

A revision of the subgenus *Pleurosticha* Motschulsky, 1860 of the genus *Chrysolina* Motschulsky, 1860 (Coleoptera: Chrysomelidae: Chrysomelinae)

Ревизия подрода *Pleurosticha* Motschulsky, 1860 рода *Chrysolina* Motschulsky, 1860 (Coleoptera: Chrysomelidae: Chrysomelinae)

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КЛЮЧЕВЫЕ СЛОВА: Chrysomelidae, *Chrysolina*, *Chrysolina poretzkyi*, систематика, определитель.

ABSTRACT. Seven species and three more subspecies are included in the subgenus *Pleurosticha* Motschulsky, 1860. The members of this subgenus are distributed in the mountains of southern Siberia and the Far East, northern and central Mongolia, Sakhalin, Japan (Hokkaido), Kamchatka Peninsula, Arctic Asia, Ural, and Alaska. Lectotype of *Chrysolina sylvatica* Gebler, 1823 is designated. *Ch. tolli* (Jacobson, 1910) and *Ch. pirka* Takizawa, 1970 are considered to be valid subspecies of *Ch. cavigera* (Sahlberg, 1887). The taxonomical position of *Ch. poretzkyi* (Jacobson, 1897) is discussed.

РЕЗЮМЕ. К подроду *Pleurosticha* Motschulsky, 1860 рода *Chrysolina* Motschulsky, 1860 отнесены 7 видов и 3 подвида. Они распространены в горах южной Сибири и Дальнего Востока, северной и центральной Монголии, на Сахалине, в Японии (о. Хоккайдо), на Камчатке, в арктической Азии, на Урале и Аляске. Обозначен лектотип *Chrysolina sylvatica* Gebler, 1823. *Ch. tolli* (Jacobson, 1910) и *Ch. pirka* Takizawa, 1970 рассматриваются как валидные подвиды *Ch. cavigera* (Sahlberg, 1887). Обсуждается систематическое положение *Ch. poretzkyi* (Jacobson, 1897).

Introduction

Recently I investigated the subgenus *Pleurosticha* Motschulsky, 1860 and presented a literature overview on the systematics of this group [Bieńkowski, 1999]. After that, I examined new materials from different localities and the type specimens of both, *Chrysolina sylvatica* Gebler, 1823 (the type species of the subgenus in question), and recently described species *Ch. ural-tuvensis* Mikhailov, 2000. As a result, I made some improvements on the taxonomical position, diagnostic characters, and distribution of the certain taxa within the subgenus *Pleurosticha*. In the present paper, species are arranged alphabetically.

Material

I have examined the type specimens from the Zoological Institute of Russian Academy of Sciences (ZIN), Zoological Museum of Moscow State University (ZMMU), Siberian Zoological Museum, Novosibirsk (SZM), Hungarian Natural History Museum, Budapest (HNHM), Museum für Naturkunde, Humboldt-Universität, Berlin, (MNHUB), and Dr. L.N. Medvedev collection (MC), and additional materials from ZIN, ZMMU, Moscow Pedagogical State University (MPSU), Zoological Museum of University of Helsinki (ZMUH), United States National Museum, Washington (USNM), Naturhistorisches Museum Wien (NHMW), Dr. L.N. Medvedev collection, Dr. O.N. Kabakov collection, Dr. A. Warchalowski collection, Dr. Yu.E. Mikhailov collection, Mr. P.V. Romantsov collection, the author's collection, and specimens presented by Mrs. O.E. Chashchina, Dr. B.A. Korotyaev, Dr. O.A. Khruleva, Dr. S.Kuzmina, and Dr. O.L. Makarova.

Genus *Chrysolina* Motschulsky, 1860

Subgenus *Pleurosticha* Motschulsky, 1860

Pleurosticha Motschulsky, 1860: 191.

Chrysolina (*Pleurosticha*): Jacobson, 1910: 53, partim.

Chrysolina (*Pleurosticha*): Bechyné, 1950: 149; 1952: 360; Kontkanen, 1959: 27; Medvedev, 1979: 85; Medvedev & Dubeshko, 1992: 106; Bieńkowski, 1999: 166; Bieńkowski, 2001: 185 (note).

Chrysolina (*Pleurosticha*): Kimoto & Gressitt, 1981: 367, lapsus calami.

Chrysolina (*Pleurosticha*) (= *Parkaniola*): Daccordi, 1994: 79.

Type species: *Chrysolina sylvatica* Gebler, 1823, by monotypy.

DISTRIBUTION: Ural, extreme north Asia from Yamal to Chukot Penins., Kamchatka, highlands in the south of Siberia and the Far East, Sakhalin, Japan (Hokkaido), Alaska.

DIAGNOSIS. Above dark metallic or black (sometimes with metallic tinge); in one species clytra dark brown with bronze reflection. Last maxillary palpomere oval, cylindrical

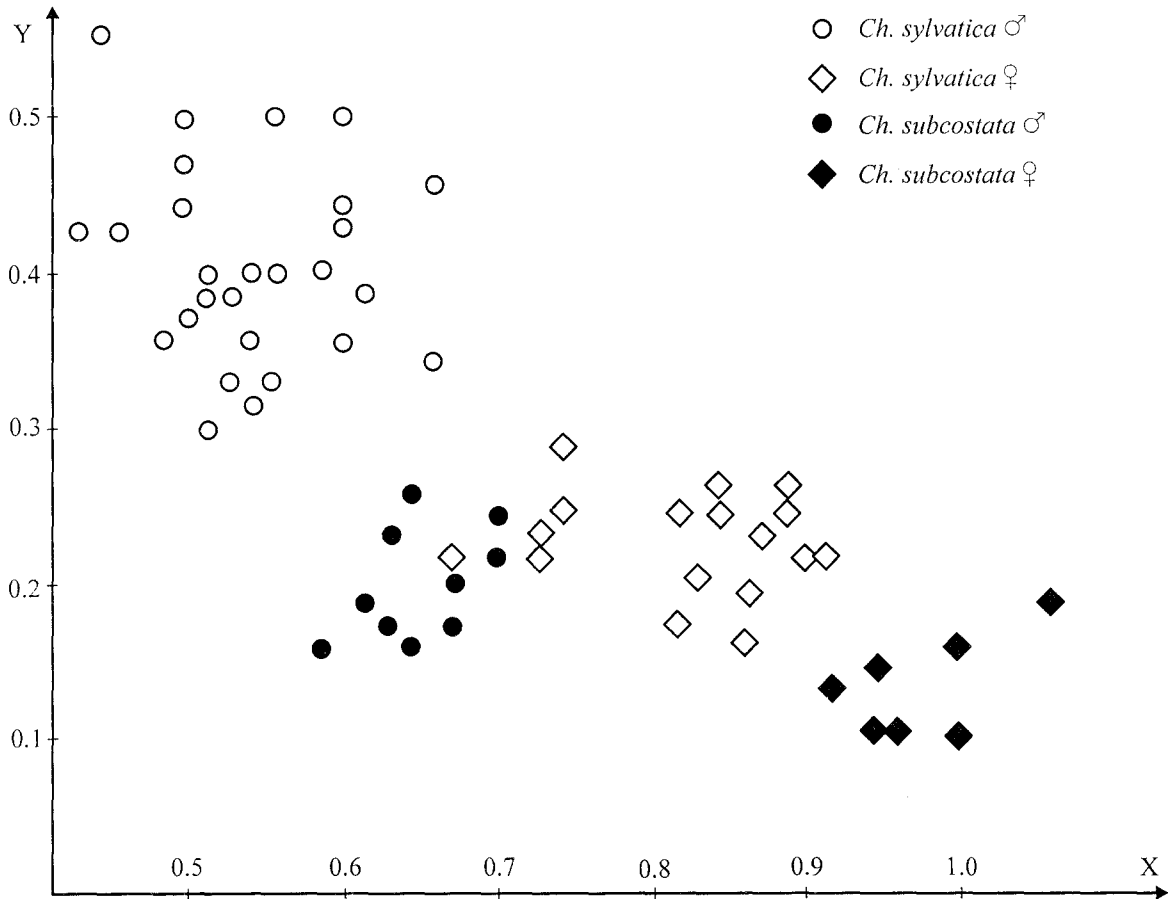


Fig. 1. Correlation of the length of last abdominal sternite before apical impression (X, mm) and the length of apical impression (Y, mm) in *Chrysolina sylvatica* and *Ch. subcostata*.

Рис. 1. Соотношение длины последнего брюшного стернита перед вершинным вдавлением (X, мм) и длины вершинного вдавления (Y, мм) у *Chrysolina sylvatica* и *Ch. subcostata*.

or trapeziform, similar to previous, or not more than $1.5 \times$ longer and $1.5 \times$ wider than latter, weakly differs in both sexes. Pronotum with convex lateral calli at the entire length. Pronotal sulci strongly impressed in the posterior 1/3 or 1/2, more shallow (sometimes obsolete) near anterior margin.

Prothoracic epimerum longitudinally convex, more or less visible transverse rugose and usually impressed along outside.

Elytra without humeral calli, striato-punctate (in one species elytra without striae), with 11 rows (including abbreviated scutellar row and marginal row) of dense punctures and more or less convex intervals. Epipleura oblique in anterior 1/2, almost vertical in posterior 1/2, visible at the entire length in lateral view.

Hind wings absent or reduced, very short.

Male tarsi wholly pubescent beneath, with tarsomeres 1–3 strongly enlarged. Female tarsi narrow, wholly pubescent beneath; tarsomere 1 of middle and hind tarsi with more sparse pubescence along middle in basal 2/3.

Pygidium with weak longitudinal sulcus which not reaching the apex.

Male last abdominal sternum with narrow sulcus or semi-circular impression at apex (Figs 1, 2–11). Female last abdominal sternum medially convex or swelled in apical part, with narrow sulcus or semi-circular impression at apex. Aedeagus very large, almost as long as abdomen, broad, with a pair

of well-developed, chitinized triangular or crescent alae (plates) near apical orifice; flagellum not exposed, invisible.

Sclerotized spermatheca is absent in females of the all species.

DIFFERENTIAL DIAGNOSIS. Subgenus *Pleurosticha* is very close to subgenus *Arctolina* Kontkanen, 1959 and differs in the aedeagus shape, mainly in alae well developed, exposed, larger than those in the *Arctolina* members.

REMARK. *Chrysolina susterai* Bechyné, 1950 was originally described to be the single species of the subgenus *Parkaniola* Bechyné, 1950. On the base of the aedeagus structure, the mentioned species should be included in the subgenus *Ovosoma* Motschulsky, 1860. Therefore, *Parkaniola* is a junior synonym of *Ovosoma* [Bieńkowski, 2001], but not *Pleurosticha*.

Chrysolina cavigera (Sahlberg, 1887)

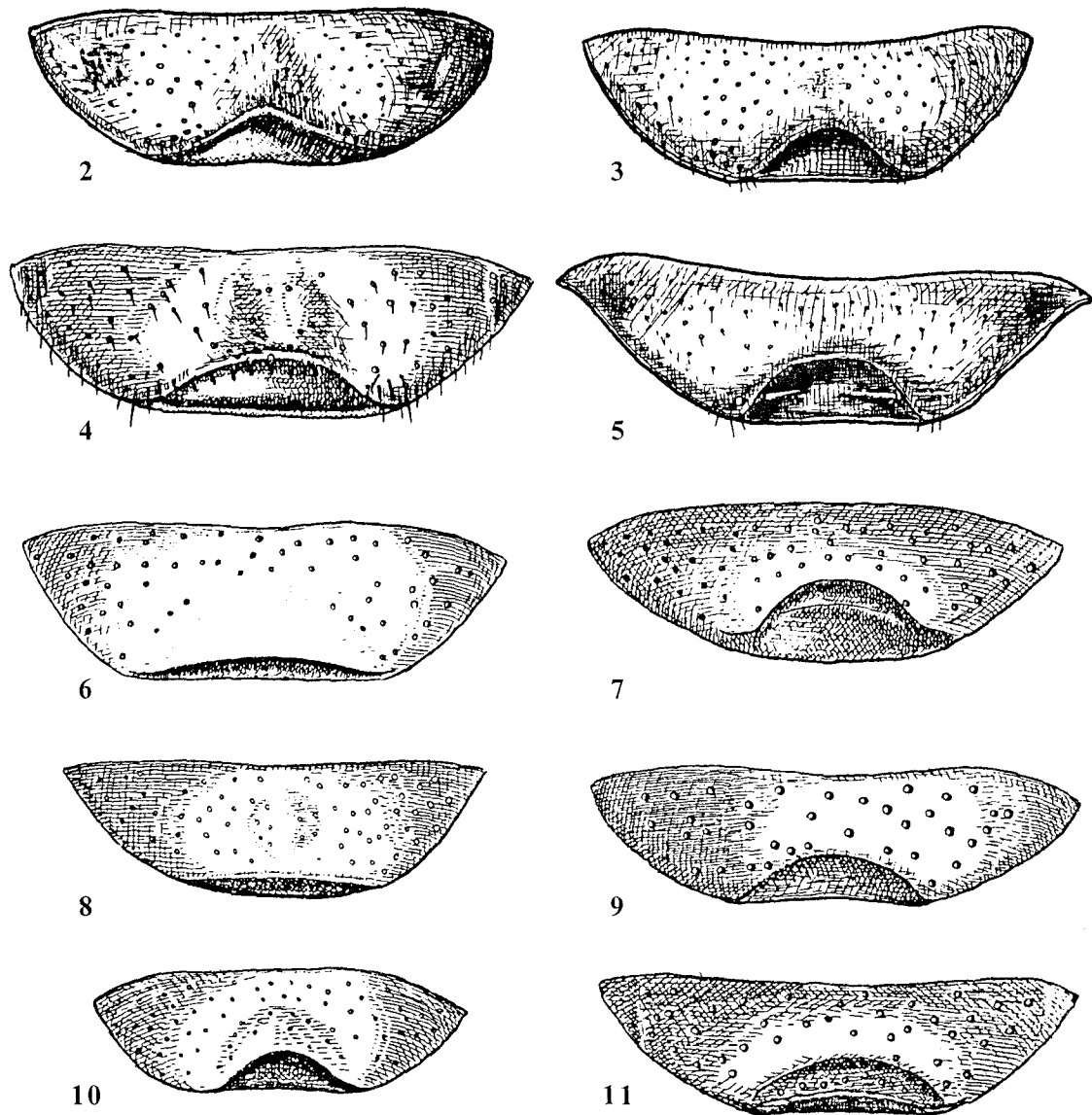
This species includes three subspecies.

Chrysolina cavigera cavigera (Sahlberg, 1887)

Figs 11, 14–21, 45, 46.

Chrysomela (*Pleurosticha*) *cavigera* J.Sahlberg, 1887: 35 (Chukot Peninsula: Jinretlen, type in Riksmuseum Stockholm, Sweden, examined by Kontkanen, 1959).

Chrysomela (*Pleurosticha*) *clavigera*: Jacobson, 1910: 53 (note), lapsus calami.



Figs 2-11. Last abdominal sternite of male: 2 — *Chrysolina uraltuensis* (Sayans, Buiba pass.), 3 — *Ch. poretzkyi* (S. Urals, B. Iremel), 4 — *Ch. sylvatica* (Altai, Tom river), 5 — *Ch. cavigera pirka* (Sakhalin, Tумovsky distr.), 6 — *Ch. subcostata* (Altai, Chukchut Ridge), 7 — *Ch. cavigera pirka* (Buryat, Tankhoi), 8 — *Ch. latimargo* (Mongolia, Ara-Changai aimak), 9 — *Ch. cavigera tolli* (lectotype *Chrysolina rufipes*), 10 — *Ch. gebleri gebleri* (Altai, Teletskeye lake), 11 — *Ch. cavigera cavigera* (Kamchatka).

