

CONTRIBUTION TO THE FAUNA OF ROBBER FLIES (DIPTERA: ASILIDAE) OF THE REPUBLIC OF KHAKASSIA, RUSSIA

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Summary. The data on robber flies in the Republic of Khakassia is based on the results of an expedition in 2014, as well as a study of museum specimens. A total of 17 species and two subspecies of robber flies have been recorded in the region. Fourteen of these species and one subspecies are new to Khakassia. *Dysmachus cochleatus* (Loew, 1854) was recorded in Eastern Siberia for the first time. Currently the asilid fauna of Khakassia accounts 19 species and two subspecies.

Key words: Brachycera, checklist, diversity, new record, Palaearctic region.

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Резюме. Приводятся данные по фауне ктырей Республики Хакасия на основании результатов экспедиции 2014 года и изучения музейного материала. Для Республики Хакасия приведены находки 17 видов и двух подвидов ктырей, из которых 14 видов и один подвид являются новыми для данной территории. *Dysmachus cochleatus* (Loew, 1854) впервые указывается для Восточной Сибири. В настоящее время фауна ктырей Хакасии насчитывает 19 видов и два подвида.

INTRODUCTION

The Republic of Khakassia is a federal subject of Russia situated in the south of Eastern Siberia, bordering Krasnoyarsk Territory to the north and east, Kemerovo Province to the northwest and west, and the Altai Republic to the south and southwest, and the Republic of Tyva to the southeast and south. Geographically, it is located on the left bank of the Yenisei River on the Sayan-Altay Plateau and in the Khakass-Minusinsk Basin and covers an area of 61,900 km². Mountains (the eastern slopes of the Kuznetsk Alatau and the Abakan Range) cover two-thirds of the republic's territory. The rest of the area is a plain occupied by the steppe. The climate is extremely continental, with an average annual temperature of 0 °C. The maximal temperatures are recorded in July (on average from +15 °C to +22 °C) and the minimal in January (on average from -14 °C to -19 °C).

The family Asilidae currently includes more than 7,500 described species and subspecies distributed worldwide (Pape *et al.*, 2011; Geller-Grimm *et al.*, 2016). At least 245 species and subspecies of robber flies have been recorded from Russia (Richter, 1968, 1969; Lehr, 1988, 1999; Poletkov & Lelej, 2015; Astakhov, 2015, 2019; Sakhvon & Lelej, 2017; Sakhvon, 2020, 2023, 2024). The most studied regions are the Russian Far East, whose fauna includes 99 species of robber flies (Lehr, 1999; Poletkov & Lelej, 2015; Sakhvon, 2023), and the Altai Republic, where 39 species have been recorded (Sakhvon, 2024). In turn, the Republic of Khakassia is one of the least studied regions of Russia. According to Lehr (1999), at least 82 species of robber fly have been recorded in Eastern Siberia. Five species and one subspecies of robber flies were known from the Republic of Khakassia (Kolomyetz, 1975).

This paper presents new data on robber flies from the Republic of Khakassia. A total of 17 species and two subspecies of robber fly have been recorded in this area, of them 14 species and one subspecies are new to the region.

MATERIAL AND METHODS

The present work is based on the study of robber flies collected during the expedition to the Republic of Khakassia in 2014 and deposited in the Department of Zoology of Belarusian State University, Minsk, Belarus (BSU), as well as on the material deposited in the Zoological Museum of Moscow University, Moscow, Russia (MSU). A total of 194 robber fly specimens were examined.

Subfamilies and species are given in the text in alphabetical order. We have used the following abbreviations for collectors: AL – A. Lelej; KT – K. Tomkovich; MP – M. Proshchalykin; NV – N. Vikhrev; VL – V. Loktionov. New distributional records are noted with an asterisk (*).

AN ANNOTATED LIST OF SPECIES

Subfamily Asilinae Latreille, 1802

Aneomochtherus rubipygus (Lehr, 1972)

MATERIAL EXAMINED. **Altaysky Distr.:** 20 km SW of Abakan, Izykhskie Kopi, [53°33'14"N, 91°18'16"E], 7.VII 2014, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Siberia, including the Republic of Khakassia*, Far East. – China, Mongolia (Lehr, 1988, 1999).

