

РОССИЙСКАЯ АКАДЕМИЯ НАУК
Южный научный центр

RUSSIAN ACADEMY OF SCIENCES
Southern Scientific Centre



Кавказский Энтомологический Бюллетень

CAUCASIAN ENTOMOLOGICAL BULLETIN

Том 15. Вып. 1

Vol. 15. No. 1



Ростов-на-Дону
2019

New records of beetles from families Haliplidae, Dytiscidae, Hydraenidae, Helophoridae, Hydrophilidae, Scirtidae and Chrysomelidae (Coleoptera) from the North Caucasus

Новые указания жесткокрылых из семейств Haliplidae, Dytiscidae, Hydraenidae, Helophoridae, Hydrophilidae, Scirtidae и Chrysomelidae (Coleoptera) с Северного Кавказа

© A.A. Prokin, A.S. Sazhnev

© А.А. Прокин, А.С. Сажнев

Papanin Institute for Biology of Inland Waters of the Russian Academy of Sciences, Borok, Nekouzsky District, Yaroslavl Region, 152742 Russia. E-mail: prokina@mail.ru, sazh@list.ru

Институт биологии внутренних вод им. И.Д. Папанина РАН, Борок, Некоузский р-н, Ярославская область 152742 Россия

Key words: Coleoptera, Haliplidae, Dytiscidae, Hydraenidae, Helophoridae, Hydrophilidae, Scirtidae, Chrysomelidae, Caucasus, new records, Sphagnum peat bogs.

Ключевые слова: Coleoptera, Haliplidae, Dytiscidae, Hydraenidae, Helophoridae, Hydrophilidae, Scirtidae, Chrysomelidae, Кавказ, новые указания, сфагновые болота.

Abstract. Three species of beetles are recorded for Russia for the first time: *Hydraena pontica* Janssens, 1963 (Hydraenidae), *Helophorus hiliaris* Sharp, 1916 (Helophoridae), *Laccobius obscuratus* Rottenberg, 1874 (Hydrophilidae). Two species are recorded for the first time for the North Caucasus: *Haliphus sibiricus* Motschulsky, 1860 (Haliplidae), *Hydroporus nigellus* Mannerheim, 1853 (Dytiscidae). Four species are recorded for the first time for North Ossetia and Kabardino-Balkaria: *Helophorus discrepans* Rey, 1885 (Helophoridae), *Chaetarthria seminulum* (Herbst, 1797) (Hydrophilidae), *Contacyphon padi* (Linnaeus, 1758) (Scirtidae), *Plateumaris sericea caucasica* (Zaitzev, 1930) (Chrysomelidae). Distributional data about three new species for North Ossetia are given: *Helophorus faustianus* Sharp, 1916 (Helophoridae), *Enochrus affinis* (Thunberg, 1794), *Sphaeridium lunatum* Fabricius, 1792 (Hydrophilidae); and five species for Kabardino-Balkaria: *Agabus congener* (Thunberg, 1794), *Hydroporus incognitus* Sharp, 1869, *Hygrotus inaequalis* (Fabricius, 1777) (Dytiscidae), *Anacaena lutescens* (Stephens, 1829) (Hydrophilidae), *Contacyphon variabilis* (Thunberg, 1787) (Scirtidae). General distribution of *Hydroporus incognitus* and *H. nigellus* and their association with mountain peat bog habitats in the North Caucasus, which considered herein as postglacial relict ecosystems, allows to assume that the postglacial colonization is the most likely way for these species into the Caucasus region.

Резюме. Три вида жесткокрылых впервые приводятся для фауны России: *Hydraena pontica* Janssens, 1963 (Hydraenidae), *Helophorus hiliaris* Sharp, 1916 (Helophoridae), *Laccobius obscuratus* Rottenberg, 1874 (Hydrophilidae). Два вида впервые указаны для Северного Кавказа: *Haliphus sibiricus* Motschulsky, 1860 (Haliplidae), *Hydroporus nigellus* Mannerheim, 1853 (Dytiscidae). Четыре вида впервые указаны из Северной