Рис. 2-11. Последний брюшной стернит самцов: 2 — *Chrysolina uraltuensis* (Саяны, пер. Буйба), 3 — *Ch. poretzkyi* (Ю. Урал, Б. Иремель), 4 — *Ch. sylvatica* (Алтай, р. Томь), 5 — *Ch. cavigera pirka* (Сахалин, Тумовский р-он), 6 — *Ch. subcostata* (Алтай, хр. Чукчут), 7 — *Ch. cavigera pirka* (Бурятия, Танхой), 8 — *Ch. latimargo* (Монголия, Ара-Хангайский аймак), 9 — *Ch. cavigera tolli* (лектопия *Chrysolina rufipes*), 10 — *Ch. gebleri gebleri* (Алтай, Телецкое оз.), 11 — *Ch. cavigera cavigera* (Камчатка).

Chrysolina cavigera: Brown, 1962: 59, 61; Takizawa, 1970: 119 (fig. 1).

Chrysolina (Pleurosticha) cavigera: Jolivet, 1992: 43; Bieńkowski, 1999: 171; Bieńkowski, 2001: 185 (note).

MATERIAL ALASKA: Point Barrow, P.D. Hurd leg, 8.6.1953 — 1 ♂, same, 8.7.1953 — 2 ♂♂; CHUKOT PENINS.: Milkera, S. Kiselev leg, 8.8.1978 — 1 ♂; Koliuchinskaya Bay, 7.1975 — 1 ♀; КАМЧАТКА: Kamchatka river valley, Kozyrevsk, Protopopov leg, 21.VI.1909 — 1 ♂.

Body convex, elongate oval or elongate obovate. Head distinctly shagreen, pronotum and elytra obsolete shagreen. Above moderately shining. Head and pronotum dark green or blackish with bronze or green reflection; elytra dark bronze,

brassy, or coppery with green reflection, sometimes blackish and then usually with metallic reflection; underside black with green or violet reflection, with last abdominal sternite reddish apically; antenna blackish brown with tarsomeres 1-2 or only 1 reddish from below; legs reddish with brown or blackish tarsi or entirely black with metallic reflection.

Clypeus with sparse, moderately large punctures. Last maxillary palpomere (Fig. 24) as long as wide, rounded laterally and obliquely truncate apically, as long as palpomere 3 and 1.3 × wider than latter; similar in both sexes.

Antenna inserted 1.7-2.2 × closer to clypeus than to eye; with antennomere 10 reaching pronotal base. Antennomeres

7–11 moderately broadened (Fig. 23). Antennomere 10 as long as broad.

Orbital grooves broad and deep, but short and present only above eye, not reaching antennal insertion.

Pronotum (Fig. 16) 1.8–1.9 × broader than long, longitudinally feebly convex, transversely rather convex, broadest behind middle or just before base of its length, arcuate laterally and narrowed anteriorly more than posteriorly. Anterior angles moderately produced. Anterior side of pronotum marginate, with setae (visible in upper and slightly posterior view). Anterior setiferous pores absent. Pronotum laterally inflated along entire length. Pronotal lateral impressions deep narrow sulci in basal 1/3–1/2; anteriorly narrow and shallow impression covered by separate punctures which slightly larger than punctures at disk. Punctures at pronotal disk fine, dense.

Hypomera of prothorax weakly convex, with shallow impression covered by irregular wrinkles along outside. Basal fold of hypomera strong. Intercostal prosternal process slightly broadened posteriorly, with shallow longitudinal impression. Lateral portions of prosternum convex, with wide furrow along posterior margin. Metasternum entirely marginate anteriorly.

Scutellum as long as wide, triangular, with lateral sides arched, impunctate or covered by several punctures in basal 1/2.

Elytron each 2.5–2.6 × longer than wide, with obsolete humeral callus; striato-punctate, with 11 rows including abbreviate scutellar row and 9 equidistant regular rows of dense, moderately large punctures. Intervals ridge-shaped or convex, smooth or slightly wrinkled, covered by more or less dense, fine punctures. Marginal stria with a row or distinct or obsolete, fine or moderately large punctures. Epipleura almost vertical in posterior 1/2, visible along entire length in lateral view, sparsely ciliate near apex.

Hind wings absent.

Tarsomeres 1–3 with entire sole, strongly dilated in male (Figs 20–21), narrow in female; tarsomere 4 without denticles beneath.

Pygidium with very shallow longitudinal impression not reaching the apex.

First abdominal sternite distinctly marginate between hind coxae. Male last abdominal sternite (Figs 11, 22) convex; with large semi-circular apical impression which makes 1/2 of the length of sternite; apical impression divided with transverse ridge into shallow anterior and deep posterior parts. Female last abdominal sternite convex, with transverse apical impression which 5 × shorter than the rest part of the sternite.

Aedeagus (Figs 17–19, 59–62): alae triangular with anterior and posterior sides of equal length or anterior slightly longer than posterior, alae turned upwards perpendicularly to longitudinal axis of aedeagus or only slightly turned to aedeagus base; dorsal surface of aedeagus (viewed laterally) with gentle emargination before alae.

Length: 5.9–8.0mm. Width: 3.6–4.5mm.

DIAGNOSIS of nominotypical subspecies. Body is dark metallic: green, bronze, brassy, coppery, violet, sometimes blackish and then usually with metallic reflection, femora and tibiae reddish with brown or blackish tarsi, or legs entirely black with metallic reflection, aedeagus with alae turned upwards perpendicularly (or almost so) to longitudinal axis of aedeagus.

DISTRIBUTION. Chukot Peninsula (type location), Kamchatka, Alaska.

BIOLOGICAL NOTE. I found *Ch. cavigera cavigera* to be ovoviviparous because larvae with distinct ocelli, legs, and setae on body segments were found during the dissection of the female specimen from Chukot Peninsula.

Chrysolina cavigera tolli (Jacobson, 1910)

Figs 9, 46–66.

Chrysolina rufipes Ménériés, 1851: Taf. III, fig. 9 (Arctic Asia, lectotype in ZIN, examined).

Chrysolina (Pleurosticha) tolli Jacobson, 1910: 54, nomen substitutus pro *Chrysolina rufipes* Ménériés, 1851, nec Linnaeus, 1758: 373 (presently, *Derocrepis rufipes*).

Chrysolina tolli: Medvedev & Shapiro, 1965: 443.

Chrysolina (Pleurosticha) cavigera (= *tollii*): Kontkanen, 1959: 28; Medvedev, 1979: 85; Medvedev & Korotiaev, 1980: 80 (note); Medvedev, 1992: 568, but not 565 (fig. 266: 13); Medvedev & Dubeshko, 1992: 106; Mikhailov, 1997: 72 (note).

Chrysolina (Pleurosticha) tolli: Bienkowski, 1999: 175; Bienkowski, 2001: 185 (note).

MATERIAL TYPE. *Chrysolina rufipes*, lectotype, with labels: "21", "*Chrysolina rufipes* N", "*tollii* m.", "Lectotype *Chrysolina rufipes* Menetries, 1851. Bienkowski design., 1995" [red], "*Chrysolina tolli* (Jacobson). Bienkowski det., 1995" — 1 ♂ (ZIN).

Additional specimens. "Tundra [at the Yenisei river]. Schmidt 1886" — 1 ♂; TAIMYR: Syradasai, Yu.I. Chernov leg., 23.7.1982 — 1 ♂, 1 ♀; S. Taimyr, Putorana plateau, Sobachie lake, N. shore, Dynkenda Mt., S. slope, 700–900m, tundra, A. Babenko, O. Makarova leg., 22.7.–11.8.1996 — 1 ♂, 1 ♀; Putorana plateau, Yt-Kjuel lake, N. shore, Dynkenda Mt., 700–800m, dryad association, A. Babenko, O. Makarova leg., 20.7.–10.8.1996 — 2 ♀♀; S. Taimyr, N. Agapa river upper reaches, 2km W from Ladannakh lake, tundra, O. Makarova leg., 5–17.7.1999 — 1 ♂, 1 ♀; N.-W. Taimyr, Piasina river mouth, tundra, Travinsky leg., 5–15.7.2004 — 1 ♂, 1 ♀; N.-W. Taimyr, Efremova, 5.5km from river mouth, D. Osipov leg., 7.7.–1.8.2004 — 2 ♂♂; N.-W. Taimyr, B. Lemberova, 1.5km from river mouth, meadow, D. Osipov leg., 13.7.–8.8.2004 — 1 ♂, 1 ♀; N.-W. Taimyr, Ragozinka river, meadow, Yu.I. Chernov leg., 8.1982 — 1 ♂; E. Taimyr, Khatanga river right bank, Popigai river mouth, 7.2001 — 2 ♂♂, 1 ♀; Khatanga river basin, Lukunskaya river bank, Eremin leg., 10.7.1989 — 1 ♀; Ulboinaya river, 3.8.1988 — 1 ♀; YAKUTIA: Yana river mouth, Ular river, A. Babenko leg., 5–6.8.1994 — 1 ♀; YAMAL: Venuicoyakha river, A. Riabintsev leg., 30.6.1989 — 1 ♂; WRANGEL ISL: Tundrov peak, O.Khruleva leg., 22.6.1991 — 1 ♂; Mamontovaya river, O.Khruleva leg., 12.6.1994 — 3 ♂♂, 1 ♀; 13.6.–20.7.1994 — 5 ♂♂, 2 ♀♀; Somnitelnaya bay — 1 ♂, 2 ♀♀; Neizvestnaya river, O.Khruleva leg., 11–17.6.1991 — 3 ♂♂, 3 ♀♀; 5.6.–15.7.1993 — 2 ♂♂, 1 ♀.

DIAGNOSIS. It differs from the nominotypical subspecies in body black, sometimes with green or violaceous tinge, with femora, tibiae, and apical part of the last abdominal sternite reddish, tarsi brown, aedeagus mostly with alae turned toward the base of aedeagus (Fig. 63–64).

Length: 6.0–8.4 mm (♂), 6.7–9.2 mm (♀).

Width: 3.5–5.5 mm (♂), 3.6–6.2 mm (♀).

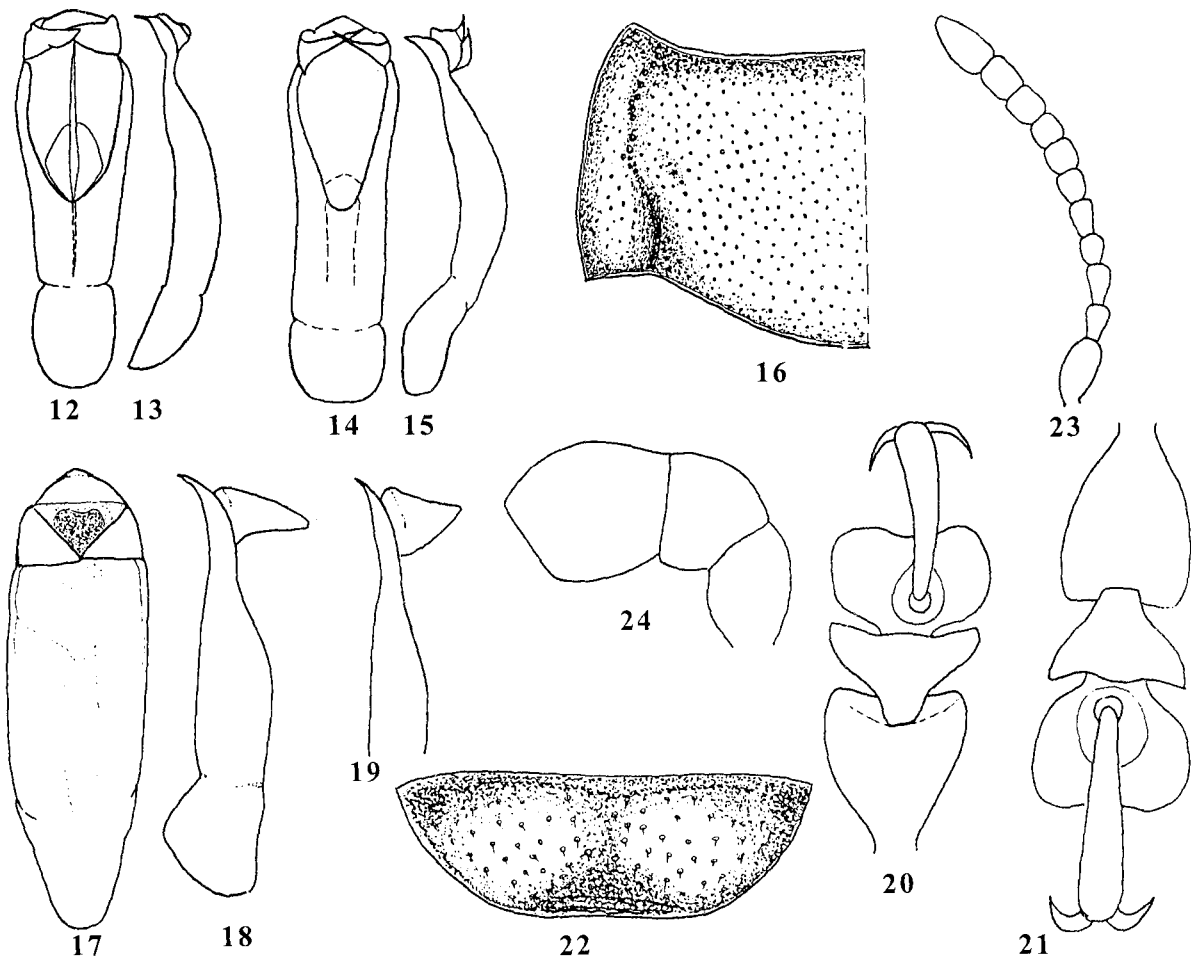
DISTRIBUTION. Extreme north Asia from Polar Urals [Medvedev, 1965] and Yamal to Wrangel Isl.

HOST PLANTS. Brassicaceae: *Parrya* sp. [after Medvedev & Korotiaev, 1980].

BIOLOGICAL NOTE. According to Khruleva [1996] observations, *Chrysolina cavigera tolli* is ovoviviparous. The life cycle of this beetle takes 2.5–3 years from egg to egg at Wrangel Isl. A first hibernation occurs at the stage of elder instar larva, a second hibernation does at the stage of young, not fully sclerotized beetle. Adults live at least during two summer seasons and can reproduce several times during this period.

REMARKS. The figure of *Chrysolina rufipes* was originally published by Ménériés [1851] without any description. However, this name is available according to ICZN [1999], 12.2.7.

Chrysolina tolli was originally separated [Jacobson, 1910] from *Ch. cavigera* in: "colore palporum antennarumque, structura mesosterni, nitore etc.". Among the specimens being at



Figs 12-24. *Chrysolina* spp.: 12-13 — *Chrysolina latimargo*, ♂ (Mongolia, Ara-Changai aimak); 14-15 — *Ch. gebleri gebleri*, ♂ (Altai, Teletskoye lake); 16-24 — *Ch. cavigera cavigera*, ♂ (Alaska, Barrow); 12-13, 14-15, 17-19 — aedeagus (19 — another male from the same locality); 16 — pronotum; 20 — fore-tarsus; 21 — hind-tarsus; 22 — last abdominal sternite; 23 — antenna; 24 — maxillary palpus.

