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New and little known leaf beetles of the genus *Chrysolina* MOTSCHULSKY,  
1860 from Altai and Sayany mountains in South Siberia  
(Coleoptera: Chrysomelidae)

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ABSTRACT. Four new species, one new subspecies and one new subgenus are described in the genus *Chrysolina* MOTSCH. *Chrysolina (Pleurosticha) uraltuensis* n.sp. is described from West Sayan mts. A new subgenus *Altailina* is described to include the following species: *Chrysolina (Altailina) dudkoi dudkoi* n. sp. et ssp., *Ch. (Altailina) dudkoi ivanovskiana* n. ssp., *Ch. (Altailina) ogloblini* n.sp. and *Ch. (Altailina) capricornus* n.sp. For *Chrysolina (Arctolina) oirota* LOPATIN, previously known only from type specimens from "Altai", exact localities are given in West Altai. *Chrysolina montana* GEBLER is transferred from subgenus *Heliostola* MOTSCH. to subgenus *Bechynia* BOURDONNE.

Key words: entomology, taxonomy, new species, new subgenus, *Coleoptera*, *Chrysomelidae*, *Chrysolina*, Altai mts., West Sayan mts., Siberia.

#### INTRODUCTION

The mountains of Siberia still harbour species new to science. This work is another proof that there are no findings only there where there is no search. The only list of Chrysomelidae of the Altai mountains was published by DOLGIN (1972) and now is completely out of date. A similar list was compiled by GUSEL'NIKOV & MEDVEDEV (1984) for the West Sayan mountains. Data on these regions were included also in a comprehensive monograph (DUBESHKO & MEDVEDEV 1989) and several new species were described in other publications (MEDVEDEV 1979; LOPATIN 1988, 1990). Thanks to the key to chrysomelids of Siberia (MEDVEDEV & DUBESHKO 1992) now it is much easier to determine members of

this group also from the mountains of South Siberia. Recently MEDVEDEV (1999) has stated that chrysomelids of Asian Russia were investigated in detail and findings of new species are now extremely rare. This could be true if at least one region of Siberia was investigated really in detail.

In 1996–1999 my colleague from the Siberian Zoological Museum in Novosibirsk (SZM) R. Yu. DUDKO carried out the expeditions to various ranges of West Altai where he collected *Coleoptera* mostly in mountain tundra areas. *Chrysomelidae* collected there were kindly placed at my disposal. I am much obliged to Mr. DUDKO for this material and other materials from the collection of SZM, which proved to represent new species. An interesting material was also collected by me during a short stop in the West Sayan mts. on the way back from Tuva in 1999. Fortunately, another entomologist from Yekaterinburg, A.G. MENSCHCHIKOV, also collected beetles at the same place later in the same season and placed chrysomelids at my disposal. I greatly appreciate his help.

In the present work four new species are described, as well as one new subspecies and one new subgenus. For two more species it became possible to record exact localities and verify the systematic position. Type specimens are preserved in the collection of the Siberian Zoological Museum in Novosibirsk (SZM) and the author's collection in Yekaterinburg (AC). The SZM is a center of entomological investigations of the Altai mts. and the only Russian zoological museum which has published a catalogue of the *Coleoptera* type collection (TSHERNYSHEV 1997).

### ***Chrysolina (Pleurosticha) uraltuensis* sp. n.**

#### LOCUS TYPICUS

Kulumys range, West Sayan mountains, south of Krasnoyarsk territory, Russia.

#### TYPE MATERIAL

Holotype (male) and 2 paratypes (females). South of Krasnoyarsk territory, West Sayan mts, Kulumys range, Buiba pass, mountain tundra near snow, under stones in moss, 24.VI.1999: holotype and 1<sup>st</sup> paratype, leg. Yu.E. MIKHAILOV (SZM); the same locality, by soil traps, 18.VII.1999: 2<sup>nd</sup> paratype, leg. A.G. MENSCHCHIKOV (AC).

#### ETYMOLOGY

The name is given in honour of the Urals-Tuva expeditions in 1999 during which the Urals' entomologists found this species.

#### DIAGNOSIS

The new species was collected within a series of metallic-green carinate *Chrysolina* from which afterwards 3 species were distinguished. Among them

*Ch. soiota* JCBS. was easily distinguished from others by slightly convex and not separated lateral calli of pronotum; it belongs to the subgenus *Paraheliostola* L. MEDV. (MEDVEDEV & DUBESHKO 1992). Two other species belong to the subgenus *Pleurosticha* MOTSCH.: one of them proved to be *Chrysolina sylvatica* GEBL. and the other – the new species described below. Males of the new species can be easily distinguished by the very unusual shape of alae of aedeagus and other characters mentioned in the description. Below they are compared with specimens of *Ch. sylvatica* from sympatric population. Because of remarkable variability (MEDVEDEV 1968, MIKHAILOV 1998) some characters in *Ch. sylvatica* may become more pronounced than in other populations of this species as a result of selection against hybridization in the two sympatric species.

#### DESCRIPTION

Male. Body length – 7.0 mm, width – 4.0 mm. Wingless, body elongate-ovate, with subparallel sides. Shining, finely shagreened, metallic-green, antennae brown, 1<sup>st</sup> segment below, 2<sup>nd</sup> almost completely, 3<sup>rd</sup> and 4<sup>th</sup> on apices rufous.

Head sparsely punctate, frons with distinct triangular depression and slightly curved line in the middle. Clypeus divided from frons with {-like sulcus deepest at the sides and in the center connected with frontal median line where there is the deepest place of entire depression. Antennal segments 1-6 shining and segments 7-11 dull because of dense pubescence.

