegorsk dist., Igara Mt., Krivolutzkaia leg. (ZIN); male, female, Chekhova Mt., 4.VIII.967 (ZIN); female, Chekhova Mt., bamboo brakes (ZIN); male, Sakhalin, Chekhova Mt, 20.VI.73 (ZMMU); female, Sakhalin, Susunaisky Ridge, Chekhova Mt, 22.VI.84, Klitin leg. (ZMMU); male, female, Sakhalin, Yuzhnosakhalinsk, 15.7.90, Sazonov leg. (CDM); male, Sakhalin, Kholmsky dist, Pozharskoe vil., 14.8.77, V. Kuznetsov leg. (CDM); 2 males, 2 females, South Sakhalin, Chekhova Mt, 450 m, 18.VI. 1990, S. Sharikov leg. (COM); 2 males, female, South Sakhalin, Chekhova Mt, 600 m, 16.VI. 1989, D. Obydov leg. (COM); 2 males, female, Sakhalin, Chekhova Mt, 26.VI-8.VII.1973, A. Sladkov leg. (TMB); male, female, Sakhalin, Chekhova Mt, VI.1974 (TMB); 5 males, 5 females, South Sakhalin, Krilion Peninsula, Kalinino vil. env., VII.1992, A. Plutenko leg. (CPS); 20 males, 24 female, South Sakhalin, Chekhova Mt, 24.VIII-6.IX.1970, Tikhomirova leg. (ZMMU).

Carabus (Ainocarabus) kolbei Roeschke, 1897

Carabus kolbei Roeschke, 1897: 116 ("China").

Carabus (?Pseudocoptolabrus) kolbei: Jakobson, 1905: 217.

Carabus (Megodontus) kolbei: Breuning, 1935: 1281.

Carabus (Ainocarabus) kolbei: Lafer, 1989: 107; Březina, 1994: 70; Shilenkov, 1994: 69; Kryzhanovskij et al., 1995: 49; Obydov et Saldaitis, 1996: 3; Obydov, 1999: 115; Obydov, 2005: 72.

Carabus (Megodontus) kolbei: Deuve, 1991: 153; Deuve, 1994: 250; Imura et Mizusawa, 1996: 71, 214; Ghiretti, 1996: 329; Schütze et Kleinfeld, 1997: 176; 1999: 215; Kleinfeld et Schütze, 1998: 39; 1999: 39; Březina, 1999: 74; Osawa et al., 2002: 138, 149; Deuve, 2004: 363 (part.).

Type locality: Hokkaido. The original reference of the type locality "China" is wrong. The original description was evidently based on specimens from Hokkaido.

Description: Body length 20.0-29.2 mm. Head thickened or slightly thickened; eyes strongly convex; mandibles elongate, evenly or slightly curved; retinaculum of the right and left mandibles triangular, strongly prominent; surface of mandibles smooth. Frontal furrows short or long, shallow; inside smooth; sometimes conjugated transversely.

Frons smooth, vertex and neck nearly smooth or with sparse punctures, often frons, vertex and neck with few coarse wrinkles; sometimes frons, vertex and neck smooth; rarely vertex and neck with few shallow punctures. Labrum wider than clypeus, slightly or moderately notched, with 2 lateral setae. Antennae long, protruding beyond

the base of pronotum by 4-5 apical joints; palpi moderately or strongly dilated; penultimate joint of the labial palpi with 3-7 setae. Mentum tooth narrow or very narrow, triangular, slightly longer or much longer than lateral lobes; submentum without setiferous pores.

Prothorax narrow, cordiform, broadest before middle; sometimes prothorax relatively narrow, convex, not cordiform or weakly cordiform, broadest at about middle. Pronotum with dense or sparse coarse punctures and wrinkles, laterally with more rough sculpture, sometimes posteriorly with short coarse wrinkles. Median longitudinal line distinct, sometimes indistinct; basal foveae deep or shallow, inside coarsely-punctured or coarsely-wrinkled. Sides of pronotum narrowly margined, usually its margin broader and slightly bent upwards posteriorly; lobes of hind angles relatively short, triangular or very short, evenly rounded, slightly bent downwards. Lateral margin with 2-3 setiferous pores.

