

## New data on the fauna of Heteroceridae (Coleoptera) of Western Siberia

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A list of five species of two genera of the family Heteroceridae (Coleoptera) which were collected in Western Siberia (Kemerovo Area, Russia) is given. All species are recorded from the Kemerovo Area for the first time; two species, (*Augyles intermedius* (Kiesenwetter, 1843) and *Heterocerus obsoletus* Curtis, 1828), are recorded from Western Siberia for the first time. The recent stage of investigation of the Siberian fauna of the family Heteroceridae is discussed. The key of the family for the Western Siberia region is provided.

Key words: Kemerovo Area, new records.

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### INTRODUCTION

The variegated mud-loving beetles (Heteroceridae) is a small family of Coleoptera belonging to the superfamily Byrrhoidea. The species of this family inhabit the banks of water bodies at all stages of their life cycle, and can be collected from the narrow strip of ground along the water's edge, where they build tunnels in sand or other wet substrates. The imago often flies towards light at night.

According to current catalogues (Mascagni 2006; Sazhnev 2013), the fauna of Heteroceridae of Russia comprises nineteen species of two genera. The fauna and distribution of the family in Siberia is still not well-studied and the available data are scattered in a number of old faunistic papers of the XIX and early XX centuries, which often mismatch or contradict each other (Gebler 1830; Sahlberg 1880; Heyden 1880-1881; Zaitzev 1908; Jakobson 1913; Mordkovich & Volkovintser

1965). There are eight species of the Heteroceridae which have been recorded for the fauna of Western Siberia by different authors (Gebler 1830; Sahlberg 1880; Heyden 1880-1881; Zaitsev 1908; Jakobson 1913; Strien 1980).

The present study is the first contemporary contribution to the fauna of the family Heteroceridae of Western Siberia, and in particular of the Kemerovo Area. This work is an important contribution for understanding the biodiversity of the region in question.

## MATERIAL AND METHODS

The present paper is based on material, which has been collected in the Kemerovo Area during 2009-2014. Additionally, we have used material provided by private collectors. Beetles were collected using manual collection and by flotation. The species identification has been conducted by the second author. The morphological studies were carried out using an *MBS-1* digital stereomicroscope. The distribution maps were created using Simplemappr software ([www.simplemappr.net](http://www.simplemappr.net)).

The examined material is deposited in the collections of the authors and in the private collections of A.V. Korshunov and N.N. Savosin (Kemerovo, Russia). Habitual photographs have been made by the second author.

## RESULTS

### Subfamily Heterocerinae MacLeay, 1825 Tribus Augyliini Pacheco, 1964

#### *Augyles intermedius* (Kiesenwetter, 1843) (Fig. 1)

**Material examined.** Kuznetsk depression, near Shabanovo vill., pond, 25.VII.2014, D. Efimov leg. (1 spec.).

**Distribution.** North and Eastern Europe, Mongolia, Kazakhstan, Eastern Siberia and Russian Far East (Egorov 1989; Mascagni 2006). It was recorded for Northern Siberia by Zaitsev (1908) and for Siberia by Charpentier (1979) and Kirejtshuk (2001). This species is also known from North Canada (Charpentier 1979). The habitus of the species is shown in Fig. 1. A map of the localities inhabited by this species is shown in Fig. 4.

### Tribus Heterocerini MacLeay, 1825

#### *Heterocerus fenestratus* (Thunberg, 1784)

**Material examined.** Kuznetsk depression, Kemerovo distr., Osinovka vill., in barrel with water, 11.VII.2001, A. Korshunov leg. (1 spec.); Kemerovo, forest-steppe, shore of small stagnant water body, 16.VIII.2009, D. Efimov leg. (1 spec.); Kuznetsk depression, Promyshlennovskiy distr., Morozovo, stagnant water body, 22.VI.2012, D. Efimov leg. (6 spec.); Kuznetsk depression, near Shabanovo vill., pond, 25.VII.2014, D. Efimov leg. (1 spec.).

**Distribution.** It is a widespread Holarctic species, also known from the Oriental region (Vietnam, Laos, Thailand, Philippines) (Charpentier 1979; Mascagni 2003, 2006; King & Lago 2012). *Heterocerus fenestratus* has been recorded by Sahlberg (1880) from the Ob' River in the vicinity of Narym, near Lake Tshyornoye (?) (Tomsk Area) and the environs of Tobolsk. A map of the localities inhabited by this species is shown in Fig. 5.