Осетии и Кабардино-Балкарии: *Helophorus discrepans* Rey, 1885 (Helophoridae), *Chaetarthria seminulum* (Herbst, 1797) (Hydrophilidae), *Contacyphon padi* (Linnaeus, 1758) (Scirtidae), *Plateumaris sericea caucasica* (Zaitzev, 1930) (Chrysomelidae). Приводятся данные о первых находках трех видов в Северной Осетии: *Helophorus faustianus* Sharp, 1916 (Helophoridae), *Enochrus affinis* (Thunberg, 1794), *Sphaeridium lunatum* Fabricius, 1792 (Hydrophilidae) – и пяти видов в Кабардино-Балкарии: *Agabus congener* (Thunberg, 1794), *Hydroporus incognitus* Sharp, 1869, *Hygrotus inaequalis* (Fabricius, 1777) (Dytiscidae), *Anacaena lutescens* (Stephens, 1829) (Hydrophilidae), *Contacyphon variabilis* (Thunberg, 1787) (Scirtidae). Обнаружение бореомонтанных видов *Hydroporus incognitus* и *H. nigellus* в горных сфагновых болотах позволяет предположить, что послеледниковая колонизация является наиболее вероятным способом проникновения этих видов в Кавказский регион.

Introduction

The level of knowledge on water and amphibiotic (with water-living larvae) beetles from families Haliplidae, Dytiscidae, Hydraenidae, Helophoridae, Hydrophilidae, Scirtidae and Chrysomelidae (Coleoptera) of the North Caucasus is still poorly known, though several studies have already been published [Zaitzev, 1927; Belyashevsky, 1991; Maksimenkov, 1995; Brehov, 2007; Shapovalov et al., 2012; Prokin et al., 2008, 2016, 2017 etc.]. Catalogues providing information about the occurrence of the species in the Caucasian countries were published by Vondel [2017] (Haliplidae), Hájek [2017] (Dytiscidae), Jäch [2015] (Hydraenidae), Fikáček et al., [2015a, b] (Helophoridae, Hydrophilidae), Klausnitzer [2016] (Scirtidae) and

Silfverberg [2010] (Chrysomelidae: Donaciinae). Beetles of studied families of three administrative regions of Russia in the North Caucasus have been more thoroughly reviewed in the last 10 years: Adygea [Medvedev et al., 2010; Nikitsky, Shapovalov, 2010; Prokin, Shapovalov, 2010; Shapovalov, 2010a, b], Dagestan [Brekhov et al., 2013; Brekhov, Ilyna, 2016] and North Ossetia [Shapovalov et al., 2018]. In our recent paper data on some water beetles assemblages of eight mountane peatlands of the North Caucasus is published [Prokin et al., 2019]. That article includes some species, recorded here, but without labels data and distributional notes.

The aim of this paper is to report new records of the water beetle fauna of the North Caucasus.

Material and methods

This paper is based mainly on material collected by the authors in North Ossetia and Kabardino-Balkaria in 2016 and 2018, with the special attention to mountain Sphagnum peat bogs and water-falls.

The material is deposited in the collection of the Papanin Institute for Biology of Inland Waters of the Russian Academy of Sciences (Borok, Yaroslavl Region, Russia).

The following abbreviations are used in the text: NOR – Republic of North Ossetia-Alania; KBR – Kabardino-Balkar Republic.

Family Haliplidae Aubé, 1836

Haliplus sibiricus Motschulsky, 1860

Material. KBR, Cherekskiy Distr.: 5 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin).

Distribution. Europe, Belarus, European part of Russia, Transcaucasia, Asian Turkey, Kazakhstan, Uzbekistan, Kyrgyzstan, China (Xinjiang, Qinghai), Mongolia, West and East Siberia, Far East of Russia [Vondel, 2017]. The first record for the North Caucasus.

Family Dytiscidae Leach, 1815

Agabus congener (Thunberg, 1794)

Material. KBR, Cherekskiy Distr.: 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, temporary pool in the depression after peat excavation on the margin of the peat bog, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin); 2 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 2, 43°05'52"N / 43°28'41"E, 7.06.2018 (A.A. Prokin); 3 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin).

