

## Water beetles (Insecta: Coleoptera) of Khakassia Republic. Families Haliplidae, Noteridae, Dytiscidae, Gyrinidae and Hydrophilidae

### Водные жуки (Insecta: Coleoptera) Хакасии. Семейства Haliplidae, Noteridae, Dytiscidae, Gyrinidae и Hydrophilidae

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КЛЮЧЕВЫЕ СЛОВА: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Hydrophilidae, новые находки.

**ABSTRACT.** Sixty-three species from five families of water beetles are recorded from the Khakassia Republic: Gyrinidae (5 species), Haliplidae (4), Noteridae (2), Dytiscidae (37), Hydrophilidae (15). Fifty-one species are recorded for Khakassia Republic — for the first time.

**РЕЗЮМЕ.** В Республике Хакасия зарегистрировано 63 вида водных жуков из 5 семейств: Gyrinidae (5 видов), Haliplidae (4), Noteridae (2), Dytiscidae (37), Hydrophilidae (15). 51 вид впервые указан для Республики Хакасия.

#### Introduction

The Khakassia Republic is located in the south-eastern part of Western Siberia, on the left bank of the Yenisei River basin, and in the territories of the Sayano-Altai Mountains and the Khakass-Minusinsk depression. The length from north to south — 460 km, from west to east (to the farthest part) — 200 km. In the north, east and southeast, Khakassia borders with the Krasnoyarsk Territory, in the south — Tuva Republic, southwest — Altai Republic, west — on the Kemerovo Oblast.

The climate is distinctly continental, with dry hot summers and cold winters with little snow cover. Steppe, mountains and taiga are the dominant biomes. The Sayan Mountains, with heights sometimes exceeding 2000 m, occupy two thirds of the territory and are located in the west and south of the republic.

There are almost all types of water bodies in the Republic — mountain rivers, corrie lakes, foothill rivers, water bodies with a flat type of regime (small steppe rivers and lakes of closed basins). Most of the territory of the Republic is located in the middle reaches of the Yenisei River basin.

The northern and northwestern parts of the republic belong to the Ob River basin. More than 320 small rivers with a length of more than 10 km contribute to the flow of the Yenisei and Ob Rivers. Their total length is 8.5 thousand km. In addition, small rivers play a significant role in the formation of operational ground-water reserves in the steppe part of the Republic, as well as an important role in the agricultural complex. Reservoirs are represented by a number the largest of which are Krasnoyarsk, Sayano-Shushenskoye and Mainskoye. There are more than 500 natural lakes, in the republic.

The first information about the beetles of Yenisei Gouvernement came in 1901 with the publication “A Trip to the Abakan Mountains” by A.G. Jakobson [1901], and in 1905 the book by G.G. Jakobson “Beetles of Russia and Western Europe” [Jakobson, 1905–1915]. In 1943, an article by the Swedish zoologist Brinck [Brinck, 1943] was published in the Norwegian Entomological Journal. During his expedition of 1914 in Khakassia, 67 specimens of water beetles from 16 species of the families Gyrinidae, Haliplidae and Dytiscidae were collected [Brinck, 1943]. In the monograph Ph.A. Zaitzev [1953] on the fauna of the USSR, there are only a few records of the species found in Western Siberia or for Siberia as a whole. Currently, data on water beetles of the adjacent territories of Khakassia, are publications for Tuva [Kuzhuget *et al.*, 2013, etc.], Altai [Brekhov, 2019, etc.] and the Kemerovo Oblast [Budaev *et al.*, 2018, etc.].

#### Material and methods

This study is mainly based on specimens collected by the author (non indicated in the list) and S.V. Dragan, which are deposited in the Tuvinian Institute for Exploration of Natural Resources of Siberian Branch, Russian Academy of Sciences

(Kyzyl, Russia), and water beetles from the collection of the N.F. Katanov Khakass State University. The material was collected mainly by sweeping with an aquatic net or using a light trap.