#### *Heterocerus fuscus* Kiesenwetter, 1843

**Material examined.** Kuznetsk depression, near Shabanovo vill., pond, 25.VII.2014, D. Efimov leg. (2 spec.).

**Distribution.** The species is known from Europe, Turkey, Iran, Kazakhstan, Kyrgyzstan, south of Siberia to Cisbaikalia (Zaitsev 1908; Mascagni 2006; Kirejtshuk 2001). It has been recorded from Western Siberia by Strien



Fig. 1. *Augyles intermedius* Kies. - habitus      Fig. 2. *Heterocerus obsoletus* Curtis - habitus

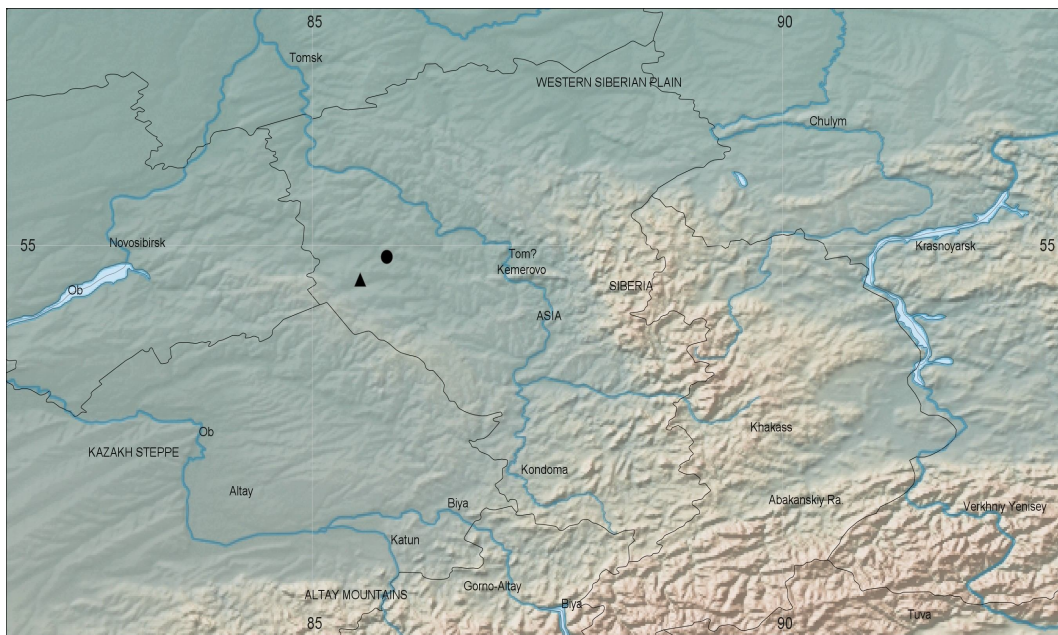


Fig. 3. Map of localities of *Heterocerus obsoletus* (●) and *Heterocerus fuscus* (▲)

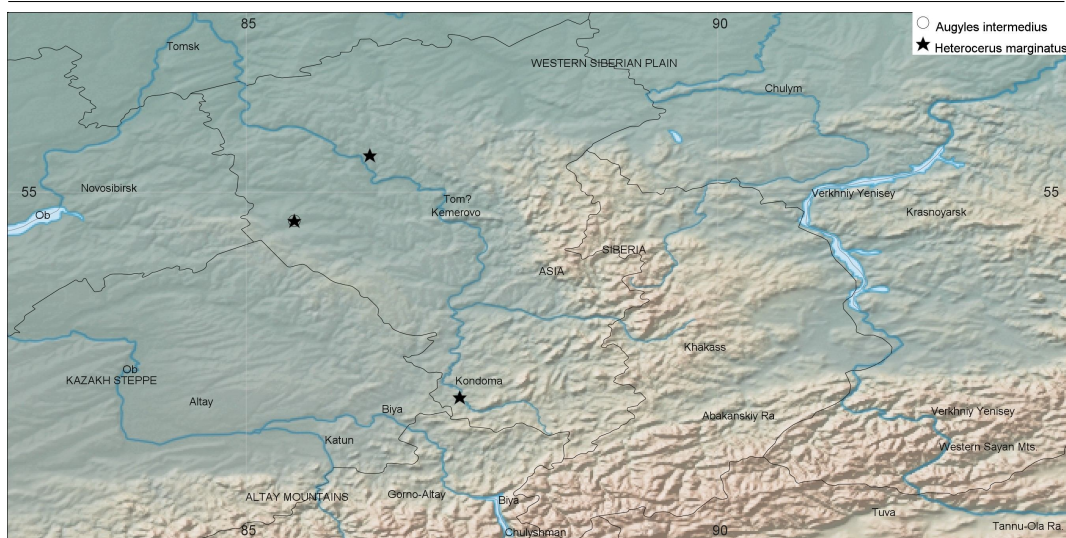


Fig. 4. Map of localities of *Augyles intermedius* (o) and *Heteroceris marginatus* (★)