Distribution. Europe, Belarus, Ukraine, European part of Russia, Georgia, Armenia, Asian Turkey, Kazakhstan, West and East Siberia, Mongolia, China (Jilin, Qinghai), Far East of Russia, Japan [Hájek, 2017]. In the North Caucasus the species is recorded from Karachay-Cherkessia [Brehov, 2007], Dagestan [Brekhov, Ilyina, 2016] and North Ossetia [Shapovalov et al., 2018]. The first record for Kabardino-Balkaria.

Hydroporus incognitus Sharp, 1869

Material. KBR, Cherekskiy Distr.: 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, temporary pool in the depression after peat excavation on the margin of the peat bog, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin); 7 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 2,

43°05'52"N / 43°28'41"E, 7.06.2018 (A.A. Prokin); 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin).

Distribution. Europe, Belarus, Ukraine, European part of Russia, Asian Kazakhstan, West and East Siberia [Hájek, 2017]. In the North Caucasus the species is recorded from Karachay-Cherkessia [Belyashevsky, 1991]. The first record for Kabardino-Balkaria.

Hydroporus nigellus Mannerheim, 1853

Material. NOR: 5 ex., Irafskiy Distr., "Chifandzar" Sphagnum peat bog, space between Sphagnum hummocks, 42°55'08"N / 43°30'50"E, 3.06.2018 (A.A. Prokin); 6 ex., same locality, brook, 17.09.2018 (A.S. Sazhnev). 1 ex., same locality, ground traps, 18–19.09.2018 (A.S. Sazhnev); KBR, Cherekskiy Distr.: 18 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin); 2 ex., same locality, 27.09.2018 (A.S. Sazhnev).

Distribution. Europe, center of the European part of Russia, Georgia, Armenia, Asian Turkey, Iran, Kazakhstan, Kyrgyzstan, West Siberia and Far East of Russia, Mongolia, China (Qinghai, Sichuan), North America [Hájek, 2017]. According our data this species is distributed only in the north of the European part of Russia and is not known from the central part. The first record for the North Caucasus.

Hygrotus inaequalis (Fabricius, 1777)

Material. KBR, Cherekskiy Distr.: 2 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 4, primary internal lake, 43°06'16"N / 43°28'24"E, 7.06.2018 (A.A. Prokin).

Distribution. Algeria, Morocco, Europe, Belarus, Ukraine, Moldova, European part of Russia, Georgia, Armenia, Azerbaijan, Asian Turkey, Syria, Lebanon, Israel, Iran, Kazakhstan, Kyrgyzstan, West and East Siberia, Mongolia, China (Inner Mongolia, Shaanxi, Liaoning, Jilin, Heilongjiang), Far East of Russia, Japan [Hájek, 2017]. In the North Caucasus the species is recorded from "Tersk" [Zaitzev, 1927: 38], Adygea [Shapovalov, 2010a], Dagestan [Brekhov et al., 2013] and North Ossetia [Shapovalov et al., 2018]. The first record for Kabardino-Balkaria.

Family Hydraenidae Mulsant, 1844

Hydraena pontica Janssens, 1963

Material. KBR, Cherekskiy Distr.: 6 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, temporary pool in the depression after peat excavation on the margin of the peat bog, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin).

Distribution. Georgia, Armenia, Azerbaijan, Asian Turkey [Jäch, 2015]. The first record for Russia.

Family Helophoridae Leach, 1815

Helophorus discrepans Rey, 1885

Material. NOR: 2 ex., Alagir Distr., Verkhniy Zgid env., grassy fen, fen pool, 42°52'02"N / 43°57'41"E, 6.05.2016 (A.A. Prokin); 1 ex., Irafskiy Distr., "Chifandzar" Sphagnum peat bog, brook, 42°55'08"N / 43°30'50"E, 17.09.2018 (A.S. Sazhnev). KBR, Cherekskiy Distr.: 30 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, temporary pool in the depression after peat excavation on the margin of the peat bog, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin); 12 ex., same locality, primary internal lake, 8.06.2018 (A.A. Prokin).

Distribution. Europe, Belarus, Ukraine, European part of Russia, Transcaucasia, Asian Turkey, Iran, Mongolia [Fikáček et al., 2015a]. In the North Caucasus the species is

recorded from Adygea [Prokin, Shapovalov, 2010]. The first records for North Ossetia and Kabardino-Balkaria.