The material was collected in 31 localities of the Khakassia Republic (Fig. 1):

1 — Askizsky district: environs of the village of Birikhchul, (53°19'30.2" N 89°52'56.1" E);

2 — Askizsky district: environs of the village of Askiz, (53°07'12.2" N 90°31'52.4" E);

3 — Askizsky district: Lake Balankul, (53°27'43.6" N 90°24'59.1" E);

4 — Beysky district: environs of the village of Bey, (53°03'07.7" N 90°54'31.3" E);

5 — Beysky district: environs of the village of Maina, the Bolshoi Karak River, (53°00'33.9" N 91°28'43.6" E);

6 — Beysky district: river near the western margin of Lake Sosnovoye, (53°15'39.6" N 90°54'03.1" E);

7 — Beysky district: western margin of Lake Sosnovoye, floodplain bay of a river mouth, (53°15'39.8" N 90°54'06.0" E);

8 — Beysky district: western margin of Lake Sosnovoye, pool of river mouth, (53°15'39.3" N 90°54'03.6" E);

9 — Beysky district: southwestern margin of Lake Sosnovoye, (53°15'30.2" N 90°54'47.5" E);

10 — Beysky district: Beya River, drying up oxbow river of the river near the dam, (53°19'02.8" N 90°54'44.7" E);

11 — Beysky district: Beya River, drying up oxbow river, (53°19'08.4" N 90°54'50.6" E);

12 — Altai district: Abakan River, right bank, (53°23'31.2" N 91°00'09.0" E);

13 — Altai district: Abakan River, oxbow 50 m long, (53°23'22.3" N 91°00'48.0" E);

14 — Altai district: Abakan River, oxbow 500 m long, (53°23'27.8" N 91°00'56.5" E);

15 — Altai district: oxbow lake near the village of Arshanovo, 100 m long, (53°24'04.1" N 91°03'35.5" E);

16 — Altai district: Lake Khymystyg-Khol, (53°22'47.8" N 91°02'04.6" E);

17 — Altai district: oxbow at the quarry, (53°22'54.1" N 91°02'15.0" E);

18 — Altai district: Lake Stolbovoe, (53°21'10.5" N 91°13'11.3" E);

19 — Altai district: Bely Yar village, Pesochny lane, (53°36'22.2" N 91°23'36.0" E);

20 — Altai district: Sogretok channel of the Abakan River, (53°41'38.7" N 91°29'29.0" E);

21 — Altai district: oxbow near the Podsinee village (53°39'49.1" N 91°33'34.7" E);

22 — Abakan city: (53°41'06.4" N 91°24'22.9" E);

23 — Abakan city: Abakan River, after the railway bridge, (53°42'30.8" N 91°29'14.6" E);

24 — Abakan city: Abakan River, (53°42'54.0" N 91°30'07.8" E);

25 — Abakan city: Abakan River, (53°42'49.5" N 91°30'19.6" E);

26 — Abakan city, (53°41'06.4" N 91°24'22.9" E);

27 — Ust-Abakansky district: Rastsvet village, irrigation canal, (53°47'08.3" N 91°20'54.8" E);

28 — Shirinsky district: Bely Iyus River, 5 km north of the Efremkino village (54°31'09.8" N 89°26'25.9" E);

29 — Shirinsky district: Lake Rheingol, (54°34'42.2" N 89°24'47.7" E);

30 — Shirinsky district: environs of Lake Reingol, irrigation canal, (54°34'29.5" N 89°25'04.1" E);

31 — Shirinsky district: southern part of Lake Rheingol, (54°34'17.6" N 89°24'38.9" E).

Photographs were taken with MBS-10 microscope and smartphone Honor 8x digital camera and then stacked using Adobe Photoshop CS5 software and application AI Retouch. All scale bars are given in mm. The illustrations were postprocessed for contrast and brightness corrections using CorelDRAW software.