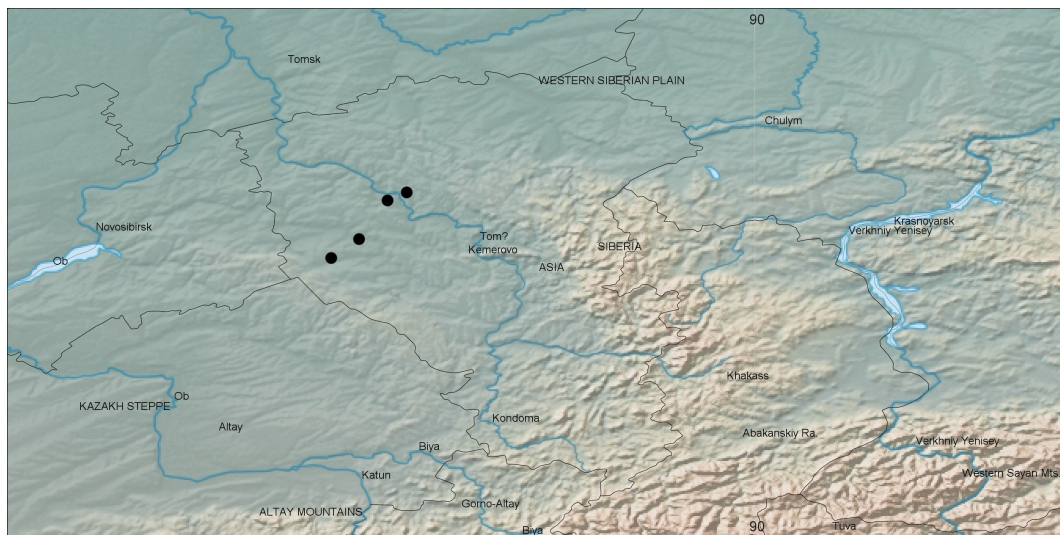


Fig. 5. Map of localities of *Heteroceris fenestratus* (●)

(1980). A map of the localities inhabited by this species is shown in Fig. 3.

***Heteroceris marginatus* (Fabricius, 1787)**

**Material examined.** Kemerovo district, Osinovka vill., in barrel with water, 20.VI.1998, A. Korshunov leg. (1 spec.); Mountain Shoria, Tashtagol distr., about 10 km north of Kondoma vill., bank of Kondoma river, 1-9.VIII.2010, N.

Savosin leg. (3 spec.); Kuznetsk depression, vicinity of Shabanovo vill., pond, 25.VII.2014, D. Efimov leg. (2 spec.).

**Distribution.** This species is known from Eastern Europe, North Africa (Algeria), Kazakhstan, south of Siberia and Russian Far East, Korea (Strien 1980; Mascagni 2006; Kirejtshuk 2001). The species has been recorded from the environs of Barnaul (Altay

Kray) (Gebler 1830), from “Ekaterinburg” (Jakobson 1913) and Western Siberia (Zaitsev 1908; Strien 1980). A map of the localities inhabited by this species is shown in Fig. 4.

***Heterocerus obsoletus* Curtis, 1828**  
(Fig. 2)

**Material examined.** Kuznetsk depression, Promyshlennovskiy distr., Morozovo, stagnant water body, 22.VI.2012, D. Efimov leg. (1 spec.).

**Distribution.** It is known from Europe, Southwest (partly) and Central Asia, Mongolia, South of Eastern Siberia (Zaitsev 1908; Charpentier 1979; Strien 1980; Mascagni 2003, 2006). The habitus of the species is shown in Fig. 2. A map of the localities inhabited by this species as is shown in Fig. 3.

**DISCUSSION**

According to the provided faunistic list, there are reliable records for five species of two genera (*Augyles* and *Heterocerus*) of Heteroceridae from the fauna of the Kemerovo Area. All these species are new for this area, and *A. intermedius* and *H. obsoletus* are recorded from Western Siberia for the first time.

All the studied species have a wide geographic distribution. Three species (*A. intermedius*, *H. fuscus* and *H. obsoletus*) have a Euro-Siberian distribution. *Heterocerus fenestratus* is a Holarctic species and *H. marginatus* is widely distributed in the Transpalearctic region.

