

# First records of seven click-beetles and a checklist of Mongolian Elaterids (Coleoptera, Elateridae)

Andrea JARZABEK-MÜLLER<sup>1</sup> & Tamás NÉMETH<sup>2</sup>

<sup>1</sup> Anton-Hilz-Strasse 42, D-94566 Riedlhütte, Bavaria, Germany  
e-mail: [andrea\\_jarzabek@yahoo.de](mailto:andrea_jarzabek@yahoo.de)

<sup>2</sup> Hungarian Natural History Museum, H-1088 Budapest, Baross utca 13, Hungary  
e-mail: [haesito@gmail.com](mailto:haesito@gmail.com)

**Abstract.** First records of *Ampedus gagatinus* Candèze, 1895, *Cardiophorus discicollis* Herbst, 1806, *Denticollis flavipes* Germar, 1846, *Eanus costalis costalis* Paykull, 1800, *Fleutiauxellus maritimus* Curtis, 1840, *Negastrius nadezhdae* Dolin, 1971, *Oedostethus latissimus* Cherepanov, 1957 and a complete checklist of Elateridae of Mongolia are presented with notes on distribution, morphological characteristics and photos of habitats for the new species and the endemic *Cardiophorus kaszabi* Gurjeva, 1969.

**Key Words:** Coleoptera, Elateridae, *Ampedus gagatinus*, *Cardiophorus discicollis*, *Cardiophorus kaszabi*, *Denticollis flavipes*, *Eanus costalis costalis*, *Fleutiauxellus maritimus*, *Negastrius nadezhdae*, *Oedostethus latissimus*, characteristics, distribution, new records, Palearctic, Mongolia, habitat

## Introduction

The fauna of the family Elateridae (Coleoptera) in Mongolia is currently inadequately known. Previous publications on the Mongolian elaterid beetles exist by Fleutiaux (1936), Gurjeva (1968, 1969, 1971, 1972, 1974, 1975a, b, 1976, 1980 and 1984), Emetz et al. (1974), Tegahzhargal (1989) and Bussler (2013). Currently 94 species of Elateridae have been recorded from Mongolia. The country is dominated by desert (Gobi) and steppe habitats, which are less suitable for the elaterids more associated with forest and riparian habitats. Due to the traditionally low intensity of forest use in Mongolia, these southern parts of the boreal forest belt in the Palaearctic provide natural habitats with many species, which are rare in Europe, but occurring here in strong populations (Müller et al. 2013). The appearance of international wood companies are new threat to these extensive virgin forests, important habitat for elaterids.

Elaterids were collected during three trips in 2010, 2012 and 2014 covering the region of Ulaanbaatar (surrounding), Changai, Gobi, Altai and the Forests of the Khan Khentii area between Zuuncharaa and Khonin Nuga (buffer zone of the Strictly Protected Area of Khan Khentii (Mühlenberg et al. 2011)). In addition, the click-beetles of the collecting trips of the eminent Hungarian coleopterist Dr. Zoltán Kaszab (1915–1986) between 1963 and 1968 in Mongolia and deposited in the collection of the Hungarian Natural History Museum, Budapest, Hungary (HNHM) were examined.

In this contribution seven species are recorded for the first time in Mongolia.

## First records and some comments on the characteristics

Subfamily **Elaterinae** Leach, 1815  
Tribe **Ampedini** Gistel, 1856

***Ampedus gagatinus*** Candèze, 1895  
*Elater compactus* Candèze, 1891  
*Elater candezei* Kraatz, 1879  
(Fig. 1-4)

**Material examined.** 1 ♀ – **Mongolia**, Selenge Prov., West-Khentii, Khan Khentii SPA, 5 km W of Khonin Nuga Research Station, 1370 m NN a. s. l. (N 49.11787° E 107.26859°), 30.VII.2010, A. Jarzabek- Müller leg. et coll., A. Jarzabek-Müller det. 2010; 1 ♂ – **Mongolia**, Selenge Prov., West-Khentii, Khan Khentii SPA, Khonin Nuga

Research Station, 919 m NN a. s. l. (N 49.08748° E 107.29216°), 31.VII.2010, J. Müller leg., A. Jarzabek-Müller det. 2010, A. Jarzabek-Müller coll.

