

New records of click-beetles (Coleoptera, Elateridae) from the Kemerovo Area (Western Siberia)

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New data on the fauna of click-beetles of the Kemerovo Area are given. 14 species are recorded for the first time in the Kemerovo Area; additionally two species (*Limonius poneli* Leseigneur et Mertlik, 2007 and *Neohyponus tumescens* (LeConte, 1853)) are also new for the fauna of Western Siberia. One species (*Selatosomus songoricus* (Kraatz, 1879)) is reliably recorded for Russia for the first time. Ecological features of the species as well as data about their distribution are given. The present state of the faunistic knowledge of Elateridae of the Kemerovo Area is discussed.

Key words: Elateridae, Kemerovo Area, Western Siberia.

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INTRODUCTION

Elateridae (click-beetles) is a large family of Coleoptera belonging to the superfamily Elateroidea. The fauna of click-beetles of Russia includes about 460 species from 85 genera (Cate et al. 2007; Prosvirov 2014; Prosvirov 2015; Schimmel et al. 2015). The elaterid fauna of Western Siberia and in particular the Kemerovo Area is rather well-studied, but the species composition and data on the distribution of certain species of click-beetles in this region need further clarification.

At the present time just over 50 species of Elateridae have been recorded for the Kemerovo Area (Wnukowskij 1927;

Cherepanov 1957, 1966; Byzova & Chadaeva 1965; Gurjeva 1979; Zinchenko 2003; Efimov 2008; Efimov & Zinchenko 2012), but our preliminary studies show that this number is far from complete. In the present work we provide data on the species which previously were unrecorded on the territory of Kemerovo Area or indicate the new localities for some little-known Elateridae of this region. This work is an important contribution for understanding the biodiversity of the studied region.

MATERIAL AND METHODS

The present study is based mainly on the material which has been collected in the Kemerovo Area

by the second author (D.A. Efimov, hereinafter DE). Additionally, we have used the material which is deposited in the Department of Zoology and Ecology of Kemerovo State University (Kemerovo, hereinafter KSU), collections of the Department of Entomology of Moscow State University (Moscow, hereinafter MSU), the Zoological Museum of Moscow State University (Moscow, hereinafter ZMMU) and the material provided by private collectors. A part of the studied material is transferred for the permanent storage in MSU.

The storage location is not indicated for the specimens which are preserved in the collections of the authors or private collections.

Beetles were collected using standard methods: manual collecting and sweeping by entomological net.

The labels of the specimens from the collections of ZMMU and MSU are cited verbatim; additional information is given in square brackets. For the convenience some of the collecting localities are given as follows:

Azhendarovo - Kuznetsk depression, Krapivino district, 8 km SSW of Saltymakovo village, the Azhendarovo research biological Station of Kemerovo State University and its vicinity, 54°45'N 87°01'E;

Bor - Kemerovo city, right bank of Tom river, pinery;

Gorskino - Salair Ridge, Guryevsk district, 3 km W of Gorskino village,

Krekovo - Kuznetsk depression, Kemerovo district, Krekovo village, 55°31'N 85°52'E;

Mozzhukha - Kuznetsk depression, Kemerovo district, Mozhukha village;

Mustag - Mountain Shoria, Tashtagol district, Shorsky Range, Mustag Mt.;

Podyakovo - Kuznetsk depression, Kemerovo district, Podyakovo village, 55°34'N 85°50'E;

Polutornik - Kuznetsk Alatau, Tisul district, 10 km N of Polutornik village;

Shanda - Kuznetsk depression, Guryevsk district, Shanda village, 54°19'N 86°04'E;
Verkhnyaya Ters' guarding point - Kuznetsk Alatau, Novokuznetsk district, Kuznetsk Alatau Nature Reserve, Verkhnyaya Ters' guarding point, 54°10'N 88°07'E;
Zelenaya - Mountain Shoria, Tashtagol district, 4 km N of Sheregesh village, Zelenaya Mt.