## Results

The results of this study are provided as a list of species with the information on the localities. The species list is based on the material studied. The species distribution data is mainly based on the Catalogue of Palaearctic Coleoptera [van Vondel, 2017; Przewoźny *et al.*, 2022; Hájek, Fery, 2022; Nilsson, Hájek, 2024]. New records for the Khakassia Republic are indicated with an asterisk (\*).

### List of species

#### Family Gyrinidae Latreille, 1810

*Gyrinus (Gyrinulus) minutus* Fabricius, 1798

MATERIAL EXAMINED. **11**: 23.VII.2018, 1 ex.; **25**: 17–18.V.2020, 2 ex. (S.-V. Dragan).

*Gyrinus (Gyrinus) aeratus* Stephens, 1835

MATERIAL EXAMINED. **27**: 7.IX.2004, 7 ex. (S.-V. Dragan).

*Gyrinus (Gyrinus) marinus* Gyllenhal, 1808

MATERIAL EXAMINED. **27**: 7.IX.2004, 2 ex. (S.-V. Dragan).

\**Gyrinus (Gyrinus) natator* Linnaeus, 1758

MATERIAL EXAMINED. **3**: 1–14.VII.2006, 1 ex. (S.-V. Dragan).

\**Gyrinus (Gyrinus) paykulli* Ochs, 1937

MATERIAL EXAMINED. **23**: 1.X.2006, 1 ex. (S.-V. Dragan).

#### Family Haliplidae Aubé, 1836

\**Haliplus (Haliplus) fluviatilis* Aube, 1836

MATERIAL EXAMINED. **6**: 24.VII.2018, 5 ex.; **24**: 7.VIII.2019, 1 ex. (S.-V. Dragan).

\**Haliplus (Haliplus) interjectus* Lindberg, 1937

MATERIAL EXAMINED. **14**: 22.VII.2018, 9 ex.

\**Haliplus (Haliplus) ruficollis* (De Geer, 1774)

MATERIAL EXAMINED. **16**: 21.VII.2018, 1 ex.; **15**: 21.VII.2018, 2 ex.; **13**: 22.VII.2018, 6 ex.; **11**: 23.VII.2018, 2 ex.; **9**: 24.VII.2018, 1 ex.; **7**: 24.VII.2018, 5 ex.; **24**: 7.VIII.2019, 2 ex. (S.-V. Dragan); **25**: 5.VII.2019, 1 ex. (S.-V. Dragan).

\**Haliplus (Liaphlus) fulvus* (Fabricius, 1801)

MATERIAL EXAMINED. **14**: 22.VII.2018, 2 ex.

#### Семейство Noteridae

\**Noterus clavicornis* (De Geer, 1774)

MATERIAL EXAMINED. **15**: 21.VII.2018, 8 ex.

\**Noterus crassicornis* (O.F. Müller, 1776)

MATERIAL EXAMINED. **18**: 18.VIII.2018, 4 ex.

## Семейство Dytiscidae

\**Agabus (Acatodes) coxalis coxalis* Sharp, 1882

MATERIAL EXAMINED. 16: 21.VII.2018, 1 ex.; 15: 21.VII.2018, 1 ex.; 18: 26.VI.2019, 1 ex.; 1: 1.VII.2001, 2 ex. (S.-V. Dragan); 26: 1.VII.2002, 1 ex. (S.-V. Dragan).

\**Agabus (Gaurodytes) adpressus* Aube, 1837

MATERIAL EXAMINED. 29: 26.VI.2007, 2 ex.; 30: 26.VII.2007, 2 ex.