Helophorus faustianus Sharp, 1916

Material. NOR: 5 exs., Alagir Distr., Verkhnyy Zgid env., grassy fen, fen pool, 42°52'02"N / 43°57'41"E, 6.05.2016 (A.A. Prokin).

Distribution. South of the European part of Russia (Karachay-Cherkessia as "Cherkessia"), Georgia, South Ossetia, Asian Turkey [Angus, 1985; Fikáček et al., 2015a]. The first record for North Ossetia.

Helophorus hiliaris Sharp, 1916

Material. KBR, Chereksky Distr.: 2 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, temporary pool in the depression after peat excavation on the margin of the peat bog, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin); 4 exs., same locality, primary internal lake, 8.06.2018 (A.A. Prokin).

Distribution. Georgia, Armenia, Azerbaijan, Asian Turkey, Lebanon, Iran (Fikáček et al., 2015a). The first record for Russia.

Family Hydrophilidae Latreille, 1802

Laccobius obscuratus Rottenberg, 1874

Material. KBR, Chereksky Distr.: 3 ex., Cherek canyon, water-fall, 43°11'33"N / 43°31'07"E, 5.06.2018 (A.A. Prokin).

Distribution. South and Central Europe, Ukraine, Georgia, Armenia, Azerbaijan, Asian Turkey, Israel, Iran, Turkmenistan, Tajikistan, Tanzania [Fikáček et al., 2015b; Gentili, Shaverdo, 2016]. The first record for Russia.

Chaetarthria seminulum (Herbst, 1797)

Material. NOR: 1 ex., Prigorodny Distr., Tarskoye vill. env., "Tarskoye" Sphagnum peat bog, 42°57'47"N / 44°43'34"E, ground traps, 31.05.2018 (A.S. Sazhnev). KBR, Chereksky Distr.: 2 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 2, 43°05'52"N / 43°28'41"E, 7.06.2018 (A.S. Sazhnev).

Distribution. Europe, Belarus, Ukraine, European part of Russia, Caucasus, Iran, Asian Turkey, Siberia, Tunisia [Fikáček et al., 2015b]. The first records for North Ossetia and Kabardino-Balkaria with confirmation of record for the North Caucasus.

Anacaena lutescens (Stephens, 1829)

Material. KBR, Chereksky Distr.: 10 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, temporary pool in the depression after peat excavation on the margin of the peat bog, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin); 4 ex., same locality, primary internal lake, 8.06.2018 (A.A. Prokin); 4 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 2, 43°05'52"N / 43°28'41"E, 7.06.2018 (A.A. Prokin); 2 ex., same locality, 8.06.2018 (A.A. Prokin); 7 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin).

Distribution. Morocco, Algeria, Tunisia, Egypt, Europe, Belarus, Ukraine, European part of Russia, Georgia, Armenia, Asian Turkey, Kazakhstan, Uzbekistan, West Siberia and Far East of Russia, China (Xinjiang), North America [Fikáček et al., 2015b]. In the North Caucasus the species is recorded from Adygea [Shapovalov, 2010b], Dagestan [Brekhov et al., 2013] and North Ossetia [Shapovalov et al., 2018]. The first record for Kabardino-Balkaria.

Enochrus affinis (Thunberg, 1794)

Material. NOR: 1 ex., Prigorodny Distr., Tarskoye vill. env., "Tarskoye" Sphagnum peat bog, 42°57'47"N / 44°43'34"E, 14.09.2018 (A.S. Sazhnev).

Distribution. Europe, Belarus, Ukraine, European part of Russia, Armenia, Asian Kazakhstan, West and East Siberia, Far East of Russia, China (Inner Mongolia, Heilongjiang), Japan [Fikáček et al., 2015b]. In the North Caucasus the species is recorded from Dagestan [Brekhov et al., 2013]. The first record for North Ossetia.

Sphaeridium lunatum Fabricius, 1792

Material. NOR: 1 ex., Irafskiy Distr., "Chifandzar" Sphagnum peat bog, 42°55'08"N / 43°30'50"E, ground trap, 18–19.09.2018 (A.S. Sazhnev).