Additionally some frequently mentioned names of the collectors are abbreviated as follows: A.V. Korshunov - AK; S.V. Sharova - SS; D.A. Sidorov - DS.

The system of the family and the order of the taxa arrangement are given according to the Catalogue of Palaearctic Coleoptera (Cate et al. 2007), taking into account the further nomenclature changes (Schimmel et al., 2015).

Photographs were taken with a Canon EOS-40D camera with a Canon MP-E 65 mm lens. Extended focus technology was used. The distribution maps were created using Simplemappr software (www.simplemappr.net).

RESULTS

Subfamily Elaterinae Leach, 1815

Tribe Ampedini Gistel, 1848

Ampedus (Ampedus) gagatinus (Candèze, 1895)

Material examined. "Verkhnyaya Ters', taiga", 4.VII.1957, SS leg. (1 spec.; MSU).

Bionomics. This species inhabits mountain coniferous forests (Gurjeva 1979).

Distribution. Western and Eastern Siberia, Far East of Russia, Kazakhstan, Mongolia and northeastern China (Cate et al. 2007; Jarzabek-Müller & Németh 2014).

***Ampedus (Ampedus) nigrinus* (Herbst, 1784) (Fig. 1)**

Material examined. Zelenaya, pine-fir green-moss forest, h=800 m, 29.VII.1999, DE leg. (1 spec.); Kuznetsk Alatau, Novokuznetsk distr., Skalistye Gory Range, subalpine zone, 10.VII.2001, S.N. Nenilin leg. (1 spec.; KSU); Verkhnyaya Ters' guarding point, 4 - 5.VII.2009, AK leg. (1 spec.); Polutornik, 7.VII.2009, A. Tsepokina leg. (1 spec.; KSU).

Bionomics. This species inhabits coniferous forests (Gurjeva 1979). In the Kemerovo Area it was collected in the pine-fir green-moss forest and subalpine zone.

Distribution. This Holarctic species has a boreal distribution and is known from North America, Europe, Turkey, European Russia, Siberia, Kazakhstan, Mongolia, Far East of Russia and northeastern China (Cate et al. 2007).

Tribe Elaterini Leach, 1815

***Sericus (Sericus) brunneus brunneus* (Linnaeus, 1758) (Fig. 2)**

Material examined. Mustag, 6.VII.2000, DE leg. (1 spec.); Mustag, subalpine zone, h=1300 m., 7 - 8.VII.2001, DE leg. (5 spec.); Verkhnyaya Ters' guarding point, lake Beloe, h=1227 m., 54°13'N 88°17'E, 7.VII.2009, AK leg. (2 spec.).

Bionomics. This forest species also inhabits the mountain tundra (Gurjeva 1979). In the Kemerovo Area it was collected in the forest and subalpine zones.

Distribution. This Transpalaeartic species is known from Europe, European Russia, Siberia, Far East of Russia, Kazakhstan and Mongolia (Cate et al. 2007).

Subfamily Denticollinae Stein et J. Weise, 1877

Tribe Denticollini Stein et J. Weise, 1877

***Limonius poneli* Leseigneur et Mertlik, 2007 (Fig. 3, 15)**

Material examined. Mozzhukha, birch forest, 30.V. - 13.VI.2009, AK leg. (2 spec.); Bor, meadow, 24.VI.2009, R. Zyablova leg. (1 spec.);

KSU); Gorskino, 3.VII.2009, S. Volkhonsky leg. (1 spec.; KSU); Krekovo, 13.VI.2011, DE leg. (1 spec.); Kemerovo city, sweeping on meadow vegetation, 12.VI.2013, DE leg. (2 spec.); Shanda, feather-grass steppe, sweeping, 27.VI.2013, DE leg. (3 spec.).

Bionomics. The species was collected in steppe biotopes (herbage-feather grass steppes and stony steppes) and on meadows.

Distribution. Europe, Armenia, Turkey and European Russia (Prosvirov 2013; Németh & Platia 2014). It is recorded from Western Siberia for the first time. A map of the localities inhabited by this species in the Kemerovo Area is shown in Fig. 15.