Six species of the family Heteroceridae, which are known from adjacent territories, might be collected in the Kemerovo Area in the future:

**Key to the family Heteroceridae of the Kemerovo Area**

- 1. Post-metacoxal lines of first abdominal segment present ..... *Augyles Schiodte* (*A.intermedius* Kies.)
- Post-metacoxal lines of first abdominal segment absent. Pronotum more or less bordered posteriorly ..... ***Heterocerus* F.**
- 2. Elytra with U-shaped post-humeral and medial N-shaped spot and with several other spots near suture and apical margins of elytra; pronotum with occasionally expressed medial longitudinal spot; shape of spots on elytra stable, except for their width. Body length 3.5-4.3 mm ..... ***H. marginatus* F.**
- Elytra with several groups of isolated pairwise connivent group of spots ..... 3
- 3. Larger, body length 4.5-5.8 mm. Body wide, stocky. Body predominantly black; disc of elytra with groups of spots connivent in 2-2-1 or 2-2-2; paired spots may partly merge with each other; scutellum often with spot or band ..... ***H. obsoletus* Curtis**
- Smaller, body length no more than 4.5 mm. Body of moderate width ..... 4
- 4. Body length 2.9-3.7 mm. Abdomen and legs black or dark brown; spots of elytra forming wide band and occupy large area; apical pair of spots on elytra merge and often with lateral band; base of elytra with pair of spots or band near scutellum ..... ***H.fuscus* Kies.**
- Generally larger, body length 3.1-4.5 mm. Most of femora and part of tibiae yellow; colouration of elytra highly variable: spots of elytra normally forming bands and occupy relatively small area, apical pair of spots on elytra usually isolated, band near scutellum well defined and reaching third length of elytra ..... ***H. fenestratus* Thunb.**

1. *Augyles hispidulus* (Kiesenwetter, 1843). The species is known from environs of Kolywan village on the Ob' River (Novosibirsk Region) (Heyden 1880-1881).
  2. *A. interspidulus* (Charpentier 1979). This species has been reported from environs of Buruunturuun (Uvs aimak, Mongolia). The species is known from the Eastern Siberia, Buryatia (Sazhnev 2013).
  3. *A. pruinosus* (Kiesenwetter, 1851). This species has been recorded from Western Siberia by Strien (1980).
  4. *Heterocerus flexuosus* Stephens, 1828. This species has been recorded from Yekaterinburg by Jakobson (1913).
  5. *H. fossor* Kiesenwetter, 1843. This species has been recorded by Sahlberg (1880) from the Ob' River, near the Narym village (Tomsk Area).
  6. *H. parallelus* Gebler, 1830. This species has been recorded by Gebler (1830) from the environs of Lokot' village ("prope Loktewsk") on the Aley River (Altai Territory) (see also Heyden 1880-1881). The species is known from the southern part of the Republic of Khakassia (Mordkovich & Volkovintzer 1965).
- SSSR. V.3. Zhestkokrylye ili zhuki. Vol.1. Leningrad: Nauka: 451-453. [in Russian]
- Gebler F.A. 1830. Bemerkungen über die Insekten Sibiriens, vorzüglich des Altai. [Part 3]. Ledebour C.F. (ed.). Reise durch das Altai-Gebirge und die soongorische Kirgisen-Steppe. Zweiter Theil. Berlin, G. Reimer. 1-228.
- Heyden L. 1880-1881. Catalog den Coleopteren von Sibirien mit Einschluss derjenigen der Turanischen Länder, Turkestans und der chinensischen Grenzgebiete. Deutschen Entomologischen Gesellschaft. XXIV. Berlin: 224.
- Jakobson G.G. 1913. 50 Family Heteroceridae. Beetles of Russia and Western Europe. St.Petersburg: Devrien. v.10: 867-869. [in Russian]
- Kirejtshuk A.G. 2001. Family Heteroceridae. In: Tsalolikhin S.J. (ed.). Key to freshwater invertebrates of Russia and adjacent lands. Vol.5. St.Petersburg. Nauka: 341-348. [in Russian]