Рис. 12-24. *Chrysolina* spp.: 12-13 — *Chrysolina latimargo*, ♂ (Монголия, Ара-Хангайский аймак); 14-15 — *Ch. gebleri gebleri*, ♂ (Алтай, Телецкое оз.); 16-24 — *Ch. cavigera cavigera*, ♂ (Аляска, Барроу); 12-13, 14-15, 17-19 — эдеагус (19 — эдеагус другого самца из того же местонахождения); 16 — переднеспинка; 20 — передняя лапка; 21 — задняя лапка; 22 — последний брюшной стернит; 23 — усик; 24 — челюстной щупик.

my disposal (25 males of *Ch. tolli* were dissected), I found four males from Wrangel Isl. and one more male from Putorana plateau (S. Taimyr) in which alae are turned upwards (Fig. 65-66). However, these specimens were identical with *Ch. tolli* in the other respects, including body black with femora and tibiae rufous. In three males and three females from Taimyr, dorsum dark green, however alae of aedeagus in all of these males are typical of *Ch. tolli*.

According to the allopatric distribution of *Ch. tolli* and *Ch. cavigera*, I consider *Ch. tolli* to be a subspecies of *Ch. cavigera*.

Chrysolina cavigera pirka Takizawa, 1970

Figs 5, 7, 43-48.

Chrysolina pirka Takizawa, 1970: 118 (Hokkaido, Mt. Risiridake, types in Entomological Institute of Hokkaido University, Sapporo).

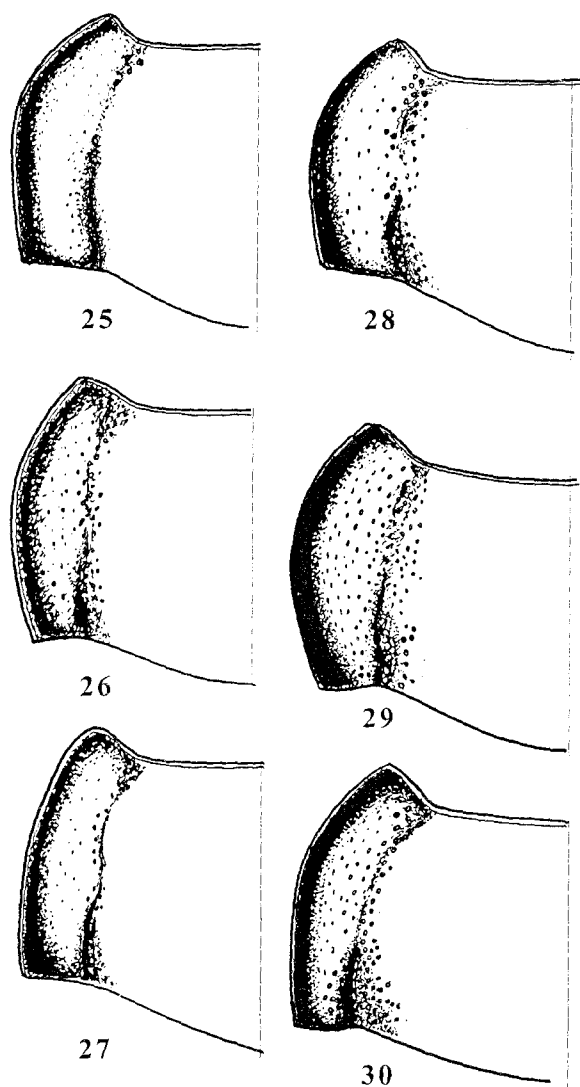
Chrysolina (Pleurosticha) subcostata (= *pirka*): Bieńkowski, 1999: 170, partim, 173 (fig. 3: F-H); Bieńkowski, 2001: 185 (note); Mikhailov & Hayashi, 2002: 30 (note).

MATERIAL. BURYAT: Tankhoi, Galas'eva leg., 21.6.1983 — 1 ♂; Mondy vill., 1700 m, Lvovsky leg., 16.6.2002 — 1 ♀; Baikal Mts., N. spur, 50 km S-W. from Severobaikalsk, A. Brinev leg.,

20-30.6.2001 — 1 ♀; N. Baikal Mts., 20 km S. from Delbichinda station, Kunerma river upper reaches, 2000 m, A. Brinev leg., 21-29.6.2001 — 1 ♀; CHITA REG.: Kodar ridge, 50 km N.-W. from Novaya Chara, Bolshaya Chara river upper reaches, 2000 m, A.E. Brinev leg., 5-10.7.2001 — 1 ♂ 2 ♀♀; same, bald peak, 2500 m, A.E. Brinev, 16-25.7.1996 — 1 ♂ 3 ♀♀; Kodar ridge, 20 km N. from Leprindo, Chara river upper reaches, 2200 m, P. Budilov leg., 5-15.7.2001 — 1 ♀; IRKUTSK REG.: environs of Baikal lake, Pokhabicha river, Czekanowski leg., 13.6.1869 — 1 ♂; KHABAROVSK KRAI: N. Sikhote Alin, Bolshoi Yan ridge, W. slope, coniferous forest, stream bank, 1100-1200 m, D.E. Lomakin leg., 27-28.7.1997 — 1 ♀; Tardoki-Yani Mt., mountain tundra, creeper cedar, V. Kuznetsov leg., 25.6.1980 — 2 ♂♂ 1 ♀; the same place, tundra, 1930 m, G. Lafer leg.: 28.6.1980: 2 ♂♂ 1 ♀ — Magu ridge, O.N. Kabakov leg., 27.7.1975 — 1 ♀; SAKHALIN ISL.: Tymovsky Distr., Nabilsky ridge, Lopatina Mt. E. envir., 800-1400 m, Puets & Wraze leg., 16-19.7.1993 — 2 ♂♂ 1 ♀.

UNCERTAIN LOCALITIES. Transbaikalia: Sagan Har river upper reaches, Hartung leg., 15.7.1873 — 1 ♂; Transbaikalia, Hartung leg. — 1 ♂; Baikal lake — 2 ♂♂ 1 ♀.

DIAGNOSIS. This subspecies is close to nominotypical one and differs in the alae of male aedeagus turned toward



Figs 25–30. Pronotum, ♂♂, variability: 25–27 — *Chrysolina uraltuvensis*; 28–30 — *Ch. sylvatica*; 25 — Sayans, Borus ridge; 26 — Sayans, Buiba pass; 27 — Sayans, Oiskoye lake; 28 — Altai, Aigulaksky ridge; 29 — Altai, Kyzylart ridge; 30 — Altai, Tom river.

Рис. 25–30. Изменчивость формы переднеспинки, ♂♂: 25–27 — *Chrysolina uraltuvensis*, 28–30 — *Ch. sylvatica*; 25 — Саяны, хр. Борус; 26 — Саяны, пер. Буйба; 27 — Саяны, Ойское оз.; 28 — Алтай, Айгулакский хр.; 29 — Алтай, хр. Кызыларт; 30 — Алтай, р. Томь.

aedeagus base. *Ch. tolli pirka* is partly sympatric (in Sayan Mts.) with *Ch. sylvatica* and differs from the latter in the shape of the male last abdominal sternite: flat or swelled, apically with large deep semi-circular impression, but without sharp ridge dividing anterior part of the sternite from deep apical impression. Specimens from Baikalsky ridge and Kodar ridge have legs and apical part of the last abdominal sternite rufous.

Length: 7.4–8.5 mm (♂), 7.8–8.7 mm (♀).

Width: 4.5–5.1 mm (♂), 5.0–5.4 mm (♀).

DISTRIBUTION. Buryatia, Irkutsk reg., Chita reg., Khabarovsk Krai, Sakhalin, Hokkaido [Takizawa, 1970].

HOST PLANTS. Scrophulariaceae: *Pedicularis* sp. [in Hokkaido, after Takizawa, 1970].

BIOLOGICAL NOTE. During the dissection of the female specimens from Chita reg. and Sakhalin Isl. I found small larvae with distinct ocelli, legs, and setae on body segments within the beetles abdomen. It shows the subspecies *pirka* to be ovoviviparous look like *Ch. cavigera cavigera* and *Ch. cavigera tolli*.

REMARKS. I could not find any distinguishing characters between the available specimens of *Ch. pirka* and *Ch. cavigera* besides the aedeagus shape (position of alae) (Figs 43–48). According to the allopartic distribution of *Ch. pirka* and *Ch. cavigera*, I consider the former to be a subspecies of the latter.

Chrysolina gebleri L. Medvedev, 1979

This species includes two subspecies.

Chrysolina gebleri gebleri L. Medvedev, 1979

Figs 10, 14–15.

Chrysolina (Pleurosticha) gebleri gebleri L. Medvedev, 1979: 83 (Gorno-Altai Region: Ongudaj, types in MC, examined).

Chrysolina (Pleurosticha) gebleri gebleri: Medvedev & Dubeshko, 1992: 107; Bieńkowski, 1999: 176.

MATERIAL TYPE. *Chrysolina gebleri gebleri*, holotype, with labels: "Ongudaj, 18.6.948 Gorno-Altai oblast, F. Shaposhnikov" [in Russian], "Holotypus *Chrysolina (Pleurosticha) gebleri* L. Medvedev" [red] ♂ (MC).

Additional specimens. Gorno-Altai Region: Teletskoye lake, Chiri, P. Kostin leg., 11.6.1980 — 1 ♂; Teletskoye lake, Bele, A. Emelianov leg., 28.6.1909 — 1 ♀; the same place, P. Ignatov leg., 16.7.1901 — 1 ♀; Tiudraly, V. I. Verestchagin leg., 5.6.1906 — 2 ♀♀.

Body convex, elongate obovate. Dorsum obsolete shagreen, moderately shining, violet, cooperly, or greenish-bronze. Ventral side and legs dull, greenish-black. Antennae blackish-brown with antennomeres 1 and 2 rufous below.

Clypeus covered by dense, moderately large punctures which slightly larger than those at pronotal disk.

Last maxillary palpomere in male: as wide as long, broadly truncate, with rounded sides, 1.5 × longer and 1.4 × wider than previous; in female: 1.4 × longer than wide, 1.5 × longer than previous and as wide as the latter.

Antenna inserted 1.7–2.0 × closer to clypeus than to eye; with antennomeres 9–11 project beyond pronotal base. Antennomeres 7–11 slightly broadened. Antennomere 10 1.5–1.6 × longer than broad.

Orbital grooves deep, but short and present only above eye, not reaching antennal insertion.

Pronotum 2 × broader than long, longitudinally feebly convex, transversely rather convex, broadest before base of its length, arcuate laterally. Anterior angles moderately produced. Anterior side of pronotum marginate, with setae. Anterior setiferous pores absent. Pronotum laterally inflated along entire length. Pronotal lateral impressions deep and narrow in basal 1/3, shallow and covered by several large punctures anteriorly. Pronotal disk finely densely punctate. Hypomera of prothorax weakly convex, with irregular or transverse wrinkles along outside. Basal fold of hypomera distinct.

Intercostal prosternal process broadened posteriorly, in posterior 3/4 with shallow longitudinal impression covered by wrinkled punctures, or without impression, with punctures only. Lateral portions of prosternum with narrow ridge margined anteriorly and posteriorly by impressions. Metasternum entirely marginate anteriorly.

Scutellum triangular, slightly broader than long, covered by fine punctures.

Elytron each 2.1–2.6 × longer than wide, with obsolete humeral callus; covered by regular rows of moderately large

punctures, without striae. Scutellar row abbreviated, consists of 6–8 punctures. Rows 2–3, 4–5, 6–7, and 8–9 slightly paired, or all rows placed at equal distance from each other. Rows becoming indistinct at posterior slope. Marginal stria with dense moderately large punctures. Intervals flat, sometimes weakly transversely rugose, covered by dense fine punctures (as large as those at pronotal disk). Epipleura inclined outside, visible along entire length in lateral view, sparsely ciliate near apex.

Hind wings very reduced, as long as metathorax.

In male tarsomeres 1–3 with entire sole, strongly dilated (hind-tarsomeres 2 and 3 moderately dilated). In female, tarsomeres 1–3 narrow, with entire sole, mid- and hind-tarsomere 1 with sparsely ciliated longitudinal stripe in basal 2/3; tarsomere 4 without denticles beneath.

Pygidium with very shallow longitudinal impression in basal 1/2–3/4.

First abdominal sternite distinctly or obsoletely marginate between hind-coxae. Male last abdominal sternite (Fig. 10) weakly convex, with broad shallow impression medially and with narrow deep transverse sulcus apically. Female last abdominal sternite convex, with narrow deep transverse sulcus apically.

Aedeagus (Fig. 14–15) flat, slightly broadened apically viewed dorsally, with gentle emargination before alae viewed laterally. Alae narrow, crescent, turned to middle axis of aedeagus.

Length: 6.0–6.2 mm (♂), 6.0–6.9 mm (♀).

Width: 4.0 mm (♂), 4.0–4.3 mm (♀).

DISTRIBUTION. Altai.

HOST PLANTS. Lamiaceae: *Thymus* sp. [after Medvedev, 1979].

Chrysolina gebleri sajanensis L. Medvedev, 1979

Chrysolina (Pleurosticha) gebleri sajanensis L. Medvedev, 1979: 84 (Buryat: Khamar-Daban ridge: Bystroe, types in MC, examined).

Chrysolina (Pleurosticha) gebleri sajanensis: Bieńkowski, 1999: 176.

Chrysolina (Pleurosticha) gebleri baicalica: Medvedev & Dubeshko, 1992: 107, lapsus calami.

MATERIAL TYPE. *Chrysolina gebleri sajanensis*, holotype, with labels: "H[amar] Daban, Bystroe, A. Rozhkov 23.VI.55" [in Russian], "Holotypus" [red], "*Chrysolina gebleri sajanensis* m. det. L. Medvedev" — ♂ (MC).

Additional specimens. Environs of Baikal lake — 1 ♂ 1 ♀.

DIAGNOSIS. It differs from the nominotypical subspecies in elytral puncture rows irregular and indistinct along suture and near base, elytral intervals covered by punctures larger than those on pronotal disk.

Length: 5.8–6.5 mm (♂), 6.7 mm (♀).

Width: 3.6 mm (♂), 4.3 mm (♀).

DISTRIBUTION. Sayan Mountains.

Chrysolina latimargo Weise, 1896

Figs 8, 12–13.

Chrysolina latimargo Weise, 1896: 80 (Ost-Sajan, syntypes in HNHM and MNHUB, examined).

Chrysolina (Taeniossticha) changaica Lopatin, 1968: 219 (Mongolia: Archangaj aimak, Changaj Gebirge, paratype in HNHM, examined).

Chrysolina (Taeniossticha) latimargo (= *changaica*): Lopatin, 1971: 226.

Chrysolina (Taeniossticha) latimargo: Bechyné, 1950: 136 (note); Medvedev, 1982: 80; Medvedev & Dubeshko, 1992: 100.

Chrysolina (Pleurosticha) latimargo: Bieńkowski, 1999: 169; Bieńkowski, 2001: 185 (note).