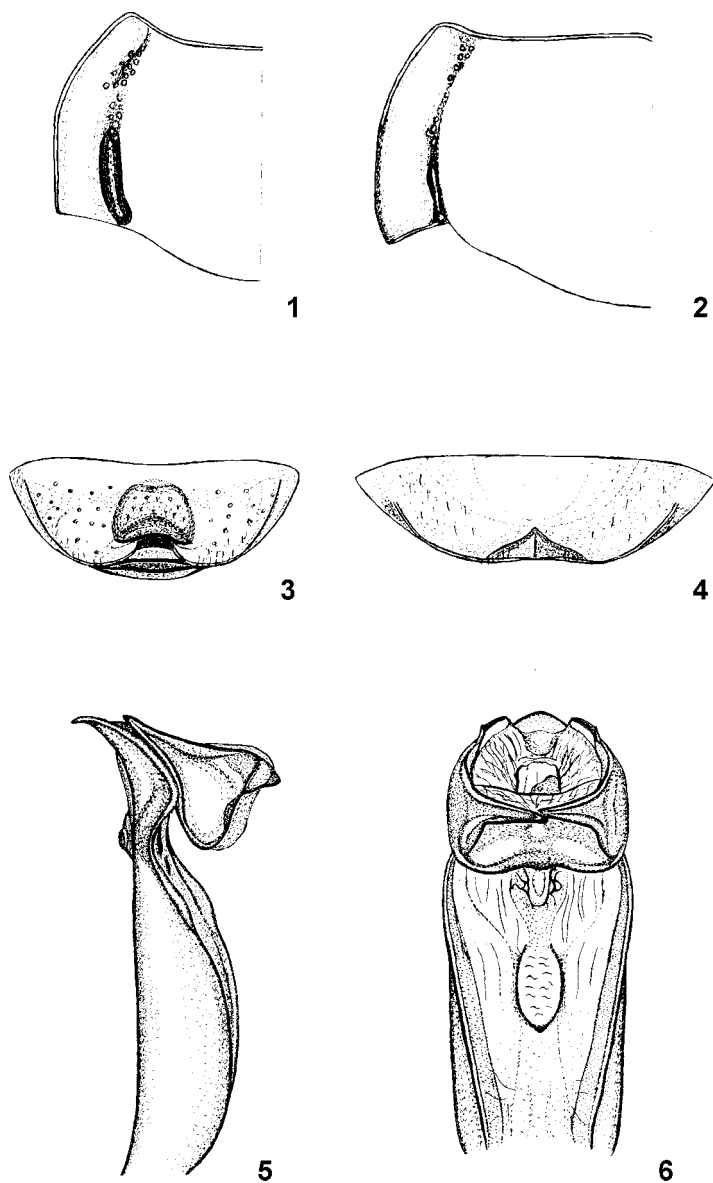
Pronotum only 1.7 times as broad as long (in *Ch. sylvatica* – twice). Sides rounded, widest before middle. Apical angles rounded, basal ones obtuse. Anterior margin slightly arcuate, basal margin strongly and evenly arcuate. Basal margins of lateral calli straight (in *Ch. sylvatica* they project backward) (figs 1, 2). Lateral calli wide, finely and densely punctate, nowhere steep on sides, narrow lateral margins simultaneously visible in dorsal view including apical angles. (In *Ch. sylvatica* anterior third of sides steep and margins not visible in dorsal view). Lateral calli completely divided from disc by sulci sharply deepened in basal third and still distinct at apex (in *Ch. sylvatica* these furrows widen and lose any depth at apices). Disc evenly convex, densely covered with medium-sized and rather shallow punctures except long, narrow and distinctly outlined median line.

Scutellum impunctate, rounded triangular, longer than broad.

Elytrae without humeral calli, subparallel on sides and narrowed bisinately to base and evenly to the apex. Approximately 2.5 times as long as broad (in *Ch. sylvatica* – ca. twice). Punctures arranged in regular slightly deepened rows close to one another. Intervals convex, covered with sparse small punctures and narrower than scutellum (in *Ch. sylvatica* scutellum broader and of the same width as intervals).

All tarsi dilated.

Last abdominal sternite with rounded triangular depression at middle covered with fine dense punctures while punctures on the rest of segment larger. This



1-2. Pronotum shape (left half is shown): 1 - *Chrysolina uraltuensis* sp.n. (male), 2 - *Ch. sylvatica* GEBL. (male). 3-4. Last abdominal sternite of *Ch. uraltuensis* sp.n.: 3 - male, 4 - female. 5-6. *Ch. uraltuensis* sp.n., aedeagus: 5 -lateral, 6 - dorsal

depression does not reach anterior margin of segment and is divided from deep transverse groove on its apex with sharp carina (fig. 3). Such sculpture of 5<sup>th</sup> abdominal sternite is present only in *Ch. gebleri* L. MEDV. while *Ch. sylvatica* GEBL. and *Ch. subcostata* GEBL. have only deep transverse groove on the apex (MEDVEDEV 1979).

Aedeagus (fig. 5) with arcuate excisions on sides at alae bases (as in *Ch. gebleri* and *Ch. subcostata*). Alae with broad bases and then abruptly narrow into falciform apices owing to large deep transverse groove below the joint apex of both alae (fig. 6).

Female. Body length – 7.0 mm, width – 4.6-4.8 mm. Duller, sometimes with bluish tinge. Tarsi not dilated. Head with frontal depression and median line very feeble. Pronotum 1.8 times as broad as long (in *Ch. sylvatica* – twice so). Sides of pronotum subparallel at basal half, roundly narrowed to apices, at apical half sides steep. Elytrae broadest posterior to middle, intervals ridged. Last abdominal sternite moderately convex at middle and with deep distinct V-shaped groove on apex (fig. 4, in *Ch. sylvatica* and *Ch. subcostata* this sternite is strongly convex and the groove may be feeble or deep but transverse crescent).