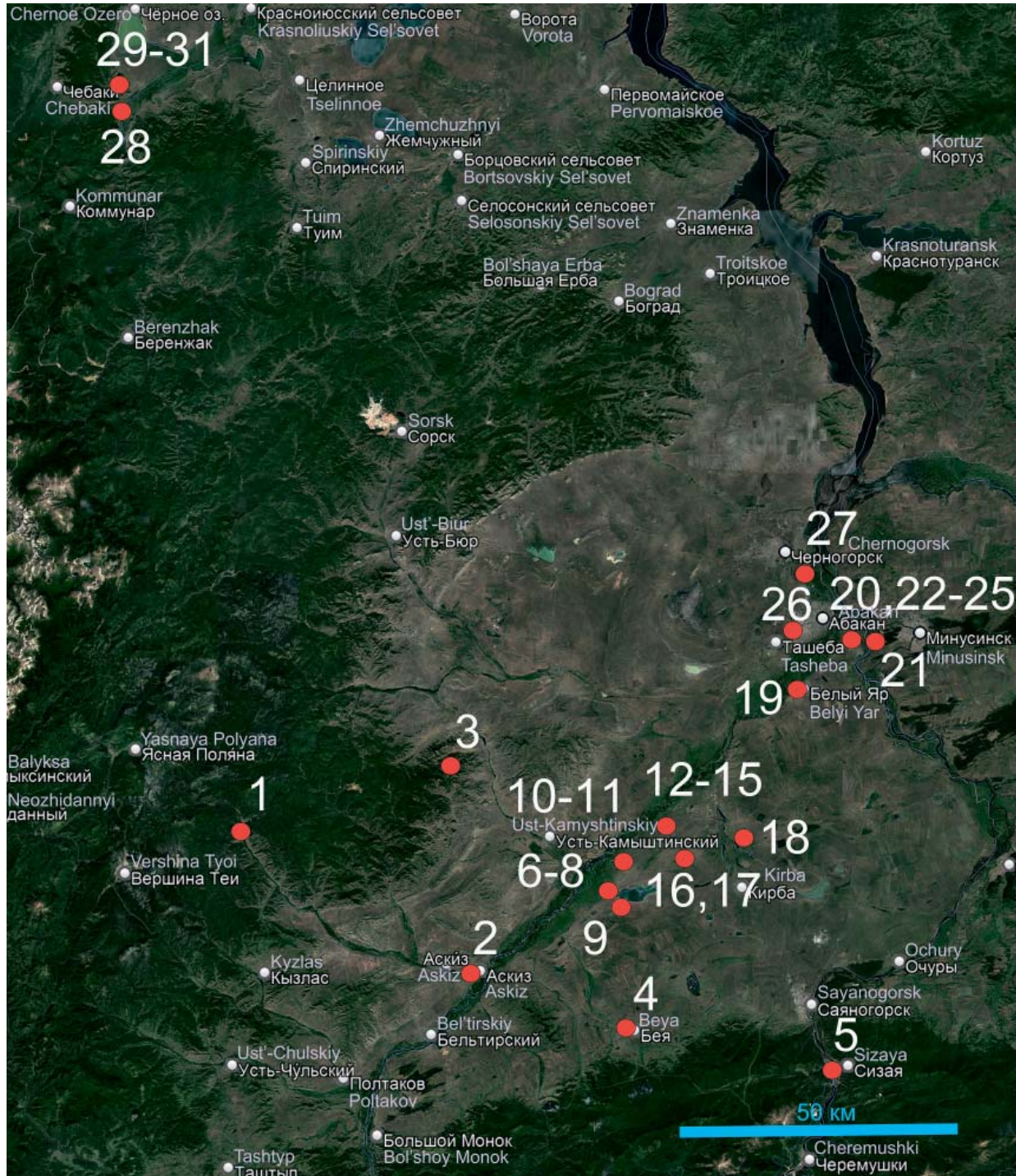


Fig. 1. Localities in the Khakassia Republic (numbers are listed above).

Рис. 1. Локалитеты на территории Хакасии (номера приведены в тексте выше).

*\*Ilybius balkei* Fery et Nilsson, 1993

MATERIAL EXAMINED. **28**: 25.VII.2007, 1 ex. (S.-V. Dragan).

