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To the knowledge of the crane flies fauna (Diptera: Tipulidae) of the Republic of Khakassia (Russia)

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Abstract. Currently, 27 species of crane flies from six genera are known for Khakassia (Russia). Of these, 18 species and four genera (*Nephrotoma* Meigen, 1803, *Tipula* Linnaeus, 1758, *Prionocera* Loew, 1844 and *Tanyptera* Latreille, 1804) are recorded for the first time for the fauna of the republic. A rare species *Tipula submanca* Savchenko, 1964 is registered on the territory of Siberia for the first time. The greatest diversity of crane flies was noted in floodplains and meadows with different moisture levels, two species (*Prionocera turcica* (Fabricius, 1787), *Tanyptera atrata atrata* (Linnaeus, 1758)) were found in swamps along the shores of mountain lakes. Only three species (*Tipula lunata* Linnaeus, 1758, *T. submanca*, *T. subcunctans* Alexander, 1921) inhabit steppes. The majority of species has wide Trans-Palaearctic distribution. Four species have disjunctive ranges: *Nephrotoma dorsalis* (Fabricius, 1781), *Tipula adusta* Savchenko, 1954, *T. nodicornis* Meigen, 1818, *T. aino* Alexander, 1914. Two species, *Nephrotoma stackelbergi* (Savchenko, 1957) and *Tipula tshernovskii* Savchenko, 1954, have limited ranges in the central part of the Palaearctic. Endemic species of crane flies were not found in the fauna of Khakassia.

Key words: Tipulidae, fauna, crane flies, new records, Khakassia.

К познанию фауны комаров-долгоножек (Diptera: Tipulidae) Республики Хакасия (Россия)

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Резюме. В настоящее время для Хакасии известно 27 видов комаров-долгоножек из шести родов. Из них 18 видов и четыре рода (*Nephrotoma* Meigen, 1803, *Tipula* Linnaeus, 1758, *Prionocera* Loew, 1844 and *Tanyptera* Latreille, 1804) впервые приводятся для фауны республики. Впервые на территории Сибири зарегистрирован редкий вид *Tipula submanca* Savchenko, 1964. Наибольшее разнообразие типулид отмечено в поймах и на лугах разной степени увлажненности, отдельные виды (*Prionocera turcica* (Fabricius, 1787), *Tanyptera atrata atrata* (Linnaeus, 1758)) найдены на болотах по берегам горных озер. Только три вида (*Tipula lunata* Linnaeus, 1758, *T. submanca*, *T. subcunctans* Alexander, 1921) обитают в степных биотопах. Большинство видов имеет широкое транспалеарктическое распространение. Дизъюнктивные ареалы характерны для четырех видов: *Nephrotoma dorsalis* (Fabricius, 1781), *Tipula adusta* Savchenko, 1954, *T. nodicornis* Meigen, 1818, *T. aino* Alexander, 1914. Ареалы двух видов, *Nephrotoma stackelbergi* (Savchenko, 1957) и *Tipula tshernovskii* Savchenko, 1954, ограничены центральной частью Палеарктики. Эндемичные виды типулид в фауне Хакасии не найдены.

Ключевые слова: Tipulidae, фауна, комары-долгоножки, новые находки, Хакасия.

The family Tipulidae is a large group of dipterans. More than 4000 species of crane flies are known in the World and more than 400 species in Russia [Oosterbroek, 2022].

Currently, the Russian fauna of crane flies is best studied in the European part and the Far East. The Siberian fauna of crane flies is poorly studied. The largest number of publications is devoted to the fauna and ecology of crane flies in the certain regions of Southern Siberia: Gornyi Altai [Savchenko et al., 1972; Savchenko, Theischinger, 1978; Pilipenko, 1998, 1999; Barkalov, Saaya, 2014], and Tuva [Savchenko, 1961a; Savchenko, Violovich, 1967; Zaika, Saaya, 2003; Lantsov, Saaya, 2006; Saaya, 2008]. The fauna of crane flies has never been studied separately in the Republic of Khakassia. Savchenko [1961b, 1964, 1973] found nine species of crane flies in this territory previously: *Dictenidia bimaculata* (Linnaeus, 1760), *Nephrotoma lamellata lamellata* (Riedel, 1910), *N. parvinotata* (Brunetti, 1918), *N. stackelbergi* (Savchenko, 1957), *Nigrotipula nigra nigra* (Linnaeus, 1758), *Tipula* (*Lunatipula*) *adusta* Savchenko, 1954, *T.* (*Pterelachisus*) *tshernovskii* Savchenko, 1954, *T.* (*P.*) *varipennis* Meigen, 1818, and *T.* (*Vestiplex*) *longitudinalis* Nielsen, 1929.