Elytra oblong-oval, narrow, moderately convex or relatively broad, convex, widest at about middle or behind middle; shoulders prominent or slightly prominent; sides of elytra narrowly or broadly margined. Primary elytral interspaces integral, keel-shaped; secondaries finely rugged, represented by rows of small tubercles; tertiaries reduced; striae broad, transversely-wrinkled.

Metepisternum smooth, longer than its width. Abdominal sternites smooth; sternal sulci absent. Legs long or relatively long; fore male tarsi with four dilated segments bearing hairy pads.

Pronotum usually bronze, reddish bronze, or greenish bronze; elytra green or greenish bronze, with metallic lustre; sometimes pronotum constantly red, elytra reddish bronze or bronze. Mandibles, palpi, antennae, legs and ventral body surface black or blackish-brown.

Distribution: Hokkaido and Kuril Archipelago, north to Ushishir Islands.

Remark: A considerable number of subspecies of *C. kolbei* are described, the majority of which occur in Hokkaido, and only four subspecies are known from Russia, namely in the South and Central Kuril Islands. The taxa from Hokkaido are not included in this work.

Habitat: The species mostly inhabits montane regions, rarely foothills and plains.

The species is represented by four subspecies in the fauna of Russian Far East: *C. k. aino* Rost, 1908; *C. k. chishimanus* (Nakane, 1961); *C. k. ushishirensis* Obydov et Saldaitis, 1996 and *C. k. urupiensis* ssp. n.

***Carabus (Ainocarabus) kolbei aino* Rost, 1908 (Fig. 2)**

Carabus aino Rost, 1908: 32 ("Hokkaido").

Carabus (Megodontus) aino: Breuning, 1935: 1282.

Procrustes (Megodontus) aino: Ishikawa, 1966: 458.

Carabus (Ainocarabus) kolbei aino: Lafer, 1989: 107 (part.); Březina, 1994: 70 (part.); Shilenkov, 1994: 69; Kryzhanovskij et al., 1995: 49; Obydov et Saldaitis, 1996: 3; Obydov, 1999: 116; Obydov, 2005: 73.

Carabus (Megodontus) kolbei aino: Deuve, 1994: 251; Imura et Mizusawa, 1996: 71, 214; Ghiretti, 1996: 329; Schütze et Kleinfeld, 1997: 176; 1999: 215; Kleinfeld et Schütze, 1998: 40; 1999: 39; Březina, 1999: 74; Osawa et al., 2002: 83; Deuve, 2004: 363 (part.).

Type locality: The species was described from "Hokkaido" (evidently from north-eastern Hokkaido Island).

Description: Body length 20.0-22.5 mm. Head slightly thickened; eyes strongly convex; mandibles elongate, evenly curved; retinaculum of the right and left mandibles triangular, strongly prominent; surface of mandibles smooth. Frontal furrows long and shallow; inside smooth. Frons smooth, vertex and neck nearly smooth or with sparse punctures, sometimes frons, vertex and neck with few coarse wrinkles. Labrum wider than clypeus, slightly or moderately notched, with 2 lateral setae. Antennae long, protruding beyond the base of pronotum by 5 apical joints; palpi moderately dilated; penultimate joint of the labial palpi with 3-7 setae. Mentum tooth very narrow, triangular, longer than lateral lobes; submentum without setiferous pores.

Prothorax narrow, cordiform, broadest before middle. Pronotum with coarse punctures and wrinkles, laterally with more rough sculpture. Median longitudinal line distinct; basal foveae deep, inside coarsely-punctured. Sides of pronotum narrowly margined, its margin broader and slightly bent upwards posteriorly; lobes of hind angles relatively short, triangular, slightly bent downwards. Lateral margin with 2 setiferous pores: one pore at about middle and one pore near hind angle.