MATERIAL TYPES: *Chrysolina latimargo*, syntype, ♀, with labels: "Sibirien. Reitter. Leder", "Ost Sajan" [recent label], "Holotypus 1896 *Chrysolina latimargo* Weise" [recent label, word "Holotypus" and border around the label are red], "*Chr. latimargo* Weise Type.", "Coll. Reitter" (HNHM); *Chrysolina latimargo*, 1 syntype (MNHUB); *Chrysolina changaica*, paratype, with labels: "MONGOLIA, Archangaj aimak, Changaj Gebirge 8 km W von Somon Ulrdtami; 1620–1750 m Exp. Dr. Z. KASZAB, 1966", "Nr. 723 21–22.VII.1966", "*Chrysolina changaica* sp.n. I.K. Lopatin det. 1967", "Allotypus 1968 *Chrysolina changaica* Lopatin" [word "allotypus" and border of the label are red], "*Chrysolina latimargo* Ws. det. L. Medvedev" (HNHM).

Additional specimens: MONGOLIA: Uver-Khangai aimak, Ushugin-Nuru ridge, southern slope, 27.5.1972 — 2 ♂♂ 1 ♀; Ara-Khangai aimak, confluence of rivers Sumijn- and Chulutyn-Gol, E. M. Gurjeva leg., 29–30.6.1975 — 2 ♂; Khubsugul aimak, 50 km S. from Khatgal, 13.7.1974 — 1 ♀; 17 km N. from Shine-Ider, E. M. Gurjeva leg., 21–22.7.1975 — 1 ♀; river Ider near Dzargalant, E. M. Gurjeva leg., 19–20.7.1975 — 1 ♂ 3 ♀♀; Bulgan aimak: 30 km NW. from Bulgan, 14.8.1974 — 1 ♂.

Body convex, elongate oval. Head, pronotum, and scutellum smooth, elytra shagreen. Above shining. Head, pronotum, scutellum, and legs blackish-bronze, elytra dark brown with bronze reflection, antennae blackish brown with antennomere 1 rufous below, underside blackish-brown with bronze reflection.

Clypeus with dense, moderately large punctures which larger than those at pronotal disk. Last maxillary palpomere cylindrical, 1.5 × longer than wide, similar to previous palpomere in length and width, similar in both sexes.

Antenna inserted 1.1 × closer to clypeus than to eye, with antennomeres 10 and 11 project beyond pronotal base. Antennomeres 7–11 slightly broadened. Antennomere 10 1.6 × longer than broad.

Orbital grooves broad and deep, but short, developed only above eye, not reaching antennal insertion.

Pronotum 1.9 × broader than long, longitudinally and transversely moderately convex, broadest behind mid-length, arcuate laterally and narrowed anteriorly more than posteriorly. Anterior angles strongly produced. Anterior side of pronotum marginate, with setae. Anterior setiferous pores absent. Pronotum laterally strongly inflated along entire length. Pronotal lateral callus bounded with sulcus along entire length, sulcus very deep, furrow-shaped in basal 1/2, moderately deep, filled by coalescent wrinkled punctures in apical 1/2. Pronotal disk covered by fine, dense punctures.

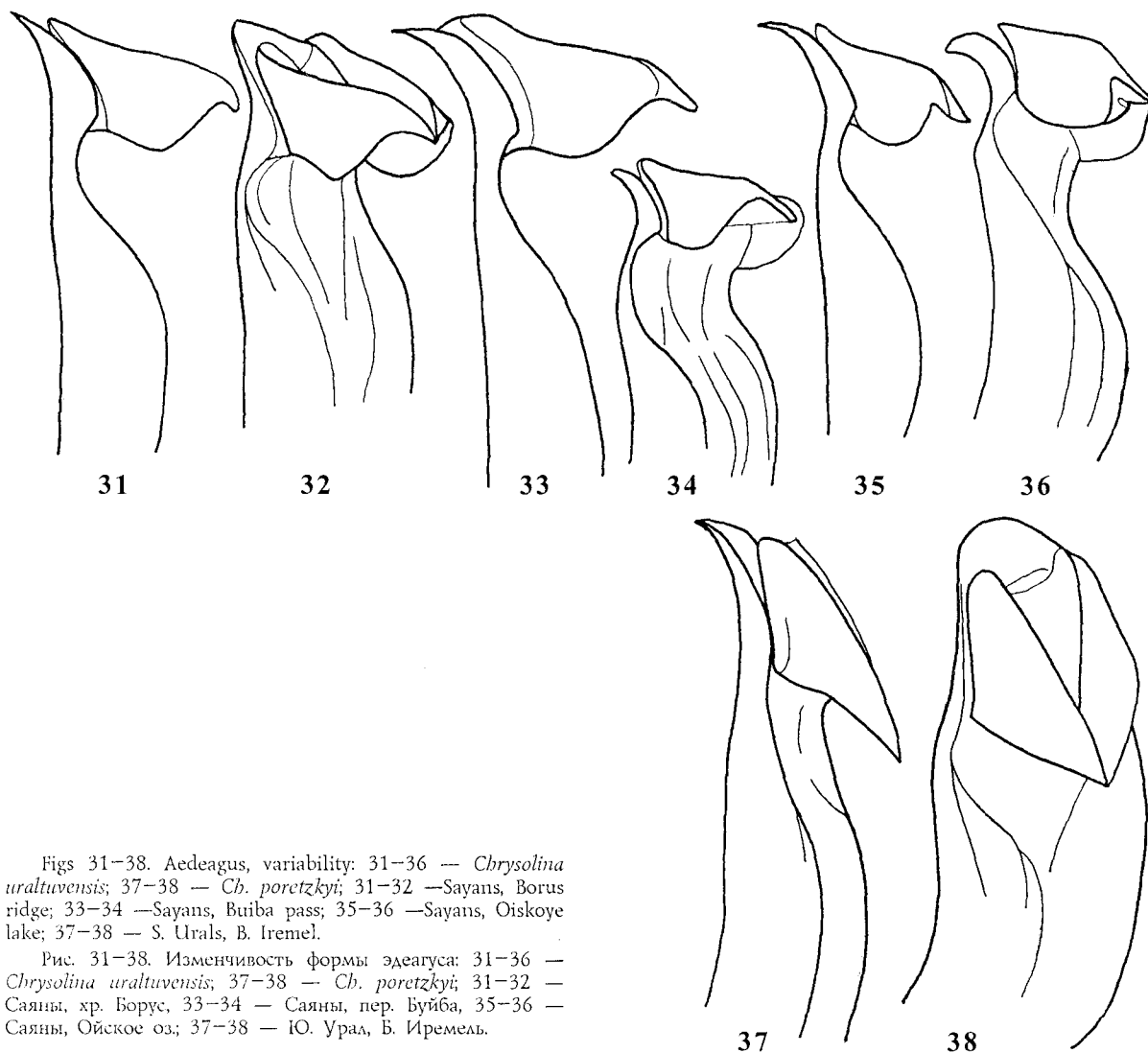
Hypomera of prothorax weakly convex, with shallow impression covered by strong transverse wrinkles along outside. Basal fold of hypomera strong. Intercostal prosternal process broadened posteriorly, with longitudinal impression filled by wrinkled punctures. Lateral portions of prosternum with deep furrow along posterior margin. Metasternum entirely marginate anteriorly.

Scutellum as long as wide, triangular, covered by fine punctures basally or at entire surface.

Elytron each 2.5–2.7 × longer than wide, with obsolete humeral callus; striato-punctate. Scutellar row abbreviated, consists of 2–5 punctures. Rows 1–9 regular, equidistant, consist of large, dense punctures. Marginal stria with distinct, dense, moderately large punctures. Intervals convex, covered by very fine, dense punctures. Epipleura inclined outside, visible along entire length in lateral view, densely ciliate near apex.

Hind wings absent or very reduced.

In male tarsomeres 1–3 with entire sole, strongly dilated (hind-tarsomeres 2 and 3 moderately dilated); in female, tarsomeres 1–3 narrow, pubescent beneath, with mid- and



Figs 31–38. Aedeagus, variability: 31–36 — *Chrysolina uraltuensis*; 37–38 — *Ch. poretzkyi*; 31–32 — Sayans, Borus ridge; 33–34 — Sayans, Buiba pass; 35–36 — Sayans, Oiskoye lake; 37–38 — S. Urals, B. Iremel.

Рис. 31–38. Изменчивость формы эдеагуса: 31–36 — *Chrysolina uraltuensis*; 37–38 — *Ch. poretzkyi*; 31–32 — Саяны, хр. Борус, 33–34 — Саяны, пер. Буйба, 35–36 — Саяны, Ойское оз.; 37–38 — Ю. Урал, Б. Иремель.

hind-tarsomere 1 in basal 2/3 with longitudinal stripe sparsely ciliated or smooth; tarsomere 4 without denticles beneath.

Pygidium with shallow longitudinal impression basally or almost reaching the apex.

First abdominal sternite distinctly marginate between hind-coxae. Male last abdominal sternite (Fig. 8) weakly convex, slightly impressed medially, with narrow sulcus apically; female last abdominal sternite evenly convex, with narrow apical sulcus.

Aedeagus (Fig. 12–13) flat, slightly broadened towards apex viewed dorsally, with gentle emargination before alae viewed laterally; alae in form of equilateral triangle, pressed to aedeagus, turned to middle axis.

Length: 6.5–7.0 mm (♂), 6.9–7.8 mm (♀).

Width: 4.1–4.3 mm (♂), 4.2–4.7 mm (♀).

DISTRIBUTION. Buryat Republic [Dubeshko & Medvedev, 1989], N. and C. Mongolia.

HOST PLANTS. Scrophulariaceae: *Pedicularis palustris* [after Dubeshko & Medvedev, 1989].

REMARK. The type specimen of *Ch. latimagro* in HHM is labelled as “holotype”. Really, it is a syntype, because the holotype was not designated in the original publication, according to ICZN [1999] 73.1.3, 73.2.

Chrysolina poretzkyi (Jacobson, 1897)

Figs 3, 37–38, 67–68.

Chrysolina Poretzkyi Jacobson, 1897: 434 (S. Ural: Irgizly, type probably lost).

Chrysolina (Pleurosticha) poretzkyi: Jacobson, 1910: 53 (note).

Chrysolina poretzkyi: Medvedev & Shapiro, 1965: 443.

Chrysolina (Pleurosticha) sp. cf. sylvatica: Mikhailov, 1997: 72.

Chrysolina (Pleurosticha) subcostata poretzkyi: Bieńkowski, 2001: 130, 185 (note).

Chrysolina (Pleurosticha) subcostata: Bieńkowski, 2004a: 61.

MATERIAL. *Chrysolina poretzkyi*: S. Urals, B. Iremel Mt. — 4 ♂♂ 11 ♀♀; B. Iremel, Tiuliuk Vill., enviro., 1100m, P.V. Romantsov leg., 3.6.2000 — 7 ♂♂ 7 ♀♀.

Chrysolina tundralis: POLAR AND NORTHERN URALS: Polar Urals, F. Zaitsev leg., 21.6.1909 — 1 ♂; Polar Urals, Neroika Mt., meadow, V. Malozemov leg., 10–21.7.1989 — 1 ♂; same, 16–20.6.1989 — 1 ♀; Krasnyi Kamen', 66°55'N, 65°40'E, 230m, Aconitum grove, S. Koponen leg., 3–17.7.1994 — 1 ♂; the same place, meadow in birch for, 8–18.7.1994 — 1 ♂; “Ural bor.” — 1 ♀; “Ural arct.” — 1 ♀; Northern Ural, Sobli Mt. foothills, O. Chernova leg., 30.7.1925 — 1 ♀; MIDDLE URALS: Perm reg., “Basegi” Zapovednik, meadow, S.L. Esiuin leg., 19.7.1990 — 1 ♂; SOUTH URALS: Bashkortostan, Krasnyi Kliuch, Giljarov leg., 18.6.1969 — 1 ♀; Malij Iremel Mt., Fileva

leg., 1.10.1981 — 1 ♂; Chelyabinsk reg., Asha Distr., Sukhaya Atya Vill., A.V. Lagunov leg., 3.6.1990 — 4 ♂♂ 1 ♀; Katav-Ivanovsk Distr., Sim river valley, 26.6.1985 — 1 ♂; Varnensk Distr., Alekseevka Vill., Toguzak river valley, steppe with outcrop rocks, O.E. Chaschina leg., 1.7.2001 — 1 ♂.

Body convex, elongate obovate. Dorsum distinctly shagreen. Head and pronotum moderately shining, elytra dull. Above dark, golden green or bronze green, epipleura blue or green, underside and legs bluish black, antenna blackish brown with antennomeres 1–2 rufous from below.

Clypeus with dense, fine punctures which slightly larger than those at pronotal disk. Last maxillary palpomere 1.2 × longer than wide, rounded laterally, as long as palpomere 3 and 1.1 × wider than latter, similar in both sexes.

Antenna inserted 2.0–2.2 × closer to clypeus than to eye; with antennomere 10 reaching pronotal base. Antennomeres 7–11 moderately broadened. Antennomere 10 1.2–1.4 × longer than broad.

Orbital grooves distinct, present along inner border of eyes, but not reaching antennal insertion.

Pronotum (Fig. 67) 1.8–1.9 × broader than long, longitudinally feebly convex, transversely rather convex, broadest at middle or before base of its length, arcuate laterally and narrowed anteriorly more than posteriorly. Anterior angles slightly or moderately produced. Anterior side of pronotum marginate, with setae (visible in upper and slightly posterior view). Anterior setiferous pores absent. Pronotum laterally inflated along entire length. Pronotal lateral callus separated from disk by deep narrow sulcus in basal 1/2, and narrow, moderately deep impression covered by dense, partly (or mostly) coalescent punctures with wrinkled intervals anteriorly. Punctures at pronotal disk fine, dense.

Hypomera of prothorax hardly convex, almost flat, with irregular wrinkles along outside. Basal fold of hypomera weak. Intercostal prosternal process slightly broadened posteriorly, with shallow longitudinal impression covered by irregular wrinkles. Lateral portions of prosternum with ridge, margined posteriorly by furrow. Metasternum entirely marginate anteriorly.

Scutellum as long as wide, triangular, with lateral sides arc-shaped, impunctate or covered by more or less numerous punctures.

Elytron each 2.2–2.6 longer than wide, with obsolete humeral callus or without it; striato-punctate, with abbreviate scutellar row and 9 equidistant rows of dense, moderately large punctures. Rows 5–6, or 6–7, or 5–7, or only 6 irregular at mid-length, rows 1–2 or only 1 irregular or undulate posteriorly. Intervals flat, or weakly convex, or rather convex, rarely ridge-shaped, smooth or slightly wrinkled, covered by dense, fine punctules. Marginal stria with distinct or obsolete moderately large punctures. Epipleura almost vertical in posterior 1/2, visible along entire length in lateral view, densely ciliate near apex.

Hind wings absent.

Tarsomeres 1–3 with entire sole, strongly dilated in male, narrow in female; tarsomere 4 without denticles beneath.

Pygidium with very shallow longitudinal impression along entire length or not reaching the apex.

First abdominal sternite (Fig. 3) distinctly marginate between hind-coxae. Male last abdominal sternite convex; with large semi-circular apical impression which 1.2–1.7 × times shorter than the rest part of the sternite. Female last abdominal sternite convex or swelled, with transverse apical impression which 3.2–5.9 × shorter than the rest part of the sternite.

Aedeagus (Figs 37–38): alae triangular with apical side longer than basal side, turned towards base of aedeagus;

dorsal surface of aedeagus (viewed laterally) with gentle emargination before alae.

Length: 7.0–7.4 mm (♂), 7.2–7.8 mm (♀).

Width: 4.1–4.7 mm (♂), 4.6–5.1 mm (♀).

DISTRIBUTION. S. Urals.