Material and methods

The authors and other collectors had collected the adult crane flies in the Koybal'skaya steppe, the Bidzhinskaya steppe (the northern and central parts of the South-Minusinsk Hollow), in the vicinity of the Reyngol' Lake (the western part of the Chulymo-Eniseyskaya Hollow), and the Abakan Range (Fig. 1, based on the map from "Wikiwand": https://www.wikiwand.com/ru/%D0%A5%D0%B0%D0%BA%D0%B0%D1%81%D0%B8%D1%8F) over a number of years (2007, 2010, 2012–2014, 2018).

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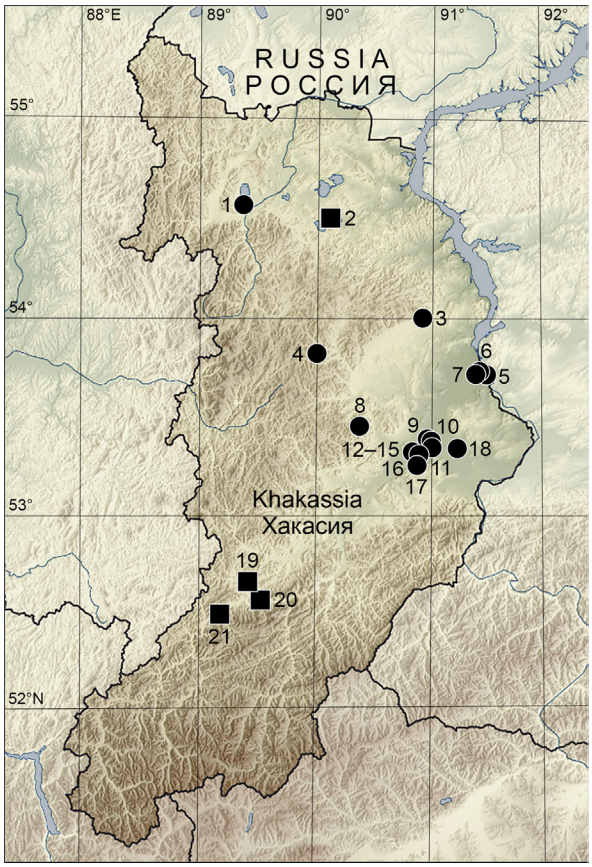

Fig. 1. Map of localities in Khakassia.

1 – Reyngol' Lake; 2 – Shiro Lake; 3 – Vershino-Bidzha village; 4 – Uybat River valley; 5 – Abakan city, poplar grove; 6 – Abakan city, parkland; 7 – Abakan city, indoors; 8 – Balankul' Lake; 9 – Abakan River valley, 4 km SW of Arshanov village; 10 – Beya River valley, 4 km SW of Shalginov village; 11 – Beya River valley, 10 km SW of Chaptykov village; 12 – Koybal'skaya steppe, 4 km SW of Arshanov village; 13 – Koybal'skaya steppe, 5 km SW of Arshanov village; 14 – Koybal'skaya steppe, 6 km east of Shalginov village; 15 – Koybal'skaya steppe, 6 km NE of Shalginov village); 16 – Salabol River valley; 17 – Sosnovoe Lake; 18 – Kharykhkol' Lake; 19 – Matur village; 20 – Matur River, mouth; 21 – Kyzas River. Circles mean the authors' data, squares – published data [Savchenko, 1961b, 1964, 1973; Tangelder, 1984].

Рис. 1. Карта местонахождений в Хакасии.