Elytra oblong-oval, narrow, moderately convex, widest at about middle; shoulders slightly prominent; sides of elytra narrowly margined. Primary elytral interspaces integral, keel-shaped; secondary finely rugged, represented by rows of small tubercles; tertiaries reduced; striae broad, transversely-wrinkled.

Metepisternum smooth, longer than its width. Abdominal sternites smooth; sternal sulci absent. Legs long; fore male tarsi with four dilated segments bearing hairy pads.

Pronotum bronze, reddish bronze or greenish bronze; elytra green or greenish bronze, with metallic lustre. Mandibles, palpi, antennae, legs and ventral body surface black or blackish-brown.

Distribution: North-eastern Hokkaido, Shikotan Island, Kunashir Island (South Kuril Archipelago).

Habitat: The species inhabit mountains, foothills and plains; it is relatively rare.

Material examined: male, Hokkaido-Japan, Tomamu, 9.VIII.1989, H. Sasaki leg. (COM); male, Kunashir Isl., Alekhino vil. env., 14.VII.1962, Konovalova leg. (ZIN); male, Shikotan Isl., Small Kuril Isl., 10.VI.1946, N. Kononov leg. (ZIN); male,

Kunashir Isl., Sernovodsk env., 9.VIII.1968, Nikolaev leg. (ZIN); female, Kunashir Isl., Kuril Arch., Kurilsk env., IX.1956, Vasiliev leg. (ZIN); female, Kunashir Isl., Alekhino, Dorokhov leg. (ZIN); female, Kuril Arch., Kunashir Isl., Alekhino vil., Anufriev leg. (ZIN); Kuril Arch., Kunashir Isl., Tretiakovo vil., 25.VII.1970, Loktin leg. (ZIN); 2 males, Kunashir Isl., Alekhino vil. env., 18.8.1982, Kuznetsov leg. (CDM); male, Kunashir Isl., to the south from Golovina volc., 24.4.1990 (CDM); female, Kunashir Isl., Tretiakovo, 6.8.1982, Kuznetsov leg. (CDM); male, Kunashir Isl., Tretiakovo, 31.VII.1985, N. Nikitsky leg. (ZMMU); 3 males, female, southern slopes of Golovina volc., 21.VIII-1.X.1990, S. Pushkarev leg. (COM); male, female, Kunashir Isl., 5 km from Yuzhnokurilsk to the north, 26.8.1997, Yu. Marusik leg. (COM); male, Kunashir Isl., Kisly Stream, coniferous forest, 29.VII-6.VIII.1999, A. Klitin leg. (COM).

Carabus (Ainocarabus) kolbei chishimanus (Nakane, 1961) (Fig. 3)

Procrustes (Megodontus) aino chishimanus Nakane, 1961: 3 ("Iturup").

Carabus (Ainocarabus) kolbei chishimanus: Lafer, 1989: 107 (part.); Březina, 1994: 70; Shilenkov, 1994: 69; Kryzhanovskij et al., 1995: 49; Obydov et Saldaitis, 1996: 3; Obydov, 1999: 116; Obydov, 2005: 75.

Carabus (Megodontus) kolbei chishimanus: Deuve, 1994: 251; Ghiretti, 1996: 330; Schütze et Kleinfeld, 1997: 22, 176; 1999: 215; Kleinfeld et Schütze, 1998: 40; 1999: 39; Březina, 1999: 74; Deuve, 2004: 363 (part.).

Type locality: Iturup Island (South Kuril Archipelago).