*\*Ilybius fuliginosus fuliginosus* (Fabricius, 1792)

Figs 2–3.

MATERIAL EXAMINED. **25**: 29–30.VI.2019, 1 ex. (S.-V. Dragan).

*\*Ilybius lenensis* Nilsson, 2000

MATERIAL EXAMINED. **25**: 11–12.VII.2019, 1 ex. (S.-V. Dragan); **25**: 12–13.VII.2020, 1 ex. (S.-V. Dragan).

*\*Ilybius subaeneus* Erichson, 1837

MATERIAL EXAMINED. **11**: 23.VII.2018, 1 ex.; **9**: 24.VII.2018, 1 ex.; **25**: 17.VIII.2018, 1 ex. (S.-V. Dragan); **25**: 4–5.VII.2019, 1 ex. (S.-V. Dragan); **25**: 11–23.VIII.2019, 2 ex. (S.-V. Dragan).

*\*Platambus maculatus* Linnaeus, 1758

MATERIAL EXAMINED. **1**: 1.VII.2001, 2 ex. (S.-V. Dragan); **26**: 1.VII.2002, 2 ex. (S.-V. Dragan).

*\*Colymbetes dolabratus* Paykull, 1798

MATERIAL EXAMINED. **13**: 22.VII.2018, 4 ex.; **25**: 29–30.VI.2019, 1 ex. (S.-V. Dragan).

*Rhantus bistratus* Bergsträsser, 1777

MATERIAL EXAMINED. **25**: 7–8.VII.2019, 1 ex. (S.-V. Dragan).

*\*Rhantus exsoletus* (Forster, 1771)

MATERIAL EXAMINED. **11**: 23.VII.2018, 8 ex.

*Rhantus frontalis* (Marsham, 1802)

MATERIAL EXAMINED. **4**: 18.VII.2005, 1 ex. (S.-V. Dragan); **16**: 21.VII.2018, 1 ex.; **15**: 21.VII.2018, 11 ex.; **13**: 22.VII.2018, 7 ex.; **12**: 23.VII.2018, 2 ex.; **10**: 23.VII.2018, 3 ex.; **9**: 24.VII.2018, 1 ex.; **7**: 24.VII.2018, 2 ex.; **25**: 30–31.V.2019, 2 ex. (S.-V. Dragan).

*\*Rhantus latitans* Sharp, 1882

MATERIAL EXAMINED. **10**: 23.VII.2018, 2 ex.

*Rhantus notaticollis* (Aube, 1837)

MATERIAL EXAMINED. **13**: 22.VII.2018, 1 ex.; **11**: 23.VII.2018, 3 ex.

*\*Acilius canaliculatus* Nicolai, 1822

MATERIAL EXAMINED. **13**: 22.VII.2018, 4 ex.; **11**: 23.VII.2018, 2 ex.

*Acilius sulcatus* Linnaeus, 1758

MATERIAL EXAMINED. **16**: 21.VII.2018, 1 ex.; **13**: 22.VII.2018, 4 ex.

*\*Graphoderus austriacus* Sturm, 1834

MATERIAL EXAMINED. **16**: 21.VII.2018, 4 ex.; **15**: 21.VII.2018, 1 ex.; **13**: 22.VII.2018, 15 ex.; **11**: 23.VII.2018, 3 ex.

*\*Graphoderus bilineatus* (De Geer, 1774)

Figs 4–5.

MATERIAL EXAMINED. **11**: 23.VII.2018, 1 ex.

*Graphoderus zonatus verrucifer* C.R. Sahlberg, 1824

MATERIAL EXAMINED. **16**: 21.VII.2018, 1 ex.

2



3



**Figs 2, 3.** *Ilybius fuliginosus fuliginosus* (Fabricius, 1792) from Abakan River: habitus, dorsal (2) and ventral (3) view. Orig.  
**Рис. 2, 3.** *Ilybius fuliginosus fuliginosus* (Fabricius, 1792) из реки Абакан: габитус, сверху (2) и снизу (3). Ориг.

