

# Water beetles of Dagestan, Russia

## (Coleoptera: Noteridae, Dytiscidae, Haliplidae, Gyrinidae, Hydrophilidae, Spercheidae)

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### Abstract

Records of 102 species and one subspecies of water beetles of six families: Noteridae (2 spp.), Dytiscidae (62 spp., 1 ssp.), Haliplidae (4 spp.), Gyrinidae (6 spp.), Hydrophilidae (27 spp.), and Spercheidae (1 sp.) from Dagestan (Russia) are listed, based on collected material and information from the literature. The family Spercheidae (incl. one species) and 43 species and one subspecies of the other five families are recorded for the first time from Dagestan. Two species and one subspecies of Dytiscidae are reported for the first time from the southern territory of Russia.

**Key words:** Coleoptera, Noteridae, Dytiscidae, Haliplidae, Gyrinidae, Hydrophilidae, Spercheidae, faunistics, new record, Dagestan, Russia.

### Introduction

The first contribution to the knowledge of the water beetles of Dagestan was, to our knowledge, published by STEVEN (1808). He described three species from the Kizlyar area, “Kislariae” (STEVEN 1808): *Hygrotus nigrolineatus* (STEVEN, 1808), *Berosus spinosus* (STEVEN, 1808), and *Hydrochara flavipes* (STEVEN, 1808). The catalogue compiled by FISCHER VON WALDHEIM (1829) is based on “Steven’s collection” and reported from Dagestan, Kizlyar, only species already included in STEVEN (1808). The most interesting contribution provided so far is a catalogue published by HOCHHUTH (1846); his data on Dagestan water beetles were used later by ZAITZEV (1927). For all five species of Hydradephaga, reported from Dagestan HOCHHUTH (1846) cited an unpublished catalogue of Steven (“Stév. Cat. inéd.”), which was later erroneously treated by ZAITZEV (1927) as the work of FISCHER VON WALDHEIM (1829). Additionally, there is one doubtful name (“?Noterus affinis Stév. / Kislar / Stév. Cat. inéd.”) in the catalogue, which cannot be assigned to any known species. SHARP (1882) described *Agabus armeniacus*, now a synonym of *A. glacialis* HOCHHUTH, 1846, from Dagestan. Nine species of Dytiscidae, two species of Gyrinidae, and four species of Hydrophilidae were reported from Dagestan by JAKOBSON (1905–1915). It is important to note that his records referred to two provinces (Terskaya Oblast’ and Dagestanskaya Oblast’), which form the present territory of Dagestan. Except for the northern part of Dagestan, Terskaya Oblast’ also included a small part of present-day Kalmykiya and Stavropol’skiy Kray, as well as Kabardino-Balkarskaya Respublika, Severnaya Osetiya-Alaniya, Ingushetiya, and Chechenskaya Respublika. We assume that the records from Terskaya Oblast’ are from Dagestan, because, as one can see above, most of the specimens, collected at that time from this area, were from Kizlyar. Such a division of Dagestan was also used by ZAITZEV (1927). From Dagestan, he reported one species of Noteridae (ZAITZEV 1927), 36 species of Dytiscidae (ZAITZEV 1927, 1946a), two species of Haliplidae (ZAITZEV 1946b), and four species of Gyrinidae (ZAITZEV 1915, 1928). Further four species of dytiscids and one species of hydrophilids were recorded by KASYMOV (1972), BREKHOV (2006), and FERY & PETROV (2005) from different parts of Dagestan. Klicheva et al. (2009) noted seven species of Dytiscidae and one species of Haliplidae in their paper on the beetle fauna of coastal ecosystems of the Russian part of the Caspian Sea; these were collected at light in the coastal area between Bryansk and Chechen’ Island (pers. comm. by E.V. Ilyina).

Thus, so far, one species of Noteridae, 46 species of Dytiscidae, three species of Haliplidae, four species of Gyrinidae, and five species of Hydrophilidae were recorded from Dagestan.

The present paper was initiated following examination of water beetles collected mainly by E.V. Ilyina in Dagestan in the last 20 years.

Our objective is to present an updated list of the water beetles of Dagestan, combining literature data with the material collected by E.V. Ilyina, with the inclusion of some other, smaller collections.

**Geography and climate of the study area:** The Republic of Dagestan, a federal republic of Russia, is situated along the west coast of the Caspian Sea. Its territory is divided into two geographically different parts. The northern half is mostly uniform plain lowland down to 28 m below sea level, which is part of the Caspian Lowland. The southern half of Dagestan is a mountainous area and part of the north-eastern Greater Caucasus, with contrasting natural conditions; the highest mountain is 4466 m high (POLTAVSKY & ILYINA 2002).

The lowland part of Dagestan is located in the semidesert zone and extends over vast territories in the northern half of the republic and stretches into a narrow coastal band to the south of Makhachkala, sometimes with westward extensions (e.g. near Lake Papas). The semidesert-steppe landscape alternates with saline soils and salt marshes as well as sandy areas, with unstable arc-shaped ridges (“barchans”) (e.g. Nogayskie Peski) in the western part and anchor sands in the eastern part. There are many suitable habitats for water beetles, including lakes, irrigation canals, reservoirs, and artesian wells in the sands and steppe. The coastline of the Caspian Sea is very unstable and is dissected by numerous channels, bays (e.g. Kizlyar Bay and Agrakharsk Bay), and lagoons, in places overgrown with semiaquatic vegetation and reeds. The sea is shallow in some places, with peninsulas, small islands and banks, which are often covered with sand dunes (OSMANOV 1986, POLTAVSKY & ILYINA 2002, ILYINA & MORGUN 2010).

