Acta Zoologica Academiae Scientiarum Hungaricae 69(1), pp. 25–37, 2023
DOI: 10.17109/AZH.69.1.25.2023

A NEW SPECIES OF THE SUBGENUS *TIMARCHOPTERA* MOTSCHULSKY, 1860 OF THE GENUS *CHRYSOLINA* MOTSCHULSKY, 1860 (COLEOPTERA, CHRYSOMELIDAE)

Andrzej O. Bieńkowski

A. N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow 119071, Russia; bienkowski@yandex.ru; https://orcid.org/0000-0003-0655-3119

A new species of the subgenus *Timarchoptera* of the genus *Chrysolina* is described from the Russian Far East (Khabarovsk Krai). The new species is found 1500 km east of the previously known eastern boundary of the range of the subgenus. The remaining species are distributed in the Altai, the Sayans, Transbaikalia, and N Mongolia. A key of all known species and subspecies of the subgenus *Timarchoptera* is compiled, and a distribution map is presented.

Key words: leaf-beetles, *Chrysolina*, new species, key.

INTRODUCTION

The first representative of this subgenus was described by Gebler (1823) from the Salair ridge under the name *Chrysomela haemochlora* Gebler, 1823. Later, Motschulsky (1845) described *Timarcha rubra* Motschulsky, 1845 based on materials from the Khamar-Daban ridge and Dauria. Then Motschulsky (1860) described a new genus *Timarchoptera* Motschulsky, 1860 to include the type species *haemochlora*, as well as another unknown species, presumably *rubra*. However, later Motschulsky (1870) included *rubra* in a new genus *Cyrtocnemis* Motschulsky, 1870. It can be considered that Gebler (1848) was the first to synonymize *haemochlora* and *rubra*. Heyden (1881) and Marseul (1883) considered *Timarchoptera* as a genus with the single species *haemochlora*. Weise (1916), Bieńkowski (2001), Kippenberg (2010), and Warchałowski, (2010) considered *rubra* as a synonym of *haemochlora*. Bechyné (1950, 1952), Medvedev (1982), Seeno and Wilcox (1982), Jolivet *et al.* (1986), Medvedev and Dubeshko (1992), Daccordi (1994), Bieńkowski (2001, 2011), Petitpierre and Mikhailov (2009), and Warchałowski (2010) considered *Timarchoptera* as a subgenus: *Chrysolina (Timarchoptera)*.

Jacobson (1924) described from Sayans a species *Chrysomela soiota* Jacobson, 1924. Medvedev (in Medvedev & Dubeshko 1992) described a new subgenus *Chrysolina (Paraheliostola* Medvedev, 1992*),* including this single species.

Mikhailov (2002) described the taxa close to *Ch. haemochlora* and *Ch. soiota,* namely *Ch. lomakini* Mikhailov, 2002 and *Ch. soiota khakassa* Mikhailov, 2002, as well as synonymyzed the subgenera *Timarchoptera* and *Paraheliostola* based on a comparative morphological study of all known representatives, namely

haemochlora, lomakini, soiota soiota, and *soiota khakassa*. Kippenberg (2010) supported this point of view. However, the molecular phylogenetic analysis of *Ch. haemochlora* and *Ch. soiota* did not support this placement (Jurado-Rivera & Petitpierre 2015).

I remain with the previously proposed (Mikhailov 2002) synonymy of *Timarchoptera* and *Paraheliostola* because of the following three arguments. 1. In addition to the type species, in order to resolve the question of the taxonomic relations of the two subgenera, the other taxa should also be studied, namely *Ch. lomakini* and *Ch. soiota khakassa.* 2. According to Jurado-Rivera and Petitpierre (2015), the Bayesian phylogenetic tree and Maximum likelihood phylogenetic tree show, on the branch closest to *Ch. haemochlora*, two species of the genus *Oreina* Chevrolat, 1836, namely *O. ganglbaueri* (Jakob, 1953) and *O. speciosa* (Linnaeus, 1767), and a little further in the same clade also only representatives of the genus *Oreina*, namely *O. cacaliae* (Schrank, 1785), *O. speciosissima* (Scopoli, 1763), and *O. fairmairiana* (Gozis, 1882). These taxa of *Oreina* are morphologically very far from *Ch. haemochlora*. This indicates a possible inadequate selection of parameters for phylogenetic reconstruction. 3. The taxonomic conclusion on separating the two subgenera should also be supported by morphological characters. It should not be based only on the results of molecular genetic research. This is in line with the current tradition of taxonomy.

Bieńkowski (2019) formulated a diagnosis of the subgenus *Timarchoptera* (in the scope adopted by Mikhailov 2002), including all characters for its identification: dorsum moderately shining or dull, head and pronotum metallic (green, blue or bronze), coloration of elytra different: 1) greenish brown marginated basally and laterally with red, or 2) entirely red or orange, or 3) entirely metallic: coppery, bronze, bronze violet, brassy green, bluish green, dark violet, or purple marginated with golden green basally, laterally and along suture; legs and ventral side entirely dark metallic or pitchy-black with metallic tint; last maxillary palpomere short, broadly oval, 1.2× longer than wide, truncate at apex, hardly narrower than penultimate one or as wide as the latter, similar in both sexes; antenna inserted closer to clypeus than to eye; not reaching hind coxa; with antennomeres 6–11 moderately broadened; orbital lines broad and deep, not reaching antennal bases; pronotum broadest at mid-length or before mid-length, with lateral sides rounded and slightly emarginated before posterior angles or evenly rounded; pronotum moderately swollen laterally along entire length, with lateral impression absent, obsolete, or very shallow, covered by numerous large punctures; pronotal disc covered by dense punctures; anterior side of pronotum marginated and ciliate; anterior setiferous pore absent; prothoracic hypomeron weakly convex or flat, reticulate, dull, without lateral impression, distinct wrinkles and outer border, basal fold very weak or absent; intercoxal prosternal process with me-