Remarks. Apparently *L. poneli* is quite widespread on the territory of Russia, but due to its almost complete resemblance to the western Palaeartic *L. minutus* (Linnaeus, 1758) data on the distribution of these two species require further clarification.

Tribe Ctenicerini Fleutiaux, 1936

***Hypoganomorphus laevicollis* (Mannerheim, 1852) (Fig. 4)**

Material examined. Kuznetsk Alatau Range, Novokuznetsk distr., middle reaches of Verkhnyaya Ters' riv., Cherny Voron Mt., subalpine zone, h~1200 - 2700 m, 22.VII.1998, DE leg. (1 spec.); Tisul distr., near Gorodok vill., Dudet river, 4.VII.1999, DE leg. (1 spec.); Mountain Shoria, Tashatagol distr., 4 km E of Mustag Mt., dark-coniferous forest, h=600 m, 22.VII.1999, DE leg. (1 spec.); Polutornik, 1 - 8.VII.2009, I. Artemova leg. (1 spec.; KSU), Polutornik, meadow, 3 - 11.VII.2009, T. Akinshina leg. (1 spec.; KSU).

Bionomics. The species inhabits lowland and mountain forests and has been also found in the subalpine zone at the upper boundary of the forest. It is common in moist biotopes with rich grasses (Gurjeva 1989).

Distribution. Northeastern European Russia, Western and Eastern Siberia, Far East of Russia, Mongolia and northeastern China (Medvedev 2001; Cate et al. 2007).

***Pseudanostirus vicinus* Gurjeva 1984**

(Fig. 7, 14, 17)

Material examined. Mustag, h=1300 m., 7 - 8.VII.2001, DE leg. (1 spec.).

Bionomics. The species was collected in the subalpine zone.

Distribution. This rare species was recorded earlier only with two specimens from Altai and northern Mongolia (Gurjeva 1989). A map of the localities inhabited by this species in Kemerovo Area is shown in Fig. 17.

Tribe Selatosomini Schimmel, Tarnawski, Han et Platia, 2015

***Selatosomus songoricus* (Kraatz, 1879)**

(Fig. 5, 6, 16)

? Byzova, Chadaeva, 1965: 334, 336 (as *Selatosomus reichardti* Den.): foothills of Salair Ridge, chern taiga.

Material examined. “Verkhnyaya Ters`, taiga”, 26.VI.1957, 5.VII.1957, SS leg. (5 spec.; MSU); “Verkhnyaya Ters`”, 9.VII.1955, 9.VII.1957, SS leg. (2 spec.; MSU); “Stalinsk [here and so on: at present it is Novokuznetsk city], sweeping, mountains”, 13.VI.1957, SS leg., (2 spec.; MSU); “Stalinsk, 13.VI.1957», SS leg. (4 spec.; MSU); Zelenaya, forest path, 9.VII.2000, Î.N. Skalon leg. (1 spec.; KSU); Zelenaya, h=750 m, 52°57'12.1"N 87°57'53.1"E, 1 -3.VII.2015, AK leg. (1 spec.); Mountain Shoria, Tashtagol distr., near Mundybash vill., meadow, 2.VII.2005, T. Bauer leg. (1 spec.); Verkhnyaya Ters` guarding point, bank of Verkhnyaya Ters` riv., 9 - 11.VII.2009, AK leg. (1 spec.); Kuznetsk depression, Belovo distr., Karakansky Ridge near Permyaki vill., 1-3.VII.2014, D. Sushchev leg. (2 spec.); Kuznetsk depression, vic. of Permyaki vill., NE slope of Karakansky Ridge, 12.VI.2006, DS leg. (1 spec.).

Bionomics. This species inhabits mountain steppes (Gurjeva 1989). In the Kemerovo Area it was collected in forest biotopes of mountains and foothills.

Distribution. Eastern Kazakhstan and western Mongolia (Gurjeva 1989). The records of the species for Siberia (Tarnawski, 1995; Schimmel et al., 2015) are mistaken due to incorrect interpretation of their localities. This is the first

reliable record of this species for Russia. A map of the localities inhabited by this species in the Kemerovo Area is shown in Fig. 16.