Description: Body length 20.5-23.0 mm. Head moderately thickened; eyes strongly convex; mandibles elongate, evenly curved; retinaculum of the right and left mandibles triangular, prominent; surface of mandibles smooth. Frontal furrows shallow; inside smooth, conjugated transversely. Frons smooth, vertex and neck nearly smooth, sometimes vertex with few coarse wrinkles, neck with sparse punctures. Labrum wider than clypeus, slightly notched, with 2 lateral setae. Antennae long, protruding beyond the base of pronotum by 5 apical joints; palpi moderately dilated; penultimate joint of the labial palpi with 4 setae. Mentum tooth narrow, triangular, slightly longer than lateral lobes; submentum without setiferous pores.

Prothorax relatively narrow, cordiform, broadest before middle. Pronotum with coarse punctures and wrinkles, laterally with more rough sculpture, posteriorly with short coarse wrinkles. Median longitudinal line distinct; basal foveae not deep, inside coarsely-wrinkled. Sides of pronotum narrowly margined; lobes of hind angles relatively short, triangular, slightly bent downwards. Lateral margin with 2 setiferous pores: one pore at about middle and one pore near hind angle.

Elytra oblong-oval, relatively narrow, moderately convex, widest at about middle; shoulders slightly prominent; sides of elytra narrowly margined. Primary elytral interspaces integral, keel-shaped; secondary finely rugged, less distinct than in *C.*

kolbei aino; tertiaries reduced; elytral striae broader and more rough than in *C. kolbei aino*.

Metepisternum smooth, longer than its width. Abdominal sternites smooth; sternal sulci absent. Legs long; fore male tarsi with four dilated segments bearing hairy pads.

Pronotum bronze or reddish-bronze, elytra green or bronze with metallic lustre; mandibles, palpi, antennae, legs and ventral body surface black.

Remark: This subspecies is very close to *C. kolbei aino* Rost, however it differs from the latter by longer body, slightly broader pronotum and elytra, less distinct secondary elytral interspaces and more rough elytral striae.

Distribution: Only one population from Iturup Island is known.

Habitat: The species inhabits mountains and foothills; rare.

Material examined: 2 males, Iturup Isl., 18.VIII.1975 (COM); male, Iturup Isl., Kurilsk environs, 5.VIII.1973 (CCH).

Carabus (Ainocarabus) kolbei ushishirensis Obydov et Saldaitis, 1996 (Figs. 5,6)

Carabus (Ainocarabus) kolbei ushishirensis Obydov et Saldaitis, 1996: 1 ("Ushishir Islands: Yankicha Island"); Obydov, 1999: 117; Obydov, 2005: 76.

Carabus (Megodontus) kolbei ushishirensis: Ghiretti, 1996: 328 (supplement 2, 1997); Schütze et Kleinfeld, 1997: 68, 176; 1999: 215; Kleinfeld et Schütze, 1998: 40; 1999: 39; Březina, 1999: 74; Deuve, 2004: 364.

Type locality: Ushishir Islands (Central part of Kuril Archipelago): Yankicha Island, northern and south-eastern part of Kraternaya Bight.

Description: Body length 21.5-27.0 mm. Head thickened; eyes strongly convex; mandibles narrow, long, slightly curved; retinaculum of the right and left mandibles triangular, strongly prominent; surface of mandibles smooth. Frontal furrows short and shallow; inside smooth. Frons, vertex and neck smooth; rarely vertex and neck with few shallow punctures. Labrum wider than clypeus, slightly or moderately notched, with 2 lateral setae. Antennae protruding beyond the base of pronotum by 4-5 apical joints; palpi strongly dilated; penultimate joint of the labial palpi with 4 setae. Mentum tooth very narrow, much longer than lateral lobes; submentum without setiferous pores.

Prothorax convex, not cordiform or weakly cordiform, broadest at about middle. Pronotum with sparse coarse punctures and wrinkles, laterally with more rough sculpture. Median longitudinal line distinct; basal foveae not deep, inside coarsely-punctured. Sides of pronotum narrowly margined, its margin slightly bent upwards; lobes of hind angles very short, evenly rounded, slightly bent downwards. Lateral margin with 2-3 setiferous pores.