Antiphrisson accessus Lehr, 1986

MATERIAL EXAMINED. **Shirinsky Distr.:** Lakes Malye Spirinskie, 463 a.m.s.l, [54°25'19.2"N, 90°8'49.2"E], 26.VI 2011, 1♂, 1♀, KT (MSU); Borets, [54°26'42"N, 90°19'48"E], 28.VI 2011, 2♂, KT (MSU); same place, 29.VI.2014, 1♀, AL, MP, VL (BSU); Lake Belyo, 382 a.m.s.l, [54°38'60"N, 90°10'48"E], 1–3.VII 2011, 1♂, 2♀, KT (MSU); 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 4♂, 4♀, AL, MP, VL (BSU); Zhemchuznyj, Lake Shira, [54°30'99"N, 90°08'43"E], 1.VII 2014, 1♂, AL, MP, VL (BSU); 40 km NW of Shira, Chernoe Ozero, Lake Chernoe, [54°40'64"N, 89°24'98"E], 4.VII 2014, 1♂, 2♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, Altai Republic. – Kazakhstan, Mongolia (Lehr, 1986; Sakhvon, 2024).

***Antiphrisson koo* Lehr, 1986**

MATERIAL EXAMINED. **Shirinsky Distr.:** 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 30.VI 2014, 1♂, AL, MP, VL (BSU); 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 1♂ AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, Altai Republic (Lehr, 1986; Sakhvon, 2024).

***Dysmachus cochleatus* (Loew, 1854)**

MATERIAL EXAMINED. **Altaysky Distr.:** 20 km SW of Abakan, Izykhskie Kopi, [53°33'14"N, 91°18'16"E], 7.VII 2014, 1♀, AL, MP, VL (BSU). **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 1♂, 2♀, KT (MSU); Zhemchuznyj, Lake Shira, [54°30'99"N, 90°08'43"E], 1.VII 2014, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Eastern Siberia, including the Republic of Khakassia*, Altai Terr., Kurgan Prov., Saratov Prov., Volgograd Prov. Astrakhan Prov. – Europe, Iran, Kazakhstan (Kolomyetz, 1975; Lehr, 1988; Astakhov, 2015; Sakhvon, 2015; Mohammadi *et al.*, 2022).

REMARKS. First record of this species from Eastern Siberia.

***Dysmachus fraudator* Lehr, 1966**

MATERIAL EXAMINED. **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 1♀, KT (MSU); Lakes Malye Spirinskie, 463 a.m.s.l, [54°25'19.2"N, 90°8'49.2"E], 26.VI 2011, 1♀, KT (BSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29–30.VI 2014, 1♂, 2♀, AL, MP, VL (BSU); 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 1♂, 5♀, AL, MP, VL (BSU); Zhemchuznyj, Lake Shira, [54°30'99"N, 90°08'43"E], 1.VII 2014, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, Irkutsk Prov., Yakutia, Krasnoyarsk Terr., Altai Republic. – Kazakhstan (Lehr, 1988, 1999).

***Eutolmus sedakoffii* Loew, 1854**

MATERIAL EXAMINED. **Altaysky Distr.:** 20 km SW of Abakan, Izykhskie Kopi, [53°33'14"N, 91°18'16"E], 7.VII 2014, 1♂, AL, MP, VL (BSU). **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 1♂, KT (MSU); 25 km N of Shira, Lake Tus, [54°43'46"N, 89°56'21"E], 6.VII 2014, 1♀, AL, MP, VL (BSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 30.VI 2014, 1♂, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, European part, Far East. – China, Mongolia (Lehr, 1988, 1999; Astakhov 2015).

***Ktyr protensis* Lehr, 1981**

MATERIAL EXAMINED. **Chernogorsky Urban Distr.:** Prigorsk, [53°55'12"N, 91°24'36"E], 15.VII 2017, 3♂, 1♀, NV (MSU).

DISTRIBUTION. Russia: Republic of Khakassia*, Altai Republic, Republic of Buryatia, Zabaykalsky Terr. – China, Kazakhstan, Kyrgyzstan, Mongolia (Lehr, 1988, Sakhvon, 2024).

***Machimus rusticus* (Meigen, 1820)**

MATERIAL EXAMINED. **Altaysky Distr.:** 20 km SW of Abakan, Izykhskie Kopi, [53°33'14"N, 91°18'16"E], 7.VII 2014, 1♂, 2♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, Altai Terr., European part, Caucasus. – Europe, Turkey, Iran, Kazakhstan, Kyrgyzstan (Lehr, 1988; Sakhvon, 2015; Mohammadi *et al.*, 2022).

***Neoitamus cothurnatus univittatus* (Loew, 1871)**

MATERIAL EXAMINED. **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 2♂, 2♀, KT (MSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29–30.VI 2014, 1♂, 3♀, AL, MP, VL (BSU); 50 km NWW of Shira, Chernyj Iyus Riv., 4.VII 2014, 1♂, AL, MP, VL (BSU); 37 km NWW of Shira, Lake Rejngol, 5.VII 2014, 1♂, AL, MP, VL (BSU). **Tashtypsky Distr.:** Kubayka, 620 a.m.s.l, [52°19'48"N, 89°49'12"E], 10–13.VII 2017, 1♂, NV (MSU).