Subfamily Negastrinae Nakane et Kishii, 1956

Tribe Negastrini Nakane et Kishii, 1956

***Negastrus pulchellus* (Linnaeus, 1761)**

(Fig. 9)

Material examined. Podyakovo, steppe slope, sweeping, 6 -7.VII.2007, DE leg. (1 spec.); Mountain Shoria, Tashtagol distr., right bank of Kondoma riv., floodplain terrace, h=291 m, 52°54'N 87°13'E, 8.VI.2011, DS leg. (1 spec.).

Bionomics. This species inhabits open biotopes (Cherepanov 1957), floodplains of rivers and streams including sandy areas (Medvedev 2001). In the Kemerovo Area it was collected by sweeping on meadow and steppe vegetation.

Distribution. This is a Holarctic species, which is distributed in North America, Europe, European Russia, Siberia, Kazakhstan, Mongolia and Far East of Russia (Cate et al. 2007).

***Neohypdonus tumescens* (LeConte, 1853)**

Material examined. Azhendarovo, 1 - 5.VI.2014, AK leg. (1 spec.).

Bionomics. The species inhabits wet areas on the banks of mountain rivers and lakes (Stibick 1990).

Distribution. Eastern Siberia, Far East of Russia and North America (Cate et al. 2007). The species is recorded for Western Siberia for the first time. A map of the localities inhabited by this species in the Kemerovo Area is shown in Fig. 16.

***Oedostethus latissimus* (Tsherepanov, 1957)**

Material examined. Verkhnyaya Ters` guarding point, bank of Verkhnyaya Ters` riv., 9 - 11.VII.2009, AK leg. (1 spec.).

Bionomics. The species inhabits the banks of rivers and streams and has been also found on rocky areas which remote from water (Gurjeva 1975b; Matis 1980; Medvedev 2001).

Distribution. Northeastern European Russia, south of Western Siberia, Eastern and Northeastern Siberia and Mongolia (Gurjeva