Collection circumstances: The both specimen were found under the bark of a large burned dead larch (*Larix sibirica*) in a Dark Taiga Forest of the upper montane belt with *Pinus sibirica* and in a *Larix sibirica-Betula platyphylla* Sub Taiga Forest (Fig. A1, A2).

Characteristics: *Ampedus gagatinus* Candèze differs from *A. aethiops* Lacordaire by the larger and more robust body. The pronotum is strongly punctured but shiny. Elytral striae are strongly impressed. The interstriae are convex to strongly convex near elytra base (Fig. 1, 2). Legs and antennae are brown-reddish.

*A. gagatinus* also differs from the similar species - *A. cognatus* Gurjeva, *A. fulvipes* Motschulsky and *A. pallipes* Kraatz - by the umbilicated punctures along the lateral margin of pronotum (punctures along the lateral margin of pronotum in the back third of these species are simple).

Length: 12 - 16 mm, Sternite (Fig. 3), Aedeagus (Fig. 4).

Distribution: Russia (East Siberia, West Siberia, Far East), Kazakhstan (Cate 2007), China (Liaoning) (Platia & Gudzeni 2006), China (Heilongjiang) (Mertlik & Cooter 2007).

**First record for Mongolia.** E. L. Gurjeva has already suspected this species in northern Mongolia (Gurjeva 1975b).



Fig. 1. *Ampedus gagatinus* Candèze, ♂  
(from Mongolia)  
Body length 13.4 mm



Fig. 2. *Ampedus gagatinus* Candèze, ♀  
(from Mongolia)  
Body length 15.7 mm



Fig. 3. *A. gagatinus* Cand., ♂  
9<sup>th</sup> and 10<sup>th</sup> sternite



Fig. 4. *A. gagatinus* Cand., ♂  
Aedeagus

Subfamily **Denticollinae** Stein & J. Weise, 1877  
 Tribe **Denticollini** Stein & Weise, 1877

*Denticollis flavipes* Germar, 1846  
*Campylus flavipes* Germar, 1846  
 (Fig. 5)

Material examined. 1 ♂ – **Mongolia**, Selenge Prov., West-Khentii, Khan Khentii SPA, Khonin Nuga Research Station, 978 m NN a. s. l. (N 49.08757° E 107.29188°), 17.VI.2012, A. Jarzabek-Müller leg. et coll., A. Jarzabek-Müller det. 2014

Collection circumstances: This species was taken by sweeping of herbage in *Larix sibirica-Betula platyphylla* Sub Taiga Forest (Fig. A13).

Length: 9 - 13 mm.

Distribution: Russia (Far East) (Cate 2007).

**First records for Mongolia.**



Fig. 5. *Denticollis flavipes* Germar, ♂ and aedeagus (from Mongolia)  
 Body length 11.5 mm

Tribe **Ctenicerini** Fleutiaux, 1936

*Eanus costalis costalis* Paykull, 1800  
*Diacanthus parvicollis* Mannerheim, 1853  
 (Fig. 6-11)

Material examined. 1 ♂ – **Mongolia**, Selenge Prov., West-Khentii, Khan Khentii SPA, 8 km W of Khonin Nuga Research Station, 1541 m NN a. s. l. (N 49.16406° E 107.30070°), 19.VI.2012, A. Gruppe leg., A. Jarzabek-Müller det. 2014, A. Jarzabek-Müller coll.; 1 ♀ – **Mongolia**, Selenge Prov., West-Khentii, Khan Khentii SPA, Khonin Nuga Research Station, 960 m NN a. s. l. (N 49.08731° E 107.31025°), 21.VI.2012, J. Müller leg., A. Jarzabek-Müller det. 2014, A. Jarzabek-Müller coll.

Collection circumstances: This species was taken by sweeping of fir (*Abies sibirica*) and spruce (*Picea obovata*) canopy in *Larix sibirica-Betula platyphylla* Sub Taiga Forest and riverine Forest (Fig. A3).

Characteristics: *Eanus costalis costalis* Paykull (Subgenus *Pareanus*) is distinguished from *E. guttatus* Germar and *E. singularis* Mannerheim (Subgenus *Eanus*) by the larger size, the flattened frontal collar margin and the characteristic genital (Fig. 8-11).

Length: 6.5 - 10 mm, Aedeagus (Fig. 8, 9).

Distribution: Finland, Norway, Sweden, Russia (North European Territory, East Siberia, Far East, West Siberia), Nearctic Region (Cate 2007).

