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THE CHRYSOMELINAE (COLEOPTERA: CHRYSOMELIDAE) OF THE MONGOLIAN ALTAI

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ABSTRACT

An annotated inventory of the 40 species and 12 genera of Chrysomelinae from the Mongolian Altai is presented. Four species of leaf beetles, Chrysolina quadrangulata Motschulsky, 1860, Chrysolina graminis (Linnaeus, 1758), Phratora polaris (Schneider, 1886), and Phratora vulgarissima (Linnaeus, 1758), and one subspecies, Chrysolina perforata simillima Mohr, 1966, are newly recorded for the Mongolian Altai. Three species, Crosita clementzae Jacobson, 1899, Phaedon armoraciae (Linnaeus, 1758), and Entomoscelis adonidis (Pallas, 1771), and one subspecies, Gastrophysa viridula lenta (Weise, 1887), are new records for Bayan-Ulegei aimak. Two species, Chrysolina perforata (Gebler, 1830) and Phaedon concinnus Stephens, 1834, are new records for Gobi-Altai aimak.

Key Words: leaf beetles, distribution, checklist, Mongolia, Palearctic

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The Mongolian entomofauna has been extensively investigated since the 1960s by Czechoslovakian, German, Polish, and Hungarian expeditions. Among the early expeditions, those organized by the Hungarian entomologist Z. Kaszab during 1963–1968 deserve particular attention due to the large geographic coverage and wealth of collected material. In 1969, the joint Soviet-Mongolian complex biological expedition began. The prominent chrysomelid specialist, L. N. Medvedev (Institute of Ecology and Evolution named after A. N. Severtzov, Russian Academy of Sciences, Moscow) participated in the expedition from the beginning and headed it from 1973 to 1979.

Despite lengthy research on the insect fauna in Mongolia, the country’s territory remained unevenly studied; in particular, Western Mongolia and especially the Mongolian Altai proved to be the least studied. As everywhere in Central Asia and South Siberia, the main reason was the inaccessibility of high mountain ranges. Our recent studies conducted in the Mongolian Altai significantly supplemented the data on the leaf beetle fauna of the Mongolian Altai. As a result, we described three species new to science. Labidostomis yakovlevi Gus’kova, 2006 (Guskova 2006), Chrysolina shapkini Mikhailov and Gus’kova, 2013 (Mikhailov and Gus’kova 2013a), and Cystocnemis levdvedevi Mikhailov and Gus’kova, 2013 (Mikhailov and Gus’kova 2013b). In addition, Gus’kova (2016) presented a full review of the leaf beetles of the subfamilies Alticinae and Cassidinae for the Mongolian Altai. The present study provides a detailed overview of the leaf beetles of the subfamily Chrysomelinae in the Mongolian Altai.

MATERIAL AND METHODS

The current paper is mostly based on a personal collection by the author who participated in the botanical-zoological expeditions organized by the South Siberian Botanical Garden of Altai State University in 2007, 2009, and 2010. Expeditions were performed in all three aimaks covered by the Mongolian Altai: Bayan-Ulegei, Hovd, and Gobi-Altai, including localities which had never been visited by entomologists. Collecting was performed using standard methods: manual collecting and sweeping with a sweep net and night collecting using ultraviolet lights (light source - tube Philips TL 8W/05; bulbs - Philips 250; Subaru 750 generator; poison - chloroform).

The author also studied material collected during expeditions performed in 2002, 2005, 2011, 2012, 2013, and 2015. The taxonomic identities of specimens were determined using the key in Warchałowski (2010) and also by comparison with authoritatively identified specimens in the collection of Zoological Institute of the Russian Academy of Sciences. Acronyms of collections from which material was studied are as follows:

ABC Andrzej Bienkowski Collection, Zelenograd, Russia
DEI Deutsches Entomologisches Institut, Müncheberg, Germany
EGC Elena Gus’kova Collection, Barnaul, Russia
LMC Lev Medvedev Collection, Moscow, Russia
YuMC Yurij Evgenieviich Mikhailov Collection, Ekaterinburg, Russia
Collecting sites in the three aimaks of the Mongolian Altai are listed here and their locations indicated in Fig. 1.