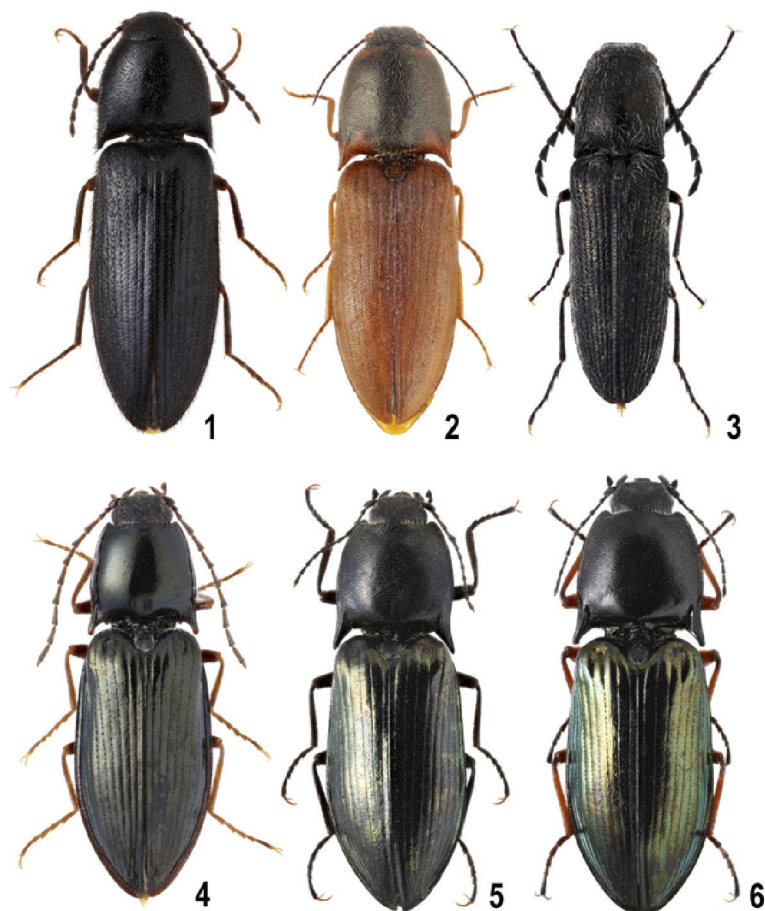


Fig. 1 - 6. Elateridae spp., habitus. 1 - *Ampedus nigrinus*, female, (7,1 mm); 2 - *Sericus brunneus*, female, (10 mm); 3 - *Limonius poneli*, male, (5,8 mm); 4 - *Hypoganomorphus laevicollis*, male, (8,9 mm); 5 - *Selatosomus songoricus*, male, (11,5 mm); 6 - *Selatosomus songoricus*, female (12,5 mm)

1971; Matis 1980; Medvedev 2001; Cate et al. 2007).

***Oedostethus minutulus* (Tsherepanov, 1957) (Fig. 10, 15)**

Material examined. Azhendarovo, 10 - 20.VII.2008, AK leg. (1 spec.); Verkhnyaya Ters' guarding point, bank of Verkhnyaya Ters' riv., 9 - 11.VII.2009, AK leg. (1 spec.); Verkhnyaya Ters' guarding point, 4 - 5.VII.2009, AK leg. (1 spec.).

Bionomics. This species inhabits rocky areas along the banks of rivers and streams (Matis 1980).

Distribution. Western and Eastern Siberia and Primorsky Krai (Matis 1980; Cate et al. 2007; Prosvirov 2009). A map of the localities inhabited by this species in the Kemerovo Area is shown in Fig. 15.



Fig. 7 - 12. Elateridae spp., habitus. 7 - *Pseudanostirus vicinus*, male, (8 mm); 8 - *Cardiophorus ebeninus*, male, (6,9 mm); 9 - *Negastrius pulchellus*, female, (3,7 mm); 10 - *Oedostethus minutulus*, female, (3,3 mm); 11 - *O. tenuicornis*, female, (5 mm); 12 - *O. varians*, male, (3,7 mm)

***Oedostethus tenuicornis* (Germar, 1824)
(Fig. 11)**

Material examined. “Gornaya Shoria, Sarbala” [here and so on: at present it is Kaltan municipal distr., Sarbala vill.], 11.VII.1950, Î. Martynova leg. (1 spec.; ZMMU); “Promyshlennovsky distr., [vill.] Vaganovo”, 1.VII.1955, M. Lurie leg. (1 spec.; ZMMU); Krekovo, sweeping by meadow vegetation, 17 - 18.VII.2009, 23.VII.2011, DE leg. (3 spec.).

Bionomics. This species inhabits coastal areas of the rivers (Cherepanov 1957).

Distribution. Europe, European Russia, Western and Eastern Siberia and Far East of Russia (Ivliev & Kononov 1970; Bessolitsyna 1987; Cate et al. 2007).

***Oedostethus varians* (Gurjeva 1968)
(Fig. 12, 17)**

Material examined. “Gornaya Shoria, Sarbala”, 6.VII.1950, O. Martynova leg. (1 spec.;



Fig. 13. Habitat of *Cardiophorus ebeninus* (Germar, 1824) and *Limonius poneli* Leseigneur et Mertlik, 2007



Fig. 14 Habitat of *Pseudanostirus vicinus* Gurjeva, 1984 and *Sericus brunneus brunneus* (Linnaeus, 1758)

ZMMU); Polutornik, meadow, 8.VII.2009, T. Akinshina leg. (1 spec.; KSU); Verkhnyaya Ters` guarding point, bank of Verkhnyaya Ters` riv., 11.VII.2009, AK leg. (1 spec.); Kuznetsk Alatau, Tisul distr., mouth of the Bezymyanka riv. of the right tributary of Kiya riv., bank, floodplain meadow, 10-14.VII.2010, F.A. Budaev leg. (1 spec.; KSU).