#### REMARKS

This species should be treated as an intermediate between *Ch. sylvatica* and *Ch. subcostata* on the one hand and *Ch. gebleri* on the other, within the subgenus *Pleurosticha* MOTSCH., thus making it more coherent. The convex elytral intervals place *Ch. uraltuvensis* closer to the first group while the last abdominal sternite sculpture – to the second. The aedeagus shape makes it unique and at the same time showing the probable ways of evolution from massive to falciform alae.

### **Subgenus *Altalina* subgen. n.**

#### TYPE SPECIES

*Chrysolina dudkoi* sp. n. described below. Gender: feminine.

#### ETYMOLOGY

The name is derived from the Altai mountains, where this subgenus is distributed.

#### DIAGNOSIS

In some characters the subgenus is similar to other subgenera known from the Altai mts., but the whole set of characters is unique. The absence of deep lateral impressions on pronotum immediately distinguishes *Altalina* subgen. n. from *Arctolina* KONT. and *Pleurosticha* MOTSCH. From genera with feebly divided lateral calli on pronotum *Heliostola* MOTSCH. and *Paraheliostola* L. MEDV. it can be distinguished by the shape of tarsi, character of elytral punctuation and aedeagus shape.

*Altailina* subgen.n. differs also from a recently described subgenus *Sibiriella* L. MEDV. (MEDVEDEV 1999) established for *Chrysolina paradoxa* L. MEDVEDEV, 1999 by monotypy, in spite of the fact that the type species of *Sibiriella* is similar to *Chrysolina capricornus* sp.n. described below. Distinctive features of the new subgenus include punctate-striate elytra with presutural sulcus on the apical slopes and feebly marked lateral calli of pronotum. The subgenus *Sibiriella* in original description is characterized by distinct lateral calli of pronotum, completely confused elytral puncturation and the absence of presutural sulcus on apical slopes (MEDVEDEV 1999).

#### DESCRIPTION

Antennae inserted half way between eye and clypeus. Third antennal segment ca. 1.5 times longer than the second. Lateral calli of pronotum feebly separated from disc, lateral impressions very weak and visible only at base and apex. Elytra without humeral calli and with punctures arranged in paired slightly confused rows, which are completely confused on apical slopes. Secondary puncturation of intervals variable: even intervals covered with dense punctures and odd ones sparsely punctate. In males secondary punctures may be large and even conceal primary puncture rows. In females rows distinct and sometimes 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> intervals slightly convex. All male tarsi with broad first article, which is broader than 2<sup>nd</sup> and 3<sup>rd</sup>. In females first tarsal articles long and narrow. Last abdominal sternite with feeble depression at apex in males and convex in females. Aedeagus in lateral view abruptly curved with a pair of distinct tubercles at ventral surface above basal orifice. Apical orifice elongate, flagellum rectilinear. Apex rounded or rounded triangular with tip slightly turned back.

#### *Chrysolina (Altailina) dudkoi dudkoi* sp. et ssp. n.

#### LOCUS TYPICUS

20 km NW mt. Lyamin Belok, 35 km NNE Leninogorsk, West Altai mountains, Eastern Kazakhstan.

#### TYPE MATERIAL

Holotype (male) and 3 paratypes (females). Eastern Kazakhstan, West Altai mts, 35 km NNE Leninogorsk, 20 km NW mt. Lyamin Belok, h=800 m, taiga, 14.VI.1996: 1 male, 3 females, leg. R. DUDKO (SZM & AC).

#### ETYMOLOGY

The species is dedicated to Roman Yu. DUDKO, my friend and colleague, entomologist from Novosibirsk, for several years enthusiastically and successfully investigating *Coleoptera* of the Altai mts. He collected the type series.

## DIAGNOSIS

At first glance the new species is similar to *Chrysolina montana* GEBL. and *Ch. shewyrewi* JCBS., but can be easily distinguished by the aedeagus shape, punctate-striate elytra and broad and elongate cordiform tarsi.

## DESCRIPTION

Male. Body length – 7.5 mm, width – 4.0 mm. Wingless, body elongate-ovate, with maximum width before middle of elytra. Below metallic-green, above shining, finely shagreened, metallic-bronze, clypeus greenish. Legs black with metallic reflex, antennae dark brown, 1<sup>st</sup> and 2<sup>nd</sup> segments below and claws rufous.

Frons and clypeus sparsely punctate. Frons with median sulcus, clypeus divided with rather shallow {-like raphe. Labrum with medium-sized pores and sparse short setae. 3<sup>rd</sup> segment of maxillar palpi distinctly broader than 2<sup>nd</sup> (ca. 1.5 times). Antennae short, 3<sup>rd</sup> segment ca. 1.5 times as long as 2<sup>nd</sup>, 11<sup>th</sup> segment the longest and sharpened at apex.

Pronotum 1.8 times as broad as long. Anterior margin slightly {-like arcuate. Basal angles obtuse, apical ones rounded. Sides widely rounded. Basal margin strongly arcuate and produced backwards. Lateral calli finely and sparsely punctulated, only at base and apex separated by larger punctures. Disc slightly convex, covered with dense, fairly small punctures (maximum density at base) and finely punctulated. In the center very short impunctate line.

Scutellum flat, elongate with rounded sides, apex narrowed to a point, shagreened, sides smooth, impunctate.

Elytra without humeral calli, broadest before middle, with punctures arranged in distinct, paired, slightly confused rows. On apical slopes punctures completely confused, but sutural sulcus distinct. Intervals unevenly punctate: even ones very densely and in some places concealing the rows, odd intervals very sparsely punctate, in some places almost smooth and therefore seem to be slightly convex on disc. Secondary puncturation finer than seriate punctures (ca. twice) and of the same size as pronotum primary punctures. Sparse fine wrinkles cover entire elytra and dense transverse ones cover sutural intervals.

Last abdominal sternite with weakly arcuately truncate apex and shallow rounded-triangular depression at middle near apex. Transverse carina interrupted in middle separates the deepest basal third of this depression from remaining part. 4<sup>th</sup> sternite with smooth brown membrane on apical margin distinctly narrower than half of visible sternite width.