dial longitudinal impression in most species, convex in the new species described below; metasternum entirely marginated anteriorly; elytron without humeral callus; elytral puncturation dense, homogeneous, wholly irregular, or each elytron with 3 or 9–10 convex calli and punctures mostly arranged in irregular rows in intervals between calli; elytral epipleura inclined outside, visible along entire length in lateral view, ciliate apically; hind wings strongly reduced, as long as metathorax; all tarsomeres 1–3 with entire sole in both sexes; in male: fore- and mid- tarsomeres 1 and 3 and hind-tarsomere 1 moderately broadened; in female: tarsomeres 1–3 narrow; claw tarsomere without denticles beneath; pygidium with longitudinal furrow along entire length in *Ch. haemochlora* and new species described below, without impression in *Ch. soiota* and *Ch. lomakini;* last abdominal sternite convex, with apical margin broadly emarginated or straight in male, or with rounded apical margin in female; aedeagus broad, curved, flattened, with apical lobe spade-shaped; flagellum narrow, simple, tube-shaped, exposed, funnel-shaped at apex (Fig. 2).

The present subgenus is morphologically close to the subgenus *Ch.* (*Chrysocrosita* Bechyné, 1950) and differs from the latter in: 1) last maxillary palpomere slightly longer than broad (Fig. 2), while it broader than long or as broad as long in *Ch.* (*Chrysocrosita*) (Fig. 2), 2) female tarsomere 1 with entire sole, 3) protoracic basal fold weak or absent. Interestingly, these subgenera each have one species, namely *Ch.* (*Timarchoptera*) *soiota* (Fig. 2) and *Ch.* (*Chrysocrosita*) *alaschanica* (Jacobson, 1898), with elytral puncturation mostly irregular and interrupted by convex longitudinal calli. *Chrysolina* (*Timarchoptera*) also differs from the morphologically close subgenus *Ch.* (*Threnosoma* Motschulsky, 1860) in: 1) absence of anterior setiferous pore on pronotum (difference from all *Ch*. (*Threnosoma*) except *Ch. anceyi* (Marseul, 1868)), 2) absence of lateral impression on prothoracic hypomeron, 3) absence of deep basal fold on prothoracic hypomeron (difference from all *Ch*. (*Threnosoma*) except *Ch. cribrosa* (Ahrens, 1812) and *Ch. timarchoides* (Brisout de Barneville, 1883)).

Fig. 1. Distribution of the members of the subgenus *Chrysolina* (*Timarchoptera*): black circle – *Ch. haemochlora*, white circle – *Ch. soiota soiota*, white triangle – *Ch. soiota khakassa*, white square – *Ch. lomakini*, black star – *Ch. olegkabakovi* sp. n. 1 – Kazakhstan, 2 – Yenisei River. Sources: Gebler (1823, 1848), Jacobson (1909, 1924), Mikhailov (2002), Gus'kova (2013), Smirnova (2020), and material examined

MATERIAL EXAMINED

Adult beetles from the following collections: author's collection, Zelenograd, Russia (ABC); E. Riley collection, Texas, USA (RC); E. V. Gus'kova collection, Barnaul, Russia (GC); J. Bezdek collection, Brno, Czech Republic (JBC); K. P. Tomkovich collection, Moscow, Russia (TC); M. Daccordi collection, Verona, Italy (DC); Moscow Pedagogical State University, Moscow, Russia (MPSU); Naturhistorisches Museum Wien, Austria (NHMW); Naturkundemuseum Erfurt, Germany (NME); Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (ZIN); Zoological Museum of Moscow State University, Russia (ZMMU); Zoological Museum, University of Helsinki, Finland (ZMUH); Zoologische Staatssammlung München, Germany (ZSM) were examined.

TAXONOMY

Chrysolina (Timarchoptera) olegkabakovi sp. n.

Description. Male (holotype). Head and pronotum green with bluish green lateral sides of pronotum, elytra purple marginated with golden green basally, laterally and along suture, scutellum bluish black, ventral side of body blue, legs green, antennae entirely blue (Fig. 3). Dorsal side distinctly microreticulate (shagreen), moderately shining. Last maxillary palpomere oval, obliquely truncate, 1.2× as long as wide, as wide as previous palpomere (Fig. 2). Antennal insertion 3.8× closer to clypeus than to eye. Pronotum (Fig. 3) 1.7× as wide as long (pronotal length measured along mid-length from anterior margin to posterior margin). Lateral side of pronotum evenly convex, without emargination before base, because of that, posterior angles not projecting laterally. Pronotal callus convex along entire length. Pronotal lateral impression wide, very shallow, obsolete along most part of its length, moderately deep basally. Pronotal disc covered by almost homogeneous dense fine punctures and dense micropunctures which smaller than cells of microreticulation. Lateral impression covered by numerous punctures much larger than those at pronotal disc. Pronotal anterior side marginate and densely ciliate. Anterior setiferous pore of pronotum absent. Prothoracic hypomeron moderately convex, with shallow wide impression covered by fine wrinkles laterally. Basal fold of prothoracic hypomeron weak. Anterior edging of metasternum present. Elytral base not broader than pronotal base. Humeral callus obsolete. Sutural furrow distinct at apical slope of elytron. Elytron slightly wrinkled, covered by entirely irregular dense double punctures: mixed large and fine ones. Elytral epipleuron inclined outside along entire length, sparsely ciliate apically. Hind wing strongly reduced. Tarsomeres 1–3 moderately broadened, 3rd tarsomere slightly narrower than the 1st. Underside of tarsomeres 1–3 entirely pubescent. Claw tarsomere without apical denticles beneath. Pygidium with distinct longitudinal furrow along almost entire length except near apex. Last abdominal sternite evenly convex, with apical margin straight. Aedeagus (Figs 2 & 3) arc-shaped, flattened dorso-ventrally, with apical lobe rounded, separated by narrow constriction laterally, with apical orifice short, rounded, dorsal side with narrow furrow before orifice. Flagellum short, exposed, simple, tube-shaped, funnel-shaped at apex. Body length 7.8 mm.