The lowlands are found along the rivers that originate in the mountains and flow into the Caspian Sea. The largest rivers are the Kuma, Terek, and Sulak in the north and the Samur in the south of Dagestan. The banks of the rivers Terek and Sulak are covered with floodplain forests (*Populus*, *Salix*) and riparian thickets (*Elaeagnus*, *Tamarix*). Shallow lakes and large marshes, situated in the coastal plain, are associated with floods along the Sulak and Aktash Rivers. The Samur River has a large deltaic forest (*Fagus*, *Carpinus*, *Quercus*, *Populus*), most parts of which are situated in the territory of Azerbaijan. There are many large (e.g. Papas) and small salt lakes (POLTAVSKY & ILYINA 2002, ILYINA & MORGUN 2010).

The mountainous part of Dagestan is traditionally subdivided into four regions: Foothills (Submontane Dagestan), the Foremost Ranges (Front Mountain-ranges), Intermontane (Inner) Dagestan, and Montane Dagestan (GURLEV 1972, POLTAVSKY & ILYINA 2002, ILYINA & MORGUN 2010).

The Foothill region is a narrow (25–45 km) belt of hills with elevation of less than 1500 m a.s.l., which surrounds the mountainous part of Dagestan from the east and north. The semidesert landscapes go up to 400 m a.s.l. where there is a transition to the steppe and meadow-steppe vegetation, with xerophytic bushes (*Paliurus*) on the dry slopes and tangled low-woods (*Carpinus*, *Quercus*) on the wet slopes. Above these low ranges, there is a chain of barrier ranges (400–2000 m a.s.l.) flanking the internal mountainous part of Dagestan. The barrier ranges (Foremost Ranges) receive most of their precipitation with air masses from the north-west and from the Caspian Sea. Therefore, their internal slopes are arid and the external ones are covered with deciduous forests (*Fagus*, *Carpinus*, *Quercus*). The tops of the ranges are covered by subalpine meadows. The slopes are steep, with steep, rugged gorges along the rivers that flow into the Caspian Sea. Intermontane Dagestan is a system of plateaus (1500–2000 m a.s.l.),

located between the deeply incised gorges of the tributaries of the four main rivers that ultimately form the Sulak River at their confluence. The Sulak and Samur river systems are the largest in Dagestan. On the plateaus, there are many large (e.g. Kazenoy-Am, Mochokh) and small lakes of different origin. Here the dominant vegetation types are composed of mountainous steppes, xerophyte thickets, steppe meadows, and small patches of forest (*Pinus*, *Betula*). The bottoms of the intermontane valleys and lower parts of the slopes are arid. The eastern part of the Bokovoy and Vodorazdel'nyy Ranges, with some peaks exceeding 4000 m a.s.l., is Montane Dagestan with an alpine zone and a small area of glaciers. This region is a source for the major rivers: Sulak, Samur, Gyl'gerychaya, and Ulluchaya, as well as for many small lakes of different origin. A dense network of rivers forms a complex relief consisting of small mountain ranges and gorges. The dominant vegetation types are meadows, mountain forests (*Pinus*, *Betula*), mountain steppes, and alpine and subnival zones (GURLEV 1972, POLTAVSKY & ILYINA 2002, ILYINA & MORGUN 2010).

The climate of Dagestan is, in general, dry, differing to some extent with elevation. Precipitation is very unevenly distributed in space and time, a function of the complex nature of the relief. Aridity is a characteristic feature of Dagestan that affects all vertical zones and landscapes from the sea coast to the alpine areas (ILYINA & MORGUN 2010). In the lowlands and foothills, the wettest period, favorable for many insects, including water beetles, is spring and early summer. At this time, the wet salt marshes are home to halophilous species. In the mountains, summer is the wettest season. Summer floods are characteristic for the rivers of Dagestan; vegetation and activity of the hygrophilous fauna are associated with them on the floodplains.

### Material and methods

The paper is based mainly on the specimens collected by E.V. Ilyina, which are deposited in the private collection of O.G. Brekhov (Volgograd, Russia) and in the Vienna Natural History Museum (Austria) (NMW, Dr. M.A. Jäch). Material deposited in the private collection of M.I. Shapovalov (CMSH) and in the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZISP, Dr. A.G. Kirejtshuk) was also examined.

Recommendations of KERZHNER & NARTSHUK (1992) were followed for transliteration of Russian names; their terminology for administrative divisions was also adopted, e.g. Rayon (area). For some names, the English translation is given in square brackets.

The following abbreviations are used: a.s.l.: above sea level; Obl.: Oblast' [province]; Okr.: Okrug [area]; oz.: ozero [lake].

The map as shown in Fig. 7 was downloaded from "[http://commons.wikimedia.org/wiki/File:Russia\\_Dagestan\\_relief\\_location\\_map.png](http://commons.wikimedia.org/wiki/File:Russia_Dagestan_relief_location_map.png)" (author: "Das steinerne Herz") and modified. The map is published herein under the terms of the license for its previous versions: the Creative Commons Attribution-Share Alike 3.0 Unported license (<http://creativecommons.org/licenses/by-sa/3.0/deed.en>).

### Descriptions of the collecting localities

The following list of localities includes not only the sites sampled by E.V. Ilyina, but also localities of specimens deposited in the collections examined and those which were reported in the literature.

The localities are divided into three groups based on the different geographic regions of Dagestan. Localities are provided with numbers, according to geographic arrangement from north to south; these numbers correspond to the numbers on the map (Fig. 7). Localities from the

literature are not given numbers in the list or on the map. Locality "50" is not shown on the map, since exact data are not available.