Bionomics. This species inhabits the banks of water bodies (Gurjeva 1975b).

Distribution. South of Western Siberia, Far East of Russia, Mongolia and northern China (Gurjeva 1975a; Cate et al. 2007; Prosvirov 2013). A map of the localities inhabited by this species in the Kemerovo Area is shown in Fig. 17.

Subfamily Cardiophorinae Candèze, 1860
Tribe Cardiophorini Candèze, 1860

Cardiophorus (Cardiophorus) discicollis (Herbst, 1806)

Material examined. Kuznetsk depression, Kemerovo distr., 12 km NW of Kemerovo city, near Staraya Balakhonka vill., stone steppe, sweeping, 9.VII.2009, DE leg. (1 spec.).

Bionomics. The species inhabits various open biotopes (Dolin 1988). In the Kemerovo Area it is collected in a stone steppe.

Distribution. Europe, Asia Minor, European Russia, Western Siberia, Kazakhstan, Mongolia, Tadzhikistan, Uzbekistan and northwestern China (Gurjeva 1968; Cate et al. 2007; Prosvirov & Kovalenko 2015).

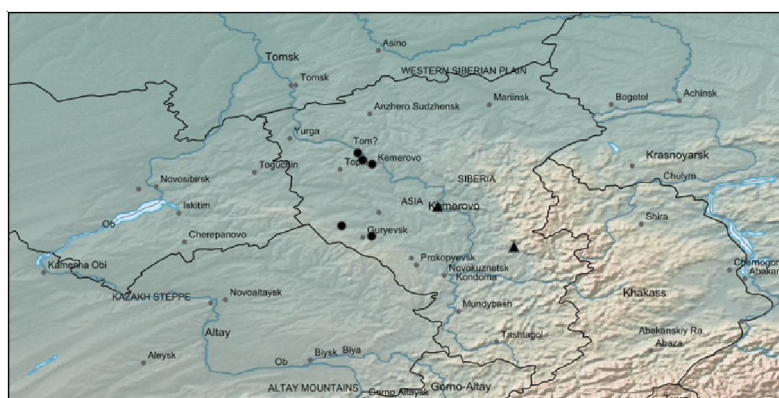


Fig. 15. Map of localities of *Limonius poneli* (●) and *Oedostethus minutulus* (▲)



Fig. 16. Map of localities of *Neohypdonus tumescens* (■) and *Selatosomus songoricus* (●)



Fig. 17. Map of localities of *Oedostethus varians* (▼) and *Pseudanostirus vicinus* (■)

Remarks. Cherepanov (1957), in his monograph on the click-beetles of Western Siberia, distinguishes *C. discicollis* from other closely related species of the region by the bicolor body. In fact this is true only for the females of this species. Males of *C. discicollis* have unicolor black body except reddish legs and antennal joints (Chassain 1983; Dolin 1988).

***Cardiophorus (Cardiophorus) ebeninus* (Germar, 1824) (Fig. 8)**

Cherepanov, 1957: 237 (as *C. atramentarius* Er.); Stalinsk, Kiselevsk sovkhos.

Material examined. Bor, steppes on south slope, 15.V.2009, DE leg. (2 spec.); Bor, steppe, 19.VI.2014, DE leg. (1 spec.); Gorskino, 3.VII.2009, S. Volkhonsky leg. (1 spec.; KSU); Kuznetsk depression, Belovo distr., Starobachaty vill., steppes, 10.VI.2011, DE leg. (3 spec.); Kuznetsk depression, Belovo distr., env.of Permyaki vill., NE slope of Karakansky ridge, 12.VI.2006, DS leg. (1 spec.; KSU); Kuznetsk depression, Leninsk-Kuznetsky distr., near Kokui vill., meadow steppe, sweeping,

54°34'N 85°22'E, 24.VII.2014, DE leg. (1 spec.); Kuznetsk depression, Belovo distr., 7 km W of Belovo near Razyezd 14 Kilometr railway station, steppes, 30.VII.2006, DE leg. (3 spec.); Mozzhukha, sweeping on steppe slopes, 30.V.2009, DE leg. (13 spec.); Mozzhukha, birch forest, 30.V. - 13.VI.2009, AK leg. (1 spec.); Mozzhukha, meadow steppes, sweeping, 9.VI.2013, DE leg. (4 spec.); Podyakovo, stone steppe, 7.VII.2007, DE leg. (2 spec.); Shanda, feather-grass steppe, 27.VI.2013, DE leg. (5 spec.).