Differential diagnosis. The new species is morphologically closest to *Ch. lomakini* and is distinguished by the features given below in the key. Besides that, it looks like externally *Ch.* (*Chrysocrosita*) *spectabilis* (Motschulsky, 1860), mostly by the dorsal coloration (Fig. 4). To clarify the differences between

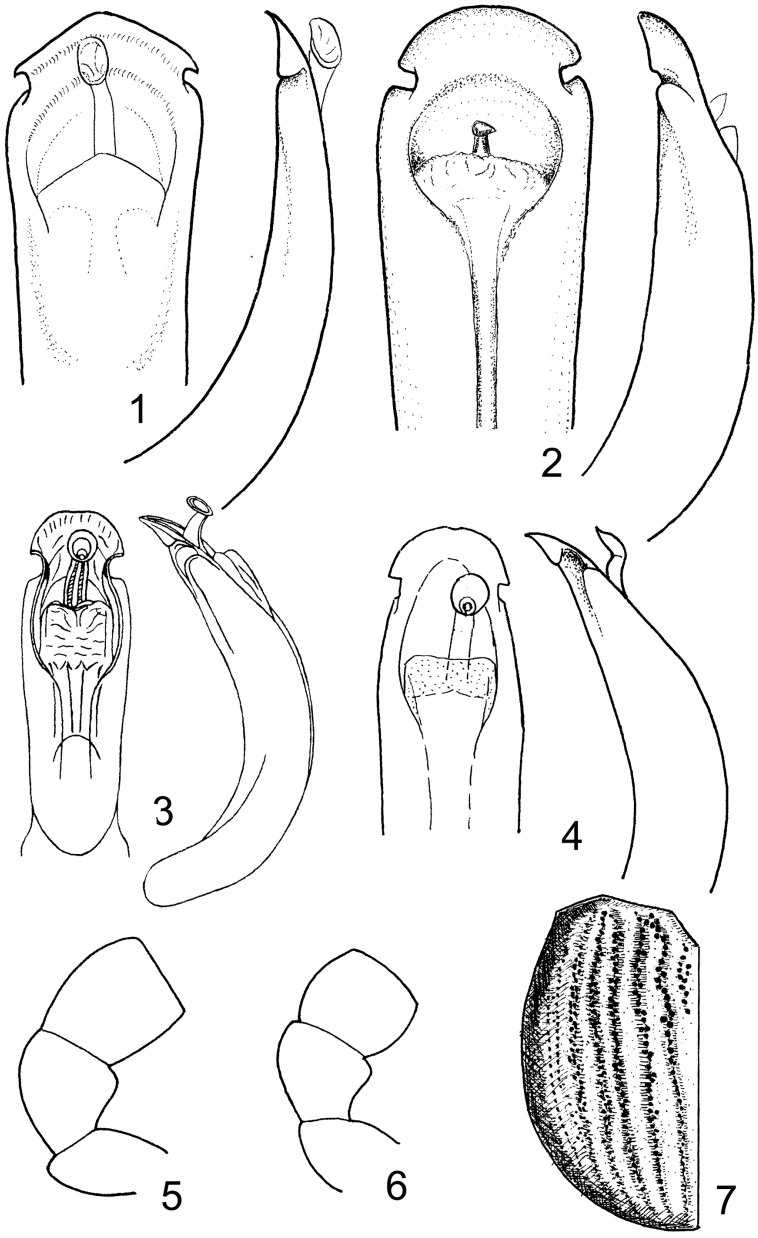

Fig. 2. *Chrysolina,* structural details. 1–4 = male, aedeagus, dorsal and lateral view: 1 = *Ch. haemochlora* (Siberia: Altai), 2 = *Ch. olegkabakovi* sp.n., holotype (Russian Far East: Khabarovsk Krai), 3 = *Ch. lomakini*, holotype (Siberia: W. Sayan), 4 = *Ch. soiota soiota* (Siberia: Krasnoyarsk Krai); 5–6 = male, maxillary palpus: 5 = *Ch. olegkabakovi* sp.n., holotype, 6 = *Ch. spectabilis* (Russian Far East: Khabarovsk Krai); 7 = *Ch. soiota soiota,* left elytron, dorsal view (Siberia: Krasnoyarsk Krai). (After Mikhailov (2002): 3; others orig.)

the new species and *Ch. spectabilis*, the lectotype of the latter was studied (it was designated by Bieńkowski 2007) (Fig. 4). Although both type specimens of *Ch. spectabilis*, lectotype and paralectotype, are females, and the new species is described based on a male, there are clear specific differences between them. Lectotype of *Ch. spectabilis* differ from the new species in the presence