### Lowland region of Dagestan (-20–100 m a.s.l.)

- 1) Tarumovskiy Rayon, near Kizikey Lake, mouth of Kuma River, -20 m a.s.l., riparian forest, marshes, salt marshes, 24.–25.V.2008, in lake with salt water, leg. E.V. Ilyina.
- Prikumskie stepi** [steppes], steppe area near Kuma River in Dagestan (Tarumovskiy Rayon) and in southern Kalmykiya.
- Bazhigan**, Nogayskiy Rayon, western part, 7 m a.s.l., 44°32'48.84"N 45°41'7.08"E.
- 2) Tarumovskiy Rayon, 0 m a.s.l., semi-desert, sand, salt marshes, canals, reservoirs, and artesian wells (Fig. 1), **2A**) 4 km N Kochubey, 22.VIII.2006, leg. Nabozhenko & Terskov (CMSH); **2B**) Kochubey, 14.VII.2009, leg. Akhmedova.
  - 3) Kizlyarskiy Rayon, shore of the Caspian Sea, near Bryansk, -26 m a.s.l., coastal sands, marshes, lagoons, 8, 10.VI.2009 (CMSH).
- Tushilovka**, Kizlyarskiy Rayon, near Bryansk, -21 m a.s.l., 44°18'33.12"N 46°52'53.04"E.
- 4) Nogayskiy Rayon, near Leninaul, 0–10 m a.s.l., semi-desert, sand, salt marshes, canals, reservoirs, and artesian wells, 22.–23.V.1999, 1.V.2006, in temporal water-body, leg. E.V. Ilyina.
  - 5) Nogayskiy Rayon, near Chervlenye Buruny, Nature Park "Sosnovka", 0 m a.s.l., Karagayly-Kum Sands, relict juniper grove, semi-desert, artesian wells, 22.VI.2011, 6.VII.2012, at light, leg. E.V. Ilyina.
- Karanogayskie stepi** [steppes], steppe area of 65900 hectares in south part of Nogayskiy Rayon, 0–108 m a.s.l., 44°07'N, 45°49'E.
- 6) Kizlyarskiy Rayon, near Krainovka, mouth of Staryy Terek River, 0 m a.s.l., semi-desert, riparian forest, marshes, lagoons, 8.VII.2001, leg. Gadzhiev (CMSH).
  - 7) Kizlyarskiy Rayon, near Kizlyar, 0 m a.s.l., floodplain forest, flooded meadows, marshes, 1.V.2011, leg. Dorgaeva (CMSH).
  - 8) Babayurtovskiy Rayon, 10–12 km W Caspian Sea, biological station "Terskaya" on Alikazgan River, tributary of Terek River, 0 m a.s.l., riparian forest, marshes, salt marshes, flooded meadows of Alikazgan (Fig. 2), 29.VI.2009, 20.–22.VI.2011, 14.VII.2011, light trap, leg. E.V. Ilyina and N. Gasanova.
  - 9) Babayurtovskiy Rayon, southern part of Agrakharskiy Zaliv [bay], coast, marshes, **9A**) 1980, leg. T.Kh. Spasskaya; **9B**) 19.–20.VI.1999, 17.VI.2001, leg. E.V. Ilyina.
  - 10) Babayurtovskiy Rayon, near Babayurt, 0–10 m a.s.l., Tersko-Sulakskaya Nizmennost' [Terek-Sulak Lowland], sagebrush-mixed grass steppe, temporary brackish water-bodies with semi-aquatic vegetation, salt marshes, 19.V.2011, leg. Dorgaeva (CMSH).
  - 11) Kizilyurtovskiy Rayon, near Ankada, -2–10 m a.s.l., riparian forest, steppe, channels, small water-bodies, 26.–31.V.2002, leg. E.V. Ilyina.
  - 12) N Makhachkala, near Sulak, mouth of Sulak River, 0 m a.s.l., semi-desert, riparian forest, marshes, 6.VII.2001, leg. Gadzhiev (CMSH).
  - 13) Kumtorkalinskiy Rayon, near Almalo, 0 m a.s.l., halophilic vegetation, sagebrush-mixed grass areas, system of brackish lakes, wetland marshes, and canals (former rice fields), 17.V.2008, in brackish lake, leg. E.V. Ilyina.
  - 14) Northern suburban area of Makhachkala, near Karaman-2, 10–20 m a.s.l., sagebrush- mixed grass steppe, temporary water-bodies and channels, 25.VI.2008, 25.VI.2009, 1.–10.VII.2009, 15.V.2010, 6.–26.VI.2010, 10.VII.2010, 1.–27.VIII.2010, 5.–7.IX.2010, 26.VI.2011, light trap, leg. E.V. Ilyina.
  - 15) Near Makhachkala, 0–100 m a.s.l., sagebrush-mixed grass steppe, temporary brackish water-bodies with semi-aquatic vegetation, salt marshes, channels, **15A**) 29.IX.1981, V.2011, and without date, leg. E.V. Ilyina; **15B**) 11.IV.2012 (CMSH).
  - 16) Southern suburbs of Makhachkala, near Turali, 0 m a.s.l., sea lagoon, marshes, riparian forest, 13.V.2001, 15.VI.2005, 13.–15.VI.2011, leg. E.V. Ilyina & N. Gasanova.
  - 17) Kayakentskiy Rayon, near Kayakent, 0–10 m a.s.l., coastal lowland, salt marshes, sagebrush-grass steppe, coastal dunes, 28.V.2002, 17.VI.2004, in Lake Papas, at shoreline, leg. E.V. Ilyina.
  - 18) Derbenskiy Rayon, near Chinar, 0 m a.s.l., 7.VIII.2000, in Samur-Derbenskiy Kanal, small channel, leg. E.V. Ilyina.
  - 19) Derbenskiy Rayon, near Derbent, eastern slope of Mt. Dzhalgan, 0 m a.s.l., semi-desert, steppe, fields, channels, 10.VI.1904 (ZISP); in temporary water-body, 29.VI.2012, collector unknown (CMSH).
  - 20) Magaramkentskiy Rayon, near Tagirkent-Kazmalyar, 0 m a.s.l., delta of Samur River, deltaic forest, fresh water (shallow lakes and streams), riparian forests, coastal sands, 23.–24.VI.2006, at light, leg. E.V. Ilyina.