\**Dytiscus circumcinctus* Ahrens, 1811  
MATERIAL EXAMINED. **19**: 3.X.2014, 1 ex. (S.-V. Dragan).

\**Dytiscus lapponicus lapponicus* Gyllenhal, 1808  
MATERIAL EXAMINED. **13**: 22.VII.2018, 1 ex.

\**Dytiscus marginalis marginalis* Linnaeus, 1758  
MATERIAL EXAMINED. **21**: 1.VI.2012, 1 ex. (S.-V. Dragan).

\**Hydaticus aruspex* Clark, 1864  
MATERIAL EXAMINED. **11**: 23.VII.2018, 1 ex.

\**Hydroglyphus geminus* (Fabricius, 1792)  
MATERIAL EXAMINED. **15**: 21.VII.2018, 7 ex.; **12**: 23.VII.2018, 2 ex.; **11**: 23.VII.2018, 1 ex.; **10**: 23.VII.2018, 3 ex.; **8**: 24.VII.2018, 7 ex.; **18**: 24.VIII.2019, 1 ex.; **25**: 17.VII.2020, 1 ex. (S.-V. Dragan).

\**Nebrioporus depressus* Fabricius, 1775  
MATERIAL EXAMINED. **31**: 6.VII.2007, 1 ex. (S.-V. Dragan).

\**Hydroporus angustatus* Sturm, 1835  
MATERIAL EXAMINED. **10**: 23.VII.2018, 3 ex.

*Hydroporus palustris* (Linnaeus, 1761)  
MATERIAL EXAMINED. **15**: 21.VII.2018, 1 ex.

*Graptodytes bilineatus* (Sturm, 1835)  
MATERIAL EXAMINED. **16**: 21.VII.2018, 1 ex.; **15**: 21.VII.2018, 1 ex.

\**Hygrotus (Coelambus) caspius* (Wehncke, 1873)  
MATERIAL EXAMINED. **17**: 21.VII.2018, 4 ex.; **8**: 24.VII.2018, 112 ex.

\**Hygrotus (Coelambus) enneagrammus* Ahrens, 1833  
MATERIAL EXAMINED. **25**: 6–7.VII.2019, 1 ex. (S.-V. Dragan); **25**: 6.VII.2020, 1 ex. (S.-V. Dragan).

\**Hygrotus (Coelambus) pectoralis* Motschulsky, 1860  
MATERIAL EXAMINED. **25**: 19.VIII.2019, 1 ex. (S.-V. Dragan).

\**Hygrotus (Hygrotus) inaequalis* Fabricius, 1776  
MATERIAL EXAMINED. **16**: 21.VII.2018, 1 ex.; **15**: 21.VII.2018, 8 ex.; **12**: 23.VII.2018, 1 ex.; **11**: 23.VII.2018, 1 ex.

*Hygrotus (Leptolambus) impressopunctatus* Schaller, 1783  
MATERIAL EXAMINED. **10**: 23.VII.2018, 40 ex.

\**Hygrotus (Leptolambus) marklini* (Gyllenhal, 1813)  
MATERIAL EXAMINED. **15**: 21.VII.2018, 3 ex.

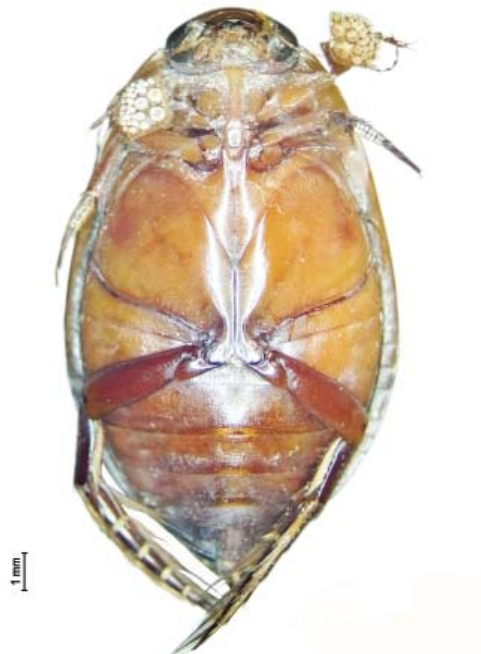
\**Hygrotus (Leptolambus) parallelogrammus* (Ahrens, 1812)  
MATERIAL EXAMINED. **10**: 23.VII.2018, 2 ex.