DISTRIBUTION. Russia: Republic of Khakassia, Altai Terr., Far East. – Kazakhstan, Mongolia, Japan (Kolomyetz, 1975; Lehr 1988, 1999).

***Tolmerus inhonestus* (Lehr, 1972)**

MATERIAL EXAMINED. **Shirinsky Distr.:** 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29–30.VI 2014, 5♂, 5♀, AL, MP, VL (BSU); Lake Itkol, [54°26'42"N, 90°10'37.2"E], 28.VI 2014, 1♂, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Eastern Siberia, including the Republic of Khakassia, Far East. – Mongolia (Lehr, 1988, 1999).

Subfamily Brachyrhopalinae Hardy, 1926

***Holopogon nigripennis* (Meigen, 1820)**

MATERIAL EXAMINED. **Shirinsky Distr.:** 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 4♂, 1♀, AL, MP, VL (BSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29.VI 2014, 2♂, 4♀, AL, MP, VL (BSU); 50 km NW of Shira, Kirovo, 4.VII 2014, 3♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, European part, Far East. – Europe, Iran, Mongolia (Lehr, 1988, 1999; Astakhov, 2015).

Subfamily Dioctriinae Enderlein, 1936

***Dioctria cothurnata* Meigen, 1820**

MATERIAL EXAMINED. **Altaysky Distr.:** 13 km SSW of Abakan, Belyi Yar, [53°36'07"N, 91°22'11"E], 6.VII 2014, 1♀, AL, MP, VL (BSU). **Tashtypsky Distr.:** Kubayka, 620 a.m.s.l, [52°19'48"N, 89°49'12"E], 10–13.VII 2017, 2♂, NV (MSU).

DISTRIBUTION. Russia: Republic of Khakassia, European part, Far East. – Europe (Kolomyetz, 1975; Lehr, 1988, 1999; Sakhvon, 2015).

***Dioctria flavipennis* Meigen, 1820**

MATERIAL EXAMINED. **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 1♀, KT (MSU); 40 km NW of Shira, Chernoe Ozero, Lake Chernoe, [54°40'64"N, 89°24'98"E], 3.VII 2014, 1♂, AL, MP, VL (BSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 30.VI 2014, 1♂, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Siberia, including the Republic of Khakassia*, European part. – Europe, Turkey, Kazakhstan, Kyrgyzstan (Lehr, 1988, 1999; Astakhov, 2015).

***Dioctria keremza* Richter, 1970**

MATERIAL EXAMINED. **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 3♂, 4♀, KT (MSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29.VI 2014, 1♀, AL, MP, VL (BSU); Zhemchuznyj, Lake Shira, [54°30'99"N, 90°08'43"E], 1.VII 2014, 2♂, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Siberia, including the Republic of Khakassia*, Far East. – Mongolia (Lehr, 1988, 1999; Sakhvon, 2024).

***Dioctria rufipes* (De Geer, 1776)**

MATERIAL EXAMINED. **Shirinsky Distr.:** 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29.VI 2014, 1♂, AL, MP, VL (BSU); 40 km NW of Shira, Chernoe Ozero, Lake Chernoe, [54°40'64"N, 89°24'98"E], 4.VII 2014, 1♂, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Siberia, including the Republic of Khakassia*, European part. – Europe, Kazakhstan, Kyrgyzstan (Lehr, 1988, 1999; Sakhvon, 2015, 2024).

Subfamily Laphriinae Macquart, 1838

***Chorades amurensis* (Hermann, 1914)**

MATERIAL EXAMINED. **Shirinsky Distr.:** 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, European part, Far East. – Belarus, Poland (Lehr, 1988; Sakhvon, 2015; Tatur-Dytkowski & Mielczarek, 2020).

Subfamily Leptogastrinae Schiner, 1862

***Leptogaster cylindrica cylindrica* (De Geer, 1776)**

MATERIAL EXAMINED. **Chernogorsky Urban Distr.:** Prigorsk, [53°55'12"N, 91°24'36"E], 15.VII 2017, 1♀, NV (MSU). **Shirinsky Distr.:** Lake Shira, 350 a.m.s.l, [54°29'6"N, 90°13'26.4"E], 21–24.VI 2011, 1♀, KT (MSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29.VI 2014, 1♂, AL, MP, VL (BSU); 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 1♂, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia*, European part, Far East. – Europe, Turkey, Iran, Kazakhstan, Mongolia (Lehr, 1988, 1999; Kolomyetz, 1975; Sakhvon, 2015; Mohammadi *et al.*, 2022).