**First records for Mongolia.**



Fig. 6. *Eanus costalis costalis* Paykull, ♂  
(from Mongolia)  
Body length 7.8 mm



Fig. 7. *Eanus costalis costalis* Paykull, ♀  
(from Mongolia)  
Body length 8.8 mm



Fig. 8. Aedeagus of  
*E. costalis costalis* Payk.  
(from Mongolia)



Fig. 9. Aedeagus of  
*E. costalis costalis* Payk.  
(Gurjeva, 1989)



Fig. 10. Aedeagus of  
*E. guttatus* Germ.  
(Gurjeva, 1989)



Fig. 11. Aedeagus of  
*E. singularis* Mann.  
(Gurjeva, 1989)

### Subfamily Negastriinae Nakane & Kishii, 1956

#### *Fleutiauxellus maritimus* Curtis, 1840

*Cryptohypnus gracilis* Mulsant & Guillebeau, 1855

*Cryptohypnus morio* Kiesenwetter, 1858

*Cryptohypnus scotus* Candèze, 1860

(Fig. 12-14)

Material examined. 5 ♂ – **Mongolia**, Zavakhan Prov., 30 km N Uliastai, 2149 m NN a. s. l. (N 47.90016° E 097.04172°), 09.VI.2012, A. Jarzabek-Müller leg. et coll., A. Jarzabek-Müller det. 2014

Collection circumstances: This species was found under stones along the bank of a partially dried up small mountain river (Fig. A4).

Characteristics: The sides of the last sternite are a little emarginated before apex, which ceased in a tip (Fig. 13). The 2<sup>th</sup> antennal segment is globose and as dull as the following segments. The scutellum is clearly longer than wide.

The similar species *Fleutiauxellus algidus* Sahlberg differs from *F. maritimus* Curtis by the simple rounded 5<sup>th</sup> sternite. In *F. algidus* the second antennal segment is tapered or cylindric and shiny. The scutellum is not or slightly longer than wide.

Length: 4 - 6 mm, Sternite (Fig. 13), Aedeagus (Fig. 14).

Distribution: Austria, Czech Republic, Finland, France, Germany, Great Britain, Italy, Norway, Poland, Slovakia, Slovenia, Sweden, Switzerland, Ukraine (Cate 2007)

**First record for Mongolia.**



Fig. 12. *Fleutiauxellus maritimus* Curtis, ♂  
(from Mongolia)  
Body length 4.5 mm - 4.8 mm



Fig. 13. 5<sup>th</sup> sternite of *F. maritimus* Cur., ♂  
(from Mongolia)



Fig. 14. Aedeagus of *F. maritimus* Cur.  
(from Mongolia)

***Oedostethus latissimus* Cherepanov, 1957**  
(Fig. 15)

Material examined. 1 ♀ – **Mongolia**, Uvs Prov., Somon Öndörchangaj, 1900 m, 11.VII.1968, Z. Kaszab leg., E. L. Gurjeva det., HNHM coll.

Length: 5.3 - 6 mm (Fig. 15).

Distribution: Russia (East Siberia) (Cate, 2007).

**First record for Mongolia.**



MONGOLIA: Uvs aimak  
Somon Öndörchangej,  
1900 m  
Exp. Dr. Z. KASZAB, 1968

Nr. 1090

11.VII.1968

*Cryptohypnus*  
*latissimus* Tsche.  
Gurjeva det.

Fig. 15. *Oedostethus latissimus* Cherepanov, ♀ (from Mongolia)  
Body length 6 mm

***Negastrius nadezhdae* Dolin, 1971**  
 (Fig. 16-20)

Material examined. 4 ♂, 4 ♀ – **Mongolia**, Selenge Prov., West-Khentii, Khan Khentii SPA, Khonin Nuga Research Station, River Yeröö Gol, 919 m NN a. s. l. (N 49.08748° E 107.29216°), 28.VII.-08.VIII.2010 and 20.VI.2012; 5 ♂, 13 ♀, 1 Larva – **Mongolia**, Khovd Prov., Altai, near Bayan-Enger, 1799 m NN a. s. l. (N 48.42078° E 090.97356°), 06.VI.2012, A. Jarzabek-Müller leg. et coll., A. Jarzabek-Müller det. 2014; 2 ♂ – **Mongolia**, Bayan-Olgii Prov., Altai, Ölgii, Tsagaannuur, 1669 m NN a. s. l. (N 49.06376° E 090.18032°), 07.VI.2012, A. Jarzabek-Müller leg. et coll., A. Jarzabek-Müller det. 2014.