Elytra oblong-oval, relatively broad, convex, widest at about middle or behind middle; shoulders prominent; sides of elytra broadly margined. Primary elytral interspaces integral, keel-shaped; secondary finely rugged, represented by rows of small tubercles; tertiaries reduced; striae broad, transversely-wrinkled.

Metepisternum smooth, longer than its width. Abdominal sternites smooth; sternal sulci absent. Legs relatively long; fore male tarsi with four dilated segments bearing hairy pads.

Body larger and robust; pronotum constantly red, elytra reddish bronze, bronze, rarely greenish bronze. Mandibles, palpi, antennae, legs and ventral body surface black or blackish-brown.

Distribution: Ushishir Islands (Yankicha) and Ketoy Island.

Habitat: The beetles were collected on grassy slopes. A number of specimens were found in hot springs; very rare.

Type material examined: Holotype of *Carabus kolbei ushishirensis*: male with two labels, "Ushishir Islands, Yankicha, N and SE part of Kraternaya, 47°30'N, 152°48'E, 20.VIII.1995, Yu. Marusik leg." and "Holotypus, *Carabus (Ainocarabus) kolbei ushishirensis* ssp. n., D. Obydov et A. Saldaitis det., 1996" (COM); Paratypes: 3 males, 2 females, each specimen with two labels, "Ushishir Islands, Yankicha, N and SE part of Kraternaya, 47°30'N, 152°48'E, 20.VIII.1995, Yu. Marusik leg." and "Paratypus, *Carabus (Ainocarabus) kolbei ushishirensis* ssp. n., D. Obydov et A. Saldaitis det., 1996" (COM, CDM).

Carabus (Ainocarabus) kolbei urupiensis ssp. n. (Fig. 4)

Holotype: female, South Kuril Islands, Urup Island, north-western coast of Tokotan Lake, 21-29.VII. 2006, A. K. Klitin leg.; Papatypes: 1 female, 21-29.VII. 2006, 1 male (with the deformed elytrae) and 1 female, 29.VII-2.VIII.2006, same locality.

Remark: The female is designated as holotype since the single male is a teratological specimen.

Description: Body length in male 24.7 mm (including mandibles), width 7.8 mm; body length in females 24.5-29.2 mm, width 8.0-8.6 mm.

Head thickened, ratio width of pronotum/width of head 1.95; eyes moderately convex; mandibles narrow, relatively long, slightly incurved; terebral tooth of the right and left mandibles unidentate, moderately prominent; retinaculum of the right and left mandibles slightly prominent; surface of mandibles smooth. Frontal furrows deep and long, inside nearly smooth. Frons and vertex smooth, neck with sparse punctures. Labrum slightly wider than clypeus, very slightly notched, with two lateral setae. Antennae protruding beyond the base of pronotum by 4 apical segments; palpi

moderately dilated; penultimate segment of the maxillary palpi equal to the last segment; penultimate segment of the labial palpi with 4 setae. Mentum tooth triangular, narrow, much longer than lateral lobes; submentum without setiferous pores.

Prothorax transverse, slightly cordiform, strongly convex, broadest at about middle; ratio width/length 1.28. Pronotum with coarse punctures and wrinkles, its punctation more rough and dense laterally. Median longitudinal line usually indistinct, sometimes distinct; basal foveae triangular, deep, inside with coarse wrinkles. Sides of pronotum narrowly margined, its margin broader and bent upwards posteriorly; lobes of hind angles very short, evenly rounded, bent downwards. Lateral margin with 2 setiferous pores: one pore at about middle and one pore near hind angle.

Elytra oval or oblong-oval, broad, convex, widest at about middle or behind middle; shoulders prominent; sides of elytra broadly margined. Ratio length/width 1.87; ratio width of elytrae/width of pronotum 1.43. Primary elytral interspaces integral, keel-shaped; secondaries and tertiaries reduced; striae broad, transversely-wrinkled.