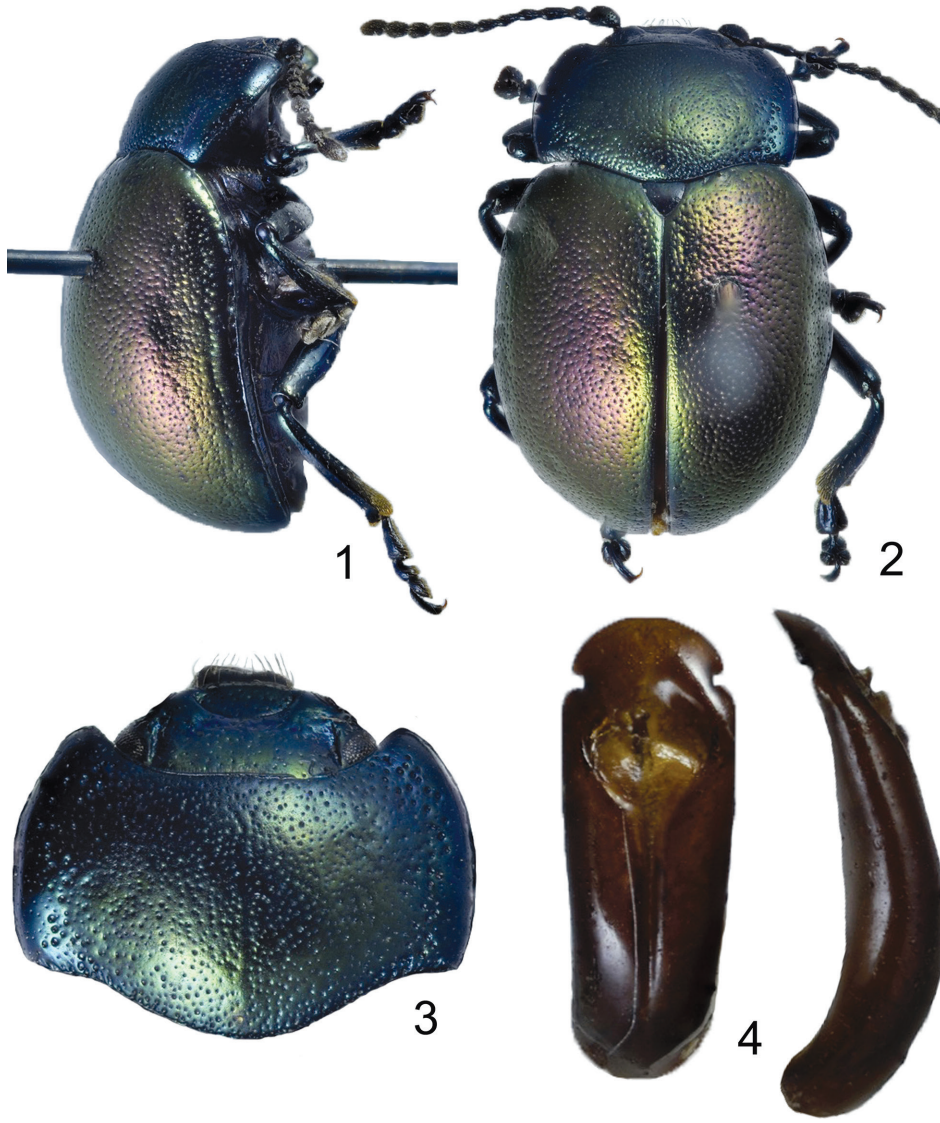

Fig. 3. *Chrysolina* (*Timarchoptera*) *olegkabakovi* sp. n., holotype, male: 1 = total lateral view, 2 = total dorsal view, 3 = head and pronotum, dorsal view, 4 = aedeagus, dorsal and lateral view

of distinct basal fold of prothoracic hypomeron, pronotal lateral impression developed along basal 2/3, covered by punctures about as large as those at pronotal disc, and last maxillary palpomere as long as broad (Fig. 4). I also studied males of *Ch. spectabilis* collected together with females, their aedeagus does not have a spatulate apical lobe separated by constriction.

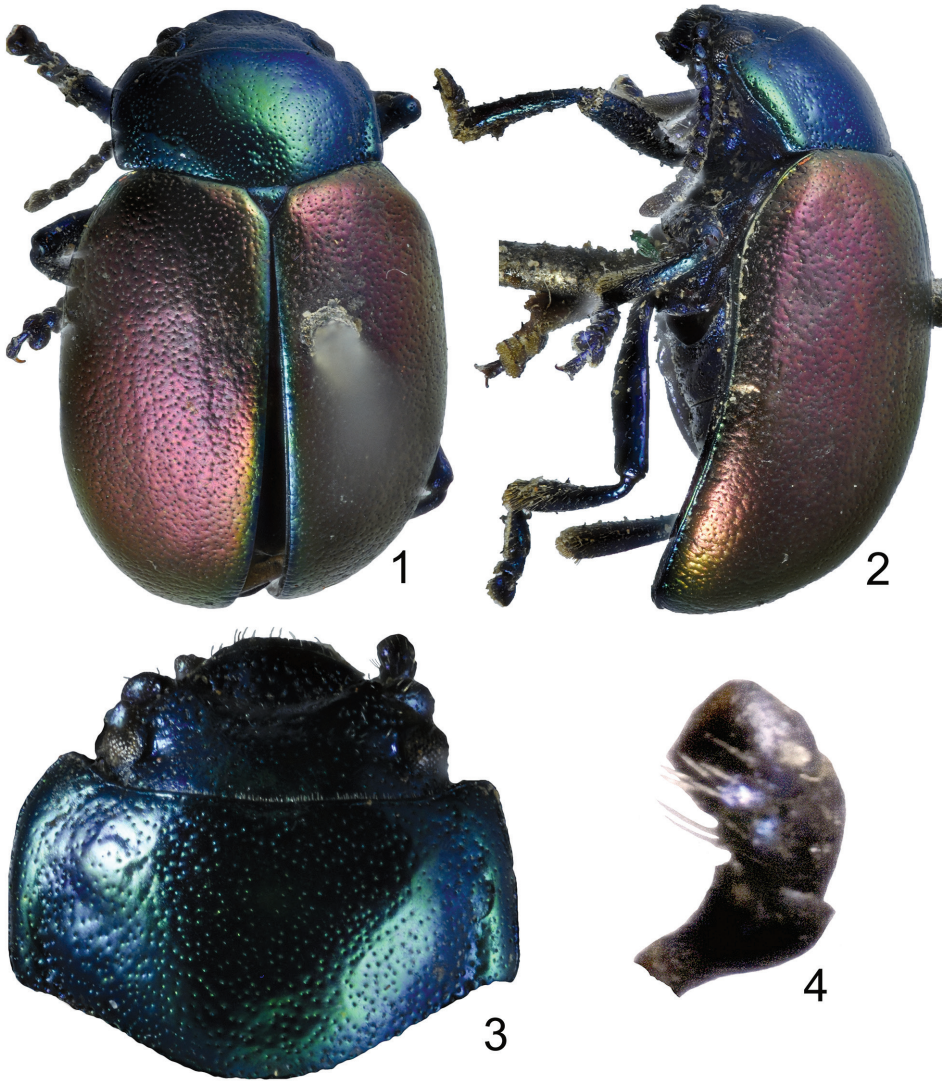

Fig. 4. *Chrysolina* (*Chrysocrosita*) *spectabilis,* lectotype, female: 1 = total dorsal view, 2 = total lateral view, 3 = head and pronotum, dorsal view, 4 = maxillary palpus