1 – оз. Рейнголь; 2 – оз. Шира; 3 – с. Вершино-Биджа; 4 – долина р. Уйбат; 5 – Абакан, тополевая роща; 6 – Абакан, парк; 7 – Абакан, в помещении; 8 – оз. Баланкуль; 9 – долина р. Абакан, 4 км юго-западнее с. Аршанов; 10 – долина р. Бея, 4 км юго-западнее с. Шалгинов; 11 – долина р. Бея, 10 км юго-западнее с. Чаптыков; 12 – Койбальская степь, 4 км юго-западнее с. Аршанов; 13 – Койбальская степь, 5 км юго-западнее с. Аршанов; 14 – Койбальская степь, 6 км восточнее с. Шалгинов; 15 – Койбальская степь, 6 км северо-восточнее с. Шалгинов; 16 – долина р. Салабол; 17 – оз. Сосновое; 18 – оз. Харыхколь; 19 – с. Матур; 20 – устье р. Матур; 21 – р. Кызас. Круги – данные авторов, квадраты – литературные данные [Savchenko, 1961b, 1964, 1973; Tangelder, 1984].

The authors collected the crane flies in the Koybal'skiy (Yuzhno-Khakasskiy) foothill-steppe district [Kuminova et al., 1976] of the South-Minusinsk Hollow. The vegetation is composed of the steppe, forest, meadow, and coastal-water phytocenoses on the studied territory.

Three landscape complexes are identified in the studied area:

1) The zonal flat-steppe complex occupies almost the entire study area. The complex includes different types of steppes, set-aside land (in the western part), and turf-clad sands (in the central and southern parts).

The intrazonal complexes:

2) The floodplain-valley occupies no more than 3% of its territory (in the western part of the steppe).

3) The wet and dry meadows with residual water bodies are located along the bed of the Arshanovka rivulet.

The material was collected by method of "sweeping" with an entomological net and also by ultraviolet lamps. The authors have studied 237 specimens of crane flies. The collection of crane flies has deposited in the Tuvinian Institute for the Exploration of Natural Resources of Siberian Branch of the Russian Academy of Sciences (Kyzyl, Russia).

The annotated list of species including the crane flies from the fauna of Khakassia are currently registered. The "Distribution" section contains information about the distribution of species in the neighboring regions to Khakassia (Altai, Krasnoyarsk Region, Tuva), and the type of the range. The distribution of species in the neighboring regions to Khakassia is given on the basis of published data [Savchenko, 1961a; Savchenko, Violovich, 1967; Savchenko et al., 1972; Savchenko, Theischinger, 1978; Pilipenko, 1998, 1999; Zaika, Saaya, 2003; Lantsov, Saaya, 2006; Saaya, 2008, 2010, 2020; Barkalov, Saaya, 2014]. The total distribution of species is given according to Oosterbroek [2022].

The following abbreviations are used in describing the materials: * – a new record for Khakassia; ** – a new record for Siberia; SMH – South-Minusinsk Hollow; CYH – Chulymo-Yeniseyskaya Hollow; KBS – Koybal'skaya steppe; AR – Abakan Range.

Dictenidia bimaculata (Linnaeus, 1760)

Records. Steppe near Shiro Lake (Chulymo-Yeniseyskaya Hollow) [Savchenko, 1973: 201].

Distribution. This species was noted in mixed and coniferous forests on the northern slopes of the Eastern Tannu-Ola Range (Tuva) [Saaya, 2008]. The Trans-Palaearctic range.

**Nephrotoma aculeata* (Loew, 1871)

Material. SMH. Abakan city: Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 1♂, 9.07.2018, 1♂, 19.07.2018, 2♂, 11.08.2018 (S.V. Dragan); 1♂, 53°43′20.8″N / 91°26′31.1″E, 245 m, indoors, 25.07.2018 (A.D. Saaya). KBS: 5 km SW of Arshanov vill., 53°22′20.3″N / 91°01′15.0″E, 292 m, swampy meadow, 1♀, 21.07.2018, 2♀, 22.07.2018 (A.D. Saaya); 1♂, Abakan River valley, 4 km SW of Arshanov vill., 53°23′22.6″N / 91°00′10.1″E, 292 m, floodplain, 22.07.2018 (A.D. Saaya); 1♂, Beya River valley, 4 km SW of Shalginov vill., 53°19′12.5″N / 90°54′44.4″E, 295 m, floodplain, 23.07.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

**Nephrotoma analis* (Schummel, 1833)

Material. SMH. KBS: 10♂, 3♀, Beya River valley, 10 km SW of Chaptykov vill., 53°19′01.5″N / 90°54′45.7″E, 304 m, floodplain, 25.06.2018 (A.D. Saaya); 2♀, 6 km E of Shalginov vill., 53°20′42.4″N / 91°02′14.6″E, 298 m, swampy meadow, 26.06.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region. The Trans-Palaearctic range.