Figs. 1–6: Collecting localities, 1) Loc. 2: N Kochubey, fresh water reservoir near artesian well; 2) Loc. 8: near Biological station “Terskaya”, flooded area of Alikazgan River; 3) Loc. 25: suburb of Makhachkala, eastern slope of Mt. Tarki-Tau; 4) Loc. 28: southern slope of Chonkatau Range, near Gubden; 5) Loc. 32: gorge of Andiyskoe Koysu River, near Chirkata; 6) Loc. 45: Vodorazdel’nyy Range, upper reaches of Dzhurmut River. Photographs by E.V. Ilyina (1–5) and A. Askenderov (6).

### Foothill region of Dagestan (200–1500 m a.s.l.)

- 21) Kazbekovskiy Rayon, northern slope of Salatau Range, near Dylm, 600–800 m a.s.l., beech-hornbeam forest, 23.VI.1972, in small lake, leg. T.H. Spasskaya.
- 22) Kazbekovskiy Rayon, northern slope of Salatau Range, near Gertma, 1200–1300 m a.s.l., beech-hornbeam forest, meadows, mountain streams, small lakes, 14.V.2000, 14.VII.2001, in small lake at spring, leg. E.V. Ilyina.
- 23) Kazbekovskiy Rayon, northern slope of Salatau Range, near Akhsu, 1500 m a.s.l., mountain meadows, in small river, leg. E.V. Ilyina.
- 24) Kumtorkalinskiy Rayon, 20 km NW Makhachkala, near railway station “Kumtorkala”, Barkhan [dune] Sarykum, at foot of Mt. Narat-Tube, 300 m a.s.l., sand dunes, river floodplain meadows, riparian forest, semi-desert slopes, 7.VII.2010, 1.VIII.2010, at light, leg. E.V. Ilyina.
- 25) Suburb of Makhachkala, eastern slope of Mt. Tarki-Tau, 400–500 m a.s.l. (Fig. 3), 15.IV.2001, water in quarry, leg. E.V. Ilyina.
- 26) Buynakskiy Rayon, Istisu-Kaka Gorge, SW Makhachkala, near Talgi, 300–600 m a.s.l., xerophytic slopes, sulphur springs, in small temporary pool near Talginka River, leg. E.V. Ilyina.

#### Talginka River, see 26).

**Buynaksk**, capital of Buynakskiy Rayon, 448 m a.s.l., 42°49'32.16"N 47°7'22.08"E.

- 27) Buynakskiy Rayon, eastern slope of Khrebet [mountain range] Gimrinskiy, near hostel “Termenlik”, 1000 m a.s.l., beech-hornbeam forest, meadows, mountain streams, small lakes, 29.VI.2009, in small river, leg. E.V. Ilyina.
- 28) Karabudakhkentskiy Rayon, southern slope of Chonkatau Range, near Gubden, 1000 m a.s.l., xerophytic slopes, floodplain, trees (Fig. 4), 5.VI.2006, in small river, leg. E.V. Ilyina.
- 29) Kaytagkiy Rayon, near Barshamay, 600 m a.s.l., beech-hornbeam forest, meadows, mountain streams, small lakes, 27.VI.2011, leg. N. Gasanova.

### Mountainous region of Dagestan (400–4500 m a.s.l.)

- 30) Botlikhskiy Rayon, Andiyskiy Khrebet [mountain range], Maloe Kazenoy-Am Lake, 2000 m a.s.l., 14.VIII.1992, leg. Abdurakhmanov.
- 31) Gumbetovskiy Rayon, southern slope of Andiyskiy Khrebet [mountain range], near Ingishi, 1500 m a.s.l., xerophytic and mountain-steppe slopes, mountain streams, temporary shallow pools, 27.VI.2003, in shallow pool, leg. E.V. Ilyina.
- 32) Gumbetovskiy Rayon, gorge of Andiyskoe Koysu River, near Chirkata, 450 m a.s.l., xerophytic slopes, floodplain, canals, riparian floodplain vegetation (Fig. 5), at light, leg. E.V. Ilyina.
- 33) Khunzakhskiy Rayon, Khunzakhskoe Plato [plateau], meadows, streams, small lakes, near Mochokh, 1800 m a.s.l., 27.VII.1993, in lake, leg. E.V. Ilyina.
- 34) Khunzakhskiy Rayon, Khunzakhskoe Plato [plateau], meadows, streams, small lakes: **34A)** near Khunzakh, 1600 m a.s.l., 10.V.2012, in spring, leg. E.V. Ilyina; **34B)** Khunzakhskoe Plato, 1700 m a.s.l., 30.VI.1993, 19.VI.1995, leg. E.V. Ilyina; **34C)** Khunzakhskoe Plato, 1800 m a.s.l., 30.VI.1993, in pool, leg. E.V. Ilyina.