Collection circumstances: This species was found under stones or running on sand along sandbanks of mountain rivers (Fig. A5-A8).

Characteristics: *Negastrius nadezhdae* Dolin is similar to *N. pulchellus* Linnaeus but of this distinguished by the rugosized, matted and punctured elytral intervals (Fig. 19). The marginal punctures of several first elytral intervals of *N. pulchellus* form continuous rows and interstices are nearly smooth and shiny (Fig. 21).

*N. nadezhdae* differs from *N. arenicola* Boheman by the shallower elytral intervals. The elytral striae of *N. arenicola* are more deeply engraved, especially in the anterior half of elytra (Fig. 22).

Length: 2.7 - 4.2 mm, Aedeagus (Fig. 20).

Distribution: Kirghizia (East Than-Shan Mountains) (Dolin 1971) (Fig. 23), Nearctic (North America: U.S.A. (Massachusetts, New Hampshire)) (Wells 1996).

**First records for Mongolia.**



Fig. 16. *Negastrius nadezhdae*  
 Dolin, ♂ (from Mongolia)  
 Body length 2.9 mm - 3.8 mm



Fig. 17. *N. nadezhdae* Dolin, ♀  
 (from Mongolia)



Fig. 18. Dolin's drawing of  
*N. nadezhdae*, ♂



Fig. 19. Elytral intervals and striae of  
*N. nadezhdae* Dol., ♂ (from Mongolia)



Fig. 20. Aedeagus of *N. nadezhdae* Dol.  
 (from Mongolia)



Fig. 21. Elytral intervals and striae of  
*N. pulchellus* L., ♂  
(from Bulgaria)



Fig. 22. Elytral intervals and striae of  
*N. arenicola* Boh., ♂  
(from Poland)



Fig. 23. Known Distribution of *Negastrius nadezhdae* Dolin in the Palearctic Region

Subfamily **Cardiophorinae** Candèze, 1860  
 Tribe **Cardiophorini** Candèze, 1860

***Cardiophorus discicollis* Herbst, 1806**

*Cardiophorus brevinotaticollis* Pic, 1913

*Cardiophorus ganglbaueri* Buysson, 1897

*Cardiophorus pleuralis* Buysson, 1899

(Fig. 24)

Material examined. 1 ♀—**Mongolia**, Chovd Prov., Mongol Altaj Gebirge, Uljasutajn gol, 45 km NNO von Somon Bulgan, 1400 m, 6.VII.1966, Z. Kaszab leg., E. L. Gurjeva det. 1967, HNHM coll.

Length: 6 - 7.5 mm (Fig. 24).

Distribution: Austria, Bosnia Herzegovina, Bulgaria, China (Xinjiang), Croatia, Czech Republic, Germany, Georgia, Greece, Hungary, Italy, Israel, Kazakhstan, Macedonia, Moldavia, Poland, Romania, Russia (Central and South European Territory, West Siberia), Serbia and Montenegro, Slovakia, Slovenia, Switzerland, Syria, Tajikistan, Turkey, Ukraine (Cate, 2007).