Material examined: *Chrysolina olegkabakovi* sp. n.: holotype, male (ZIN): Khabarovsk Krai, Komsomolsk Distr., Miao Chan ridge, 8.8.1956, O. N. Kabakov leg.

Etymology. I consider it my duty to name the species after Oleg Nikolaevich Kabakov (1928–2009), Russian geologist and entomologist whom the author knew personally, and thereby honor his memory. The holotype of the new species was collected by O. N. Kabakov during an expedition to the Komsomolsk District of the Khabarovsk Krai, when he discovered the world-famous tin deposit and founded the city of Solnechny (Kabakov 2008).

OTHER SPECIES EXAMINED

(new records are marked with an asterisk)

Chrysolina haemochlora: syntypes *Chrysomela haemochlora* Gebler: "Gebler", "Mont. Altai", "coll. Mannerh.", "Haemochlora. Gebler": 1 male, 1 female (ZMUH); syntypes *Timarcha rubra* Motschulsky: "Mt. Hamar Daban", "*Cyrtocnemis rubra* Motsch. Alp. Daur.": 2 females (ZMMU); *Irkutsk reg., city of Slyudyanka envir., foothills of the Khamar-Daban ridge, 31.5.2022, M. Orlova-Bienkowskaja leg.: 1 female (ABC); Kemerovo reg., Berchikul, 23.7.1898: 1 male (NME); *NE Kazakhstan, 40 km NNE Leninogorsk, mine Chekmar, 700 m, 6–9.7.1992, A. Napolov leg.: 1 male (NME); *Altaisky Krai, Barnaul: 2 males (NHMW), 1 male (ZMMU); Buryatia, Kiahta: 1 male (NHMW); Irkutsk reg., env. Irkutsk, Irkut River, Leder leg.: 1 male (NHMW); *Buryatia, Khamar-Daban ridge, S. Rodionoff leg., 29.6.1916: 1 male (ZSM); *Buryatia, Suser-Nor lake, 14.6.1915, S.Rodionoff leg.: 1 male; (ZSM); *Altaisky Krai, Chemal Distr., 77 km from Gorno-Altaisk, Askat Vill., K.P. Tomkovich leg. : 1 male (TC); *Buryatia, Arshan, Tunka River, 15.6.1912, Zvereva leg.: 1 male (ZIN); *Krasnoyarsk Krai, env. Krasnoyarsk, Bazaikha Vill, 15.5.1901, Krutovsky leg.: 1 male (ZIN); *Khakassia, Maina, 30.5.1965: 1 male, 1 female, A. Mikheev (ZMMU); Altai Republic, 12 km E Shebalino, taiga, 1500 m, 1–12.6.1996, A. Matalin, A. Brinev leg.: 1 male (ABC); *Buryatia, Baikalsky Res., Pereemnaya River, 25.8.1984, Buganin leg.: 1 male (ABC); *Krasnoyarsk Krai, W Sayans, Zolotaya River (Us River tributary), 7–9.7.2004, A. Brinev leg.: 1 male, 1 female (ABC); *Krasnoyarsk Krai, W Sayans, Zolotaya River (Us River tributary), Idzhir ridge, 15 km NW of the mine "Krasnaya Zvezda (Red Star)", 2200–2300 m, 28.6–3.7.2004, A. Brinev leg.: 1 male (ABC); *Altai Republic, Katun env., 1500 m, Tiungur env., Kuzajak, 12.7.2002, Orszulik leg.: 1 male (JBC), Tomsk reg., Tomsk, 13.6.1912, Tomashinsky leg.: 1 male (ZIN); Altai Republic, Teletskoe lake, 16.5.1913: 1 male (ZIN); *Khakassia: Vesjolaya River (tributary of Balyksy River), Tom' River upper reaches, 4.7.1908, Khvorov leg.: 1 male (ZIN); *Irkutsk reg., about 5 km from Listvyanka, 30–31.7.1911, Selivanov leg.: 1 male (ZIN); Buryatia, Sayans, Mondy, 1700 m, VII–1992, I. Lazutin leg.: 1 male (RC); Tyva Republic, Sayans, Ak-Dovurak, 27.6.1972: 1 male (ZIN); W Sayans, B. Ury River, 12.7.1990, L. Rybalov leg.: 1 male (ZIN); Altai Republic, env. Gornoaltaisk, 20.6.1989, A. Pisanenko leg.: 1 male (ZIN); Altai Republic, Teletskoe lake, envir. Karatash, 18.6.1908, Vereschagin leg.: 1 female (ZIN); Buryatia, Okinsky Distr., Tissa River, 6.6.1913, S. Rodionoff leg.: 1 female (ZIN).