BAYAN-ULEGEJ AIMAK:

1) **Elt-Gol**: Middle stream of Elt-Gol River (Kara-Irtys basin), Khorabajn-Salaa Valley, 2,100–2,300 m, 48°07′ N 90°11′ E.
2) **Tsengel**: Kobdo-gol Valley, 20 km SW Tsengel, (between Bor-Burgas-Gol and Mukharyn-Gol Rivers), 1,900–2,200 m, 48°49′ N 88°59′ E.
3) **Tal-Nuur**: Pass, 9 km ESE Tal-Nuur Lake, 2,800 m, 48°00′ N 90°20′ E.
4) **Altai (BU)**: 20 km W Altai, 2,850–2,950 m, 46°53′ N 91°06′ E.
5) **Dzhelty-Ula**: 20 km NW Altai, Dzhelty-Ula Mt., 2,850–2,900 m, 47°01′ N 90°59′ E.
6) **Khara-Nuur**: 20 km WNW Altai, Lake Khara-Nuur, 2,560 m, 47°04′ N 90°57′ E.
7) **Middle Bulgan-gol**: Middle stream of Bulgan-gol River, 1,800 m, 46°44′ N 91°18′ E.
8) **Turgen-Gol**: 2,300–2,250 m, 50°10′ N 91°26′ E.
9) **Tolbo-Nuur**: Tolbo-Nuur Lake, 2,100 m, 48°31′ N 90°06′ E.
10) **Tolbo**: 45 km S Tolbo, 2,800 m, 48°04′ N 90°15′ E.
11) **Buyant**: Sagsaj River Valley, 12 km SSW Buyant, 2,100 m, 48°35′ N 89°33′ E.
12) **Sagsaj**: 30 km SSW Altai, Sagsaj Valley, 2,350 m, 48°36′ N 89°48′ E.

![Map of collecting localities](image-url)
13) **Ikhdhargalantyn-Gol**: Ikhdhargalantyn-Gol, 20 km NW Bulgan, 47°02' N 90°45' E.
14) **Usvajin-Davaa**: 50 km SE Altai, Usvajin-Davaa Pass, 2,850 m, 48°05' N 90°18' E.
15) **Shine-Davaa**: 27 km S Zagan-Nuur Lake, Shine-Davaa Pass, 2,700 m, 49°13' N 89°46' E.
16) **Zagan-Nuur**: 20 km E Zagan-Nuur Lake, Zagan-Nyr-Gol Valley, 49°36' N 90°08' E.