**First record for Mongolia.**

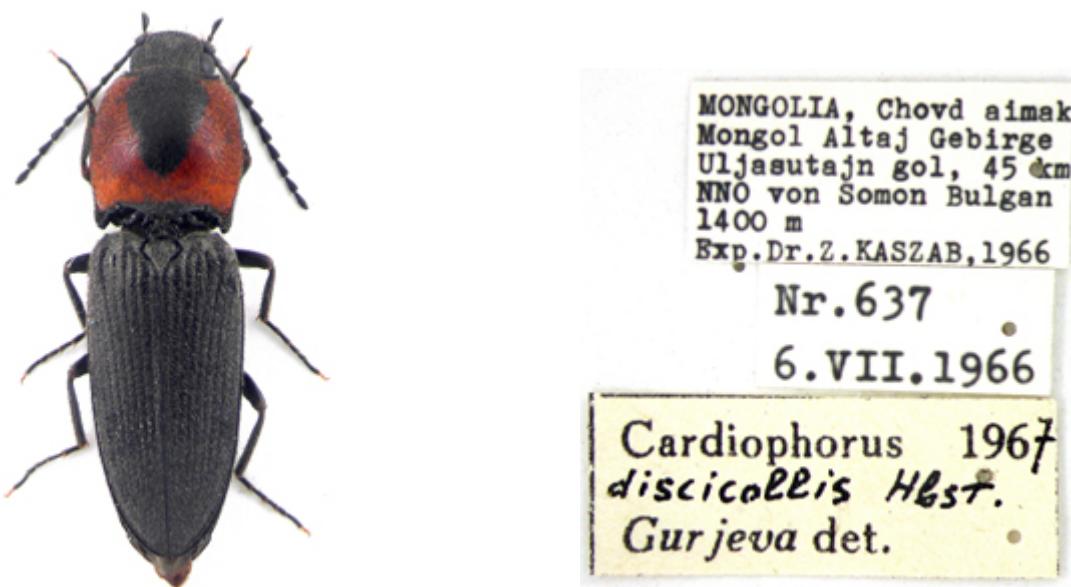


Fig. 24. *Cardiophorus discicollis* Herbst, ♀ (from Mongolia)  
 Body length 7 mm

## Notes on the endemic species *Cardiophorus kaszabi* Gurjeva, 1969

(Fig. 25–29, 31)

Material examined. 2 ♂ – Mongolia, Khovd Prov., Altai, Khovd, near Myangad, 1263 m NN a. s. l. (N 48.15238° E 091.74115°), 05.VI.2012, A. Jarzabek-Müller leg. et coll., A. Jarzabek-Müller det. 2014

Collection circumstances: This species was collected from shrubs of *Caragana pygmaea* (Fig. A15).

Characteristics: *Cardiophorus kaszabi* Gurjeva is similar to *C. przewalskii* Gurjeva and *C. vexillarius* Candèze. However, the species can be distinguished as follows:

The punctures of pronotum of *C. kaszabi* are the same size (Fig. 29), while die punctures of pronotum of *C. vexillarius* are two different sizes (Fig. 30).

The shape of scutellum of *C. kaszabi* is heart-shaped and slightly longer than wide (Fig. 31), whereas the scutellum of *C. przewalskii* is narrow and clearly longer than wide (Fig. 32).

Length: 6.8 – 8 mm, Aedeagus (Fig. 27, 28)

Distribution: Mongolia (Ömnögov Province (South Gobi), Dundgovi Province (Middle Gobi)) (Gurjeva 1969, Cate 2007).



Fig. 25. *Cardiophorus kaszabi* Gurjeva, ♂; 1<sup>st</sup> specimen (from Mongolia)  
Body length 6.9 mm



Fig. 26. *Cardiophorus kaszabi* Gurjeva, ♂; 2<sup>nd</sup> specimen (from Mongolia)  
Body length 7.7mm



Fig. 27. Aedeagus of *C. kaszabi* Gurj.  
(from Mongolia)



Fig. 28. Gurjeva's drawing of aedeagus of *C. kaszabi* (Gurjeva, 1969)



Fig. 29. Punctures of pronotum of *C. kaszabi* Gurj.  
(from Mongolia)

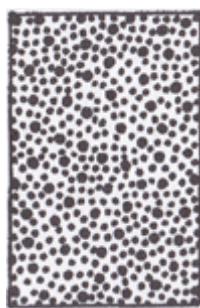


Fig. 30. Gurjeva's drawing of the punctures of pronotum of *C. vexillarius* Cand.  
(Gurjeva, 1966)



Fig. 31. Scutellum of *C. kaszabi* Gurj.  
(from Mongolia)



Fig. 32. Gurjeva's drawing of scutellum of *C. przewalskii* Gurj.  
(Gurjeva, 1966)