\**Hyphydrus ovatus* Linnaeus, 1761  
MATERIAL EXAMINED. **14**: 22.VII.2018, 1 ex. (S.-V. Dragan); **31**: 6.VII.2007, 4 ex. (S.-V. Dragan).

4



5



**Figs 4, 5.** *Graphoderus bilineatus* (De Geer, 1774), male from Beya River, drying up: habitus, dorsal (4) and ventral (5) view. Orig.

**Рис. 4, 5.** *Graphoderus bilineatus* (De Geer, 1774) самец из реки Бя, пересыхающий участок реки: габитус, сверху (4) и снизу (5). Ориг.

*Laccophilus minutus* (Linnaeus, 1758)

MATERIAL EXAMINED. **31**: 6.VII.2007, 2 ex. (S.-V. Dragan); **16**: 21.VII.2018, 15 ex.; **15**: 21.VII.2018, 1 ex.; **13**: 22.VII.2018, 1 ex.; **9**: 24.VII.2018, 1 ex.; **7**: 24.VII.2018, 3 ex.

\**Laccophilus poecilus* Klug, 1834

MATERIAL EXAMINED. **13**: 22.VII.2018, 1 ex.

### Семейство Hydrophilidae

\**Berosus (Enoplurus) fischeri* Schodl, 1993

MATERIAL EXAMINED. **10**: 23.VII.2018, 16 ex.; **9**: 24.VII.2018, 1 ex.; **25**: 4–5.VII.2019, 1 ex. (S.-V. Dragan); **25**: 6–7.VII.2019, 1 ex. (S.-V. Dragan); **25**: 7–8.VII.2019, 1 ex. (S.-V. Dragan); **25**: 20–21.V.2020, 1 ex. (S.-V. Dragan); **25**: 19–20.VI.2020, 2 ex. (S.-V. Dragan); **25**: 6.VII.2020, 1 ex. (S.-V. Dragan); **25**: 12–13.VII.2020, 1 ex. (S.-V. Dragan); **25**: 17–18.VIII.2020, 1 ex. (S.-V. Dragan).

\**Berosus (Enoplurus) fulvus* Kuwert, 1888

MATERIAL EXAMINED. **12**: 23.VII.2018, 5 ex.; **10**: 23.VII.2018, 1 ex.; **25**: 4–5.VII.2019, 1 ex. (S.-V. Dragan); **25**: 7–8.VII.2019, 3 ex. (S.-V. Dragan); **25**: 13–14.V.2020, 1 ex. (S.-V. Dragan); **25**: 06.VII.2020, 1 ex. (S.-V. Dragan).

\**Laccobius (Laccobius) colon* Stephens, 1829

MATERIAL EXAMINED. **11**: 24.VII.2018, 1 ex.

\**Laccobius (Laccobius) minutus* Linnaeus, 1758

MATERIAL EXAMINED. **31**: 6.VII.2007, 1 ex.; **13**: 22.VII.2018, 3 ex.; **11**: 23.VII.2018, 3 ex.

\**Hydrobius fuscipes* Linnaeus, 1758

MATERIAL EXAMINED. **10**: 23.VII.2018, 3 ex.

\**Hydrochara affinis* Sharp, 1873

MATERIAL EXAMINED. **5**: 1.VI.2016, 1 ex. (S.-V. Dragan); **13**: 22.VII.2018, 1 ex.; **10**: 23.VII.2018, 1 ex.