**Khunzakh**, capital of Khunzakhskiy Rayon, 1379 m a.s.l., 42°32'21.84"N 46°42'18"E.

- 35) Untsukul'skiy Rayon, Arakmeer Range, area between Avarskoe Koysu River and Andiyskoe Koysu River, 1700–1800 m a.s.l., high hilly plateau, small rivers and swamps, 31.V.1993, 1.VII.1993, 19.VI.1995, in pool of meltwater, leg. E.V. Ilyina.
  - 36) Tsumadinskiy Rayon, eastern slope of Snegovoy Khrebet [mountain range], near Verkhnee Gakvari, 2000 m a.s.l., mountain-steppe and mountain-meadow vegetation, mountain forest, 14.VII.1998, 10.–16.VII.1999, in stream, leg. E.V. Ilyina.
  - 37) Shamil'skiy Rayon, eastern slope of Bogoskiy Khrebet [Bogos Range], near Assab, 1700 m a.s.l., mountain-meadow and alpine vegetation, mountain forest, streams, 8.VII.1993, leg. E.V. Ilyina.
- Gogotl'**, Shamil'skiy Rayon, 42°27'12.96"N 46°46'1.92"E.
- 38) Gunibskiy Rayon, Mt. Gunib, near Gunib, 1500–1700 m a.s.l., xerophytic slopes, meadows, mountain forest, streams, small lakes, 29.V.1906 (ZISP).
  - 39) Akushinskiy Rayon, near Akusha, 1300 m a.s.l., 19.VI.1995, in stream, leg. E.V. Ilyina.
  - 40) Tlyaratinskiy Rayon, eastern slope of Bogoskiy Khrebet [Bogos Range], near Kosob, 2000 m a.s.l., mountain-steppe and mountain-meadow vegetation, mountain forest, 12.VII.1998, in stream, leg. E.V. Ilyina.
  - 41) Tsuntinskiy Rayon, Bogoskiy Khrebet [Bogos Range], upper reaches of Avarskoe Koysu, near Tlyadal', 1500 m a.s.l., mountain-meadow vegetation, mountain forest, 17.VIII.1993, 19.VI.1995, in stream, leg. E.V. Ilyina.
  - 42) Tlyaratinskiy Rayon, gorge of Dzhurmut River, near Tokhota, 1800–2000 m a.s.l., mountain-steppe and mountain-meadow vegetation, mountain forest, 20.–25.VI.2001, in stream, leg. E.V. Ilyina.
  - 43) Kulinskiy Rayon, upper reaches of Kazikumukhskoe Koysu, near Tsovkra-1, 1500 m a.s.l., mountain-steppe and mountain-meadow vegetation, streams, 20.V.2011, leg. E.V. Ilyina.

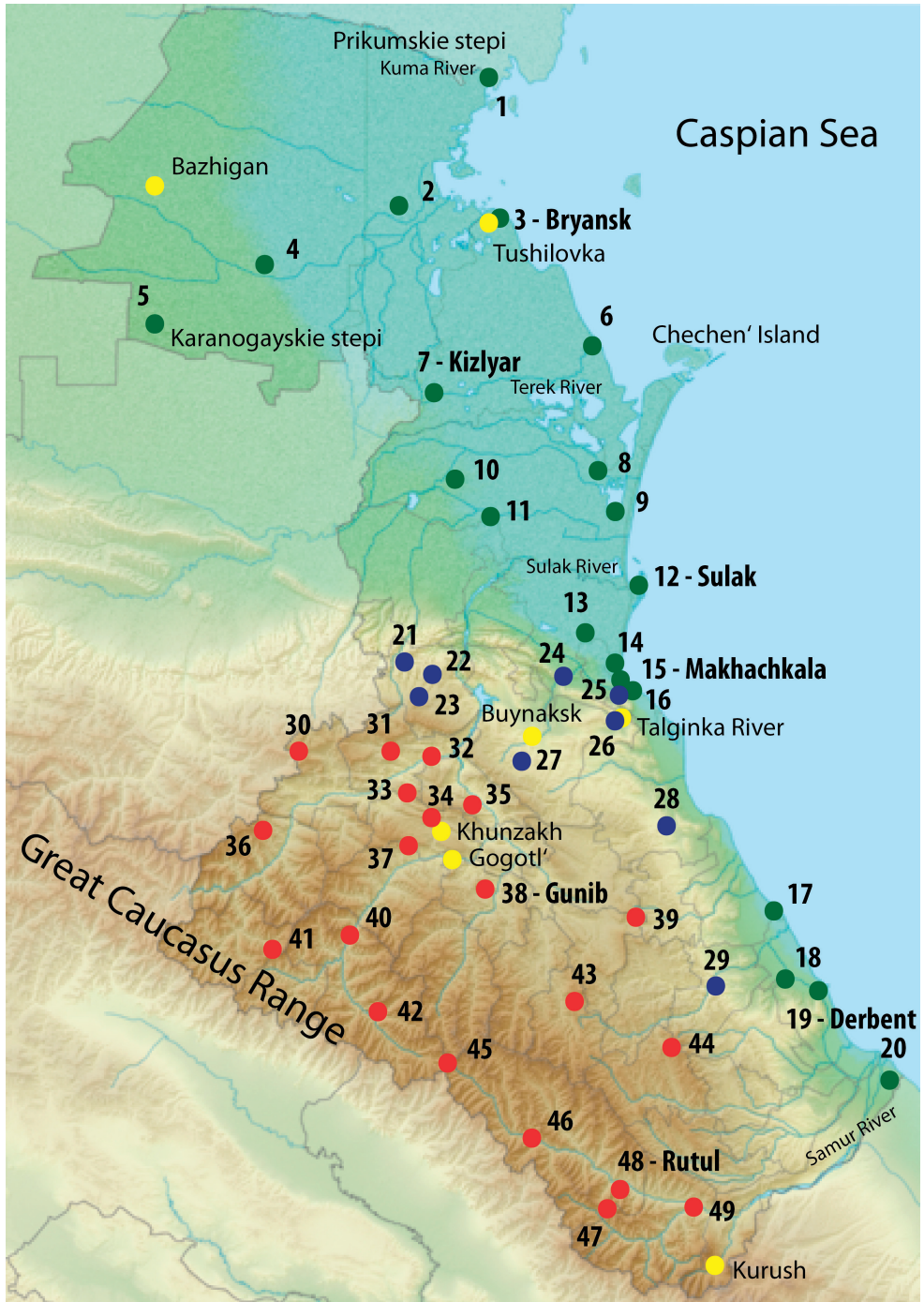


Fig. 7: Map of Dagestan showing localities in the lowlands (green), foothills (blue), mountainous part (red), and from literature sources (yellow).