## List of species of Elateridae of Mongolia with some habitat photos

Family **Elateridae** Leach, 1815

Subfamily **Agrypninae** Candèze, 1857

Genus **Danosoma** Thomson, 1859

**Danosoma conspersa** Gyllenhal, 1808

**Danosoma fasciata** Linnaeus, 1758 (Fig. A9, A10)

Genus **Lacon** Laporte, 1838

**Lacon altaicus** Candèze, 1882

Genus **Aeoloderma** Fleutiaux, 1928

**Aeoloderma savioi** Fleutiaux, 1936

Genus **Aeoloides** Schwarz, 1906

**Aeoloides grisescens** Germar, 1844

**Aeoloides hauseri** Reitter, 1896

Subfamily **Elaterinae** Leach, 1815

Genus **Agriotes** Eschscholtz, 1829

**Agriotes lineatus** Linnaeus, 1767

**Agriotes meticulosus** Candèze, 1863

**Agriotes nadezhdae** Cherepanov, 1965

**Agriotes obscurus** Linnaeus, 1758

**Agriotes rugipennis** Schwarz, 1891

**Agriotes sericatus** Schwarz, 1891

**Agriotes soederbomi** Fleutiaux, 1936

**Agriotes sputator** Linnaeus, 1758

**Agriotes squalidus squalidus** Schwarz, 1891

**Agriotes unicolor** Koenig, 1889

**Agriotes zinovjevi** Gurjeva, 1967

Genus **Dalopius** Eschscholtz, 1829

**Dalopius marginatus** Linnaeus, 1758

**Dalopius puerilis** Candèze, 1879

Genus **Ampedus** Dejean, 1833

**Ampedus balteatus** Linnaeus, 1758

**Ampedus basalis** Mannerheim, 1852

**Ampedus bocakorum** Schimmel, 2003

**Ampedus gagatinus** Candèze, 1895 **New record for Mongolia** (Fig. A1, A2)

**Ampedus nigrinus** Herbst, 1784

**Ampedus pallipes** Kraatz, 1879

**Ampedus pomona** Stephens, 1830

**Ampedus pomorum** Herbst, 1784

**Ampedus sanguineus** Linnaeus, 1758

**Ampedus sanguinolentus sanguinolentus** Schrank, 1776

**Ampedus sobrinus** Motschulsky, 1860

Genus **Sericus** Eschscholtz, 1829

**Sericus brunneus brunneus** Linnaeus, 1758

Genus ***Astanchus*** Gurjeva, 1979

***Astanchus ussuriensis*** Gurjeva, 1975

Subfamily **Melanotinae** Candèze, 1859  
Genus ***Melanotus*** Eschscholtz, 1829

***Melanotus mongolicus*** Gurjeva, 1968

Subfamily **Hypnoidinae** Schwarz, 1906  
Genus ***Berninelsonius*** Leseigneur, 1970

***Berninelsonius hyperboreus*** Gyllenhal, 1827

Genus ***Hypnoidus*** Dillwyn, 1829

***Hypnoidus koltzei*** Reitter, 1910

***Hypnoidus rivularius rivularius*** Gyllenhal, 1808

Genus ***Ligmargus*** Stibick, 1976

***Ligmargus depressus*** Gebler, 1847 (Fig. A11)

Subfamily **Pleonominae** Semenov & Pjatakova, 1936  
Genus ***Pleonomus*** Ménétriés, 1849

***Pleonomus canaliculatus*** Faldermann, 1835

Subfamily **Denticollinae** Stein & Weise, 1877  
Genus ***Cidnopus*** Thomson, 1859

***Cidnopus koltzei*** Reitter, 1895 (Fig. A16)

***Cidnopus parallelus*** Motschulsky, 1860 (Fig. A16)

Genus ***Pheletes*** Kiesenwetter, 1858

[***Pheletes quercus*** Olivier, 1790]

***Pheletes lythroides*** Germar, 1813: According to Reitter (1905, p. 19) it also present in northern Mongolia, but Gurjeva (1972) revised this statement; distribution only in Central and Southern Europe.

***Pheletes reitteri*** Gurjeva, 1976

Genus ***Denticollis*** Piller & Mitterpacher, 1783

***Denticollis borealis*** Paykull, 1800 (Fig. A13)

***Denticollis cinctus*** Candèze, 1863 (Fig. A13)

***Denticollis flavipes*** Germar, 1846 New record for Mongolia (Fig. A13)

***Denticollis linearis*** Linnaeus, 1758

***Denticollis mongolicus*** Motschulsky, 1860

***Denticollis nigricollis*** Gebler, 1830

***Denticollis varians varians*** Germar, 1846

Genus ***Diacanthous*** Reitter, 1905

***Diacanthous undulatus*** DeGeer, 1774 (Fig. A13)

Genus ***Megathous*** Reitter, 1905

***Megathous dauricus*** Mannerheim, 1852

***Megathous sedakovii*** Mannerheim, 1852

Genus *Anostirus* Thomson, 1859

*Anostirus boeberi* Germar, 1842 (Fig. A11, A12)  
*Anostirus castaneus castaneus* Linnaeus, 1758