Metepisternum smooth, slightly longer than its width. Abdominal sternites smooth; sternal sulci absent.

Legs of normal length; anterior male tarsi with four dilated segments bearing hairy pads.

Coloration: pronotum red, elytra reddish bronze, red, bronze, greenish bronze or green. Mandibles, palpi, antennae, legs and ventral body surface black.

Differential diagnosis

The new subspecies is closely related to *Carabus (Ainocarabus) kolbei ushishirensis* Obydov et Saldaitis, 1996 but strongly differs from the latter by following features: pronotum more convex, median longitudinal line less distinct; secondary and tertiary elytral interspaces reduced (in *C. kolbei ushishirensis* secondary elytral interspaces represented by rows of small tubercles); elytral striae less coarse; sternal sulci absent; in general body longer 24.5-29.2 mm (in *C. kolbei ushishirensis* body length is 21.5-27.0 mm).

Distribution: Urup and Simushir Islands.

Habitat: The beetles were collected in the thickets of *Filipendula camtschatica* at the north-western coast of Tokotan Lake. Probably it is a very rare subspecies.

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Fig. 1: *Carabus avinovi* (South Sakhalin)



Fig. 2: *Carabus kolbei aino* (Kunashir Isl.)



Fig. 3: *Carabus kolbei chishimanus* (Iturup Isl.)



Fig. 4: *Carabus kolbei urupiensis* ssp. n. (Urup Isl.) (Holotype).



Fig. 5: *Carabus kolbei ushishirensis* (Ushishir Islands, Yankicha) (Holotype).



Fig. 6: *Carabus kolbei ushishirensis* (Ketoy Isl.)
(Photos 2,3,4,6 by A. Klitin; photos 1,5 by D. Obydov).

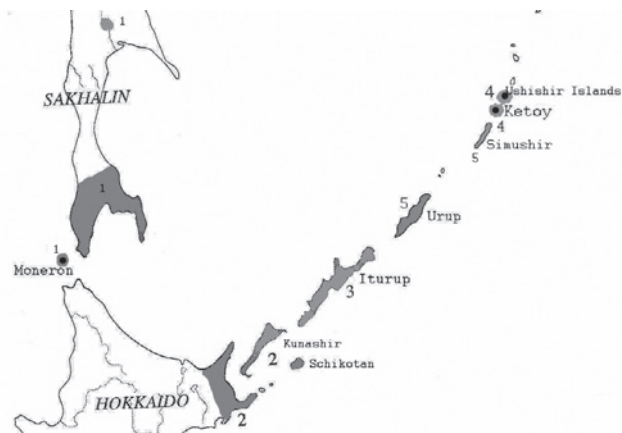


Fig. 7: Map of Hokkaido, South Sakhalin and the Kuril Archipelago: distribution of *C. (Ainocarabus) avinovi* (1); *C. (Ainocarabus) kolbei aino* (2); *C. (Ainocarabus) kolbei chishimanus* (3); *C. (Ainocarabus) kolbei ushishirensis* (4) and *C. (Ainocarabus) kolbei urupiensis* (5).

References

Breuning S., 1935. Monographie der Gattung *Carabus*. VI Teil. Bestimmungs-Tabellen der europäischen Coleopteren, 109 Heft. Troppau: 1123-1360.