Distribution. Algeria, Europe, Belarus, Ukraine, north and center of the European part of Russia, Armenia, Syria, Israel, Jordan, Asian Kazakhstan, Tajikistan, Northwest China, Mongolia, West Siberia and Far East of Russia; North America (introduced) [Fikáček et al., 2015b]. In the North Caucasus the species is recorded from Adygea [Shapovalov, 2010b]. The first record for North Ossetia.

Family Scirtidae Fleming, 1821

Contacyphon padi (Linnaeus, 1758)

Material. NOR: 3 ex., Prigorodny Distr., Tarskoye vill. env., "Tarskoye" Sphagnum peat bog, 42°57'47"N / 44°43'34"E, 30.05.2018 (A.S. Sazhnev). KBR, Chereksky Distr.: 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 2, 43°05'52"N / 43°28'41"E, 7.06.2018 (A.S. Sazhnev); 1 ex., same locality, ground traps, 22–24.09.2018 (A.S. Sazhnev); 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, 43°06'03"N / 43°29'24"E, 8.06.2018 (A.A. Prokin) (IBIW); 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 27.09.2018 (D.A. Philippov); 4 ex., "Ushtulu" narzan mire, 42°58'29"N / 43°20'05"E, 9.06.2018 (A.A. Prokin, A.S. Sazhnev); 13 ex., same locality, 21.09.2018 (A.S. Sazhnev).

Distribution. Algeria, Europe, Belarus, Ukraine, European part of Russia, Azerbaijan, Turkey, Israel, Jordan, Asian Kazakhstan, West and East Siberia, Far East of Russia, Japan [Klausnitzer, 2016]. In the North Caucasus the species is recorded from Adygea [Nikitsky, Shapovalov, 2010], North and West Caucasus [Maksimov, 1995]. The first records for North Ossetia and Kabardino-Balkaria.

Contacyphon variabilis (Thunberg, 1787)

Material. KBR, Chereksky Distr.: 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.S. Sazhnev); 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 2, 43°05'52"N / 43°28'41"E, 7.06.2018 (A.A. Prokin); 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin); 2 ex., same locality, 27.09.2018 (A.A. Sazhnev); 20 ex., "Ushtulu" narzan mire, 42°58'29"N / 43°20'05"E, 21.09.2018 (A.S. Sazhnev, D.A. Philippov).

Distribution. Europe, Belarus, Ukraine, European part of Russia, Asian Kazakhstan, Uzbekistan, Mongolia, West and East Siberia, Far East of Russia, Japan; Nearctic, Neotropical and Australian regions (introduced) [Bousquet et al., 2013; Klausnitzer, 2016]. In the North Caucasus the species is recorded from Adygea [Nikitsky, Shapovalov, 2010] and Krasnodar Region [Maksimov, 1995]. The first records for Kabardino-Balkaria.

Family Chrysomelidae Latreille, 1802

Plateumaris sericea caucasica (Zaitzev, 1930)

Material. NOR: 12 ex., Prigorodny Distr., Tarskoye vill. env., "Tarskoye" Sphagnum peat bog, 42°57'47"N / 44°43'34"E, on *Scirpus sylvaticus*, 30.05.2018 (A.A. Prokin). KBR, Chereksky Distr.: 1 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 1, 43°06'03"N / 43°29'24"E, 6.06.2018 (A.A. Prokin); 3 ex., Verkhnyaya Balkaria env., Sphagnum peat bog No 3, 43°05'49"N / 43°28'44"E, 8.06.2018 (A.A. Prokin); 2 ex., Verkhnyaya

Balkaria env., Sphagnum peat bog No 4, 43°06'16"N / 43°28'24"E, 8.06.2018 (A.A. Prokin); 18 ex., "Ushutul" narzan mire, 42°58'29"N / 43°20'05"E, 9.06.2018 (A.A. Prokin, A.S. Sazhnev).

Note. Larvae feeding on *Iris pseudacorus*, *Carex disparata*, *Scirpus fluviatilis*, *Oryza sativa*; imago feeding on representatives of genera *Iris*, *Carex*, *Scirpus*, *Caltha* [Bieńkowski, 2015].