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## REFERENCES

- Charpentier R. 1979. Heteroceridae (Coleoptera) from Mongolia with description of *Heterocerus kaszabi* n.sp. and *Heterocerus interspidulus* n.sp. Entomologica scandinavica, 10 (3): 229-237.
- Egorov A.B. 1989. Family Heteroceridae. In: Opredelitel nasekomykh Dalnego Vostoka
- King J.G., Lago P.K. 2012. The variegated mud-loving beetles (Coleoptera: Heteroceridae) of Mississippi and Alabama, with discussion and keys to the species occurring in the southeastern United States. Insecta Mundi, 0275: 1-53.
- Mascagni À. 2003. Descriptions of three new species, and updated checklists of the Heteroceridae of China and neighbouring countries (Heteroceridae). Koleopterologische Rundschau, 73: 285-296.
- Mascagni A. 2006. Family Heteroceridae MacLeay, 1825. In: Löbl I., Smetana A. (eds.): Catalogue of Palaearctic Coleoptera. Vol. 3. Scarabaeoidea, Scirtoidea, Dascilloidea, Buprestoidea,

- Byrrhoidea. Appolo Books, Stenstrup. P. 446–449.
- Mordkovich V.G., Volkovintser V.V. 1965. Animal population of soils of salt lake shores in the south Khakassia and Tuva. *Zoologichesky zhurnal*, 44(12): 1747–1760. [in Russian; abstract in English]
- Sahlberg J.R. 1880. Bidrag till nordvestra Sibriens Insektfauna. Coleoptera. Insamlade under expeditionerna till Obi och Jenessej 1876 och 1877. I. Cicindelidae, Carabidae, Dytiscidae, Hydrophilidae, Gyrinidae, Dryopidae, Georyssidae, Limnichidae, Heteroceridae, Staphylinidae och Micropeplidae. *Kungl. Svenska Vetenskaps Akademiens Handlingar*, 17 (4): 115.
- Sazhnev A.S. 2013. Checklist of family Heteroceridae of the fauna of Russia. URL: [http://www.zin.ru/animalia/coleoptera/rus/heter\\_ru.htm](http://www.zin.ru/animalia/coleoptera/rus/heter_ru.htm) (last updating 29.04.2013).
- Strien A.J. 1980. De Nederlandse soorten van de keverfamilie Heteroceridae. *Zoologische Bijdragen*, 27: 9-42.
- Zaitzev Ph.À. 1908. Catalogue de Coleopteres agutiques des familles de Dryopidae, Georyssidae, Cyathoceridae, Heteroceridae et Hydrophilidae. *Horae Societatis Entomologicae Rossicae*, 38(4): 283-420.

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## Dear carabidologists, friends and colleagues,

We are pleased to announce that the 17th European Carabidologists Meeting will take place from September 20-25, 2015, in Solaris hotel resort in Šibenik, Croatia. After a very nice meeting in Prague, with plenty of interesting presentations in a friendly atmosphere, we hope to offer you attractive scientific and social programs, wrapped in the typical Mediterranean spirit of Dalmatia.

This meeting is being organized for the first time in Croatia, by the Croatian Ecological Society and Association BIOM.

We take you to a historic town of Šibenik situated in the Šibenik-Knin County, located in the middle of Dalmatia, on the east Adriatic coast. Here you will experience Mediterranean lifestyle and typical karst landscape with pristine nature and a wealth of cultural and historical landmarks, from prehistoric and Roman settlements to medieval and Renaissance fortresses. You can enjoy beautiful views of Adriatic islands, Krapanj, Zlarin, Murter etc., or the Kornati archipelago. In addition, you can visit Krka National Park with the beautiful Krka River, flowing from the Dinaric Alps toward the Adriatic Sea, creating unique waterfalls in karst, such as Skradinski Buk. Šibenik is placed in the wide bay at the mouth of Krka River. It is a small but ancient city, with an authentic city centre, narrow streets, renaissance fortresses of St. Mihovil and St. Nicholas, and the wonderful Gothic Renaissance St. James Cathedral, a masterpiece of Croatian and European architecture, placed on the UNESCO World heritage list.

The motto of the 17th ECM, "Learning about carabid habits and habitats – a continuous process in a continuously changing environment", aims to highlight the continuous research on carabid beetles across Europe and beyond, in various types of habitats in relation to rapid environmental changes in the last decades, such as climate change, land use change, habitat degradations, various anthropogenic pressures etc... However, our invitation does not restrict to these themes only, thus all aspects of carabidology are more than welcome.

We cordially invite all scientists studying carabid beetles to participate and contribute to the quality of this traditional scientific symposium.

During the congress, participants can present their results through oral and poster presentations, and participate in all meeting activities, as well as in the field trip which will be held in Krka National park.

We look forward to your response and to welcoming you in Šibenik in September 2015.

**17th ECM Organisational Committee**

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