**Nephrotoma dorsalis* (Fabricius, 1781)

Material. SMH. 1♂, 2♀, Abakan city, Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 23.07.2018 (S.V. Dragan).

Distribution. Krasnoyarsk Region. West and East Palaearctic, with the disjunctive range.

**Nephrotoma hirsuticauda* Alexander, 1924

Material. SMH. KBS: 1♂, 6 km NE of Shalginov vill., 53°22′36.2″N / 91°01′47.6″E, 296 m, swampy meadow, 23.07.2018 (A.D. Saaya); 4♂, 8♀, Beya River valley, 4 km SW of Shalginov vill., 53°19′12.5″N / 90°54′44.4″E, 295 m, floodplain, 23.07.2018 (A.D. Saaya); 1♂, Salabol River valley, 53°19′12.5″N / 90°53′07.3″E, 295 m, floodplain, 25.07.2018 (A.D. Saaya).

Distribution. The East Palaearctic range.

Nephrotoma lamellata lamellata (Riedel, 1910)

Records. Kayzas River [Savchenko, 1973: 58].

Distribution. Altai, Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

**Nephrotoma lundbecki lundbecki* (Nielsen, 1907)

Material. SMH. 1♂, Abakan city: Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 20.07.2018 (S.V. Dragan).

Distribution. Altai, Tuva. The Holarctic range.

Nephrotoma parvinotata (Brunetti, 1918)

Records. Kayzas River; between Shiro Lake and Batino Lake [Savchenko, 1973: 69].

Material. SMH. Abakan city: 1♂, 53°43′00.0″N / 91°25′00.0″E, 245 m, parkland, 26.07.2018 (S. Podkovyrova); 1♂, 3♀, Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 11.08.2018 (S.V. Dragan). KBS: 4♂, 1♀, 5 km SW of Arshanov vill., 53°22′20.3″N / 91°01′15.0″E, 292 m, swampy meadow, 21.07.2018 (A.D. Saaya); 7♂, 6♀, 4 km SW of Arshanov vill., 53°22′44.0″N / 91°01′48.0″E, 296 m, swampy meadow, 22.07.2018 (A.D. Saaya); 2♂, 1♀, 6 km NE of Shalginov vill., 53°22′36.2″N / 91°01′47.6″E, 296 m, swampy meadow, 23.07.2018 (A.D. Saaya); 3♂, 8♀, Beya River valley, 4 km SW of Shalginov vill., 53°19′12.5″N / 90°54′44.4″E, 295 m, floodplain, 23.07.2018 (A.D. Saaya); 3♀, Sosnovoe Lake, western coast, 53°15′35.1″N / 90°54′36.9″E, 284 m, 24.07.2018 (A.D. Saaya); 1♂, 1♀, Salabol River valley, 53°19′12.5″N / 90°53′07.3″E, 295 m, floodplain, 25.07.2018 (A.D. Saaya).

Distribution. Krasnoyarsk Region, Tuva. The Palaearctic-Oriental range.