Distribution. Europe, Belarus, Ukraine, European part of Russia, Armenia, Azerbaijan, Iran, Asian Kazakhstan, West and East Siberia [Silfverberg, 2010]. This subspecies was described from Stavropol and Khasavyurt (Dagestan), Russia. In the North Caucasus the subspecies is recorded from Adygea [Medvedev et al., 2010], Dagestan, Karachay-Cherkessia and Krasnodar Region [Bieńkowski, Orlova-Bienkowskaja, 2017]. Subspecies affiliation of Transcaucasian material is still not clear. The first records for North Ossetia and Kabardino-Balkaria.

Discussion

Our data show insufficient knowledge of the water and amphibiotic beetle fauna of the region as a whole and, in particular, of such ecosystems as mountain peat bogs and water-falls. Only one species, collected in water-fall in Cherek canyon is a new for the fauna of Russia representative of the family Hydrophilidae. In the past this species was considered as a subspecies *Laccobius obscuratus obscuratus* Rottenberg, 1874 [Fikáček et al., 2015b], but recently was restored as a separate species, as well as *L. aegaeus* Gentili, 1974 and *L. meridionalis* Gentili, 1974 [Gentili, Shaverdo, 2016]. Majority of species, collected in Sphagnum peat bogs in North Ossetia and Kabardino-Balkaria represents new faunal records of various levels, which underline the insufficient knowledge about these rare ecosystems in the North Caucasus. The findings of two boreal-mountain species *Hydroporus incognitus* and *H. nigellus* (Dytiscidae) in a mountain Sphagnum peat bogs are particularly interesting. The first one was recorded once from a forest pool in 1500 m in Karachay-Cherkessia [Belyashevsky, 1991], and the second one never been recorded from the North Caucasus. General distribution of species and their association with mountain peat bog habitats in the North Caucasus, which considered herein as postglacial relict ecosystems, allows to assume that the postglacial colonization is the most likely way for these species into the Caucasus region.

Acknowledgements

We are grateful to H. Fery (Berlin, Germany), S.K. Ryndevich (Baranavičy State University, Baranavičy, Belarus), R.B. Angus (Natural History Museum, London, UK), M.A. Jäch (Natural History Museum Vienna, Vienna, Austria) and A.O. Bieńkowski (A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Moscow, Russia) for their help in identifying of some specimens; to A.G. Kirejtshuk (Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia) for providing comparative material from the collection of the Zoological Institute RAS, to D.A. Philippov (Papanin Institute for Biology of Inland Waters of the Russian

Academy of Sciences, Borok, Yaroslavl Region, Russia) for collecting material, and to O.G. Brekhov (Volgograd State Pedagogical University, Volgograd, Russia) and A.V. Yakimov (Kabardino-Balkarian Republican Department for Fisheries and the Conservation of Aquatic Biological Resources of the West-Caspian Branch of "Glavrybvod", Nalchik, Russia) for their help with search of hard-to-find literature.

The subject of this paper was defined and partly supported by the Russian Foundation for Basis Research (project No 18-04-00988). The study was carried out as a part of the Russian State Research project No AAAA-A18-118012690105-0.