- 44) Agul'skiy Rayon: **44A**) south-western slope of Mt. Dzhufudag, near Burshag, 2000 m a.s.l., steppe meadows, streams, springs, shallow swamps, 3.–5.VIII.2001, in spring, leg. E.V. Ilyina; **44B**) Mt. Dzhufudag, 2200 m a.s.l., 10.–16.VI.2000, in stream, leg. E.V. Ilyina.
- 45) Tlyaratinskiy Rayon, northern slope of Mt. Guton, gorge of Dzhurmut River, upper reaches of Dzhurmut River, 2000 m a.s.l., mountain-steppe and mountain-meadow vegetation, mountain forest (Fig. 6), 21.VII.1994, in small stream, leg. E.V. Ilyina.
- 46) Rutul'skiy Rayon, valley of Samur River, near Segyut, 1700–2000 m a.s.l., mountain-steppe and mountain-meadow vegetation, mountain forest, wide open river floodplain, 7.VI.2008, in stream, leg. E.V. Ilyina.
- 47) Rutul'skiy Rayon, Kyabyak-Tepe Range, northern slope of Lalaon Gorge, near Deavgay, 1500–2000 m a.s.l., mountain-steppe and mountain-meadow vegetation, 22.–23.VII.1997, in stream, leg. E.V. Ilyina.
- 48) Rutul'skiy Rayon, valley of Samur River, near Rutul, 1500 m a.s.l., mountain-steppe and mountain-meadow vegetation, mountain forest, wide open river floodplain, 1.VII.1908, collector unknown (ZISP).
- 49) Akhtynskiy Rayon, valley of Samur River: **49A**) near Akhty, 1500 m a.s.l., mountain-steppe and xerophytic vegetation, wide open river floodplain, date unknown, leg. E.V. Ilyina; **49B**) Samurwald [forest of Samur River], collection of H. Franz (NMW).
- Kurush**, Dokuzparinskiy Rayon, Vodorazdel'nyy Khrebet [mountain range], eastern slope of Mt. Shalbuzdag, 2309 m a.s.l., mountainous meadows, streams, 41°16'5.88"N 47°49'48"E.
- 50) Dagestan, 2001, leg. E.V. Ilyina.

## Results

The results of the study are given as a list of the species/subspecies (Table 1) and a list of the stations with the species collected. The species list is based on the material studied and on literature data. References are given for the latter, with geographical localities and some notes. Terskaya Oblast' is noted from ZAITZEV (1927) only when collections from its Dagestan part are clearly intended. Specimens, reported by ZAITZEV (1927) to be from Prikumskie stepi [steppes], are considered to be from Dagestan, although this region includes a narrow part of southern Kalmykiya too.

The material studied comprises 81 species and one subspecies of six families: Noteridae (1 sp.), Dytiscidae (47 spp., 1 spp.), Haliplidae (2 spp.), Gyrinidae (4 spp.), Hydrophilidae (26 spp.), and Spercheidae (1 sp.). Of these, 43 species and one subspecies species are recorded from Dagestan for the first time: Noteridae (1 sp.), Dytiscidae (16 spp., 1 spp.), Haliplidae (1 sp.), Gyrinidae (2 spp.), Hydrophilidae (22 spp.), and Spercheidae (1 sp.). The family Spercheidae has not been recorded from Dagestan before. Two species and one subspecies of Dytiscidae are reported for the first time from the southern territory of Russia.

Table 1: List of water beetles recorded from Dagestan. New records from Dagestan are indicated with an asterisk; new records from the southern territory of Russia are indicated with two asterisks.

The sequence of the species/subspecies of Dytiscidae and Hydrophilidae is based on the World Catalogue of Insects (Apollo Books). In the remaining families the listing is alphabetical.

	Taxa	Literature records	Localities (number of specimens)
<b>Noteridae</b>			
1	<i>Noterus clavicornis</i> (DE GEER, 1774)	ZAITZEV (1927): "Dagestan" (p. 38)	
2	* <i>Noterus crassicornis</i> (MÜLLER, 1776)		1 (3), 13 (1)
<b>Dytiscidae</b>			
1	<i>Agabus amoenus</i> SOLSKY, 1874	ZAITZEV (1927): Kizlyar, Terskaya Obl. (p. 38)	