**Nephrotoma scurra* (Meigen, 1818)

Material. SMH. Abakan city: 5♂, 53°43′20.8″N / 91°26′31.1″E, 245 m, indoors, 25.07.2018 (A.D. Saaya); Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 1♂, 10.08.2018, 1♂, 11.08.2018, 1♂, 15.08.2018 (S.V. Dragan). KBS: 2♂, Beya River valley, 10 km SW of Chaptykov vill., 53°19′01.5″N / 90°54′45.7″E, 304 m, floodplain, 25.06.2018 (A.D. Saaya); 5♂, 2♀, 6 km east of Shalginov vill., 53°20′42.4″N / 91°02′14.6″E, 298 m, swampy meadow, 26.06.2018 (A.D. Saaya); 1♀, 5 km SW of Arshanov vill., 53°22′20.3″N / 91°01′15.0″E, 292 m, swampy meadow, 21.07.2018 (A.D. Saaya); 1♀, 4 km SW of Arshanov vill., 53°22′44.0″N / 91°01′48.0″E, 296 m, swampy meadow, 22.07.2018 (A.D. Saaya); 1♀, Beya River valley, 4 km SW of Shalginov vill., 53°19′12.5″N / 90°54′44.4″E, 295 m, floodplain, 23.07.2018 (A.D. Saaya); 3♀, Sosnovoe Lake, western coast, 53°15′35.1″N / 90°54′36.9″E, 284 m, 24.07.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

Nephrotoma stackelbergi (Savchenko, 1957)

Material. CYH. 2♀, Reyngol' Lake, southern coast, 54°34′17.5″N / 89°24′23.1″E, 3.07.2007 (N. Inshakova). SMH. Abakan city: 1♂, 53°43′20.8″N / 91°26′31.1″E, 245 m, indoors, 25.07.2018 (A.D. Saaya). KBS: 3♀, Sosnovoe Lake, western coast, 53°15′35.1″N / 90°54′36.9″E, 284 m, 26.06.2018 (A.D. Saaya).

Records. Spurs of the Western Sayan Mountains [Savchenko, 1973: 131].

Distribution. Altai, Krasnoyarsk Region, Tuva. The Central-Palaearctic range.

Nigrotipula nigra nigra (Linnaeus, 1758)

Material. SMH. KBS: 1♂, 5 km SW of Arshanov vill., 53°22′20.3″N / 91°01′15.0″E, 292 m, swampy meadow, 21.07.2018 (A.D. Saaya); 6♀, 4 km SW of Arshanov vill., 53°22′44.0″N / 91°01′48.0″E, 296 m, swampy meadow, 22.07.2018 (A.D. Saaya); 2♀, 6 km NE of Shalginov vill., 53°22′36.2″N / 91°01′47.6″E, 296 m, swampy meadow, 23.07.2018 (A.D. Saaya); 3♂, Beya River valley, 4 km SW of Shalginov vill., 53°19′12.5″N / 90°54′44.4″E, 295 m, floodplain, 23.07.2018 (A.D. Saaya).

Records. The mouth of the Matur River [Savchenko, 1973: 14].

Distribution. Altai, Tuva. The Trans-Palaearctic range.

**Prionocera turcica* (Fabricius, 1787)

Material. AR. 1♂, 1♀, Balankul' Lake, 53°27′18.9″N / 90°25′09.4″E, 836 m, swamp, 6.07.2010 (N. Mushkina).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Holarctic range.

**Tanyptera (Tanyptera) atrata atrata* (Linnaeus, 1758)

Material. AR. 1♀, Balankul' Lake, 53°27′18.9″N / 90°25′09.4″E, 836 m, swamp, 23.06.2010 (K. Egorova).

Distribution. Altai. The Trans-Palaearctic range.

**Tipula (Beringotipula) amurensis* Alexander, 1925

Material. SMH. KBS: 2♂, Beya River valley, 10 km SW of Chaptykov vill., 53°19′01.5″N / 90°54′45.7″E, 304 m, floodplain, 25.06.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Central-Eastern Palaearctic range.

Tipula (*Lunatipula*) *adusta* Savchenko, 1954

Records. Shiro Lake [Savchenko, 1964: 427].

Distribution. Altai, Krasnoyarsk Region, Tuva. West-Central Palaearctic, with the disjunctive range.

**Tipula* (*Lunatipula*) *lunata* Linnaeus, 1758

Material. SMH. Abakan city: 1♂, parkland, 53°43′00.0″N / 91°25′00.0″E, 245 m, 26.07.2018 (S. Podkovyrova). KBS: 2♂, Beya River valley, 10 km SW of Chaptykov vill., 53°19′01.5″N / 90°54′45.7″E, 304 m, floodplain, 25.06.2018 (A.D. Saaya); 31♂, 26♀, Sosnovoe Lake, western coast, 53°15′35.1″N / 90°54′36.9″E, 284 m, 26.06.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

**, **Tipula* (*Lunatipula*) *submanca* Savchenko, 1964

Material. SMH. KBS: 1♂, Sosnovoe Lake, western coast, 53°15′35.1″N / 90°54′36.9″E, 284 m, 26.06.2018 (A.D. Saaya).