- Březina B.**, 1994. The Check-list of the Genus *Carabus* (Coleoptera: Carabidae), *Klapalekiana*, Vol. 30, No.1-2, Praha: 164 pp.
- Březina B.**, 1999. World Catalogue of the Genus *Carabus* L. Pensoft Publishers, Sofia-Moscow: 170 pp.
- Deuve Th.**, 1991. La Nomenclature Taxonomique du Genre *Carabus*. *Bibl. ent.*, Vol. IV, Venette: 198 pp.
- Deuve Th.**, 1994. Une Classification du Genre *Carabus*. *Bibl. ent.*, Vol. V., Venette: 296 pp.
- Deuve Th.**, 2004. Illustrated Catalogue of the Genus *Carabus* of the World (Coleoptera: Carabidae), Pensoft, Sofia-Moscow: 461 pp.
- Ghiretti D.**, 1996. Photographic catalogue of the genus *Carabus*. Conte ed., Lecce: 404 pp.
- Imura Yu. & Mizusawa K.**, 1996. The *Carabus* of the World. Mushi-Sha's Iconographic Series of Insects 2, Tokyo: 261 pp.
- Ishikawa R.**, 1966. Descriptions of New Subspecies in the Japanese Carabina (Coleoptera, Carabidae). *Bull. Nat. Sci. Mus. Tokyo*, Vol. 9, No. 4: 451-464.
- Jakobson G. G.**, 1905. [The Beetles of Russia and West Europe]. St. Petersburg: 1024 pp [in Russian].
- Kleinfeld F. & Schütze H.**, 1998. Systematische Liste der Gattung *Carabus*.: 71 pp.
- Kleinfeld F. & Schütze H.**, 1999. Systematische Liste der Gattung *Carabus*.: 70 pp.
- Kryzhanovskij O. L., Belousov I. A., Kabak I. I., Kataev B. M., Makarov K. V., Shilenkov V. G.**, 1995. A Checklist of the Ground-Beetles of Russia and Adjacent Lands (Insecta, Coleoptera, Carabidae). Pensoft Publishers, Sofia-Moscow: 271 pp.
- Kwon J. & Lee S.-M.**, 1984. Classification of the Subfamily Carabinae from Korea (Coleoptera, Carabidae). *Insecta koreana*, Series 4: 361 pp.
- Lafer G. S.**, 1989. [The determinant of insects of Far East USSR, T. III. Coleoptera 1, Carabidae]. Leningrad: 71-222 [in Russian].
- Nakane T.**, 1961. New or little-known Coleoptera from Japan and its adjacent regions. *Fragmenta Coleopterologica*, I: 1-6.
- Obydov D.**, 1999. Review of the Megodontus Group of the Genus *Carabus* Linné of Siberia (Coleoptera, Carabidae). *Coleoptera, Schwanfelder Col. Mitt.*, Band 3, Heft 2: 83-130.
- Obydov D.**, 2005. Faune des *Carabus* de Sibérie & d'Extrême-Orient russe - II. Collection systématique, Vol. 11, Magellanes, France: 131 pp.
- Obydov D. & Saldaitis A.**, 1996. A new subspecies of *Carabus* (*Ainocarabus*) *kolbei* Roeschke, 1897 from the Ushishir Island. *Coleoptera, Schwanfelder Coleopt. Mitteilungen*, Heft 22: 1-5.
- Osawa S., Su Z.-H. & Imura Y.**, 2002. Molecular Phylogeny and Evolution of the Carabid Ground Beetles of the World. Chiyodaku Tokyo: 264 pp. [in Japanese].
- Roeschke H.**, 1897. Ein neuer *Carabus* aus China. *Entom. Nachr.*, XXIII, No. 8, Berlin: 116-117.
- Rost C.**, 1908. Ein neuer *Carabus* aus Japan. (Col.). *Deutsch. Ent. Zeitschr.*, Berlin: 32-33.
- Schütze H., Kleinfeld F.**, 1997. *Carabus*formen Sibiriens und Zentral-Asiens.: 198 pp.
- Schütze H., Kleinfeld F.**, 1999. *Carabus*formen Sibiriens und Zentral-Asiens, 2. Auflage: 242 pp.
- Shilenkov V. G.**, 1994. Catalogue of the *Carabus* species from Siberia with preliminary notes to the taxonomical revision (Coleoptera, Carabidae). *Carabid Beetles: Ecology and Evolution*, Kluwer Academic Publishers: 63-69.

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