Tarsi densely pubescent below, first segment, especially of hind tarsi, broad and elongate cordiform (similar to those in fig. 11).

Aedeagus (fig. 7) in lateral view abruptly curved and flattened dorsoventrally. Pair of elongate tubercles separated by longitudinal groove at ventral surface above basal orifice. In dorsal view upper part after bend evenly narrowed to apex and after traverse turn into isolated rounded triangular apex with tip

slightly turned back. Apical orifice elongate and triangularly narrow to apex (figs 8, 9). Flagellum rectilinear.

Female. Body length – 7.0-7.2 mm, width – 4.9-5.0 mm. Larger and broader than male, more convex. Pronotum shining bronze with violet tinge, entirely or only on disc or only at sides coppery. Elytra duller, coppery bronze or coppery, with maximum width posterior to middle.

Pronotum twice as broad as long. Anterior margin arcuate or {-like arcuate as in male. Sides in basal half almost straightly narrow to base and in apical half rounded. Disc convex, covered with dense punctures slightly smaller than in male and finely punctulated.

Scutellum flat, like equilateral rounded triangle, shagreened and finely punctulated, sides smooth. Seriate punctures of elytra smaller than in male but larger than on pronotum. Secondary puncturation distinctly finer than primary and on even intervals denser than on odd ones. 3<sup>rd</sup> and 5<sup>th</sup> intervals sometimes slightly convex.

5<sup>th</sup> abdominal sternite slightly convex with group of large rough punctures in middle at apex. First tarsal segment long and narrow.

***Chrysolina (Altailina) dudkoi ivanovskiana* ssp. n.**

LOCUS TYPICUS

Mt. Rossypnoi Belok, 15 km SE Leninogorsk, Ivanovsky range, West Altai mountains, Eastern Kazakhstan.

TYPE MATERIAL

Holotype (male) and 5 paratypes (1 male, 4 females). Eastern Kazakhstan, West Altai mts, Ivanovsky range, 15 km SE Leninogorsk, mt. Rossypnoi Belok, h=2300 m, mt. tundra, 2.VI.1996: holotype & 3 paratypes (1 male, 2 females), leg. R. DUDKO & A. VORONTZOV (SZM & AC); the same locality, western slope of mt. Rossypnoi Belok, h=2000 m, mt. tundra, stone river, 4.VI.1996: 2 paratypes (females), leg. R. DUDKO (AC).

ETYMOLOGY

The subspecies name is derived from the Ivanovsky mt. range in Altai, where the type locality is situated.

DIAGNOSIS

It differs from nominotypical subspecies in colouration; rows of punctures on elytra faintly visible among dense and large secondary puncturation; scutellum convex, punctate.



## DESCRIPTION

Male. Distinctly smaller and shorter, length – 5.8-5.9 mm, width – 3.8-3.9 mm. Above and below metallic-green. Pronotum strongly shining with feeble and dense punctures, secondary puncturation very sparse so that surface between primary punctures without magnifying seems unruffled. Sides in basal half subparallel, in apical half roundly narrowed, everywhere steep. Lateral calli almost unmarked.

Secondary puncturation of elytral intervals almost of the same size as seriate punctures and therefore in some places conceals them. Even intervals covered with punctures more densely than odd ones. Depression on 5<sup>th</sup> abdominal sternite looks broader, its anterior margin more sloping.

Female. Length – 6.5-7.2 mm, width – 4.0-5.0 mm. The same colour as males. Pronotum puncturation dense and rough, seldom finer, like in nominotypical subspecies. Secondary puncturation on pronotum coarser and sometimes strongly wrinkled. On elytra 3<sup>rd</sup> and 5<sup>th</sup>, seldom also 7<sup>th</sup> interval slightly convex. Rough punctures at apex of 5<sup>th</sup> abdominal sternite more numerous and distinct.

## REMARKS

The differences between described subspecies of *Ch. dudkoi* sp.n. are remarkably parallel to those between the subspecies of *Ch. gebleri* L. MEDV.: *Ch. gebleri gebleri* L. MEDV. is violet, seriate punctures not concealed by secondary puncturation, *Ch. gebleri sajanensis* L. MEDV. is greenish bronze, rows confused and concealed (MEDVEDEV 1979).

***Chrysolina (Altailina) ogloblini* sp. n.**

## LOCUS TYPICUS

Kozlushka, Kholzun mt. Range, West Altai

## TYPE MATERIAL

Holotype (male) “Kozlushka – Kholzun, 3.VII.1925; V.N. LEBEDEV (on the back side)”. “*Chrysomela montana* GEBL. D. OGLOBLIN det.” (SZM)

## ETYMOLOGY

Dedicated to a famous Russian chrysomelid specialist D.A. OGLOBLIN, who studied this specimen but erroneously determined it as *Ch. montana* GEBL. without extracting aedeagus.