REMARKS. *Chrysolina poretzkyi* was originally described [Jacobson, 1897] on the base of the single female. I was not succeeded in the finding of the type in the Dr. G. G. Jacobson collection in ZIN. Noone examined this specimen after the author. The original description is voluminous and detailed. However, two *Chrysolina* species inhabiting the South Urals share the most of the characters mentioned in the original description of *Ch. poretzkyi*. One of them, the species from the subgenus *Pleurosticha*, and another one from the subgenus *Arctolina*. The most of the characters, mentioned by Jacobson [1897], fit the both species. However, I paid the attention on the following distinctions.

1. *Ch. poretzkyi* [after Jacobson, 1897]: “antennae articulo <...> 2 sat parvo subgloboso”. *Pleurosticha* species from S. Ural: the antennomere 2 is almost spherical, rarely oval (in one male and one female among the specimens examined) (Fig. 68). *Arctolina* species from S. Ural: the antennomere 2 is oval (Fig. 70).

2. *Ch. poretzkyi* [after Jacobson, 1897]: “prothorax longitudine fere duplo latior”. *Pleurosticha* species from S. Ural: pronotum is 1.7–1.9 × wider than long. *Arctolina* species from S. Ural: pronotum is 1.8–1.9 × wider than long.

3. *Ch. poretzkyi* [after Jacobson, 1897]: “prothorax <...> antice <...> medioque vix productus”. *Pleurosticha* species from S. Ural: anterior side of pronotum is mostly straight near middle, only in one male and one female it is slightly projecting. *Arctolina* species from S. Ural: anterior side of pronotum is straight near middle.

4. *Ch. poretzkyi* [after Jacobson, 1897]: “prothorax <...> postice subrecte truncatus”. In both, *Pleurosticha* and *Arctolina* species from S. Ural, pronotum is strongly arc-shaped, projecting basally.

5. *Ch. poretzkyi* [after Jacobson, 1897]: “prothorax <...> angulis posticis subrectis, obtusis”. *Pleurosticha* species from S. Ural: pronotal posterior angles are obtuse, rounded (Fig. 67). *Arctolina* species from S. Ural: pronotal posterior angles are distinct, mostly sharpened (Fig. 69).

6. *Ch. poretzkyi* [after Jacobson, 1897]: Prothorax: “quod impressio et plica in linea fere recta (solum medio nonnihil curvata) sitae sint”. *Pleurosticha* species from S. Ural: pronotal lateral impression is distinct along entire length, weakly and evenly curved or with weak bend just before mid-length (Fig. 67). *Arctolina* species from S. Ural: pronotal lateral impression is strongly curved in anterior part (Fig. 69).

7. *Ch. poretzkyi* [after Jacobson, 1897]: “scutellum impunctatum”. *Pleurosticha* species from S. Ural: scutellum is impunctate, or with 1, 3, or 7 punctules, or covered by numerous punctules. *Arctolina* species from S. Ural: scutellum is covered by numerous punctules.

8. *Ch. poretzkyi* [after Jacobson, 1897]: Elytra: “stria scutellari e punctis 12–15”. *Pleurosticha* species from S. Ural: scutellar puncture row consists of 3, 4, 5, 6, 7, 8, 9, 12, 13, or 14 punctures. *Arctolina* species from S. Ural: the respective row consists of 5, 6, 8, 10, or 11 punctures.

9. *Ch. poretzkyi* [after Jacobson, 1897]: Elytra: “stria 7a maxime irregulari”. *Pleurosticha* species from S. Ural: elytral rows 5–7, or 5–6, or 6, or 6–7 are irregular in the most of the examined specimens, all rows are regular in 4 females only. *Arctolina* species from S. Ural: all elytral rows are regular, only row 7 is rarely slightly undulate.

10. *Ch. poretzkyi* [after Jacobson, 1897]: Elytra: "interstitiis antice convexis". *Pleurosticha* species from S. Ural: elytral intervals are flat, or weakly convex, or rather convex, rarely ridge-shaped. *Arctolina* species from S. Ural: elytral intervals are flat.

11. *Ch. poretzkyi* [after Jacobson, 1897]: "callo humerali nullo". *Pleurosticha* species from S. Ural: humeral callus absents or obsolete, hardly visible. *Arctolina* species from S. Ural: humeral callus weak, but more distinct, visible viewed from the front.

12. *Ch. poretzkyi* [after Jacobson, 1897]: Abdomen: "segmento ultimo utrinque impressione rude punctata ornato". *Pleurosticha* species from S. Ural: among the specimens examined, two males have weak lateral impressions at the last abdominal sternite (Fig. 3), and six females have weak to distinct lateral impressions. *Arctolina* species from S. Ural: last abdominal sternite devoids of lateral impressions.

13. *Ch. poretzkyi* [after Jacobson, 1897]: "Long. 7,5 mm., lat. 5,7 mm." Females of the *Pleurosticha* species from S. Ural are 7.2–7.8 mm long, 4.6–5.1 mm wide. *Arctolina* species from S. Ural: the largest of the females being at my disposal is 7.2 mm long, 4.9 mm wide.

14. *Ch. poretzkyi* [after Jacobson, 1897]: the type specimen was collected "in montibus sylvaticis Uralensibus", at the Village Irgizly. This village (I visited this locality) is placed in the valley of Irgizla river, the tributary of the Belaya river. The village is surrounded by the low mountains (up to 577 m) covering by deciduous-coniferous forest. Steppe localities are rare and placed at the top and slope of the mountains. S. Uralian *Pleurosticha* species was found in the high mountains (1100 m) till now. On the other hand, S. Uralian *Arctolina* species was found mostly in the steppe localities.

As a result, the both species, namely one from the subgenus *Pleurosticha* and other from the subgenus *Arctolina*, differ from the original description of *Ch. poretzkyi* in three points (numbers 3, 4, 14), and *Pleurosticha* species shares eight characters of *Ch. poretzkyi* (numbers 1, 5, 6, 8, 9, 10, 11, 12), and two more characters (numbers 7 and 13) in part, whereas *Arctolina* does not correspond them.

All these facts do not indicate conclusively that I correctly identified *Ch. poretzkyi* as a member of the subgenus *Pleurosticha*. However they point to the fact that available specimens of the *Pleurosticha* species are more close to the original description of *Ch. poretzkyi*, than specimens of the *Arctolina* member.

Besides that, I paid my attention on the body proportion of the type specimen, mentioned by Jacobson [1897]: 7.5 long and 5.7 mm wide. The assumed outline of the type specimen shows that its width is rather large out of its length. Such proportion is atypical and improbable of any *Chrysolina* species inhabiting Ural Mountains. Therefore, I suggest that the type of *Ch. poretzkyi* may be an abnormal, monstrous specimen. On the other hand, the unusual shape of the pronotal anterior and posterior borders (see points 3 and 4 in the discussion above) permits to suggest, that the pronotum was examined being inclined forward. In this case, the type specimen was really longer than 7.5 mm, and some more elongate.

I do not designate a neotype of *Ch. poretzkyi* because the both, S. Uralian *Pleurosticha* and *Arctolina* members some differ from the original description, and I have not the specimens collected at the type locality (Irgizly Vill.).

I identify S. Uralian *Arctolina* member as *Ch. tundralis* [Jacobson, 1910]. South Uralian males have aedeagus (Figs

57–58) slightly narrowed at sides of apical opening (viewed dorsally) and more narrow in apical part (viewed laterally), whereas the males of *Ch. tundralis* from other places mostly have aedeagus parallel-sided (viewed dorsally) and thick (viewed laterally). However, I found [Bieńkowski, 2004b: fig. 28] the similar specimens from S. Taimyr (Ladannakh lake). Therefore, I consider this aedeagus shape to be an infraspecific variability.

Chrysolina subcostata (Gebler, 1848)

Figs 1, 6, 39–42.

Chrysolina subcostata Gebler, 1848: 27 (Kusnezsk Gebirgs).
Chrysolina (Pleurosticha) subcostata: Jacobson, 1910: 53 (note).

Chrysolina (Pleurosticha) sylvatica: Bechyně, 1950: 150 (fig. 48); Kontkanen, 1959: 28 (fig. 1: a); Bieńkowski, 1999: 168, partim, 173 (fig. 3: B, C); Mikhailov, 2000: 133, partim (5th sternite); Bieńkowski, 2001: 185 (note).

Chrysolina (Pleurosticha) subcostata: Medvedev, 1979: 85; Mikhailov, 2000: 133, partim (5th sternite).

Chrysolina sylvatica: Takizawa, 1970: 119 (fig. 2).

Chrysolina (Pleurosticha) sylvatica subcostata: Medvedev & Dubeshko, 1992: 106.

Chrysolina cavigera: Medvedev, 1992: 565 (fig. 266: 13).

MATERIAL. KHAKASS AUTONOM. REGION: Chukchut ridge, Shaman, A. Jacobson leg. — 9 ♂♂ 2 ♀♀; the same place, A. Jacobson leg., 23.6.1897 — 3 ♂♂ 1 ♀; the same place, A. Jacobson leg., 24.6.1897 — 4 ♂♂ 5 ♀♀; the same place, Wagner leg., 24.6.1897 — 1 ♂ 1 ♀; the same place, Redikortzev leg., 5.6.1912 — 1 ♂ 1 ♀; Kuznetsky Alatau foothills, 50 km W. from Ust-Bir', Tamalyk forestry, 800 m, V. Grishkov leg., 19.6.1984 — 1 ♂; Dzhozyn, Redikortzev leg., 20.6.1912 — 1 ♂ 1 ♀; GORNO-ALTAI AUTONOM. REGION: Ongudai, Ursul river, A. Jacobson leg., 18.6.1900 — 2 ♂♂; KEMEROVO REG.: Novokuznetsk, R. Skalski leg., 6.1926 — 2 ♂♂

UNCERTAIN LOCALITIES: Altai — 1 ♂; W. Siberia — 1 ♀.

Body convex, elongate obovate. Dorsum distinctly shagreen and microscopically punctulate, moderately shining. Dorsum violet, rarely partly dark green (head, pronotum, elytral disk), underside dark metallic, mostly green or bluish-green, elytral epipleura violet or green with golden reflection, legs black, shining, antennae brown with antennomeres 1 and 2 rufous below.

Clypeus with dense moderately large punctures which as large as those at pronotal disk.

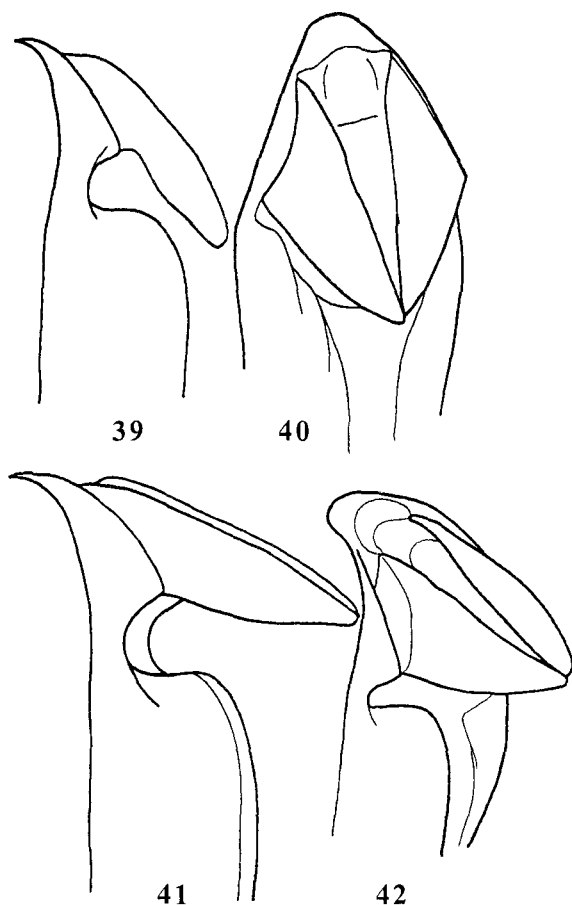
Last maxillary palpomere oval, truncate, 1.3 × longer than broad, as long as previapus palpomere and 1.2 × broader than latter, similar in both sexes.

Antenna inserted 1.8–2.6 × closer to clypeus than to eye; with antennomeres 10 and 11 project beyond pronotal base. Antennomeres 7–11 weakly broadened. Antennomere 10 1.6–1.8 × longer than wide.

Orbital grooves broad and deep, but short and present only above eye, not reaching antennal insertion.

Pronotum 1.8–1.9 × broader than long, longitudinally feebly convex, transversely rather convex, broadest near mid-length, or just before base, or basally, arcuate laterally and narrowed anteriorly more than posteriorly. Anterior angles moderately produced. Anterior side of pronotum marginate, with setae. Anterior setiferous pores absent. Pronotum laterally inflated along entire length. Pronotal lateral impressions deep, narrow, furrow-shaped in basal 1/3–1/2, shallow or moderately deep and usually filled with several large punctures (punctures slightly larger than those at disk) anteriorly. Pronotal disk covered by dense, moderately large punctures, usually with medial longitudinal impunctate stripe.

Hypomera of prothorax rather convex, with shallow impression covered by irregular wrinkles along outside. Basal



Figs 39–42. *Chrysolina subcostata*, aedeagus, variability (both from Altai, Chukchut ridge).

Рис. 39–42. *Chrysolina subcostata*, изменчивость формы эдеагуса (оба экз. с Алтая, хр. Чукчугт).

fold of hypomera distinct but not strong. Intercostal prosternal process broadened posteriorly, covered by wrinkled punctures. Lateral portions of prosternum with ridge margined anteriorly and posteriorly by impressions. Metasternum entirely marginate anteriorly.

Scutellum broader than long, triangular, with lateral sides arc-shaped or almost straight, usually covered by fine punctures, rarely impunctate.

Elytron each 2.2–2.4 × longer than wide, with obsolete humeral callus; striato-punctate, with abbreviate scutellar row and 9 equidistant regular rows of dense, moderately large punctures. Intervals ridge-shaped or convex, smooth or slightly wrinkled, covered by dense, fine punctures. Marginal stria: with distinct punctures which slightly larger than punctures in other rows. Epipleura almost vertical in posterior 1/2, visible along entire length in lateral view, densely ciliate near apex.

Hind wings reduced, not longer than metathorax.

Tarsomeres 1–3 with entire sole, strongly dilated in male, narrow in female; tarsomere 4 without denticles beneath.

Pygidium with very shallow longitudinal impression not reaching the apex.

First abdominal sternite distinctly marginate between hind-coxae. Male last abdominal sternite (Fig. 6) flat or slightly depressed; with narrow transverse apical impression which 2.5–4.1 × shorter than the rest part of the sternite. Female

last abdominal sternite swelled, with very narrow transverse apical impression which 5.7–10.0 × shorter than the rest part of the sternite.

Aedeagus (Figs 39–42) with large step and narrow deep emargination dorsally before alae (viewed laterally). Alae triangular with anterior and posterior sides rounded or almost straight; alae turned upwards and more or less inclined toward base. ale, respectively.

Length: 7.3–8.2 mm (♂), 7.7–8.7 mm (♀).

Width: 4.7–5.5 mm (♂), 5.1–5.5 mm (♀).

DISTRIBUTION. South of Central and Eastern Siberia.

REMARKS. *Chrysolina subcostata* was originally [Gebler, 1848] considered to be close to *Ch. sylvatica*, distinguishing from the latter in the following characters: “länglicher gestaltet, das Halsschild dichter und rugöser punktiert, die Flügeldecken sind hinten weniger erweitert und ihre Zwischenräume mehr oder weniger gerippt” and “marginale segmentorum abdominis saepius testaceo”.