2	<i>Agabus biguttatus</i> (OLIVIER, 1795)	ZAITZEV (1927): Gunib, Khunzakh (as <i>A. nitidus</i> F., 1801), "Dagestan" (p. 38)	33 (1), 36 (1), 41 (1), 42 (1), 45 (2)
3	<i>Agabus bipustulatus</i> (L., 1767)	ZAITZEV (1927): Khunzakh (p. 38)	44A (5), 46 (3)
4	<i>Agabus conspersus</i> (MARSHAM, 1802)	ZAITZEV (1927): Khunzakh, Terskaya Obl. (p. 38)	4 (2), 13 (3), 16 (1), 22 (1)
5	** <i>Agabus coxalis</i> SHARP, 1882 (ssp. <i>schmidti</i> ZAITZEV, 1913)		23 (1)
6	<i>Agabus glacialis</i> HOCHHUTH, 1846	SHARP (1882): "Dagestan" (as <i>A. armeniacus</i> sp.n.); ZAITZEV (1927): "Dagestan" (as <i>A. armeniacus</i> SHARP, 1882), "Dagestan" (p. 38); ZAITZEV (1953): "Dagestan"	30 (1), 34C (1), 35 (2), 36 (7), 37 (1), 40 (1), 44A (2), 44B (5), 47 (2)
7	<i>Agabus guttatus</i> (PAYKULL, 1798)	BREKHOV (2006): Rutul	11 (1), 18 (1), 32 (1), 48 (1)
8	<i>Agabus nebulosus</i> (FORSTER, 1771)	ZAITZEV (1927): Khunzakh (p. 38)	4 (1)
9	* <i>Agabus paludosus</i> (F., 1801)		39 (1)
10	<i>Ilybius cinctus</i> SHARP, 1878	ZAITZEV (1927): Kizlyar: oz. Aver`yanovskoe, Terskaya Obl. (p. 38); KLICHEVA et al. (2009): from Bryansk to Chechen' Island	8 (3), 14 (7)
11	* <i>Ilybius fuliginosus</i> (F., 1792)		2A (3), 48 (2)
12	<i>Ilybius quadriguttatus</i> (LACORDAIRE, 1835)	ZAITZEV (1927): Prikumskie stepi [steppes], Terskaya Obl. (p. 38) (as <i>I. obscurus</i> (MARSHAM, 1802))	14 (1), 15A (1), 48 (1)
13	<i>Ilybius subaeneus</i> ERICHSON, 1837	JAKOBSON (1905–1915): Terskaya Obl.; BREKHOV (2006): Sulak	5 (2), 12 (3), 14 (20), 24 (2)
14	<i>Platambus lunulatus</i> (FISCHER VON WALDHEIM, 1829)	KASYMOV (1972): "Dagestan"	18 (2), 34B (1), 37 (1), 46 (2)
15	<i>Colymbetes fuscus</i> (L., 1758)	HOCHHUTH (1846): Kizlyar; JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1927): Kizlyar, ? Terskaya Obl. (p. 38) (indicating the record as doubtful), KASYMOV (1972): Kizlyar	14 (3), 20 (1), 50 (1)
16	<i>Colymbetes semenowi</i> (JAKOVLEV, 1896)	ZAITZEV (1927): Prikumskie stepi [steppes], ? Kizlyar, Terskaya Obl. (p. 38, as <i>C. kokujevi</i> JAKOVLEV, 1896)	
17	<i>Rhantus bistratus</i> (BERGSTRÄSSER, 1778)	KLICHEVA et al. (2009): from Bryansk to Chechen' Island	14 (1)
18	<i>Rhantus exsoletus</i> (FORSTER, 1771)	KLICHEVA et al. (2009): from Bryansk to Chechen' Island	
19	<i>Rhantus frontalis</i> (MARSHAM, 1802)	JAKOBSON (1905–1915): "Dagestan" (as <i>R. suturalis</i> LACORDAIRE, 1835); ZAITZEV (1927): Derbent (as <i>R. suturalis</i> ), "Dagestan" (p. 38); KLICHEVA et al. (2009): from Bryansk to Chechen' Island (as <i>R. notatus</i> (F., 1781))	
20	* <i>Rhantus latitans</i> SHARP, 1882		5 (1), 14 (3)
21	<i>Rhantus suturalis</i> (MACLEAY, 1825)	KLICHEVA et al. (2009): from Bryansk to Chechen' Island (as <i>R. pulverosus</i> (STEPHENS, 1828))	4 (1), 5 (1), 8 (12), 9B (1), 12 (1), 14 (18), 24 (1)
22	<i>Liopterus haemorrhoidalis</i> (F., 1787)	KLICHEVA et al. (2009): from Bryansk to Chechen' Island	14 (5)
23	<i>Acilius sulcatus</i> (L., 1758)	ZAITZEV (1927): Khunzakh, Terskaya Obl. (p. 38); KASYMOV (1972): Khunzakh	
24	* <i>Graphoderus austriacus</i> (STURM, 1834)		5 (7), 8 (1), 14 (9)
25	<i>Graphoderus cinereus</i> (L., 1758)	HOCHHUTH (1846): Kizlyar; JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1927): Kizlyar, Tushilovka, Terskaya Obl. (p. 38)	14 (1)
26a	<i>Cybister lateralimarginalis lateralimarginalis</i> (DE GEER, 1774)	JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1927): Kizlyar, Karanogayskie stepi [steppes], Bazhigan, Terskaya Obl. (p. 38); KASYMOV (1972): Kizlyar	2B (1), 8 (1), 50 (1)