\**Hydrophilus (Hydrophilus) dauricus* Mannerheim, 1852

MATERIAL EXAMINED. **2**: 1.VIII.2009, 1 ex. (S.-V. Dragan); **16**: 21.VII.2018, 1 ex.; **13**: 22.VII.2018, 1 ex.; **11**: 23.VII.2018, 1 ex.

\**Enochrus (Lumetus) bicolor* Fabricius, 1792

MATERIAL EXAMINED. **16**: 21.VII.2018, 2 ex.; **12**: 23.VII.2018, 2 ex.; **10**: 23.VII.2018, 4 ex.; **7**: 24.VII.2018, 2 ex.

\**Enochrus (Lumetus) fuscipennis* C.G. Thomson, 1844

MATERIAL EXAMINED. **9**: 24.VII.2018, 3 ex.; **7**: 24.VII.2018, 2 ex.

\**Enochrus (Lumetus) quadripunctatus* (Herbst, 1797)

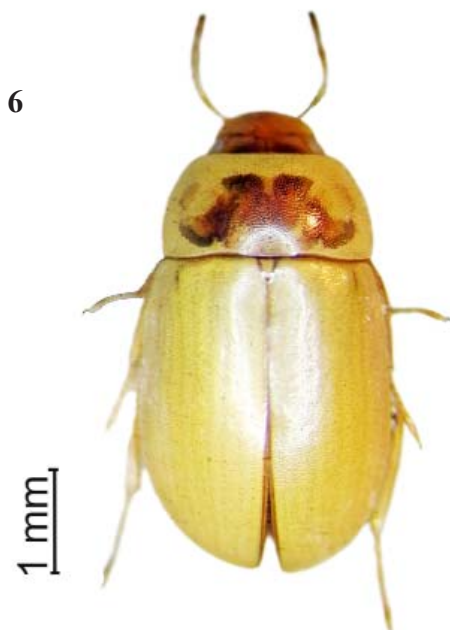
MATERIAL EXAMINED. **13**: 22.VII.2018, 2 ex.; **11**: 23.VII.2018, 1 ex.; **10**: 23.VII.2018, 71 ex.

\**Enochrus (Lumetus) testaceus* (Fabricius, 1801)

MATERIAL EXAMINED. **10**: 23.VII.2018, 3 ex.

\**Enochrus (Methydus) affinis* (Thunberg, 1794)

MATERIAL EXAMINED. **13**: 22.VII.2018, 9 ex.; **10**: 23.VII.2018, 12 ex.



**Figs 6, 7.** *Helochaeres (Helochaeres) obscurus* (O.F. Müller, 1776) from Abakan River, oxbow: habitus, dorsal (6) and ventral (7) view. Orig.  
**Рис. 6, 7.** *Helochaeres (Helochaeres) obscurus* (O.F. Müller, 1776), р. Абакан, старица: габитус, сверху (6) и снизу (7). Ориг.

*\*Helochares (Helochares) obscurus*  
(O.F. Müller, 1776)

Figs 6–7.

MATERIAL EXAMINED. **13**: 22.VII.2018, 4 ex.; **10**: 23.VII.2018, 1 ex.; **20**: 23.IX.2018, 1 ex. (S.-V. Dragan).

*\*Cercyon (Cercyon) convexiusculus* Stephens, 1829

MATERIAL EXAMINED. **13**: 22.VII.2018, 1 ex.

*\*Cercyon (Cercyon) marinus* Thomson, 1853

MATERIAL EXAMINED. **13**: 22.VII.2018, 2 ex.; **12**: 23.VII.2018, 3 ex.; **10**: 23.VII.2018, 9 ex.

Thus, a total of 67 species of water beetles are known for the Khakassia Republic, 51 species of water beetles are recorded for the first time. This list is very preliminary and in the future we should expect to find much more species in the republic.

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