**HOVD AIMAK:**

17) **Bulgan**: Dzhungarian Gobi Desert, Bulgan somon, 1,100–1,400 m, 45°59' N 91°31' E.
18) **25 km N Bulgan**: 25 km N Bulgan, Ulyastajin-Gol Valley, 1,500 m, 46°31' N 91°29' E.
19) **Bulgan-Gol Valley**: Middle stream of Bulgan-Gol Valley, 45 km N of Bulgan, 1,500 m, 46°33' N 91°22' E.
20) **Dod-Naryn-gol**: 40 km N Bulgan, Bulgan-gol Basin, middle stream of Dod-Naryn-gol River, Shara-Nuruu Mts., 1,400–1,700 m, 46°29' N 91°29' E.
21) **Darkhijn-Shura-Gol**: Under stream of Darkhijn-Shur-Gol River, near Erdene-Buren-Somon, 1,400 m, 48°18' N 91°18' E.
22) **Baranjing-Shara-Nuruu**: Dzhungarian Gobi Desert, Baranjing-Shara-Nuruu Mts., 15 km S Bulgan somon, 1,300 m, 45°53' N 91°19' E.
23) **Arshantyn-Nuruu**: Bulgan-gol Basin, Arshantyn-Nuruu Mts., Bayan-gol-gol Basin, middle stream of Ulyastain-Sala River, 1,700–2,300 m, 46°19' N 91°07' E.
24) **Arshantyn-Nuruu (N)**: Arshantyn-Nuruu Mts. (northern slopes), 1,700 m, 46°22'08" N 91°13'52" E.
25) **Uench**: Uenchin-Gol River, 25 km NNW Uench, 1,790 m, 46°07' N 92°03' E.
26) **Uenchin-Gol**: Uenchin-Gol Valley, 50 km N Uench, 1,500 m, 46°23' N 92°10' E.
27) **Hundijn-Gol**: Bodonchijn-Gol Basin, Hundijn-Gol River Valley, 1,600 m, 46°06' N 92°30' E.
28) **Elkhon-Ekhen-Tal**: 30 km S Altai somon, Bodonchijn-Gol River Valley (under stream), Elkhon-Ekhen-Tal, 1,200 m, 45°43' N 92°05' E.
29) **Altan-Obo**: Bajtag-Bogdo Range, Altan-Obo, 1,900–2,200 m, 45°13' N 90°56' E.
30) **Tachtoi-Ula**: Bajtag-Bogdo Range, Mt. Tachtoi-Ula, 1,800–2,200 m, 45°16' N 90°55' E.
31) **Barun-Khargaityn-Gol**: Bajtag-Bogdo-Uul Mts., Barun-Khargaityn-Gol River Valley, 1,900–2,000 m, 45°16' N 90°57' E.
32) **Gushoot-Shineetijn-Gol**: Bajtag-Bogdo-Uul Mts., Gushoot-Shineetijn-Gol River Valley, 2,000 m, 45°15' N 91°03' E.
33) **55 km NE Altai**: 55 km NE Altai, 2,000 m; Hovd aimak, Great Lakes Valley, near Dariv, 1,450 m, 46°55' N 93°41' E.
34) **Mankhan**: 50 km S Mankhan, 2,200 m, 47°02' N 92°14' E.
35) **Dzhun-Zhargalan-Hajirkhan**: 35 km NE Mankhan, western slope of Dzhun-Zhargalan-Hajirkhan Mts., 1,900 m, 47°30' N 92°30' E.
36) **Must**: 38 km S Must, Dayanpangijn-Davaa Pass, 2,800 m, 46°33' N 92°46' E.
37) **Myangat**: 15 km NNE Myangat, 48°16' N 91°40' E.
38) **Munkh-Khairkhan**: Munkh-Khairkhan Mts., 45°13' N 90°56' E.
39) **Bodgony-Hutel**: Between Bodgony-Hutel and Khara-Belchir-Daba Pass, 2,400 m, 46°45' N 92°31' E.
40) **Dzegijn-Ama**: Dzegijn-Ama Gorge, eastern Ikhd-Khavtgin-Nuruu Mts., 45°02' N 92°31' E.