Chrysolina soiota soiota: Krasnoyarsk Krai, Buiba pass., 1880–2400 m, 9–17.7.1995, A. Brinev leg.: 1 male, 1 female (ABC); the same place, 1700–1800 m, 12–14.7.1999, A. Brinev leg.: 1 female (ABC); the same place, 2000–2500 m, 12–25.7.1995, A. Brinev leg.: 1 male (MPSU); the same place, 24.6.1999, Yu. E. Mikhailov leg.: 1 male (ZIN); *Krasnoyarsk Krai, N from Ermakovskoe Vill., 1896, P. Lassman leg.: 1 male (ZIN); *Khakassia, Sayans, 1200 m, Dzoiski ridge, Cheremushki Vill., 9.8.1994: 1 male (RC); Krasnoyarsk Krai, W Sayans, 50 km NW from Verkhneusinskoe, Tungul Mt., 2000 m, 26.6.2002 A. Brinev leg.: 1 male (ZIN).

Chrysolina soiota khakassa: *Khakassia, W. Sayans, Dzhabash River valley, 50 km S Arbaty Vill., 700 m, 20–25.6.2003, A. Brinev leg.: 1 male (GC); *Khakassia, Klay River, 22.6.1973: 1 male (DC); *Khakassia, W. Sayans, Dzhabash River upper reaches, Kopen' Mt., 75 km S Arbaty Vill., 26–30.06.2003, A. Brinev leg.: 1 male (ZIN).

Chrysolina spectabilis: lectotype: "M. Ochotsk.", "190", "type", "*Heliostola spectabilis* Menetr. Kamtschatka": 1 female (ZMMU). 53 additional specimens from Krasnoyarsk Krai, Tyva, Sayans, Transbaikalia, Khabarovsk Krai, Okhotsk Sea shore, and Mongolia.

Chrysolina lomakini, known only from type specimens, is studied from the original description (Mikhailov 2002).

KEY TO SPECIES AND SUBSPECIES OF *CHRYSOLINA (TIMARCHOPTERA)*

1 Elytra with homogeneous puncturation 2

– Elytral puncturation is intersected by convex longitudinal calli (Fig. 2). Aedeagus with apical lobe rounded, apical orifice elongate-oval, dorsal side with broad furrow before orifice (Fig. 2). Elytral base broader than pronotal base. Pygidium without longitudinal furrow 4

2 Elytra greenish brown marginated basally and laterally with red or elytra entirely red or orange. Head and pronotum green, blue, or bronze. Aedeagus with apical lobe triangular, apical orifice elongate-oval, dorsal side flat before apical orifice (Fig. 2). Elytral base slightly broader than pronotal base or as broad as the latter. Pygidium with longitudinal furrow along entire length. Length (hereinafter: from anterior margin of clypeus to apex of elytra) 7.6–8.5 mm (males), 8.3–9.2 mm (females). Siberia: Altai, Sayans, Transbaikalia; N Mongolia *Ch. haemochlora* (Gebler, 1823)

– Elytra entirely metallic. Aedeagus with apical lobe roundly truncate or rounded 3

3 Dorsal side bronze or bronze violet. Ventral side and legs pitchy black with metallic tint, antennae pitchy black with antennomeres 1–2 rufous ventrally. Lateral side of pronotum emarginate before base, because of that, posterior angles protrude sideways. Pronotal disc covered by double puncturation (large and fine punctures). Elytral base broader than pronotal base. Sutural furrow very weak at apical slope of elytron. Pygidium with shallow longitudinal furrow in basal half. 3rd tarsomere slightly broader than 1st tarsomere. Aedeagus with apical lobe roundly truncate, apical orifice elongate-oval, dorsal side with broad furrow before orifice (Fig. 2). Length 7.8–9.1 mm (male), 8.6 mm (female). Siberia: W Sayans *Ch. lomakini* Mikhailov, 2002

– Head and pronotum green with bluish green lateral sides of pronotum, elytra purple marginated with golden green basally, laterally and along suture, ventral side of body blue, legs green, antennae entirely blue (Fig. 3). Lateral side of pronotum evenly convex, without emargination before base, because of that, posterior angles not protrude sideways (Fig. 3). Pronotal disc covered by almost homogeneous punctures. Elytral base not broader than pronotal base. Sutural furrow distinct at apical slope of elytron. Pygidium with distinct longitudinal furrow. 3rd tarsomere slightly narrower than 1st. Aedeagus with apical lobe rounded, apical orifice short, rounded, dorsal side with narrow furrow before orifice (Figs 2 & 3). Length 7.8 mm (male). Female is unknown. Far East: Khabarovsk Krai (Komsomolsky Distr.) *Ch. olegkabakovi* sp. n.

4 Elytron with 9–10 convex or slightly keel-shaped calli; punctures arranged in 1–3 irregular rows in intervals between calli (Fig. 2). Dorsal side brassy green, bluish green, bronze or dark violet. Body usually elongate-oval. Length 6.4–9.2 mm (male), 8.2–9.6 mm (female). Siberia: Sayans east of Yenisei River *Ch. soiota soiota* (Jacobson, 1924)

– Elytron with only 2 or 3 convex calli in narrow intervals between rows 2 and 3, 4 and 5, 8 and 9. Other intervals covered by irregular punctures. Dorsal side bronze or coppery. Body usually broad, egg-shaped. Length 7.5–8.0 mm (male), 8.2-10.0 mm (female). Siberia: Sayans west of Yenisei River *Ch. soiota khakassa* Mikhailov, 2002

DISCUSSION

Among the previously known species of the subgenus, *Ch. haemochlora* is the most widely distributed in the Altai, Sayans, Transbaikalia, and N Mongolia (Fig. 1). Interestingly, this species is known from Mongolia by the only record of Jacobson (1909) from the valley of Uri-Gol river (Selenga river basin, Hövsgol aimag). Subsequently, there is no report of this species from Mongolia (Lopatin 1964, 1966, 1967, 1968, 1970, 1971, 1975, 1977, Medvedev & Korotyaev 1975, 1976, Medvedev & Voronova 1976, 1977, 1979, Gus'kova 2006). The ranges of two other species, *Ch. soiota* and *Ch. lomakini,* are restricted to the Sayans. Therefore, the discovery of a new species of the subgenus *Timarchoptera* in the Russian Far East (Khabarovsk Krai), 1500 km eastward from the areas of the other members of the present subgenus, seems very surprising (Fig. 1) (holotype of the new species is deposited in ZIN).