Bionomics. In the Kemerovo Area the species inhabits steppe biotopes (Cherepanov 1957), including xerophytic stony steppes, where it also was collected.

Distribution. Europe, Turkey, European Russia, Siberia, Kazakhstan, Mongolia, Middle Asia and Pakistan (Cate et al. 2007; Platia 2011).

DISCUSSION

Thus, 14 species of click-beetles are recorded for Kemerovo Area for the first time. Two species are recorded for Western Siberia for the first time and one species is reliably recorded for Russia for the first time.

Generally, the most interesting records are belonging to the species of Negastrinae and Cardiophorinae, because these subfamilies are among the least studied elaterid taxa of Siberia and Far East of Russia.

It is likely that *Selatosomus songoricus* previously was recorded for the Kemerovo Area as *S. reichardti* Denisova, 1948 (= *S. coreanus* (Miwa, 1928)) (Byzova & Chadaeva 1965). Actually, this species in the general appearance bears strongly resemblance to *S. coreanus*, but differs in the notably smaller body, more elongated antennae and other shape of the aedeagus. Gurjeva (1989) points out that *S. songoricus* has the unicolor black body with a slightly visible blue or green metallic reflection. In the studied material we observed both such specimens and lustrous ones, which have the

strong bright-metallic reflection. The color of legs of various specimens also varies from black to almost totally brown or red. The color variability of this species is confirmed by the latest published data (Schimmel et al. 2015).

The distribution of *S. songoricus* is still poorly studied, but apparently this species inhabits the Altai-Sayan region and is probably distributed in territories adjacent to the Kemerovo Area. Cherepanov (1957) believed that *S. songoricus* is a synonym of *S. aeneus* (Linnaeus, 1758), so it is possible that some records of *S. aeneus* given in his work for various points of Western Siberia actually refer to *S. songoricus*.

Cherepanov (1957) recorded *Cardiophorus ebeninus* for the Kemerovo Area, but this species was erroneously considered as *C. atramentarius* Erichson, 1840 while in the same work under the name *C. ebeninus* is discussed another species. The Italian writers (Platia & Gudenzi 2009) believed that this is *C. kleteckai* Platia et Gudenzi 2009, described from Tuva, however, the figure of the aedeagus, which is given in the original description, notably differs from this one from the work of Cherepanov (1957). It is likely that under the name *C. ebeninus* Cherepanov treated males of *C. discicollis*.

The most of the recorded elaterid species have sufficiently broad ranges, and their findings in the Kemerovo Area are quite natural. Thus, the considerable part of new records is belonging to the eastern Palaearctic species, among them three species inhabiting territories from Siberia to Far East of Russia and adjacent regions inclusive, two species also found on the territory of northeastern European Russia and two species so far are known only from Siberia and adjacent regions. The rest of the recorded species are distributed much broader; two species have Holarctic distribution, one species has Transpalaearctic range, two species have Euro-Siberian-Middle-Asian type of distribution, two species have Euro-Siberian ranges and one species has Siberian-American

distribution. It should be noted that nearly the half of the recorded species have boreal or boreal mountain distribution.

With the new records, elaterid fauna of Kemerovo Area amounts about 70 species. We also have several so far not exactly determined species of the genera *Hypnoidus* and *Paracardiophorus* from this region. Taking into account these species as well as the species which not yet have been found in the Kemerovo Area, but are known from adjacent regions, it might be supposed that the elaterid fauna of Kemerovo Area includes not the less 80-85 species.

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