Distribution. East-Central Palaearctic, with the disjunctive range.

**Tipula* (*Odonatisca*) *nodicornis* Meigen, 1818

Material. SMH. Abakan city: 1♀, Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 21.07.2018 (S.V. Dragan).

Distribution. West-Central Palaearctic, with the disjunctive range.

Tipula (*Pterelachisus*) *tshernovskii* Savchenko, 1954

Records. Kyzas River [Savchenko, 1964: 127].

Distribution. Altai, Krasnoyarsk Region. The South-Siberian range.

Tipula (*Pterelachisus*) *varipennis* Meigen, 1818

Records. Matur village, Abakan Range [Savchenko, 1964: 57].

Distribution. Altai, Krasnoyarsk Region, Tuva. The West-Central Palaearctic range.

**Tipula* (*Tipula*) *subcunctans* Alexander, 1921

Material. SMH. KBS: 4♂, 3♀, Bol'shoe Lake, 53°17′00.2″N / 91°07′34.1″E, 295 m, 29.09.2018 (V.V. Zaika); 2♀, Kharykhkol' Lake, 53°20′15.4″N / 91°15′06.9″E, 295 m, 29.09.2018 (V.V. Zaika).

Distribution. Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

Tipula (*Vestiplex*) *longitudinalis* Nielsen, 1929

Material. AR. 1♀, Uybat River valley, 53°49′33.8″N / 90°03′04.5″E, 18.07.2012 (Yu. Pistunovich); 2♂, same locality, 14.07.2014 (O. Shukshina).

Table 1. Biotopic distribution of crane flies.
Таблица 1. Биотопическое распределение комаров-долгоножек.

Species Виды	Hollows and mountain ranges, localities, biotopes Котловины и горные хребты, местонахождения, биотопы					
	Chulymo-Yeniseyskaya Hollow / Чулымо-Енисейская котловина	South-Minusinsk Hollow Южно-Минусинская котловина				Abakan Range / Абаканский хребет
	Reyngol' Lake (444 m a.s.l.) / Озеро Рейнголь (444 м н.у.м.)	Koybal'skaya steppe (245–304 m a.s.l.) / Койбальская степь (245–304 м н.у.м.)			Vicinity of Vershino-Bidzha village (300 m a.s.l.) / Окрестности села Вершино-Биджа (300 м н.у.м.)	Balankul' Lake (836 m a.s.l.) / Озеро Баланкуль (836 м н.у.м.)
	wet meadows влажные луга	steppes степи	valleys of Abakan, Beya, Salabol rivers / долины рек Абакан, Бея, Салабол	meadows with residual water bodies / луга с остаточными водоемами	Bidzha River valley / долина реки Биджа	forest steppe, swamp / лесостепь, болото
Nephrotoma aculeata	–	–	+	+	–	–
N. analis	–	–	+	+	–	–
N. dorsalis	–	–	+	–	–	–
N. hirsuticauda	–	–	+	+	–	–
N. l. lundbecki	–	–	+	–	–	–
N. parvinotata	–	–	+	+	–	–
N. scurra	–	–	+	+	–	–
N. stackelbergi	+	–	–	+	–	–
Nigrotipula n. nigra	–	–	+	+	–	–
Prionocera turcica	–	–	–	–	–	+
Tanyptera (*T.*) *a. atrata*	–	–	–	–	–	+
Tipula amurensis	–	–	+	–	–	–
T. lunata	–	+	+	–	–	–
T. submanca	–	+	–	–	–	–
T. nodicornis	–	–	+	–	–	–
T. subcunctans	–	+	–	–	–	–
T. longitudinalis	–	–	+	–	+	+
T. aino	–	–	+	–	–	–
T. l. latemarginata	–	–	–	–	+	–
T. pierrei	–	–	+	+	–	–
T. p. pruinosa	–	–	–	+	–	–
T. subprotrusa	–	–	+	–	–	–
Total number of species Всего видов	1	3	15	9	2	3

SMH. 4♂, Vershino-Bidzha vill. env., 53°59′59.4″N / 90°57′28.6″E, 580 m, floodplain, 1.07.2013 (S.V. Dragan); Abakan city, Abakan River valley, 53°42′49.5″N / 91°30′19.6″E, ~245 m, poplar grove, 1♂, 14.07.2018, 2♂, 8.08.2018, 3♂, 9.08.2018, 1♂, 10.08.2018, 1♂, 11.08.2018 (S.V. Dragan).