The finding of the type specimen of *Ch. sylvatica* (see below) permits me to correct the recent interpretation of this taxon. I have not examined the type specimens of *Ch. subcostata*. However, I had at my disposal a number of the specimens collected not far from the type locality of *Ch. subcostata* (Kuznetsk Alatau Mts.). The characters of these specimens correspond to the features mentioned in the original description [Gebler, 1848], including ridge-shaped elytral intervals in the most specimens, rufous connective membranes between abdominal sternites. Besides that, I found that *Ch. sylvatica* and *Ch. subcostata* can be easily separate from each other by the shape of the last abdominal sternite (in both sexes) (Fig. 1) and aedeagus structure.

Chrysolina sylvatica (Gebler, 1823)

Figs 1, 4, 28–30, 49–56, 71.

Chrysolina sylvatica Gebler, 1823: 118 (Siberia, lectotype in ZMMU, designated here)

Chrysolina sylvatica: Gebler, 1848: 29.

Pleurosticha sylvatica: Motschulsky, 1860: 191.

Chrysolina (Pleurosticha) sylvatica: Jacobson, 1910: 53 (note).

Chrysolina (Pleurosticha) subcostata: Kontkanen, 1959: 28 (fig. 1: b); Bieńkowski, 1999: 170, partim, 173 (fig. 3: D, E); Mikhailov, 2000: 133, partim (aedeagus).

Chrysolina (Pleurosticha) subcostata subcostata: Bieńkowski, 2001: 185, partim (note).

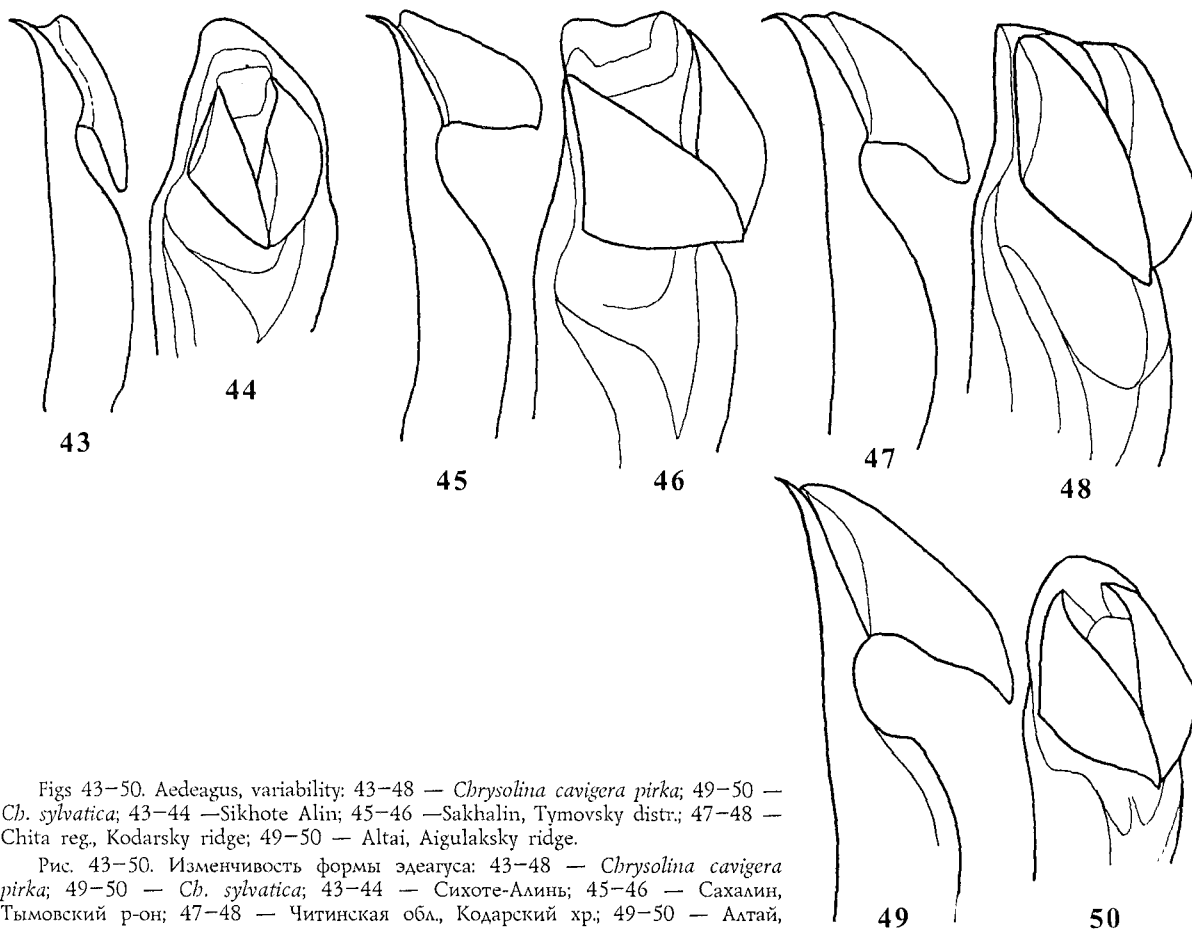
Chrysolina (Pleurosticha) sylvatica: Medvedev, 1979: 85.

Chrysolina (Pleurosticha) sylvatica: Medvedev and Dubeshko, 1992: 106, lapsus calami.

Chrysolina subcostata: Takizawa, 1970: 119 (fig. 3).

MATERIAL. TYPE. *Chrysolina sylvatica*, lectotype, ♀ (Fig. 71), designated here, with labels: “Barnaul” [pink], “*Chry. sylvatica*”, “Motschulsky coll.”, “Lectotype *Chrysolina sylvatica* Gebler, 1823. Bieńkowski design. 2006” [red], “*Chrysolina sylvatica* Gebl. Bieńkowski det. 2006” (ZMMU).

Additional specimens. ALTAI: C. Altai, Kyzylart ridge E. slope, Achin river upper reaches, tundra, under stones, 2100–2300 m, Matalin & Demidov leg., 16–18.7.2000 — 6 ♂♂; C. Altai, Aigulaksky ridge N.-E. slope, tundra, 2200–2300 m, Matalin & Demidov leg., 8–10.7.2000 — 1 ♂; C. Altai, Iolgo ridge S.-W. slope, Lozha river upper reaches, 1900–2000 m, A.V. Matalin leg., 10–11.7.1999 — 1 ♀; Tom river upper reaches, Balyksa river, Veselaya river, V. Khvorov leg., 5.7.1908 — 1 ♂; Khakass Autonom. Reg., Maina, A. Mikheev leg., 24.5.1965 — 1 ♂; Kuznetsky Alatau foothills, 50 km W. from Ust-Bir', Tamalyk forestry, 800 m, V. Grishkov leg., 19.6.1984 — 2 ♂♂; 22.6.1983 — 2 ♀♀; Teletskoye lake, 2000 m, Yu. Elizarov leg., 12–13.6.1965 — 1 ♂; Salairsky range — 2 ♀♀; N. Altai, 25 km E from Yailliu vill., Kokshi river right tributary, 1850 m, R.Yu. Dudko leg., 26.7.1994 — 1 ♂; Kolyvan — 2 ♂♂; Dzhozyn, Redikortzev leg., 20.6.1912 — 1 ♂; Chukchut ridge, Shaman



Figs 43-50. Aedeagus, variability: 43-48 — *Chrysolina cavigera pirka*; 49-50 — *Ch. sylvatica*; 43-44 — Sikhote Alin; 45-46 — Sakhalin, Tymovsky distr.; 47-48 — Chita reg., Kodarsky ridge; 49-50 — Altai, Aigulaksky ridge.

Рис. 43-50. Изменчивость формы эдеагуса: 43-48 — *Chrysolina cavigera pirka*; 49-50 — *Ch. sylvatica*; 43-44 — Сихоте-Алинь; 45-46 — Сахалин, Тымовский р-он; 47-48 — Читинская обл., Кодарский хр.; 49-50 — Алтай, Айгулакский хр.

Mt., Redikortzev leg., 5.6.1912 — 1 ♂; Altai — 2 ♀♀; "Mont. Altai. Coll. Mannerheim. *Sylvatica* Gebler Var. A. Mannerh." — 1 ♀; IRKUTSK REG.: Kultuk, Czekanowski leg., 1871 — 1 ♂ 1 ♀; KRASNOYARSK KRAI: Bolshoi Kemchug, from the stomach of Ouzel, R. Naumov leg., 1961 — 1 ♂; SAYAN MTS: W. Sayan, Oiskoye lake, meadow, 1400-1500 m, Gusehnikov leg., 8.7.1978 — 1 ♂; W. Sayan, Sailyg-Khem-Taiga ridge, bald peak, S. Aleksenko leg., 10.7.2003 — 3 ♂♂; E. Sayan, Tubota Mt., Anischenko leg., 10.7.1992 — 1 ♂; E. Sayan, Tunkinskie goltsy, 2400 m, Anischenko leg., 20.6.1994 — 1 ♂; TUVA: Academician Obruchev ridge, Ulluch-O river source, tundra, lichen, D. Berman leg., 23.7.1962 — 1 ♂; 29.7.1962 — 1 ♀; Academician Obruchev ridge, tundra, R. Zlotin leg., 24.8.1961 — 1 ♀.

UNCERTAIN LOCALITIES: "Mongolia borealis 1926" — 1 ♂ (ZIN); "Kirgizia" [old label evidently refers to Siberia] — 1 ♂ 2 ♀♀; Siberia — 1 ♂.

Body convex, elongate oval or elongate obovate. Dorsum entirely obsolete shagreen, rarely with head and elytra distinctly shagreen. Besides that, pronotum covered by sparse microscopical punctules, which finer than cells of shagreening. Above moderately shining. Dorsum entirely violet, violet with dark blue reflection, black, green with coppery reflection at elytra, or bronze; elytral epipleura, legs, and underside black with green, blue, violet, or bronze reflection; antenna blackish brown with antennomeres 1-2 rufous from below or 2-4 basal antennomeres rufous at most part.

Clypeus with sparse or dense, fine or moderately large punctures.

Last maxillary palpomere 1.1 × longer than wide, with rounded lateral sides, 1.2 × longer and 1.1 × broader than palpomere 3; similar in both sexes.

Antenna inserted 1.3-2.3 × closer to clypeus than to eye; with antennomere 10 reaching pronotal base. Antennomeres 7-11 weakly broadened. Antennomere 10 1.3-1.6 × longer than broad.

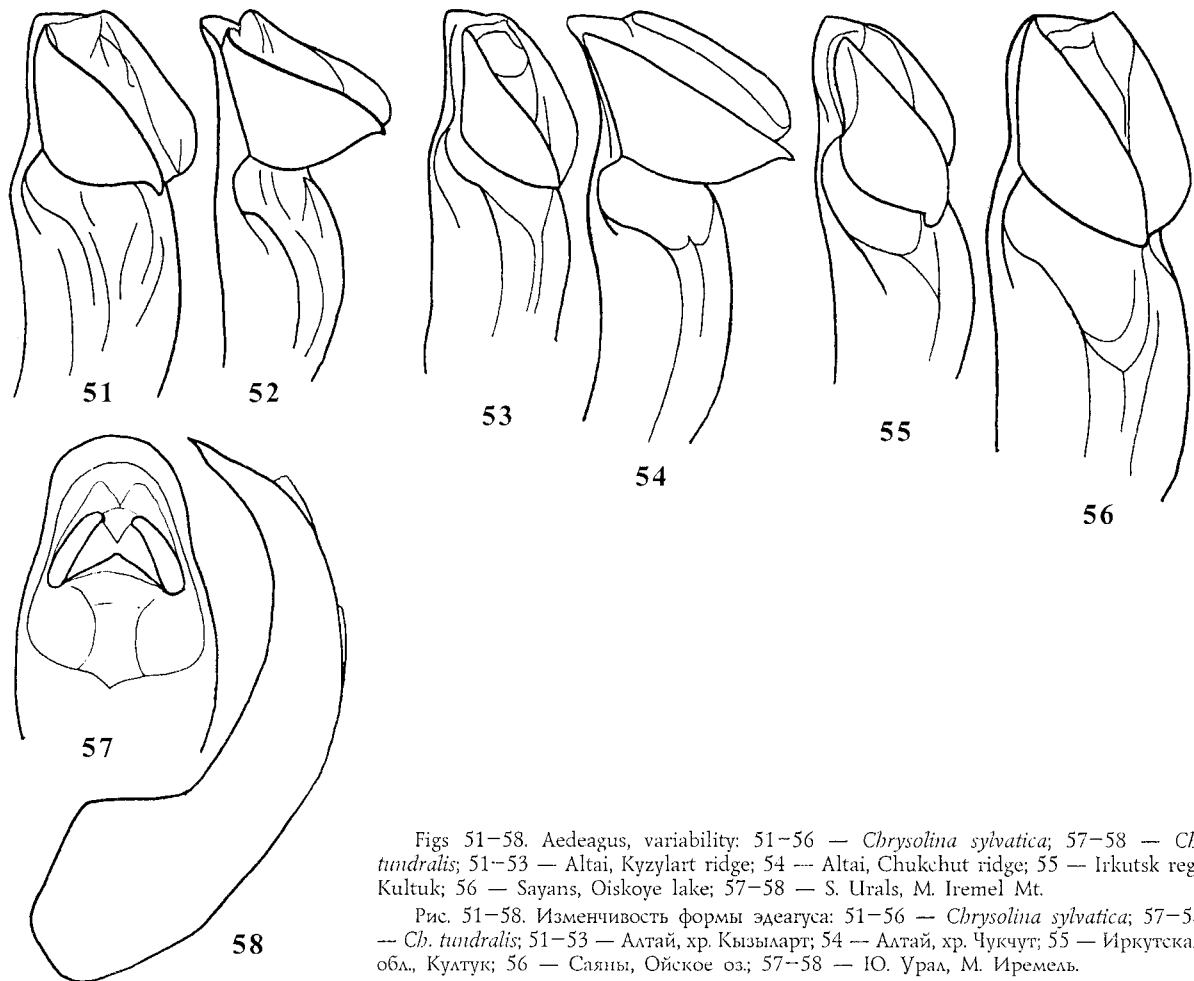
Orbital grooves broad and deep, but short and present only above eye, not reaching antennal insertion.

Pronotum (Figs 28-30) 1.7-2.1 × broader than long, longitudinally feebly to moderately convex, transversely rather convex, broadest at middle of its length, or before base, or basally, laterally evenly arcuate or straight (or slightly emarginate) in posterior 1/2; narrowed anteriorly more than posteriorly. Anterior angles slightly to moderately produced. Anterior side of pronotum marginate, with setae (visible in upper and slightly posterior view). Anterior setiferous pores absent. Pronotum laterally inflated along entire length.

Pronotal lateral calli separated from disk by deep narrow sulci in basal 1/3-1/2, and by narrow, moderately deep to obsolete impression covered by separate punctures which similar to punctures at disk or slightly larger than latter. Pronotal disk covered by fine dense punctures.

Hypomera of prothorax weakly convex, with shallow to obsolete impression covered by transverse wrinkles along outside. Basal fold of hypomera weak or absent. Intercoxal prosternal process covered by punctures with wrinkled intervals, longitudinally weakly impressed in the most of specimens. Lateral portions of prosternum with ridge margined posteriorly by furrow. Metasternum entirely marginate anteriorly.