References

- Angus R.B. 1985. Towards a revision of the Palaearctic species of *Helophorus* F. (Coleoptera, Hydrophilidae). II. *Entomologicheskoe obozrenie*. 64(4): 716–747 (in Russian).
- Belyashevsky N.N. 1991. Notices on the ranges of water beetles (Coleoptera, Hydradephaga) of the fauna of the USSR. *Entomologicheskoe obozrenie*. 70(2): 367–372 (in Russian).
- Bieńkowski A.O. 2015. Zhizn' listoedov-radzuzhnits (Coleoptera: Chrysomelidae: Donaciinae) [Life of Reed Beetles (Coleoptera: Chrysomelidae: Donaciinae)]. Livny: G.V. Mukhametov: 380 p. (in Russian).
- Bienkowskij A.O., Orlova-Bienkowskaja M.Ja. 2017. Catalogue of locations of leaf-beetles (Chrysomelidae) of Russia and adjacent regions. Version 16.10.2017. *Beetles (Coleoptera) and coleopterists*. Available at: <https://www.zin.ru/Animalia/Coleoptera/rus/benkat15.htm> (accessed 3 April 2019) (in Russian).
- Bousquet Y., Bouchard P., Davies A.E., Sikes D.S. 2013. Checklist of beetles (Coleoptera) of Canada and Alaska. Second edition. *ZooKeys*. 360: 1–44. DOI: 10.3897/zookeys.360.4742
- Brehov O.G. 2007. Predatory water beetles (Adephaga) vicinities of settlement Arhyz. In: Problemy vodnoy entomologii Rossii i sovremennykh stran: Materialy III Vserossiyskogo simpoziuma po amfibioteskim i vodnym nasekomym [Questions of aquatic entomology of Russia and adjacent lands: Materials of the Third All-Russia Symposium on Amphibiotic and Aquatic Insects (Voronezh, Russia, 12–15 September 2006)]. Voronezh: Publishing Polygraphic Centre of Voronezh State University: 47–50 (in Russian).
- Brekhov O.G., Ilyina E.V. 2016. Notes on predatory water beetles (Coleoptera; Haliplidae, Dytiscidae, Gyrinidae) of Dagestan, Russia. *Euroasian Entomological Journal*. 15(6): 501–504 (in Russian).
- Brekhov O.G., Shaverdo H.V., Ilyina E.V., Shapovalov M.I. 2013. Water beetles of Dagestan, Russia (Coleoptera: Noteridae, Dytiscidae, Haliplidae, Gyrinidae, Hydrophilidae, Spercheidae). *Koleopterologische Rundschau*. 83: 35–52.
- Fikáček M., Angus R.B., Gentili E., Jia F., Minoshima Y.N., Prokin A., Przewoźny M., Ryndevich S.K. 2015a. Family Helophoridae Leach, 1815. In: Catalogue of Palaearctic Coleoptera. Vol. 2/1. Revised and updated edition. Hydrophiloidea – Staphyloinoidea. (I. Löbl, D. Löbl eds). Leiden, Boston: Brill: 25–33.
- Fikáček M., Angus R.B., Gentili E., Jia F., Minoshima Y.N., Prokin A., Przewoźny M., Ryndevich S.K. 2015b. Family Hydrophilidae Latreille, 1802. In: Catalogue of Palaearctic Coleoptera. Vol. 2/1. Revised and updated edition. Hydrophiloidea – Staphyloinoidea. (I. Löbl, D. Löbl eds). Leiden, Boston: Brill: 37–76.
- Gentili E., Shaverdo H. 2016. Review of the genus *Laccobius* Erichson, 1837 from Armenia, Azerbaijan, and Georgia, with description of a new species (Coleoptera: Hydrophilidae). *Koleopterologische Rundschau*. 86: 171–198.
- Hájek J. 2017. Family Dytiscidae Leach, 1815. In: Catalogue of Palaearctic Coleoptera. Vol. 1. Revised and updated edition. Archostemata – Myxophaga – Adephaga. (I. Löbl, D. Löbl eds). Leiden, Boston: Brill: 844–914.
- Jäch M.A. 2015. Family Hydraenidae Mulsant, 1844. In: Catalogue of Palaearctic Coleoptera. Vol. 2/1. Revised and updated edition. Hydrophiloidea – Staphyloinoidea. (I. Löbl, D. Löbl eds). Leiden, Boston: Brill: 130–162.
- Klausnitzer B. 2016. Family Scirtidae Fleming, 1821. In: Catalogue of Palaearctic Coleoptera. Vol. 3. Revised and updated edition. Scarabaeoidea, Scirtoidea, Dascilloidea, Buprestoidea, Byrrhoidea. (I. Löbl, D. Löbl eds). Leiden, Boston: Brill: 412–425.