## DIAGNOSIS

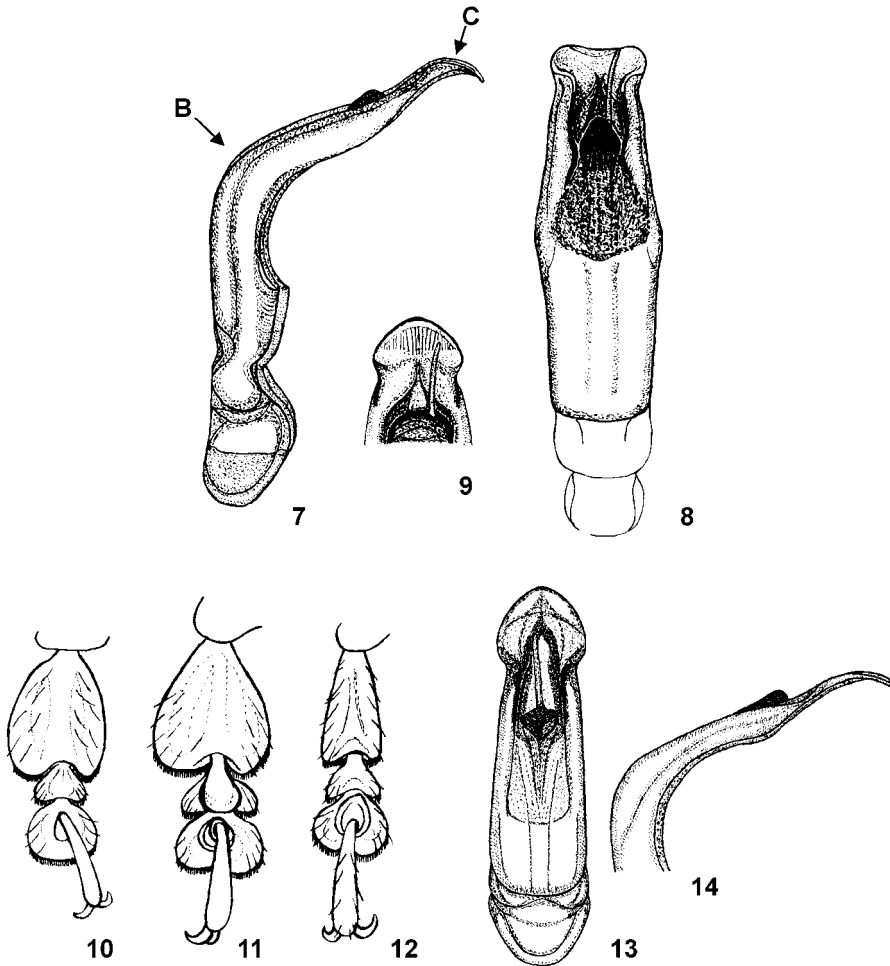
This species is close to *Chrysolina dudkoi dudkoi*, differs in a greenish blue colouration, shape of apex of aedeagus, depression on the last abdominal sternite and different proportions of tarsal segments.

## DESCRIPTION

Male. Wingless, elongate-ovate, with maximum width after middle of elytra.

Body shining, finely shagreened, greenish blue. Legs black and except tarsi with metallic tinge. Antennae dark brown, 1<sup>st</sup> and 2<sup>nd</sup> segments rufous below.

Frons and clypeus covered with sparse, rather small punctures. Longitudinal depression on frons very slight. Frontoclypeal raphe <-like (in *Ch. dudkoi* - {-like) and because of this clypeus broader. 3<sup>rd</sup> segment of antennae ca. 1.5 times longer than 2<sup>nd</sup> and slightly longer than 4<sup>th</sup> and 5<sup>th</sup>, 11<sup>th</sup> segment strongly elongate and sharpened to apex.



7-9. *Chrysolina dudkoi dudkoi* sp. et ssp. n., aedeagus: 7 - lateral, 8 - dorsal from the direction B, 9 - apex from the direction C. 10-12. Hind left tarsi: 10 - *Ch. ogloblini* sp.n., 11-12 - *Ch. capricornus* sp.n., 11 - male, 12 - female. 13-14. *Ch. ogloblini* sp.n., aedeagus: 13 - dorsal, 14 - lateral

Pronotum almost twice as broad as long. Anterior margin arcuate, basal margin arcuately produced backwards. Lateral calli finely and sparsely punctulated, not separated by any depression, punctures on their border not enlarged and merge among others on the rest of disc. Disc slightly convex, covered with dense, fairly small punctures (maximum density at base) and finely punctulated. In the center very short impunctate line.

Scutellum feebly convex, sparsely punctate, elongate-triangular, sides almost rectilinear, apex rounded.

Elytra with punctures distinctly arranged in paired slightly confused rows. Sutural sulcus on apical slope feeble but distinct. Even intervals very densely punctate and in some places conceal the rows, odd intervals very sparsely punctate. Secondary puncturation smaller than punctures in rows and almost equal to pronotum primary punctures. All intervals with sparse fine transverse wrinkles.

Last abdominal sternite with weakly arcuately truncate apex and elongate triangular depression in the middle at apex without transverse carina at base.

Tarsi densely pubescent below. First segment of hind tarsi broad, elongatedly cordiform. Second segment distinctly narrower (1.5 times) than the first (in other species it is narrower but not so much), third one also distinctly narrower (fig. 10).

Lateral view of aedeagus resembles that of *Ch. dudkoi* sp.n., the base of the same shape with tubercles, but its apex of characteristic elongate triangular shape (figs 13, 14).

Body length – 6.5 mm, width – 4.0 mm.

### *Chrysolina (Altailina) capricornus* sp. n.

#### LOCUS TYPICUS

Upper river Bannaya, Kholzun range, West Altai mountains, Russian – Kazakhstan border.

#### TYPE MATERIAL

Holotype (male) and 4 paratypes (2 males, 2 females). West Altai mts, Kholzun range, upper left tributary of river Bannaya, h=2000-2250 m, mt. tundra, 13-14.VI.1999: holotype & 3 paratypes (2 males, 1 female), leg. A. et R. DUDKO (SZM & AC); the same locality, upper river Bannaya, h=1300-1600 m, forest, 12-14.VI.1999: 1 paratype (female), leg. A. et R. DUDKO (AC).

#### ETYMOLOGY

The name is derived from the very unusual shape of aedeagus of this species, which can only be compared to a horn of a mythical animal Capricorn.

## DIAGNOSIS

*Chrysolina (Sibiriella) paradoxa* L. MEDVEDEV has been described recently (MEDVEDEV 1999) based on one specimen, without original locality label and therefore without type locality. Its label "Minusinsk. Martjanov's Museum, 1916-1926" does not indicate the collecting site. It is the same specimen that was mentioned as early as in 1984 as "*Chrysolina martjanovi* sp. n. in litt" (GUSELNIKOV & MEDVEDEV 1984). Therefore *Chrysolina martjanovi* L. MEDVEDEV in GUSELNIKOV & MEDVEDEV, 1984 is ***nomen nudum***.