Scutellum as long as wide, triangular, with lateral sides arc-shaped, usually impunctate, rarely covered by sparse punctures.



Figs 51-58. Aedeagus, variability: 51-56 — *Chrysolina sylvatica*; 57-58 — *Ch. tundralis*; 51-53 — Altai, Kyzylart ridge; 54 — Altai, Chukchut ridge; 55 — Irkutsk reg., Kultuk; 56 — Sayans, Oiskoye lake; 57-58 — S. Urals, M. Iremel Mt.

Рис. 51-58. Изменчивость формы эдеагуса: 51-56 — *Chrysolina sylvatica*; 57-58 — *Ch. tundralis*; 51-53 — Алтай, хр. Кызыларт; 54 — Алтай, хр. Чукчут; 55 — Иркутская обл., Култук; 56 — Саяны, Ойское оз.; 57-58 — Ю. Урал, М. Иремель.

Elytron each 2.2-2.6 × longer than wide, with obsolete humeral callus; striato-punctate, with abbreviate scutellar row and 9 equidistant regular rows of dense moderately large punctures. Intervals ridge-shaped, convex, or flat in 12, 28, and 6 examined specimens respectively, smooth or slightly wrinkled, covered by sparse or dense fine punctures. Marginal stria with distinct large punctures.

Epipleura almost vertical in posterior 1/2, visible along entire length in lateral view, densely ciliate near apex.

Hind wings reduced narrow and very short, as long as metathorax.

Tarsomeres 1-3 with entire sole, strongly dilated in male, narrow in female; tarsomere 4 without denticles beneath.

Pygidium with shallow longitudinal impression not reaching apex.

Male last abdominal sternite (Fig. 4) flat or slightly depressed, with sharp transverse ridge separating deep semicircular apical impression. Apical impression 1.0-1.9 × shorter than the rest part of the sternite. Female last abdominal sternite swelled, with transverse apical impression, which 2.6-5.5 × shorter than the rest part of the sternite.

Aedeagus (Figs 49-56): alae triangular, with lateral sides more or less rounded, turned upwards and inclined towards base, or turned towards base. Dorsal surface of aedeagus (viewed laterally) with gentle emargination before alae, or with small step, or with large step in 3, 23, and 2 dissected males, respectively.

Length: 7.2-8.8 mm (♂), 7.6-9.6 mm (♀).

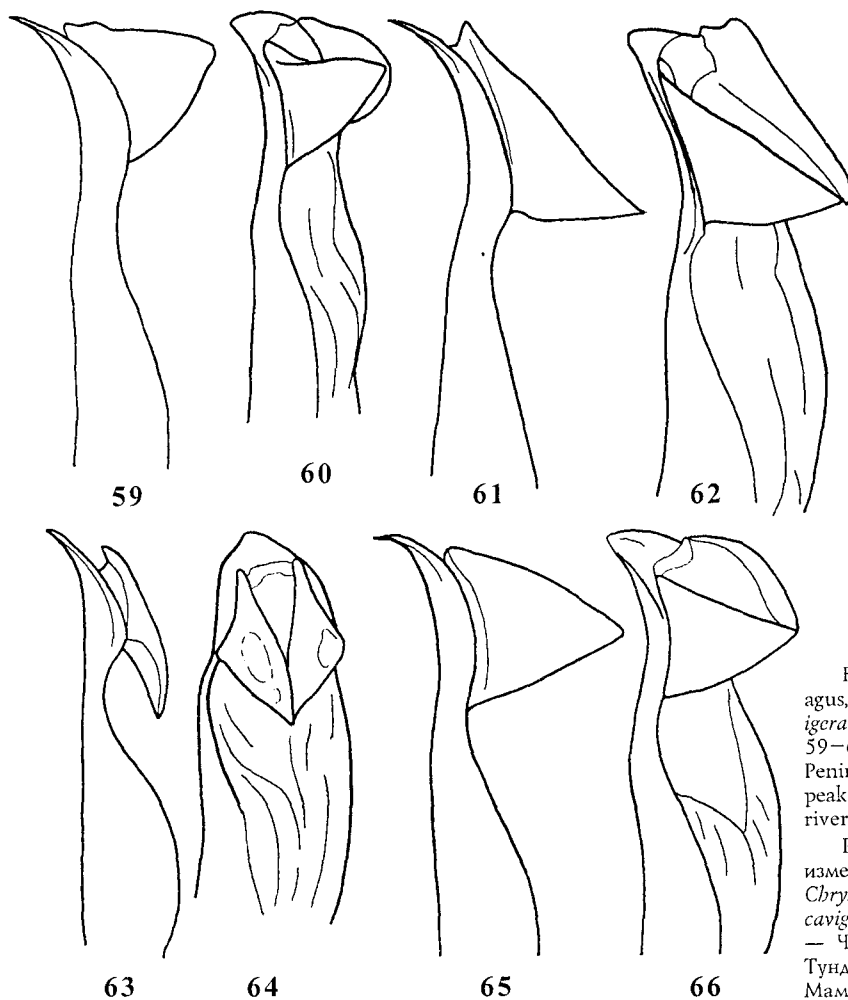
Width: 4.5-5.5 mm (♂), 4.7-5.9 mm (♀).

DISTRIBUTION. Southern Siberia.

BIOLOGICAL NOTE. Among the specimens dissected by me, two females from Altai and Irkutsk reg. have small distinct larvae within their abdomens. It shows this species to be ovoviviparous.

REMARK. Gebler [1823] noted in the original description, that *Chrysolina sylvatica* was collected in "Sibiriae herbis sylvaticis; mense Maio (in sylvia Salairensi)". This permit to attribute "Salair" as one but not the single (!) of the type localities of this species. The type specimens from Dr. Gebler collection were deposited in Museum National d'Histoire Naturelle (Paris), ZIN, and ZMMU [Horn & Kahle, 1935-1937]. I found one female with the Dr. Gebler's handwritten label "*Chry. sylvatica*" (Fig. 71) in the old historical part of ZMMU Coleoptera collection. The fixation of the interpretation of the name *sylvatica* is necessary for the revision of the group in question. Therefore, I designate the mentioned specimen as a lectotype.

Besides that, I found two old specimens labelled "Salair" in ZIN. Both are conspecific with the lectotype of *Ch. sylvatica*. However, their labels have not been written by Dr. Gebler personally, and do not permit me to consider the respective specimens as the types. One more female with the labels: "Gebler." [printed] and "Mont Altai." [handwritten] was found under the bottom label "*sylvatica* Gebler Var. A.



Figs 59–66. *Chrysolina cavigera*, aedeagus, variability: 59–62 — *Chrysolina cavigera cavigera*; 63–66 — *Ch. cavigera tolli*; 59–60 — Kamchatka; 61–62 — Chukot Penins.; 63–64 — Wrangel Isl., Tundrovyy peak; 65–66 — Wrangel Isl., Mamontovaya river.

Рис. 59–66. *Chrysolina cavigera*, изменчивость формы эдеагуса: 59–62 — *Chrysolina cavigera cavigera*; 63–66 — *Ch. cavigera tolli*; 59–60 — Камчатка; 61–62 — Чукотка; 63–64 — о-в Врангеля, пик Тундровый, 65–66 — о-в Врангеля, р. Мамонтова.

Mannerh.” in the Dr. Mannerheim’s collection (ZMUH). It is conspecific with the lectotype of *Ch. sylvatica*, but could not be attributed as the type one (according to the labels).

Chrysolina uraltuvensis Mikhailov, 2000
Figs 2, 25–27, 31–36.

Chrysolina (Pleurosticha) uraltuvensis Mikhailov, 2000: 130 (S. Krasnoyarsk territory, West Sayan mts, Kulumys range, Buiba pass, types in SZM, paratype examined).

Chrysolina (Pleurosticha) uraltuvensis: Bienkowski, 2001: 185 (note).

MATERIAL. TYPE. *Chrysolina uraltuvensis*, paratype, ♀, with labels: “Красноярский край, Зап. Саян, Хр. Кулумьс Перевал Буйба, Горн. тундра, Под камнями, Ю.Е.Михайлов leg., 24.VI.1999”, “PARATYPUS *Chrysolina uraltuvensis* sp.n. Yu.Mikhailov det. 1999” [red] (SZM).

Additional specimens. KRASNOYARSK TERRITORY: Sayan Mts., Borus ridge, A.Tugarinov leg., 18.7.1913 — 1 ♂; 19.6.1913 — 1 ♀; Oiskoye lake, Guselnikov leg., 7.7.1978 — 1 ♂; Oisky ridge, Buiba pass, 1700–1800 m, near snow field, under stones, A.Brinev leg., 12–14.7.1999 — 1 ♂ 2 ♀♀; 1880–2400 m, A.Brinev, 9–17.7.1995 — 1 ♀; 2000–2500 m, A. Brinev leg., 12–25.7.1995 — 3 ♀♀.

Body convex, elongate oval (♂) or elongate obovate (♀). Dorsum entirely distinctly shagreen, or with pronotum obsoletely shagreen. Besides, pronotum covered by sparse microscopical punctules, which finer than cells of shagreening. Above moderately shining, sometimes elytra sericeous in

female. Dorsum entirely dark green (or dark blue) with golden reflection, or dark bronze, or black with blue reflection, or dorsum two-coloured: head and pronotum dark golden green, elytra brassy; elytral epipleura, legs, and underside dark blue or dark brassy; antenna blackish brown with antennomeres 1–2 rufous from below.

Clypeus with sparse, fine or moderately large punctures.

Last maxillary palpomere: male: 1.2 × longer than wide, with parallel lateral sides, 1.5 × longer and 1.1 × broader than palpomere 3; female: 1.1 × longer than wide, with slightly rounded lateral sides, as long as palpomere 3 and 1.1 × broader than latter. Last maxillary palpomere slightly broader in male than in female.

Antenna inserted 1.4–1.7 × closer to clypeus than to eye; with antennomere 10 reaching pronotal base. Antennomeres 7–11 moderately broadened. Antennomere 10 1.3–1.4 × longer than broad.

Orbital grooves broad and deep, but short and present only above eye, not reaching antennal insertion.

Pronotum (Figs 25–27) 1.8–2.0 × broader than long, longitudinally feebly convex, transversely rather convex, broadest at middle of its length or basally, arcuate laterally and narrowed anteriorly more than posteriorly. Anterior angles moderately produced. Anterior side of pronotum marginate, with setae (visible in upper and slightly posterior view). Anterior setiferous pores absent. Pronotum laterally inflated along entire length. Pronotal lateral calli separated from disk by deep

narrow sulci in basal 1/3–1/2, and by narrow, moderately deep or shallow impression covered by separate punctures which similar to punctures at disk or slightly larger than latter. Pronotal disk covered by fine dense punctures.

Hypomera of prothorax weakly convex, with shallow impression covered by irregular wrinkles along outside. Basal fold of hypomera strong. Intercostal prosternal process covered by punctures with wrinkled intervals. Lateral portions of prosternum with ridge margined posteriorly by deep furrow. Metasternum entirely marginate anteriorly.

Scutellum as long as wide, triangular, with lateral sides arc-shaped, covered by sparse fine punctures.

Elytron each 2.2–2.6 × longer than wide, with obsolete humeral callus; striato-punctate, with abbreviate scutellar row and 9 equidistant regular rows of dense, fine or moderately large punctures. Intervals ridge-shaped, rarely convex, smooth or slightly wrinkled, covered by more or less dense, fine punctures. Marginal stria with distinct large punctures. Epipleura almost vertical in posterior 1/2, visible along entire length in lateral view, densely ciliate near apex.

Hind wings reduced; narrow and very short, as long as metathorax.

Tarsomeres 1–3 with entire sole, strongly dilated in male, narrow in female; tarsomere 4 without denticles beneath.

Pygidium with shallow longitudinal impression not reaching apex.

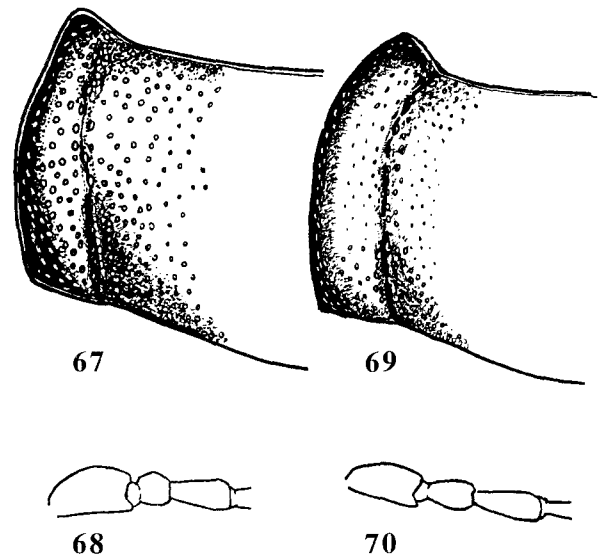
Male last abdominal sternite (Fig. 2) flat or slightly depressed, with sharp transverse ridge separating deep semicircular apical impression. Apical impression 1.2–1.3 × shorter than the rest part of the sternite. Female last abdominal sternite swelled, with transverse apical impression, which 2.3–4.6 × shorter than the rest part of the sternite.

Aedeagus (Figs 31–36): alae triangular, impressed and partly bent inside at the side facing aedeagus base, therefore look like narrow and bearing apical projection. Alae turned upwards, almost perpendicularly to longitudinal axis of aedeagus; dorsal surface of aedeagus (viewed laterally) with gentle emargination before alae.

Length: 6.9–7.4 mm (♂), 7.3–8.3 mm (♀).

Width: 4.1–4.5 mm (♂), 4.7–5.5 mm (♀).

REMARK. *Ch. uraltuvensis* was originally [Mikhailov, 2000] described on the base of one male (holotype) and 2 females. The author separated the holotype of *Ch. uraltuvensis* from *Ch. sylvatica* sensu Medvedev, 1979 as following: "Pronotum only 1.7 × as broad as long". "Basal margins of lateral calli straight". "Narrow lateral margins [of lateral calli] simultaneously visible in dorsal view including apical angles". "Lateral calli completely divided from disc by sulci sharply deepened in basal third and still distinct at apex". [Elytra] "approximately 2.5 times as long as broad". [Elytral] "intervals convex, covered with sparse small punctures and narrower than scutellum". "Last abdominal sternite with rounded triangular depression at middle <...>. This depression does not reach anterior margin of segment and is divided from deep transverse groove on its apex with sharp carina". "Alae [of aedeagus] with broad bases and then abruptly narrow into falciform apices owing to large deep transverse groove below the joint apex of both alae". The holotype (♂) and one of the paratypes of *Ch. uraltuvensis* were deposited in SZM. Unfortunately, I had a possibility to examine only one paratype (female), whereas the holotype has not been found in SZM by the curator of this collection. However, I examined the topotypes and additional specimens from different localities. As a result, I pointed out that the most of the diagnostical features mentioned in *Ch. uraltuvensis* original description does not permit to distinguish this species from *Ch. sylvatica*. Pronotal



Figs 67–70. Details of *Chrysolina* spp: 67–68 — *Chrysolina poretzkyi*, ♀ (S. Urals, B. Iremel); 69–70 — *Ch. tundralis* (69 — ♂, S. Urals, M. Iremel, 70 — ♀, Bashkortostan, Krasnyi Kliuch); 67, 69 — pronotum, 68, 70 — first-third antennomeres.