**GOBI-ALTAI AIMAK:**

41) **Hara-Adzragyn-Nuru**: Hara-Adzragyn-Nuru Mts., Najtvaryn-Sajr River Valley (under stream), 1,700–2,000 m, 45°52' N 95°30' E.
42) **Alag-Nuur**: Dzhungarian Gobi Desert, Alag-Nuur Lake (near Ajlyn-Tsagan-Khuduk), 1,300 m, 45°09' N 94°30' E.
43) **Bidzh-Alta**: 30 km ENE Bidzh-Alta, Alag-Hajirkhan Mt., 2,200–2,300 m, 45°33' N 94°04' E.
44) **Zhargalan**: Khasagt-Khairkhan Mts., 17 km SSW Zhargalan, 2,500–2,900 m, 46°48' N 95°49' E.
45) **Mogojin-Gol**: Mongolian Altai Mts. (south slope), Mogojin-Gol Valley, 1,800 m, 45°39' N 93°47' E.
46) **Alta**: 40 km ENE Alta, 46°32' N 96°47' E.
47) **Tsargin**: Takhijn-Shara-Nuru mountain range, 5 km S Tsargin, 44°55' N 93°50' E.
48) **Atas-Ula**: Atas-Ula Mts., 1,950–2,150 m, 44°54' N 95°11' E.
49) **Naran**: 10 km SE Naran, 46°05' N 96°30' E.
50) **Il-Gol**: Adzh-Bogdo Mt. (south slope), Il-Gol Valley, 2,500 m, 44°48' N 95°17' E.
51) **Tajshir**: Near Tajshir, Dzabhan River Valley, Ikhd-Nomgon-Ula Mt., 1,400 m, 46°48' N 96°31' E.
52) **Dutijn-Dava**: Dutijn-Dava Pass, 37 km ENE Tsogt, 2,800–2,850 m, 45°30' N 96°19' E.
53) Burgyn-Davaa: 16 km SW Bugat, Burgyn-Davaa Pass, 2,500 m, 45°34′ N 94°13′ E.

54) Khalyun: 10 km SE Khalyun, 45°50′ N 96°09′ E.

RESULTS

ANNOTATED LIST OF THE CHRYSOMELINAE
(CHRYSomeliDAE) FAUNA
OF THE MONGOLIAN ALTAI

Crosita Motshulsky, 1860

Crosita altaica (Gebler, 1823)


Crosita clementzae clementzae Jacobson, 1899


Distribution. Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai). China (Xinjiang).

Crosita clementzae atasica Medvedev, 1976


Distribution. Mongolia (Gobi-Altai).

Notes. This is an endemic species in Mongolia.

Crosita elegans Lopatin, 1968


Distribution. Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai, Ubsunur).

Notes. This is an endemic species in Mongolia.

Crosita kowalewskyi kowalewskyi (Gebler, 1836)


Distribution. Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai, Bayankhongor, South Gobi). Russia (S Altai), NW China.

Crosita kowalewskyi matronula Weise, 1894


Distribution. Mongolia (Gobi-Altai, Bayankhongor, Uverhangay, Central).

Notes. This is an endemic species in Mongolia.
**Crosita rugulosa** (Gebler, 1841)

= *C. longipes* Jacobson, 1898


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai, Ubsunur). Russia (Altai, Tuva).

**Crosita pigra** Weise, 1894


**Distribution.** Mongolia (Bayan-Ulegei, Ubsunur). Russia (Tuva).

**Chrysolina Motschulsky, 1860**

**Chrysolina (Zeugotaenia) Motschulsky, 1860**

**Chrysolina (Zeugotaenia) limbata hochhuthii** (Suffrian, 1851)


**Distribution.** Mongolia, Russia (Mountains of E Siberia), E Kazakhstan, N China.

**Chrysolina (Anopachys) Motschulsky, 1860**

**Chrysolina (Anopachys) aurichalcea** (Mannerheim, 1825)


**Distribution.** Mongolia (widespread). Europe, N Kazakhstan, Russia (European part, W and Middle Siberia, Altai, Yakutia, Sakhalin). China, Korea, Japan.

**Chrysolina (Anopachys) quadrangulata** (Motschulsky, 1860)


**Distribution.** Mongolia (Bayan-Ulegei (new aimak record), Zavhan, Central, Bulgan, Arkhangai). Russia (Altai, Tuva, Irkutsk region, Magadan region, Chita region, Yakutia, Khabarosv region, Kamchatka).

**Notes.** This species is recorded here from the Mongolian Altai for the first time; it is previously known from eastern Mongolia.