Genus *Ctenicera* Latreille, 1829

*Ctenicera cuprea* Fabricius, 1775

Genus *Eanus* LeConte, 1861

*Eanus costalis costalis* Paykull, 1800 New record for Mongolia (Fig. A3)

Genus *Liotrichus* Kiesenwetter, 1858

*Liotrichus affinis* Fabricius, 1775

Genus *Hypoganomorphus* Dolin, 1975

*Hypoganomorphus laevicollis* Mannerheim, 1852 (Fig. A13)

Genus *Metanomus* Buysson, 1887

*Metanomus infuscatus* Eschscholtz, 1829

Genus *Paraphotistus* Kishii, 1966

*Paraphotistus impressus impressus* Fabricius, 1792

Genus *Poemnites* Buysson, 1894

*Poemnites hamirensis* Cherepanov, 1957

Genus *Prosternon* Latreille, 1834

*Prosternon montanum* Gurjeva, 1980

*Prosternon sericeum* Gebler, 1824 (Fig. A14)

Genus *Pseudanostirus* Dolin, 1964

*Pseudanostirus altaicus altaicus* Eschscholtz, 1829

*Pseudanostirus ecarinatus* Stepanov, 1930

*Pseudanostirus vicinus* Gurjeva, 1984

Genus *Selatosomus* Stephens, 1830

*Selatosomus (Pristilophus) melancholicus melancholicus* Fabricius, 1798

*Selatosomus (Pristilophus) punctatissimus* Ménétriés, 1851

*Selatosomus (Selatosomus) aeneus* Linnaeus, 1758

*Selatosomus (Selatosomus) centralis* Candèze, 1882

*Selatosomus (Selatosomus) confluens confluens* Gebler, 1830

*Selatosomus (Selatosomus) coreanus* Miwa, 1928 (Fig. A11)

*Selatosomus (Selatosomus) latus* Fabricius, 1801

*Selatosomus (Selatosomus) songoricus* Kraatz, 1879 (Fig. A11)

Subfamily **Negastriinae** Nakane & Kishii, 1956

Genus *Fleutiauxellus* Méquignon, 1930

*Fleutiauxellus maritimus* Curtis, 1840 New record for Mongolia (Fig. A4)

Genus *Negastrius* Thomson, 1859

*Negastrius nadezhdae* Dolin, 1971 **New record for Mongolia** (Fig. A5-A8)  
*Negastrius pulchellus* Linnaeus, 1761

Genus *Neohypdonus* Stibick, 1971

*Neohypdonus arcticus altaicus* Cherepanov, 1957

Genus *Oedostethus* LeConte, 1853

*Oedostethus aerarius* Reitter, 1895

*Oedostethus graniger* Cherepanov, 1956 (Fig. A8)

*Oedostethus kaszabi* Gurjeva, 1968

*Oedostethus latissimus* Cherepanov, 1957 **New record for Mongolia**

*Oedostethus mediocris* Gurjeva, 1972

*Oedostethus mystax* Gurjeva, 1971

*Oedostethus varians* Gurjeva, 1968 (Fig. A8)

Genus *Zorochros* Thomson, 1859

*Zorochros hummeli* Fleutiaux, 1936

*Zorochros murinoides* Gurjeva, 1963 According to Gurjeva (1975b) it is also present in southern Mongolian Altai Mts.

Subfamily **Cardiophorinae** Candèze, 1860

Genus *Cardiophorus* Eschscholtz, 1829

*Cardiophorus discicollis* Herbst, 1806 **New record for Mongolia**

*Cardiophorus ebeninus* Germar, 1824 (Fig. A16-A17)

*Cardiophorus gebleri gebleri* Candèze, 1860

*Cardiophorus kaszabi* Gurjeva, 1969 (Fig. A15)

*Cardiophorus keyserlingi* Koenig, 1889

*Cardiophorus vestigialis* Erichson, 1840

*Cardiophorus vulgaris* Motschulsky, 1860

Genus *Dicronychus* Brullé, 1832

*Dicronychus subulipennis* Faldermann, 1835

Genus *Paracardiophorus* Schwarz, 1895

*Paracardiophorus erythrurus* Candèze, 1882

*Paracardiophorus kaszabi* Gurjeva, 1968

*Paracardiophorus pullatus pullatus* Candèze, 1873 (Fig. A8)