Рис. 67–70. Детали строения *Chrysolina* spp: 67–68 — *Chrysolina poretzkyi*, ♀ (Ю. Урал, Б. Иремель); 69–70 — *Ch. tundralis* (69 — ♂, Ю. Урал, М. Иремель, 70 — ♀, Башкортостан, Красный Ключ); 67, 69 — переднеспинка, 68, 70 — первый-третий членики усика.

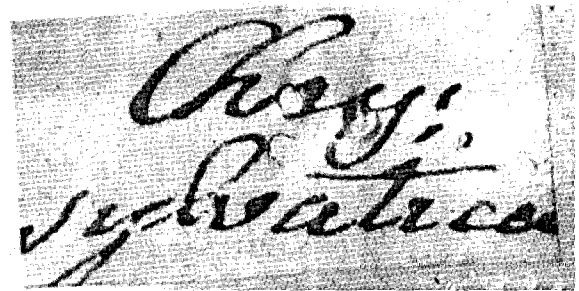


Fig. 71. Original label (12.2 x 6.1 mm) of the lectotype *Chrysolina sylvatica*, handwritten by Dr. F. Gebler.

Рис. 71. Оригинальная этикетка (12,2 x 6,1 мм) лектотипа *Chrysolina sylvatica*, автограф Ф. Геблера.

shape and proportions are variable (Figs 25–30), and the shape of the male last abdominal sternite is similar in the both species (Figs 2, 4). The shape of alae of the aedeagus and proportions of elytra are the best features to distinguish certainly *Ch. uraltuvensis* from *Ch. sylvatica* (see the respective descriptions, Figs 31–36, and key). However, the shape of alae is not quite distinct character because this character varies in the males of *Ch. uraltuvensis* being at my disposal. On the other hand, some available males of *Ch. sylvatica* have alae with short apical projection (Figs 51–52, 54–55). Mikhailov [2000] noted that alae shape in *Ch. uraltuvensis* is similar to those in *Ch. gebleri* and discussed "the probable ways of evolution from massive to falciform alae". I compared the mentioned structure in the both, *Ch. uraltuvensis* and *Ch. gebleri*. I found that alae in the former are really broad, massive, look like the respective in *Ch. sylvatica* and *Ch. subcostata*. The alae of *Ch. uraltuvensis* look like narrow and bearing a projection apically because they are impressed and partly bent inside at the side

facing aedeagus base, whereas alae of *Ch. gebleri* are quite different and really narrow.

The name "*uraltuensis*" looks like geographical one and originates from the geographical names, "Ural" and "Tuva". But really, this species was named in honour of the Urals-Tuva expedition (1999) and has not been found either in the Ural Mountains, or in the Tuva Republic.

KEY TO SPECIES AND SUBSPECIES OF THE SUBGENUS *CHRYSOLINA* (*PLEUROSTICHA*).

- 1(4) Elytra with puncture rows, intervals flat. Alae of aedeagus narrow, crescent (Fig. 14–15).
- 2(3) Above dark violet, coppery or bronze. Puncture rows regular, distinct near elytra base. Elytra intervals with fine punctures similar to those on pronotal disk. Altai
..... *Ch. gebleri gebleri* L. Medvedev, 1979
- 3(2) Head and pronotum dark brassy-green, elytra dark bronze. Puncture rows becoming indistinct among punctation of intervals near elytra base. Elytra intervals with punctures larger than those on pronotal disk. Sayan Mts.
..... *Ch. gebleri sajanensis* L. Medvedev, 1979
- 4(1) Elytra striato-punctate, intervals more or less convex, rarely flat. Alae of aedeagus always broad, triangular or trapeziform.
- 5(6) Head and pronotum blackish bronze, elytra dark brown with bronze reflection. Alae of aedeagus triangular, pressed to aedeagus, turned to aedeagus middle axis (Fig. 12–13). Buryatia, N. and C. Mongolia *Ch. latimargo* (Weise, 1896)
- 6(5) Above dark metallic or black, one- or two-coloured. Alae of aedeagus turned upwards or toward base of aedeagus.
- 7(8) Elytral row 6, or rows 5–6, or 6–7, or 5–7 partly confused. Male last abdominal sternite convex, with broad, transverse apical impression (Fig. 3). S. Urals
..... *Ch. povetzkii* (Jacobson, 1897)
- 8(7) Elytral rows regular. Species not found in S. Urals.
- 9(10) Last abdominal sternite with very narrow transverse apical impression which 2.5–4.1 and 5.7–10.0 × narrower than the length of the rest part of sternite in male (Fig. 6) and female, respectively. Aedeagus with large step and narrow deep emargination dorsally before alae (viewed laterally) (Figs 39–42). South of C. and E. Siberia
..... *Ch. subcostata* (Gebler, 1848)
- 10(9) Last abdominal sternite with broader transverse apical impression which 0.7–2.7 and 2.3–5.8 × narrower than the length of the rest part of the sternite in male and female, respectively. Aedeagus with broad gentle emargination before alae (viewed laterally), only in *Ch. sylvatica* mostly with low step, rarely with large step.
- 11(14) Male last abdominal sternite with sharp transverse ridge separating flat or slightly depressed anterior part from deep transverse apical impression (Figs 2, 4).
- 12(13) Alae of male aedeagus impressed before apex at the side facing to the base of aedeagus (Figs 31–36). Aedeagus with broad gentle emargination, without any step before alae (viewed laterally) (Figs 31–36). Male elytron each 2.5–2.6 × longer than wide. Elytral intervals mostly ridge-shaped, rarely convex. Sayan Mts.
..... *Ch. uraltuensis* Mikhailov, 2000
- 13(12) Alae of male aedeagus mostly without impression before apex (Figs 49–50, 53, 56), rarely with weak impression at the side facing to the base of aedeagus (Figs 51–52, 54–55). Aedeagus mostly with low step (Figs 49–50, 53–54, 56), rarely with large step or without step (Figs 51–52, 55) before alae (viewed laterally). Male elytron each 2.2–2.4 × longer than wide. Elytral intervals mostly convex, rarely ridge-shaped or flat. S. Siberia *Ch. sylvatica* (Gebler, 1823)

- 14(11) Male last abdominal sternite convex or flat, without sharp transverse ridge before apical impression (Figs 5, 7, 9, 11, 22).
- 15(16) Alae of male aedeagus turned upwards perpendicularly to longitudinal axis of aedeagus (Figs 17–19, 59–62). Dorsum dark metallic (green, bronze, brassy, coppery), sometimes blackish with metallic reflection; femora and tibiae rufous, tarsi brown or blackish tarsi or legs entirely black with metallic reflection. Chukot Peninsula, Kamchatka, Alaska *Ch. cavigera cavigera* (Sahlberg, 1887)
- 16(15) Alae of male aedeagus mostly turned toward the base of aedeagus (Figs 43–48, 63–64).
- 17(18) Dorsum black, sometimes with green or violet reflection; femora and tibiae always rufous, tarsi brown. Arctic Asia from Yamal and Polar Urals to Wrangel Isl. and Yana river mouth. *Ch. cavigera tolli* (Jacobson, 1910)
- 18(17) orsum and legs dark metallic, rarely legs rufous. Buryatia, Irkutsk reg., Khabarovsk Krai, Sakhalin, Hokkaido *Ch. cavigera pirka* Takizawa, 1970

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References

- Bechyně J. 1950. 7e contribution a la connaissance du genre *Chrysolina* Motsch. (Col. Phytophaga Chrysomelidae) // Ent. Arbeit. Mus. G. Frey. Bd.1. 547–185.
- Bechyně J. 1952. Achter Beitrag zur Kenntnis der Gattung *Chrysolina* Motsch. (Col., Phytoph., Chrysomelidae) // Ent. Arbeit. Mus. G. Frey. Bd.3. 351–385.
- Bienkowski A.O. 1999. A review of the species of the subgenus *Chrysolina* (*Pleurosticha* Motschulsky) (Insecta: Coleoptera: Chrysomelidae) // Ent. Abhandlungen. Bd.58. Nr.10. 5165–179.
- Bienkowski A.O. 2001. A study on the genus *Chrysolina* Motschulsky, 1860, with a checklist of all the described subgenera, species, subspecies, and synonyms (Coleoptera: Chrysomelidae: Chrysomelinae) // Genus. Vol.12. No.2. P.105–235.
- Bienkowski A.O. 2004a. Leaf-beetles (Coleoptera: Chrysomelidae) of the Eastern Europe. New key to subfamilies, genera, and species. Moscow: Mikron-print Publ. 278 pp.
- Bienkowski A.O. 2004b. A review of the subgenus *Arctolina* Kontkanen, 1959 of the genus *Chrysolina* Motschulsky, 1860 (Coleoptera: Chrysomelidae: Chrysomelinae) // Genus. Vol.15. No.2. P.187–233.
- Brown W.J. 1962. The American species of *Chrysolina* Mots. (Coleoptera: Chrysomelidae) // Canadian Ent. Vol.94. P.58–74.
- Daccordi M. 1994. Notes for phylogenetic study of Chrysomelinae, with descriptions of new taxa and a list of all the known genera (Coleoptera: Chrysomelidae, Chrysomelinae) // Proc. of the 3rd Intern. symposium on the Chrysomelidae, Beijing, 1992. Leiden. P.60–84.

- Dubeshko L.N. & Medvedev L.N. 1989. Ecology of the leaf-beetles of Siberia and the Far East. Irkutsk: Irkutsk University Publ. 224 pp. [In Russian].
- Gebler F. 1823. *Chrysomelae sibiriae rariores* // Mem. Soc. Imper. Naturalist. Moscou. Vol.6. P.117–126.
- Gebler F. 1848. Verzeichniss der im kolywano-Woskresenskischen Huttenbezirke sud-west Sibiriens beobachteten Kaefer mit Bemerkungen und Beschreibungen // Bull. Soc. Imper. Naturalist. Vol.21. No.3. P.3–85.
- Horn W. & Kahle I. 1935–1937. Über entomologische Sammlungen, Entomologen & Entomo-Museologie // Entomologische Beihefte aus Berlin-Dahlem. Bd. 2–4. 540 pp.
- International Code of Zoological Nomenclature. 1999. 4 ed. The International Trust for Zoological Nomenclature Publ. Russian translation. 2000: St.-Petersburg. 221pp.
- Jacobson G.G. 1897. Materialia ad cognitionem faunae Chrysomelidarum provinciae Orenburgensis // Horae Soc. ent. Ross. Vol.30. P.429–437.
- Jacobson G.G. 1910. Ueber die Chrysomelidae, Elateridae und Curculionidae der Sammlung der Russischen Nordpolar-Expedition. In: Beiträge zur Coleopteren-Fauna des äussersten nordens von Sibirien // Mem. l'Acad. Impér. Sci. St.-Petersbourg. 8 serie. Vol.18. P.53–66.
- Jolivet P. 1992. Contribution à la taxonomie, la distribution et la biologie des *Chrysolina* nord-américains (Col. Chrysomelidae) // L'Entomologiste. Vol. 48. No. 1. P. 29–51.
- Khruleva O.A. 1996. Biology of arctic leaf beetle *Chrysolina cavigera* on Wrangel Island // In: Jolivet P.H.A. & Cox M.L. (Eds) Chrysomelidae Biology. Vol. 3: General Studies. Amsterdam: SPB Academic Publ. P. 259–270.
- Kimoto S. & Gressitt J.L. 1981. Chrysomelidae (Coleoptera) of Thailand, Cambodia, Laos, and Vietnam. II. Clytrinae, Cryptocephalinae, Chlamisinae, Lamprosomatinae and Chrysomelinae // Pacific Insects. Vol.23. No.3–4. P.286–391.
- Kontkanen P. 1959. Über einige *Chrysolina*-Arten der Sectio *Pleurosticha* Motsch. sensu Jacobson 1910 (Col., Chrysomelidae) // Ann. Ent. Fenn. Vol.25. P.27–35.
- Lopatin I.K. 1968. 144. Chrysomelidae IV. Ergebnisse der Zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera) // Reichenbachia. Bd.11. Nr.19. S.207–220.
- Lopatin I.K. 1971. 232. Chrysomelidae VI. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera) // Faun. Abh. Mus. Tierkd. Dresden. Bd.3. S.219–233.
- Medvedev L.N. 1979. A new species of the genus *Chrysolina* (Coleoptera, Chrysomelidae) from Siberia // Trans. All-Union Ent. Soc. Vol.61. P.83–85. [in Russian].
- Medvedev L.N. 1982. Leaf-beetles of Mongolia: a key for determination. Moscow: Nauka Publ. 304 pp. [in Russian].
- Medvedev L.N. 1992. Leaf-beetles (Chrysomelidae) // In: Key for determination of insects of the Far East. Vol.3. Pt.2. St.-Petersburg: Nauka Publ. P.533–602. [in Russian].
- Medvedev L.N. & Dubeshko L.N. 1992. Key to Chrysomelid-beetles of Siberia. Irkutsk: Irkutsk Univ. Publ. 224 pp. [in Russian].
- Medvedev L.N. & Korotyaev B.A. 1980. Essays on the leaf-beetles fauna of Arctic Asia and Kamchatka // In: Essays on the entomofauna of north-east of USSR. Vladivostok: P.77–95. [in Russian].
- Medvedev L.N. & Shapiro D.S. 1965. Chrysomelidae — leaf-beetles // In: Key to the insects of the European part of USSR, in five vols. Vol.2. Moscow-Leningrad: Nauka Publ. P.419–474. [in Russian].
- Ménétriés E. 1851. Insecten. In: Reise in den Äussersten Norden und Osten Sibiriens während der Jahre 1843 und 1844 mit Allerhöchster Genehmigung auf Veranstaltung der Kaiserlichen Akademie der Wissenschaften zu St. Petersburg ausgeführt und in Verbindung mit vielen Gelehrten herausgegeben von Dr. A.Th. v. Middendorff. St.-Petersburg: Kaiserliche Akademie der Wissenschaften. Bd.2. S.45–76.
- Mikhailov Yu.E. 1997. Leaf-beetles of the Urals (Coleoptera, Chrysomelidae): history and promise for study // In: Achievements of entomology in the Urals. Ekaterinburg. P.68–74. [in Russian].
- Mikhailov Yu.E. 2000. New and little known leaf beetles of the genus *Chrysolina* Motschulsky, 1860 from Altai and Sayany mountains in South Siberia (Coleoptera: Chrysomelidae) // Genus. Vol.11. No.2. P.129–146.
- Mikhailov Yu.E. & Hayashi M. 2002. Chrysomelidae of Sakhalin II // Ent. Rev. Japan. Vol.57. No.1. P.29–46.
- Motschulsky V. 1860. Coléoptères de la Sibérie orientale et en particulier des rives de l'Amour // In: Dr. L. von Schrenck's Reisen und Forschungen im Amur-Lande. Bd.2. Coleoptera. S.77–258.
- Sahlberg J. 1887. Bidrag till Tschchtsch-Halföns Insektfauna. Coleoptera och Hemiptera, insamlade under Vega-Expeditionen vid halföns norra och ostra kust 1878–1879. In: Vega-Expeditionens Vetenskapliga Iakttagelser, Stockholm. Vol.4. P.1–42.
- Takizawa H. 1970. Descriptions of five new species of the genus *Chrysolina* Motschulsky in Japan (Coleoptera: Chrysomelidae) // Kontyu. Vol.38. No.2. P.117–125.
- Weise J. 1896. Chrysomelidae sibiricae. II // Wiener Ent. Zeitung. Bd.15. S.79–82.