**Chrysolina (Allohypericia) Bechyné, 1950**

**Chrysolina (Allohypericia) centralasiae** Lopatin, 1970


**Distribution.** Mongolia (Hovd, Gobi-Altai, Ubsunur, Bayankhongor, Uverhang, Mid-Gobi, South Gobi, East Gobi, Suhe Bator). E Siberia, N China (Inner Mongolia, Qinghai).

**Notes.** Lopatin (1970) described this species from southern Gobi Aimak based upon specimens in the collection of Dr. Kaszab. This species was not found by the author.

**Chrysolina (Allohypericia) aeruginosa alpina** Medvedev, 1980


**Distribution.** Mongolia (Hovd, Gobi-Altaï, Bayankhongor).

**Notes.** This species is endemic in Mongolia and inhabits highlands.

### Chrysolina (Allohypericia) perforata perforata (Gebler, 1830)


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Gobi-Altaï (new aimak record), N Zavhan, N Khubsugul, E Ubsunur). Russia (Altai, Khakassia, Tuva, Krasnoyarsk krai, Irkutsk region, Buryatia).

### Chrysolina (Allohypericia) simillima Mohr, 1966

**Notes.** This species is recorded here from the Mongolian Altai for the first time; it is previously reported only from Selenge aimak.

### Chrysolina (Chalcoidea) brunnicornis (Weise, 1887)

**References.** Weise 1887: 175; Medvedev and Voronova 1979: 112; Medvedev 1982: 244; Kippenberg 2010: 402.


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Gobi-Altaï, Ubsunur, Khubsugul, Selenge, Central). Russia (SE Altai, Tuva).

### Chrysolina (Chrysolina) staphylaea (Linnaeus, 1758)


**Distribution.** Mongolia (Hovd, Gobi-Altai, Khubsugul, Arkhangai, Bulgan, Central, Eastern). Holarctic.

*Chrysolina (Euchrysolina) Bechyne, 1950*

*Chrysolina (Euchrysolina) graminis*  
(Linnaeus, 1758)


**Distribution.** Mongolia (Hovd). Europe, Russia (European part, W and Middle Siberia, Yakutia).

**Notes.** This species is recorded here from the Mongolian Altai for the first time.

*Colaphellus Weise, 1916*

*Colaphellus alpinus* (Gebler, 1833)


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai, Ubsunur, Arkhangai, Selenge, Central, Hentiy, Eastern, Bayankhongor, Uverhang). Russia (S and Middle Siberia).

*Gastrophysa Chevrolat, 1836*

*Gastrophysa (Gastrophysa) Chevrolat, 1836*

*Gastrophysa (Gastrophysa) mannerheimi*  
(Stål, 1858)


**Distribution.** Mongolia (Bayan-Ulegei (new aimak record), Hovd, Gobi-Altai, Ubsunur, Arkhangai, Bulgan, Selenge, Central, Hentiy, Eastern, Bayankhongor, Uverhang). Russia (Siberia).

**Notes.** This species is recorded here from the Mongolian Altai for the first time. The beetles feed on willows growing on river banks.

*Phratora Chevrolat, 1836*

*Phratora (Phratora) Chevrolat, 1836*

*Phratora (Phratora) vulgarissima*  
(Linnaeus, 1758)


**Distribution.** Mongolia (Bayan-Ulegei (new aimak record), Hovd (new aimak record), Khubsugul, Arkhangai, Bulgan, Selenge, Central, Hentiy, Suhe Bator). Holarctic.

**Notes.** This species is recorded here from the Mongolian Altai for the first time. The beetles feed on willows growing on river banks.

*Phratora (Phylloecta) Kirby, 1837*

*Phratora (Phylloecta) polaris* (Schneider, 1886)


**Distribution.** Mongolia (Bayan-Ulegei (new aimak record), Hovd (new aimak record), Zavhan, Arkhangai, Selenge, Central, Hentiy), Europe, Russia (European part, Tuva, Irkutsk region), North Korea.

**Notes.** This species is recorded from the Mongolian Altai for the first time. The beetles feed on willows growing on river banks.