Leptogaster nartshukae Lehr, 1961

MATERIAL EXAMINED. **Shirinsky Distr.:** Lakes Malye Spirinskie, 463 a.m.s.l, [54°25'19.2"N, 90°8'49.2"E], 26.VI 2011, 1♀, KT (MSU); Zhemchuznyj, Lake Shira, [54°30'99"N, 90°08'43"E], 1.VII 2014, 1♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Republic of Khakassia, European part, Far East. – Iran, Kazakhstan, Mongolia (Kolomyetz, 1975; Lehr, 1988, 1999; Astakhov, 2015; Mohammadi *et al.*, 2022).

Subfamily Stenopogoninae Hull, 1962

Stenopogon albociliatus Engel, 1929

MATERIAL EXAMINED. **Altaysky Distr.:** 20 km SW of Abakan, Izykhskie Kopi, [53°33'14"N, 91°18'16"E], 7.VII 2014, 4♂, 3♀, AL, MP, VL (BSU). **Shirinsky Distr.:** Lake Itkol, [54°26'42"N, 90°10'37.2"E], 25–28.VI 2011, 1♂, KT (MSU); same place, 28.VI 2014, 2♂, AL, MP, VL (BSU); Lakes Malye Spirinskie, 463 a.m.s.l, [54°25'19.2"N, 90°8'49.2"E], 26.VI 2011, 1♂, KT (MSU); 40 km NW of Shira, Chernoe Ozero, Lake Chernoe, [54°40'64"N, 89°24'98"E], 4.VII 2014, 13♂, 6♀, AL, MP, VL (BSU); 22 km NW of Shira, Belyj Iyus Riv., [54°36'75"N, 89°41'42"E], 2.VII 2014, 18♂, 7♀, AL, MP, VL (BSU); 27 km E of Shira, Borets, [54°26'42"N, 90°19'48"E], 29–30.VI 2014, 20♂, 3♀, AL, MP, VL (BSU).

DISTRIBUTION. Russia: Siberia, including the Republic of Khakassia*. – Kazakhstan, Kyrgyzstan, China, Mongolia (Lehr, 1963, 1988; Kolomyetz, 1975).

DISCUSSION

The results of the study of material on robber flies show that 17 species and two subspecies are recorded from the Republic of Khakassia. *Aneomochtherus rubipygus* (Lehr, 1972), *Antiphrisson accessus* Lehr, 1986, *A. koo* Lehr, 1986, *Dysmachus cochleatus* (Loew, 1854), *D. fraudator* Lehr, 1966, *Eutolmus sedakoffii* Loew, 1854, *Ktyr protensis* Lehr, 1981, *Macchimus rusticus* (Meigen, 1820), *Holopogon nigripennis* (Meigen, 1820), *Dioctria flavipennis* Meigen, 1820, *D. keremza* Richter, 1970, *D. rufipes* (De Geer, 1776), *Choerades amurensis* (Hermann, 1914), *Leptogaster cylindrica cylindrica* (De Geer, 1776) and *Stenopogon albociliatus* Engel, 1929 are new to the fauna of the region. The remaining three species and one subspecies of robber flies (*Neoitamus cothurnatus univittatus* (Loew, 1871), *Tolmerus inhoneustus* (Lehr, 1972), *Dioctria cothurnata* Meigen, 1820, and *Leptogaster nartshukae* Lehr, 1961) were previously recorded by N. Kolomyetz (1975). In addition to these, Kolomyetz (1975) lists *Choerades gilva* (Linnaeus, 1758) and *Ktyr junctus* (Becker, 1923). Taking all the data into account, it can be concluded that the fauna of the Republic of Khakassia includes at least 19 species and two subspecies of robber flies. This is significantly lower than the number of robber fly species found in neighbouring Altai Republic (35 species) (Sakhvon, 2024). The difference in species numbers can be explained by the lack of collections from the mountains of Khakassia. As expected, the robber fly fauna of the Republic of Khakassia and the Altai Republic are very similar. However, four species were recorded in the Republic of Khakassia that are not listed in the Altai Republic: *Dysmachus cochleatus* (Loew, 1854), *Tolmerus inhoneustus* (Lehr, 1972), *Dioctria flavipennis* Meigen, 1820, and *Leptogaster nartshukae* Lehr, 1961. The record for *Dysmachus cochleatus* (Loew, 1854) is the easternmost.

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