Records. Between Shiro Lake and Batino Lake; Uzunzhul River [Savchenko, 1964: 214].

Distribution. Altai, Krasnoyarsk Region, Tuva. The East Palaearctic range.

**Tipula* (*Yamatotipula*) *aino* Alexander, 1914

Material. SMH. KBS: 1♂, Abakan River valley, 4 km SW of Arshanov vill., 53°23′22.6″N / 91°00′10.1″E, 292 m, floodplain, 22.07.2018 (A.D. Saaya).

Distribution. Krasnoyarsk Region. Central-Eastern Palaearctic, with the disjunctive range.

**Tipula* (*Yamatotipula*) *latemarginata latemarginata* Alexander, 1921

Material. SMH. 1♂, Vershino-Bidzha vill. env., 54°00′06.7″N / 90°57′44.8″E, floodplain, 23.05.2018 (Sh.D. Dongak).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Central-Eastern Palaearctic range.

**Tipula* (*Yamatotipula*) *pierrei* Tonnoir, 1921

Material. SMH. KBS: 1♂, Beya River valley, 10 km SW of Chaptykov vill., 53°19′01.5″N / 90°54′45.7″E, 304 m, floodplain, 25.06.2018 (A.D. Saaya); 1♂, 5♀, 5 km SW of Arshanov vill., 53°22′20.3″N / 91°01′15.0″E, 292 m, swampy meadow, 21.07.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

**Tipula* (*Yamatotipula*) *pruinosa pruinosa* Wiedemann, 1817

Material. SMH. KBS: 3♂, 4 km SW of Arshanov vill., 53°22′44.0″N / 91°01′48.0″E, 296 m, swampy meadow, 22.07.2018 (A.D. Saaya); 5♂, 6 km NE of Shalginov vill., 53°22′36.2″N / 91°01′47.6″E, 296 m, swampy meadow, 23.07.2018 (A.D. Saaya).

Distribution. Altai, Krasnoyarsk Region, Tuva. The Trans-Palaearctic range.

**Tipula* (*Yamatotipula*) *subprotrusa* Savchenko, 1955

Material. SMH. KBS: 1♂, Abakan River valley, 4 km SW of Arshanov vill., 53°23′22.6″N / 91°00′10.1″E, 292 m, floodplain, 22.07.2018 (A.D. Saaya); 1♂, 3♀, Beya River valley, 4 km SW of Shalginov vill., 53°19′12.5″N / 90°54′44.4″E, 295 m, floodplain, 23.07.2018 (A.D. Saaya).

Distribution. Altai. The East Palaearctic range.

Discussion

Thus, 27 species of crane flies are known in the fauna of the Republic of Khakassia. Of these, 18 species and four genera (*Nephrotoma* Meigen, 1803, *Tipula* Linnaeus, 1758, *Prionocera* Loew, 1844 and *Tanyptera* Latreille, 1804) are recorded for the first time for the fauna of the republic. Probably, the crane flies fauna of the region has been studied by 30–40%. For example, 89 species are known in the fauna of the Gornyi Altai, and 84 species of crane flies are known in the fauna of Tuva. *Nephrotoma lunulicornis* can be found in the fauna of Khakassia, as this species is known from Altai and Krasnoyarsk Region (Minusinsk town) [Savchenko, 1973].

The majority of species (23 species, or 85% of the total number of species) was noted for two genera, *Tipula* (14 species, or 52%) and *Nephrotoma* (9 species, or 33%). The greatest diversity of crane flies was registered in floodplains and meadows with different moisture levels, two taxa (*Prionocera turcica*, *Tanyptera atrata atrata*) were found in swamps along the shores of mountain lakes (Table 1). Only three species (*Tipula lunata*, *T. subcunctans*, *T. submanca*) inhabit steppes.