*Phaedon* Latreille, 1829

*Phaedon (Phaedon) Latreille, 1829*

**Phaedon (Phaedon) armoraciae** (Linnaeus, 1758)


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai, Ubsunur, Zavhan, Khubsugul, Arkhangai, Bulgan, Central, Hentiy, Suhe Bator, Bayankhong, Uverhangay, South Gobi), N, Central, and E Europe, mountains of S Kazakhstan and Central Asia, Russia (European part, Siberia east to Yakutia).

**Notes.** Adults and larvae feed on *Hippuris* L. (Plantaginaceae).

*Phaedon (Phaedon) concinnus* Stephens, 1834


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Gobi-Altai (new aimak record), Ubsunur, Zavhan, Khubsugul, Arkhangai, Bulgan, Central, Hentiy, Bayankhong, Uverhangay, South Gobi), NNW and E Europe, Baltic States, Russia (N European part, N Siberia, Far East).

**Sternoplatys** Motschulsky, 1860

**Sternoplatys clementzi** Jacobson, 1901


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Central, Hentiy, Eastern). Russia (Altai, Tuva, Yakutia).

**Chrysomela** Linnaeus, 1758

**Chrysomela (Chrysomela) populi** Linnaeus, 1758


**Distribution.** Mongolia (Bayan-Ulegei, Hovd, Ubsunur, Zavhan, Arkhangai, Uverhangay, Bulgan, Selenge, Central, Hentiy). Widespread in the Palearctic Region.

**Chrysomela (Chrysomela) saliceti** (Weise, 1884)


**Distribution.** Mongolia (Hovd, Ubsunur, Arkhangai, Uverhangay, Selenge, Central, Eastern). Widespread in the Palearctic Region except for Middle Asia.

**Notes.** This species was previously recorded in Hovd aimak only for the ridge Baytag-Bogdo. I have found it in the other more northern localities of this aimak.

**Chrysomela (Chrysomela) tremula** Fabricius, 1787


**Distribution.** Mongolia (Hovd, Ubsunur, Arkhangai, Bulgan, Selenge, Central, Hentiy, Eastern). Widespread in the Palearctic Region except for Middle Asia.

*Entomoscelis* Chevrolat, 1836

*Entomoscelis adonidis* (Pallas, 1771)


**Distribution.** Mongolia (Bayan-Ulegei (new aimak record), Hovd, Ubsunur, Arkhangai). Europe, Kazakhstan, Russia (European part, Siberia), Japan, China, N Africa.

*Oreomela* Jacobson, 1895

*Oreomela dubeshkoae* Medvedev, 1977

(Fig. 2)


**Distribution.** Mongolia (Hovd).

**Notes.** *Oreomela dubeshkoae* is the sole representative of *Oreomela s. str.* in the Mongolian Altai. Medvedev (1977) described this species based upon a single young female. I have found one additional female.

*Cystocnemis* Motschulsky, 1860

*Cystocnemis arnoldii* Lopatin, 1974


**Material Examined.** Munkh-Khairkhan, 30. vii.1968, leg. Arnoldi (ZIN); Ikh-Dhargalantyn-Gol, 5.vii.80, leg. L. Medvedev (ZIN).

**Distribution.** Mongolia (Bayan-Ulegei, Hovd). E Kazakhstan.

*Cystocnemis (Cystocnemis) levmedvedevi*

Mikhailov and Gus’kova, 2013


**Distribution.** Mongolia (Hovd).

**Notes.** This species is known only from the Arshantyn-Nuruu mountain range on the southwestern slopes of the Mongolian Altai. It may occur also on other ranges of similar elevation in the adjacent part of the Chinese Altai. All beetles were collected under stones on mountain crests in the zone of highland steppes. It is endemic in Mongolia.

*Cystocnemis (Entomomela)* Jacobson, 1925

*Cystocnemis (Entomomela) aorata* (Jacobson, 1926)


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