The species described below is similar to *Chrysolina paradoxa* in many features, especially in aedeagus shape, but differs in several characters. All these distinctive features are indicated in the description below and indicate that *Chrysolina capricornus* n.sp. described below and *Ch. paradoxa* are different species.

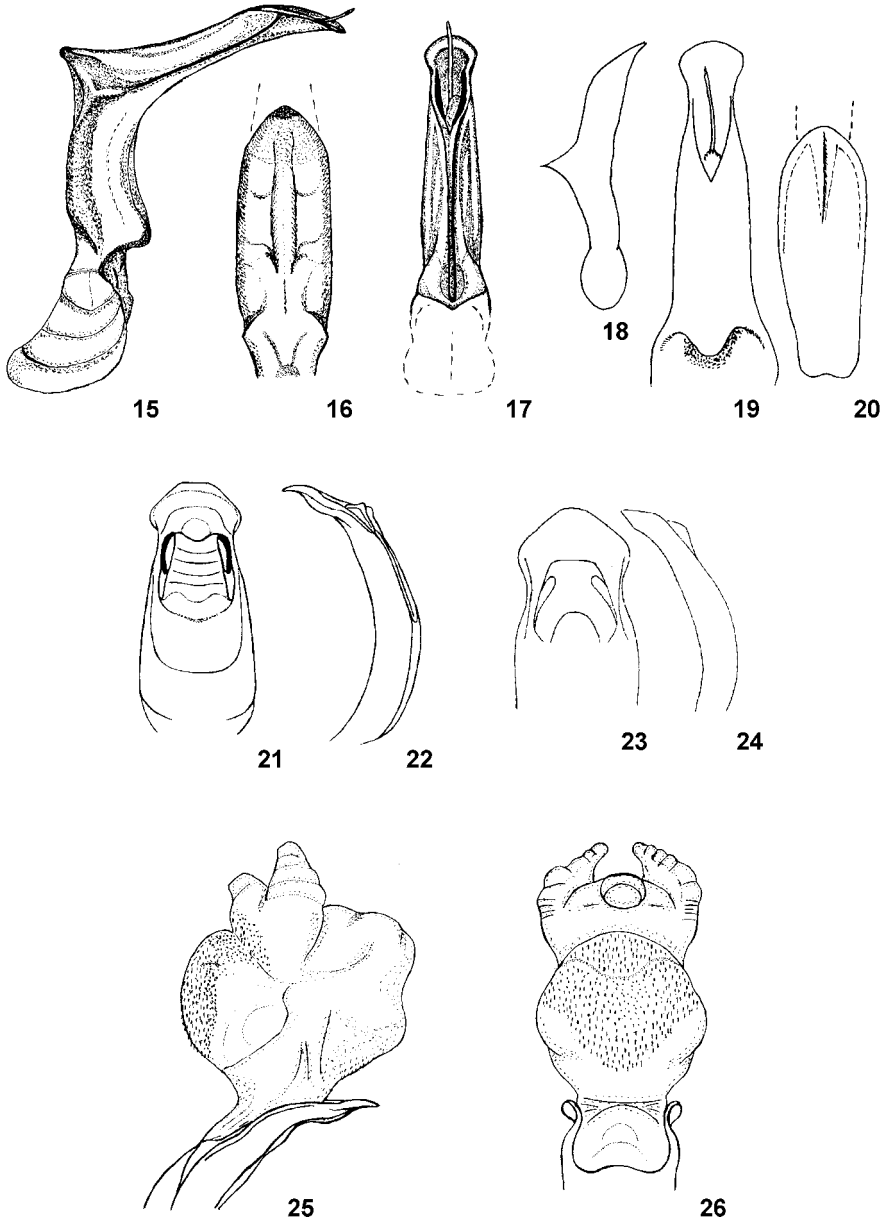
## DESCRIPTION

Male. Wingless, body elongate-ovate, with maximum width before middle of elytra (in *Ch. paradoxa* body broadest posterior to middle). Below dark green with metallic reflex; above finely shagreened, bronze-violet, pronotum or/and elytra with coppery tinge, only clypeus somewhat greenish. Legs (except claws) and antennae jet-black. Claws and 1<sup>st</sup> and 2<sup>nd</sup> antennomeres rufous below (in *Ch. paradoxa* antennae and tarsi rufous).

Frons covered with sparse, clypeus with dense medium-sized punctures. Frons with median sulcus, more or less distinct. Clypeus divided with deep {-like raphe. Labrum with rough pores and dense long setae. 3<sup>rd</sup> segment of maxillary palpi slightly broader than 2<sup>nd</sup> (ca. 1.2 times). Antennae short, 1<sup>st</sup> segment elongate, bulged and curved outside, 2<sup>nd</sup> subglobose, 3<sup>rd</sup> elongate, ca. 1.5 times longer than 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> shorter than 3<sup>rd</sup> and 6<sup>th</sup> shorter than 4<sup>th</sup> (in *Ch. paradoxa* 3<sup>rd</sup>, 4<sup>th</sup> and 6<sup>th</sup> segments of equal length). 11<sup>th</sup> segment the longest and sharpened at apex.

Pronotum ca. twice as broad as long. Anterior margin arcuate or rarely slightly {-like arcuate. In the latter case feeble triangular excision of anterior margin may continue as short feeble median sulcus on disc. Basal angles almost right, apical ones rounded. Middle of basal margin strongly arcuate and produced backwards. Sides subparallel, only in anterior third rounded and narrow to apex. Lateral calli almost indistinct, only at base or/and at apex very feeble depression and larger punctures indicate their border; these punctures cover anterior angles of disc to the level of inner margins of eyes and from basal angles of disc they spread along its basal margin to 1/4 of its width. (in *Ch. paradoxa* lateral calli distinct throughout their extent). Disc convex, densely and roughly punctate (rarely densely but not roughly) and finely punctulated. In the center very short impunctate line.