In Khakassia, *T. lunata* occurs in steppes and floodplains of the rivers in the Koybal'skaya steppe. In Tuva, this species is eurytopic and it was found in the wet meadows of the Yenisey River floodplain, in the xerophytic communities of dry steppes in Ubsunur Hollow, and in the mountain tundra of the Mongun-Taiga massif (2000 m a.s.l.) [Saaya, 2010].

An autumn species *T. subcunctans* was previously noted in Minusinsk town in early October [Savchenko, 1961b]. This species inhabits different habitats (plain and subalpine landscapes) and was found in a wide range of altitudes

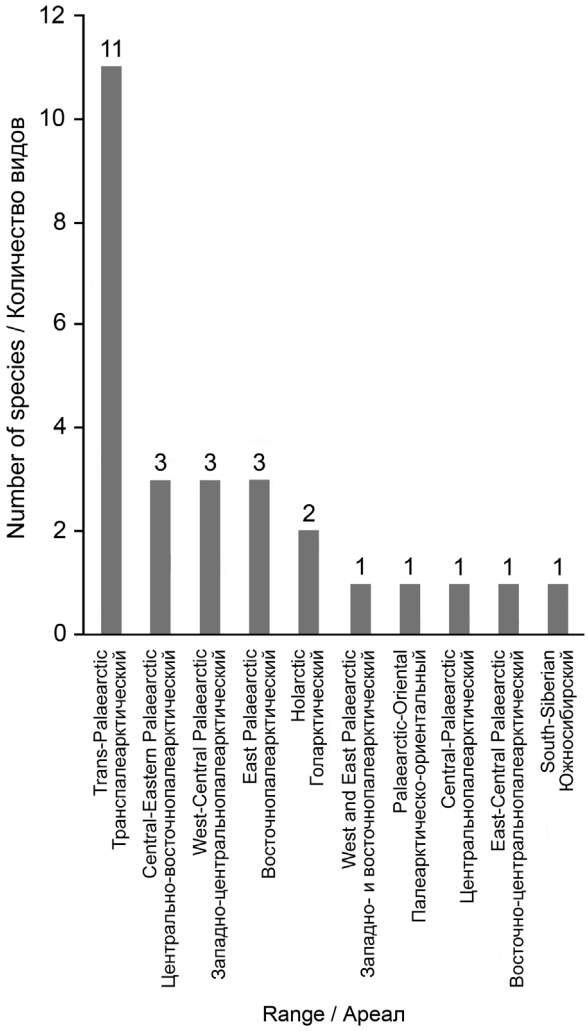

Fig. 2. The chorological structure of the crane flies fauna in the Republic of Khakassia.

Рис. 2. Хорологическая структура фауны комаров-долгоножек Хакасии.

[Lantsov, 2009]. In Khakassia, we collected *T. subcunctans* on the lakeshore in the "Sorokaozerki" natural boundary (Koybal'skaya steppe) at the end of September. In Tuva, this species inhabits damp meadows in a floodplain of the Yenisey River, saline soils on coast of the salt Hadyn Lake, and the mountain tundra near the Sut-Hol' Lake (1800 m a.s.l.) [Saaya, 2010].

A rare species *T. submanca* is poorly studied. Savchenko [1961b] has described this species from Khabarovsk Region. This species was recorded near Hövsgöl Lake (1645 m a.s.l.) in the northern Mongolia [Gelhaus, Podenas, 2006]. In Khakassia, *T. submanca* was registered on the western shore of Sosnovoe Lake in the thickets of sea buckthorn Hippophae rhamnoides L. Thus, *T. submanca* is recorded for the territory of Siberia for the first time.

Four species, *Nephrotoma dorsalis*, *Tipula adusta*, *T. nodicornis*, *T. aino*, have disjunctive ranges. Two species, *Nephrotoma stackelbergi* and *Tipula tshernovskii*, have limited ranges in the central part of the Palaearctic.

The majority of species has wide Trans-Palaearctic distribution, as well as in the fauna of neighboring regions (Fig. 2).

Endemic species of crane flies were not found in the fauna of Khakassia.

The list of species is not completed. Further study of the fauna of crane flies in Khakassia is needed.

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