Mikhailov (2002) assumed the relict nature of the subgenus *Ch*. (*Timarchoptera*) in the mountains of southern Siberia. The most widespread species of the subgenus, *Ch. haemochlora*, is distributed not only in the mountains but

also in the foothills, where it inhabits dark coniferous taiga forests (Mikhailov 2002). This type of forest community is called relics of the Turgai (indricotherium) complex of flora and fauna (middle Oligocene). Medvedev (1973) assumed that the Turgai fauna was widely distributed in Siberia and the Far East. Therefore, the new species can be classified as a relict.

*

Acknowledgements – I am grateful to the curators of the museum collections: A. A. Gusakov (ZMMU), A. E. Brinev (MPSU), A. G. Moseyko and S. V. Andreeva (ZIN), H. Shaverdo (NHMW), J. Mattila (ZMUH), M. Balke (ZSM), and M. Hartmann (NME) for generously allowing us to borrow material from the respective collections, to E. Riley, late E. V. Gus'kova, J. Bezdek, K. P. Tomkovich, and M. Daccordi, who presented material at my disposal, to Yu. E. Mikhailov for valuable comments and additions to the manuscript, to A. A. Legalov for more information on the specimens in SZM. I express my gratitude to my youngest son S. A. Bienkowski for computer processing of photos.

REFERENCES

Bechyné, J. (1950): 7e contribution à la connaissance du genre Chrysolina Motsch. (Col. Phytophaga Chrysomelidae). – *Entomologischen Arbeiten aus dem Museum G. Frey* **1**: 47–185.

Bechyné, J. (1952): Achter Beitrag zur Kenntnis der Gattung Chrysolina Motsch. (Col., Phytoph., Chrysomelidae). – *Entomologischen Arbeiten aus dem Museum G. Frey* **3**: 351–385.

Bieńkowski, 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* **12**(2): 105–235.

Bieńkowski, A. O. (2007): *A monograph of the genus Chrysolina Motschulsky, 1860 (Coleoptera: Chrysomelidae) of the world. Part 1*. – Techpolygraphcentre Publ., Moscow, 417 pp.

Bieńkowski, A. O. (2011): Review of the leaf-beetle genus Chrysolina Motschulsky (Coleoptera, Chrysomelidae) from Russia and European countries of the former USSR. II Key to species with reduced hind wings. – *Entomological Review* **90**(1): 180–203. [In Russian] https://doi.org/10.1134/S0013873810070079

Bieńkowski, A. O. (2019): *Chrysolina of the world – 2019 (Coleoptera: Chrysomelidae). Taxonomic review*. – Mukhametov G. V. Publ., Livny, 920 pp.

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). – *Proceedings of the Third International Symposium on the Chrysomelidae, Beijing, 1992*, Backhuys Publ., Leiden, pp. 60–84.

Gebler, F. (1823): Chrysomelae sibiriae rariores. – *Mémoires de la Société Impériale des Naturalistes de Moscou* **6**: 117–126.

Gebler, F. (1848): Verzeichniss der im Kolywano-Woskresenskischen Hüttenbezirke südwest Sibiriens beobachteten Kaefer mit Bemerkungen und Beschreibungen. – *Bulletin de la Société Impériale des Naturalistes de Moscou* **21**(3): 3–85.

Gus'kova, E. V. (2006): New data on leaf-beetles (Coleoptera, Chrysomelidae) from the Mongolian Altai. – *Euroasian Entomological Journal* **5**(4): 303–306. [In Russian]

Gus'kova, E. V. (2013) Leaf beetles (Coleoptera, Chrysomelidae) of reserve "Tigireksky" (north-western Altai, Russia). Subfamilies: Chrysomelinae, Galerucinae, Alticinae, Cassidinae. – *Bulletin of the Altai State Agrarian University* **2**(100): 66–72. [In Russian]

Heyden, L. (1881): Chrysomelidae. Pp. 197–214. *In: Catalog der Coleopteren von Sibirien, mit Einschluss derjenigen der Turanischen Länder, Turkestans und der chinesischen Grenzgebiete*. – A. W. Schade Publ., Berlin.

International Code of Zoological Nomenclature (1999): 4 ed., The International Trust for Zoological Nomenclature Publ. [Russian translation, 2000, St.-Petersburg, Russia, 221 pp.]

Jacobson, G. (1909): Note sur les insectes recueillis par P. S. Mikhno en Transbaïkalie en 1900, 1902 et 1903. – *Travaux de la Sous-Section Troïtzkossawsk-Kiakhta, Section du pays d'Amour de la Société Impériale Russe de Géographie* **10**(1–2): 13–32. [In Russian]

Jacobson, G. (1924): De sex speciebus novis generis Chrysomelae L. (Col., Chrysom.). – *Wiener Entomologische Zeitung* **41**(4–10): 78–84.

Jolivet, P., Petitpierre, E. & Daccordi, M. (1986): Les plantes-hôtes des Chrysomelidae. Quelques nouvelles précisions et additions (Coleoptera). – *Nouvelle Revue d'Entomologie* (N. S.) **3**(3): 341–357.