Scutellum flat, shaped as equilateral triangle with rounded apex, densely and finely punctate, sides smooth.



15-26. Aedeagus: 15-17 - *Chrysolina capricornus* sp.n., 18-20 - *Ch. paradoxa* L.MEDV., 21-26 - *Ch. oirota* LOP.: 16, 19, 21, 23 - dorsal, 15, 18, 22, 24 - lateral, 20 - dorsal view of basal part, 25-26 - endophallus: 25 - lateral, 26 - dorsal; 21-22 - specimen from Kholzun mt., 23-24 - type specimen (18-29 after MEDVEDEV 1999, 21-22 - after LOPATIN 1990)

Elytra without humeral calli, broadest before middle and feebly narrowed behind. Rows of punctures distinct, presutural sulcus present (in *Ch. paradoxa* puncturation entirely confused and presutural sulcus absent). Punctures arranged in distinct, paired rows and slightly confused, on apical slopes 6<sup>th</sup> and 7<sup>th</sup> rows disappear sometimes already after middle. Secondary puncturation distinctly smaller than seriate punctures (ca. 4 times) and covers intervals unevenly. Even intervals (2, 4, 6, 8, 10) much denser punctate than odd ones. Both covered with sparse fine wrinkles.

Last abdominal sternite with broadly arcuately truncate apex and shallow triangular depression in the middle at apex, covered with denser punctures than the rest of sternite. 4<sup>th</sup> sternite with smooth brown membrane on apical margin with maximum width in middle equal to half of visible sternite width.

Tarsi densely pubescent below, first segment, especially of hind tarsi, broad and elongatedly cordiform (fig. 11).

Aedeagus of very complicated structure and abruptly curved in lateral view (angle between basal and upper parts approx. 100-110°, fig. 15). Upper part (above the bend) emerges out from the basal part in the place where representatives of subgenus *Pleurosticha* have large alae (see figs 5, 6) and may be homologous to them. Apex of basal part, projection-like, triangular with rounded tip slightly turned back. In dorsal view basal part has broad carina rounded in profile throughout its extent (and not only in apical part like in *Ch. paradoxa*) and elongate depressions at both sides before apex (fig. 16). On ventral surface basal part carries large rounded triangular tubercle feebly divided in two above basal orifice (in *Ch. paradoxa* no such division, fig. 18). From this tubercle longitudinal depression passes to the bend.

Upper part much narrower than basal one and its apex slightly turned back. Its ventral surface flattened and dorsal strengthened with massive longitudinal carina of triangular cross-section, which begins from triangular projection of basal part and before apical orifice it bifurcates and forms carinae on both sides. Apex first narrow, then roundly broadened. Flagellum rectilinear and long (fig. 17).

Body length – 6.5-7.0 mm, width – 3.8-4.2 mm.

Female. Larger, pronotum duller, elytra dull. Maximum width before middle of elytra. Above bronze-violet without coppery tinge.

Pronotum almost twice as broad as long. Lateral calli indistinct. Anterior margin slightly {-like arcuate. Scutellum elongatedly triangular with rounded apex. Elytrae with slightly confused puncture rows reaching apex. Secondary puncturation of even intervals denser than on odd ones. 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup> and 9<sup>th</sup> intervals slightly convex, others flattened.

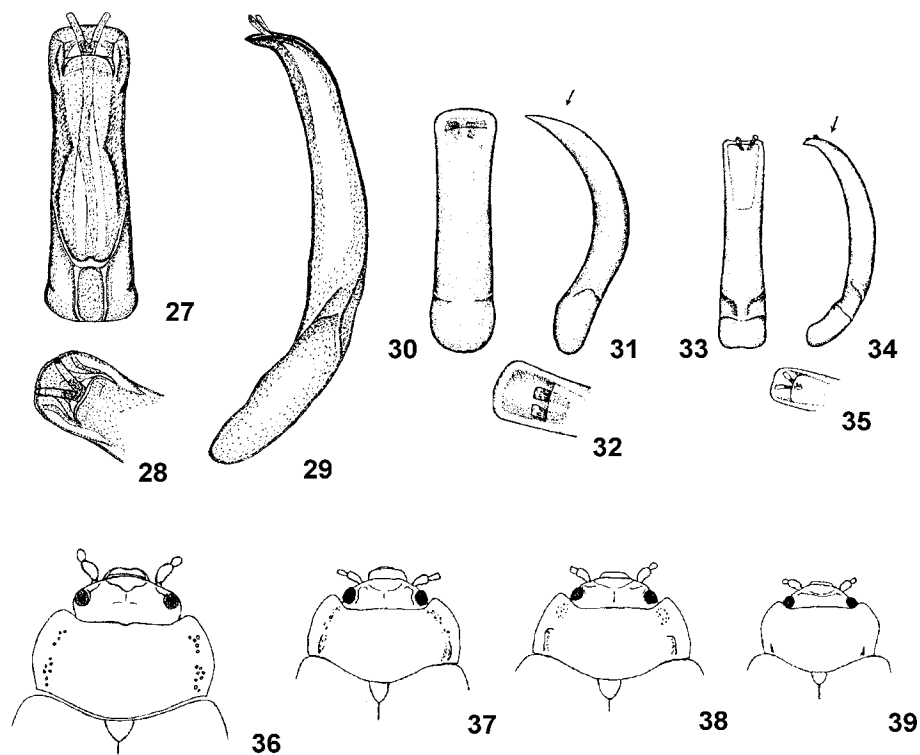
Last abdominal sternite with distinct elongate protuberance at middle not reaching apex. Tarsi not dilated, but first segment of fore and middle pairs as long as 2<sup>nd</sup> and 3<sup>rd</sup> together, and in hind tarsi 1<sup>st</sup> segment longer than 2<sup>nd</sup> and 3<sup>rd</sup> together (fig. 12).