- Maksimov M.V. 1995. New data on the fauna of Helodidae (Coleoptera) of the Palaearctic. *In: Fauna i sistematika: Trudy Zoologicheskogo muzeya Belorusskogo universiteta*. Vyp. 1 [Fauna and systematics: Proceedings of the Zoological Museum of the Belarusian State University, Vol. 1]. Minsk: Navuka i tekhnika: 154–162.
- Medvedev L.N., Shapovalov M.I., Korotyayev B.A., Tsynkevich V.A., Nikitsky N.B. 2010. Family Chrysomelidae. *In: Coleopterous insects (Insecta, Coleoptera) of Republic of Adygheya (annotated catalogue of species) (Fauna conspecta of Adygheya. № 1)*. Maykop: Adyghei State University Publishers: 264–286 (in Russian).
- Nikitsky N.B., Shapovalov M.I. 2010. Family Scirtidae. *In: Coleopterous insects (Insecta, Coleoptera) of Republic of Adygheya (annotated catalogue of species) (Fauna conspecta of Adygheya. № 1)*. Maykop: Adyghei State University Publishers: 116–117 (in Russian).
- Prokin A.A., Litovkin S.V., Jäch M.A. 2016. New records of Hydraenidae and Elmidae (Coleoptera) from Russia and adjacent countries. *Fragmenta Faunistica*. 2015. 58(2): 99–110. DOI: 10.3161/00159301FF2015.58.2.099
- Prokin A.A., Ryndevich S.K., Petrov P.N., Andrejeva T.R. 2008. New data on the distribution of Helophoridae, Hydrochidae and Hydrophilidae (Coleoptera) in Russia and adjacent lands. *Russian Entomological Journal*. 17(2): 145–148.
- Prokin A.A., Sazhnev A.S., Philippov D.A. 2019. Water beetles (Insecta: Coleoptera) of some peatlands in the North Caucasus. *Nature Conservation Research*. 4(2). DOI: 10.24189/ncr.2019.016
- Prokin A.A., Shapovalov M.I. 2010. Family Helophoridae. *In: Coleopterous insects (Insecta, Coleoptera) of Republic of Adygheya (annotated catalogue of species) (Fauna conspecta of Adygheya. № 1)*. Maykop: Adyghei State University Publishers: 59 (in Russian).
- Prokin A.A., Shapovalov M.I., Jäch M.A. 2017. New records of Hydraenidae and Dryopidae (Coleoptera) from the Caucasus. *Russian Entomological Journal*. 26(3): 239–240.
- Shapovalov M.I. 2010a. Family Dytiscidae. *In: Coleopterous insects (Insecta, Coleoptera) of Republic of Adygheya (annotated catalogue of species) (Fauna conspecta of Adygheya. № 1)*. Maykop: Adyghei State University Publishers: 15–18 (in Russian).
- Shapovalov M.I. 2010b. Family Hydrophilidae. *In: Coleopterous insects (Insecta, Coleoptera) of Republic of Adygheya (annotated catalogue of species) (Fauna conspecta of Adygheya. № 1)*. Maykop: Adyghei State University Publishers: 60–62 (in Russian).
- Shapovalov M.I., Mamaev V.L., Cherchesova S.K. 2018. The water beetles (Insecta, Coleoptera) of North Ossetia. I. Dytiscidae, Noteridae, Haliplidae, Gyrinidae, Hydrophilidae, Hydrochidae, Spercheidae. *Russian Entomological Journal*. 27(3): 249–254. DOI: 10.15298/rusentj.27.3.03
- Shapovalov M.I., Prokin A.A., L'vov V.D. 2012. New data on the fauna of families Dytiscidae, Hydrophilidae and Dryopidae (Coleoptera) of the North Caucasus. *Caucasian Entomological Bulletin*. 8(2): 211–212 (in Russian). DOI: 10.23885/1814-3326-2012-8-2-211-212
- Silfverberg H. 2010. Donaciinae Kirby, 1937. *In: Catalogue of Palaearctic Coleoptera*. Vol. 6. Chrysomeloidea. (I. Löbl, A. Smetana eds). Stenstrup: Apollo Books: 354–359.
- Vondel B.J. van 2017. Family Haliplidae Aubé, 1836. *In: Catalogue of Palaearctic Coleoptera*. Vol. 1. Revised and updated edition. Archostemata – Myxophaga – Adepaga. (I. Löbl, D. Löbl eds). Leiden: Brill: 838–843.
- Zaitzev Ph.A. 1927. Dytiscidae (Coleoptera) of the Caucasus. *In: Raboty Severo-Kavkazskoy gidrobiologicheskoy stantsii pri Gorskoy Sel'skokhozyaystvennom Institute*. T. 2. Vyp. 1 [Proceedings of the North Caucasus Hydrobiological Station at the Agricultural Institute. Vol. 2. Iss. 1]. Vladikavkaz: 1–41 (in Russian).

Received / Поступила: 3.12.2018

Accepted / Принята: 15.03.2019