Jurado-Rivera, J. A. & Petitpierre, E. (2015): New contributions to the molecular systematics and the evolution of host-plant associations in the genus Chrysolina (Coleoptera, Chrysomelidae, Chrysomelinae). – *ZooKeys* **547**: 165–192. https://doi.org/10.3897/zookeys.547.6018

Kabakov, O. N. (2008): *With hammer and net. Notes of a geologist and entomologist*. – VSEGEI Publ., St. Petersburg, 176 pp. [In Russian]

Kippenberg, H. (2010): Subfamily Chrysomelinae Latreille, 1802. Pp. 390–443. *In:* Löbl, I. & Smetana, A. (eds): *Catalogue of Palaearctic Coleoptera.* Vol. 6. – Apollo Books, Stenstrup. https://doi.org/10.1603/008.104.0301

Lopatin, I. K. (1964): Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei. 17. Chrysomelidae, partim (Coleoptera). – *Folia entomologica hungarica* **17**(24): 365–373.

Lopatin, I. K. (1966): 71. Chrysomelidae II. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera). – *Reichenbachia* **7**(25): 229–239.

Lopatin, I. K. (1967): 106. Chrysomelidae der III. Expedition Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera). – *Reichenbachia* **9**(18): 157–169.

Lopatin, I. K. (1968): 144. Chrysomelidae IV. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera). – *Reichenbachia* **11**(19): 207–220.

Lopatin, I. K. (1970): 187. Chrysomelidae der V. Expedition Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera). – *Reichenbachia* **12**(25): 249–258.

Lopatin, I. K. (1971): 232. Chrysomelidae VI. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera). – *Faunistische Abhandlungen* **3**(18): 219–233.

Lopatin, I. K. (1975): The chrysomelid-beetles (Coleoptera, Chrysomelidae) of the Mongolian People's Republic. Pp. 191–233. *In: Insects of Mongolia*, 3. – Nauka Publ., Leningrad. [In Russian]

Lopatin, I. K. (1977): Weitere Beiträge zur Kenntnis der Chrysomeliden-Fauna der Mongolei (Coleoptera). – *Annales historico-naturales Musei nationalis Hungarici* **69**: 153–155.

Marseul, S. (1883): Monographie des Chrysomélides de l'Ancien-Monde. – *L'Abeille*, Ser. 4, **21**: 1–108.
Medvedev, L. N. (1973): *Leaf-beetles of Siberia and the Far East. Abstract of doctoral dissertation*. – Moscow, 35 pp. [In Russian]
Medvedev, L. N. (1982): *Chrysomelids of Mongolia: a key for determination*. – Nauka Publ., Moscow, 304 pp. [In Russian]
Medvedev, L. N. & Dubeshko, L. N. (1992): *Key to leaf beetles of Siberia*. – Irkutsk University Publ., Irkutsk, 224 pp. [In Russian]
Medvedev, L. N. & Korotyaev, B. A. (1975): On the fauna of chrysomelid-beetles (Coleoptera, Chrysomelidae) of the Tuvinian Autonomous Republic and of the north-western Mongolia, I. Pp. 177–190. *In: Insects of Mongolia*, 3. – Nauka Publ., Leningrad. [In Russian]
Medvedev, L. N. & Korotyaev, B. A. (1976): On the fauna of chrysomelid-beetles (Coleoptera, Chrysomelidae) of the Tuvinian Autonomous Republic and of the north-western Mongolia, II. Pp. 241–244. *In: Insects of Mongolia*, 4. Nauka Publ., Leningrad. [In Russian]
Medvedev, L. N. & Voronova, N. V. (1976): On the chrysomelid-beetle fauna of Mongolia. Pp. 222–236. *In: Insects of Mongolia*, 4. – Nauka Publ., Leningrad. [In Russian]
Medvedev, L. N. & Voronova, N. V. (1977): On the chrysomelid-beetle fauna of Mongolia, 2. Pp. 319–352. *In: Insects of Mongolia*, 5. – Nauka Publ., Leningrad. [In Russian]
Medvedev, L. N. & Voronova, N. V. (1979): On the chrysomelid-beetle fauna of Mongolia, 3. Pp. 97–134. *In: Insects of Mongolia*, 6. – Nauka Publ., Leningrad. [In Russian]
Mikhailov, Yu. E. (2002): A view on the subgenera Timarchoptera Motschulsky, 1860 and Paraheliostola L. Medvedev, 1992 of the genus Chrysolina Motschulsky after the description of two new forms from Khakassia (Coleoptera, Chrysomelidae). – *Euroasian Entomological Journal* **1**(2): 219–228. [In Russian]
Motschulsky, V. (1845): Remarques sur la collection de Coléoptères Russes. – *Bulletin de la Société Impériale des Naturalistes de Moscou* **18**(1): 3–127.
Motschulsky, V. (1860): Coléoptères de la Sibérie orientale et en particulier des rives de l'Amour. Pp. 77–258. *In:* Dr. L. von Schrenck (ed.): *Reisen und Forschungen im Amur-Lande, 2, Coleoptera*. – St. Petersbourg.
Motschulsky, V. (1870): Genres et espèces d'Insectes, publiés dans différents ouvrages. – *Horae Societatis Entomologicae Rossicae* **6**(Suppl.): 47–118.
Petitpierre, E. & Mikhailov, Yu. E. (2009): Chromosomal evolution and trophic affiliation in the genus Chrysolina (Coleoptera: Chrysomelidae). Pp. 225–234. *In: Research on Chrysomelidae*, 2. – Koninklijke Brill, Leiden.
https://doi.org/10.1163/ej.9789004169470.1-299.91
Seeno, T. N. & Wilcox, J. A. (1982): Leaf beetle genera (Coleoptera: Chrysomelidae). – *Entomography* **1**: 1–221.
Warchałowski, A. (2010): *The Palaearctic Chrysomelidae. Identification keys. 1, 2*. – Natura Optima Dux Foundation, Warszawa, 1212 pp.
Weise, J. (1916): Chrysomelidae: 12. Chrysomelinae. Pp. 1–255. *In:* Junk, W., Schenkling, S. (eds): *Coleopterorum Catalogus*, 68. – W. Junk, Berlin.

Revised version submitted January 23, 2023; accepted January 25, 2023; published February 28, 2023