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**Appendix: Habitat photos**

**Fig. A1.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 1370 m NN a. s. l., 30.VII.2010.  
Biotope of *Ampedus gagatinus* Cand. – photo A. Jarzabek-Müller



**Fig. A2.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 1370 m NN a. s. l., 30.VII.2010.  
*Larix sibirica* - Locality of *Ampedus gagatinus* Cand. – photo A. Jarzabek-Müller



**Fig. A3.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 1541 m NN a. s. l., 19.VI.2012.  
Biotope of *Eanus costalis costalis* Payk. – photo V. Dorka



**Fig. A4.** Mongolia, Zavakhan Prov., 30 km N Uliastai, 2149 m NN a. s. l., 09.VI.2012.  
Biotope of *Fleutiauxellus maritimus* Cur. – photo A. Jarzabek-Müller



**Fig. A5.** Mongolia, Khovd Prov., Altai, near Bayan-Enger, 1799 m NN a. s. l., 06.VI.2012.  
Biotope of *Negastrius nadezhdae* Dol. – photo A. Jarzabek-Müller



**Fig. A6.** Mongolia, Khovd Prov., Altai, near Bayan-Enger, 1799 m NN a. s. l., 06.VI.2012.  
Jörg Müller and the author in collecting. Locality of *Negastrius nadezhdae* Dol. – photo H. Bussler



**Fig. A7.** Mongolia, Bayan-Olgii Prov., Altai, Ölgii, Tsagaannuur, 1669 m NN a. s. l. , 07.VI.2012.  
Biotope of *Negastrius nadezhdae* Dol. – photo A. Jarzabek-Müller



**Fig. A8.** Mongolia, Selenge Prov., Khan Khentii SPA, River Yeröö Gol, 919 m NN a. s. l., 03.VIII.2010.  
Biotope of *Negastrius nadezhdae* Dol., *Oedostethus graniger* Cherep., *O. varians* Gurj. and  
*Paracardiophorus pullatus pullatus* Cand. – photo A. Jarzabek-Müller



**Fig. A9.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 910 m NN a. s. l., 20.VI.2012.  
Biotope of *Danosoma fasciata* L. – photo H. Bussler



**Fig. A10.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 933 m NN a. s. l., 01.VIII.2010.  
*Betula platyphylla* - Locality of *Danosoma fasciata* L. – photo A. Jarzabek- Müller



**Fig. A11.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 960 m NN a. s. l., 20.VI.2012.  
Biotope of *Ligmargus depressus* Gebl., *Anostirus boeberi* Germ., *Selatosomus coreanus* M. and  
*S. songoricus* Kr., osprey nest on burned *Larix* s. tree. – photo A. Jarzabek-Müller



**Fig. A12.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 978 m NN a. s. l., 17.VI.2012.  
*Anostirus boeberi* Germ., ♀ on *Salix* spec. – photo A. Jarzabek-Müller



**Fig. A13.** Paul and Andrea Jarzabek-Müller during sampling in Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 980 m NN a. s. l., 18.VI.2012. Biotope of *Denticollis borealis* Payk., *D. cinctus* Cand., *D. flavipes* Germ., *Diacanthous undulatus* DeGeer and *Hypoganomorphus laevicollis* Ma. – photo J. Müller



**Fig. A14.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 1513 m NN a. s. l., 15.VI.2012. Biotope of *Prosternon sericeum* Gebl. – photo A. Jarzabek-Müller



**Fig. A15.** Mongolia, Khovd Prov., Altai, Khovd near Myangad, 1263 m NN a. s. l., 05.VI.2012.  
Biotope of *Cardiophorus kaszabi* Gurj. with shrubs of *Caragana spinosa* and *C. pygmaea* –  
photo A. Jarzabek-Müller



**Fig. A16.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 919 m NN a. s. l., 01.VIII.2010.  
Biotope of *Cardiophorus ebeninus* Germ., *Cidnopus koltzei* Reitt. and *C. parallelus* Motsch. –  
photo A. Jarzabek-Müller



**Fig. A17.** Mongolia, Selenge Prov., West-Khentii, Khan Khentii SPA, 919 m NN a. s. l., 01.VIII.2010.  
*Cardiophorus ebeninus* Germ. on an umbellifer – photo A. Jarzabek-Müller

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