Body length – 7.8-8.0 mm, width – 4.5-4.9 mm.

## REMARKS

*Ch. paradoxa* L. MEDV. is the type species of the subgenus *Sibiriella* L. MEDV., but differences between it and *Ch. capricornus* sp. n. includes also features that are regarded as characteristic of the subgenus *Sibiriella* (see diagnosis of *Altailina* subgen. n.), and thus *Ch. capricornus* cannot be treated as a representative of this subgenus. At the same time *Ch. capricornus* resembles much *Chrysolina dudkoi* sp. n. and *Ch. ogloblini* sp. n. and its aedeagus in spite of its very unusual shape can be likened to those of the two species (abruptly curved in lateral view, tubercles on ventral surface above basal orifice, form of apex and apical orifice, rectilinear flagellum, etc.). I place *Ch. capricornus* in the subgenus *Altailina*.

Several explanations can be offered when two very similar species belong to different subgenera. Either the type specimen (not species) of the subgenus *Sibiriella* L. MEDV. is aberrant or even teratological, and then it would be



27-35. Aedeagus: 27-29 - *Chrysolina montana* GEBL. (Terektinsky mt. range), 30-32 - *Ch. milleri* Wse., 33-35 - *Ch. substrangulata* BOURD.; 27, 30, 33 - dorsal, 29, 31, 34 - lateral, 28, 32, 35 - apex. 36-39. Pronotum of males: 36 - *Chrysolina montana* GEBL. (Terektinsky mt. range), 37 - *Ch. platypoda* BECH., 38 - *Ch. milleri* WSE., 39 - *Ch. substrangulata* BOURD. (30-35 - after BOURDONNE 1986)

impossible to find any other species to include in this subgenus, or these are two convergent species of different subgenera. More likely, because of double monotypy (single holotype is also type for subgenus) the original diagnosis of subgenus *Sibiriella* (MEDVEDEV 1999) is inadequate to the actual taxon.

***Chrysolina (Arctolina) oirota* LOPATIN, 1990**

*Chrysolina oirota* LOPATIN, 1990: 50-53.

REMARK

This species was described and known only from two specimens from "Siberia, Altai" without more details. Types at the Hungarian National Museum (Budapest).

EXACT LOCALITIES

West Altai, Ivanovsky mt. range, 15 km. SE Leninogorsk, 4 km. E mt. Rossypnoi Belok, 2100 m., tundra, 2.VI.1996, R. DUDKO leg.: 3 males; Kholzun mt. range, upper left tributary of Bannaya river, h=2000-2250 m., tundra, 13-14.VI.1999, A. et R. DUDKO leg.: 4 males, 4 females (SZM & AC).

ADDITIONAL DESCRIPTION

All specimens are shining, metallic-green or rarely dull and dark bronze (1 female). Types are metallic blackish violaceous (LOPATIN 1990).

Males: length – 4.9-5.9 mm, width – 2.5-3.6 mm.

Females: length – 6.5-7.0 mm, width – 3.8-4.0 mm.

Aedeagus (Fig. 21-24). Thanks to R.Yu. DUDKO the internal sack of aedeagus was extracted from one specimen (figs 25, 26). This was made for the first time in this subgenus and may be useful in future for the search of phylogenetic relationships.

***Chrysolina (Bechynia) montana* GEBLER, 1848**

*Chrysolina montana* GEBLER, 1848: 348.

REMARKS

The subgeneric position of this species has remained obscure till now. *Chrysolina montana* GEBL. was originally placed in the subgenus *Heliostola* MOTSCH. (MOTSCHULSKY 1860), but KONTKANEN (1957) and LOPATIN (1988) questioned this placement because of the aedeagus shape of *Ch. montana* being different from other species of this subgenus.

BOURDONNE (1986) described a fourth species of *Bechynia* BOURDONNE and presented figures of all members of the subgenus. Diagnostic characters of this



subgenus were: aedeagus with bifurcate flagellum, longitudinal sulcus on the last sternite of male's abdomen and dilated fore tarsi of males (BOURDONNE 1986).

Examination of a large sample of *Ch. montana* GEBL. revealed that it had a bifurcate flagellum of aedeagus, though it was invisible (turned in) in some specimens, for which reason it was not depicted in the existing figures (KONTKANEN 1957, MEDVEDEV & DUBESHKO 1992). Moreover, the aedeagus shape of *Ch. montana* is very similar to those of *Ch. milleri* (WEISE, 1884) and *Ch. substrangulata* BOURDONNE, 1986 (figs 27-35). As for the presence of longitudinal furrow on the last sternite of the male abdomen and dilated fore tarsi in males, these characters are given in the key to these species (MEDVEDEV & DUBESHKO 1992).

Therefore *Ch. montana* is the fifth member of the subgenus *Bechynia* BOURDONNE (figs 36-39). It is quite common in the mountains of South Siberia and even quite abundant in Kuznetsky Alatau, where we took large samples in 1995-1996. The other four species inhabit mountains of Europe (BOURDONNE 1986). The situation with European – Siberian mountain connections is by no means unique. It is enough to remember the subgenus *Heliostola* MOTSCH. and the genus *Oreina* CHEVR., which have representatives in Europe and in South Siberia.

There is an interesting situation with the subgeneric name *Bechynia* BOURDONNE. In fact another subgenus - *Bechynea* L. MEDVEDEV - was described earlier (MEDVEDEV 1966) and it includes several Far Eastern species of leaf beetles (MEDVEDEV 1970). Thus the genus *Chrysolina* MOTSCH. includes two subgenera, the only difference in their names being one letter and they are named after the same person – a famous specialist J. BECHYNE. According to ICZN (1985) they are not homonyms (art. 56(b)), but at the same time such situations are undesirable (appendix D, I.3).

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