26b	** <i>Cybister lateralimarginalis torquatus</i> (FISCHER VON WALDHEIM, 1829)		11 (1)
27	** <i>Cybister tripunctatus</i> (OLIVIER, 1795) (ssp. <i>lateralis</i> (F., 1798))		9A (7), 15A (1)
28	<i>Dytiscus circumflexus</i> F., 1801	JAKOBSON (1905–1915): “Dagestan”; ZAITZEV (1927): “Dagestan” (p. 38); KASYMOV (1972): “Dagestan”	
29	<i>Dytiscus marginalis</i> L., 1758	ZAITZEV (1927): Khunzakh (p. 38)	
30	<i>Dytiscus persicus</i> WEHNCKE, 1876	ZAITZEV (1946a): “Dagestan”; KASYMOV (1972): Khunzakh	6 (1), 50 (1)
31	<i>Eretes griseus</i> (F., 1781)	KASYMOV (1972): Kizlyar (as <i>E. sticticus</i> (L., 1767))	5 (1), 8 (5), 14 (2)
32	<i>Hydaticus seminiger</i> (DE GEER, 1774)	HOCHHUTH (1846): Kizlyar (as <i>H. hybneri</i> (F., 1787)); JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1927): Kizlyar (indicating the record by HOCHHUTH (1846) as doubtful)	14 (1)
33	<i>Hydaticus grammicus</i> (GERMAR, 1827)	ZAITZEV (1927): Kizlyar, Derbent, Terskaya Obl. (p. 38); KASYMOV (1972): Derbent, Kizlyar	5 (2), 8 (15), 14 (8), 16 (1)
34	<i>Hydaticus transversalis</i> (PONTOPPIDAN, 1763)	HOCHHUTH (1846): Kizlyar; JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1927): Kizlyar, Terskaya Obl. (p. 38)	
35	<i>Bidessus nasutus</i> SHARP, 1887	ZAITZEV (1927): Kizlyar	
36	<i>Hydroglyphus geminus</i> (F., 1792)	ZAITZEV (1927): Terskaya Obl. (p. 38) (as <i>Bidessus geminus</i> (F., 1792)); KASYMOV (1972): Talginka River, Adzhisu (as <i>Bidessus pusillus</i> (F., 1781))	8 (1), 9B (1), 14 (32), 15B (1), 17 (2), 24 (1), 26 (1), 27 (1)
37	<i>Hydroglyphus signatellus</i> (KLUIG, 1834)	ZAITZEV (1927): Kizlyar, Terskaya Obl., (p. 38) (as <i>Bidessus thermalis</i> (GERMAR, 1838))	14 (1)
38	* <i>Graptodytes bilineatus</i> (STURM, 1835)		25 (3)
39	* <i>Hydroporus jacobsoni</i> ZAITZEV, 1927		34B (2), 35 (1), 39 (1), 41 (1)
40	* <i>Hydroporus melanarius</i> STURM, 1835		49B (18)
41	<i>Hydroporus planus</i> (F., 1781)	ZAITZEV (1927): Khunzakh (p. 38); KASYMOV (1972): Khunzakh	
42	<i>Hydroporus pubescens</i> (GYLLENHAL, 1808)	ZAITZEV (1927): “Dagestan” (p. 38)	17 (2)
43	<i>Hydroporus transgrediens</i> GSCHWENDTNER, 1923	FERY & PETROV (2005): Kurush	34A (3), 39 (1)
44	<i>Nebrioporus airumilus</i> (KOLENATI, 1845)	ZAITZEV (1927): Gogotl’ (Gunibskiy Okr.) (p. 38)	
45	<i>Nebrioporus steppensis</i> (MOTSCHULSKY, 1860)	ZAITZEV (1946a): Kyavar-Chay (as <i>Deronectes ceresyi</i> (AUBÉ, 1838))	
46	<i>Hydrovatus cuspidatus</i> (KUNZE, 1818)	KLICHEVA et al. (2009): from Bryansk to Chechen’ Island	5 (3), 8 (1), 19 (2), 20 (1)
47	<i>Hygrotus caspius</i> (WEHNCKE, 1875)	ZAITZEV (1927): “Peski Terskaya obl.” [sand area of Terskaya Obl.], Terskaya Obl. (p. 38)	
48	<i>Hygrotus confluens</i> (F., 1787)	ZAITZEV (1927): Kizlyar, Terskaya Obl. (p. 38); KASYMOV (1972): Adzhisu River (as <i>Coelambus confluens</i> )	49 (1)
49	* <i>Hygrotus corpulentus</i> (SCHAUM, 1864)		14 (1)
50	<i>Hygrotus enneagrammus</i> (AHRENS, 1833)	ZAITZEV (1927): Temir-Khan-Shura (= Buynaksk), Prikumskie stepi (p. 38)	8 (3), 14 (3)

51	<i>Hygrotus impressopunctatus</i> (SCHALLER, 1783)	HOCHHUTH (1846): Kizlyar (as <i>Hydroporus picipes</i> (F., 1787)); JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1927): Terskaya Obl. (p. 38)	5 (2), 8 (1), 14 (5), 15A (1)
52	* <i>Hygrotus marklini</i> (GYLLENHAL, 1813)		13 (1)
53	<i>Hygrotus nigrolineatus</i> (STEVEN, 1808)	STEVEN (1808) & FISCHER VON WALDHEIM (1829): Kizlyar; ZAITZEV (1927): Kizlyar, Terskaya Obl. (p. 38)	14 (51)
54	* <i>Hygrotus pallidulus</i> (AUBÉ, 1850)		2A (1), 14 (2), 17 (3)
55	<i>Hygrotus parallelogrammus</i> (AHRENS, 1812)	ZAITZEV (1927): “Dagestan” (p. 38)	14 (5)
56	<i>Hygrotus polonicus</i> (AUBÉ, 1842)	ZAITZEV (1927): Kizlyar	
57	* <i>Hygrotus decoratus</i> (GYLLENHAL, 1810)		14 (5)
58	<i>Hygrotus inaequalis</i> (F., 1777)	ZAITZEV (1927): Terskaya Obl. (p. 38)	14 (1), 19 (1)
59	* <i>Hygrotus quinquelineatus</i> (ZETTERSTEDT, 1828)		14 (1)
60	* <i>Hygrotus versicolor</i> (SCHALLER, 1783)		14 (13)
61	<i>Laccophilus poecilus</i> KLUG, 1834	ZAITZEV (1927): Terskaya Obl. (p. 38); KASYMOV (1972): Kizlyar (as <i>L. variegatus</i> GERMAR, 1812)	2A (1), 8 (10), 14 (19), 15B (4), 38 (1)
62	* <i>Laccophilus minutus</i> (L., 1758)		5 (8), 8 (1), 13 (2), 14 (9), 19 (2), 38 (2)
<b>Haliplidae</b>			
1	* <i>Haliplus fulvus</i> (F., 1801)		14 (1)
2	<i>Haliplus heydeni</i> WEHNCKE, 1875	ZAITZEV (1946b): Kizlyar (as “ <i>H. (i. sp.) transversus</i> Thoms. ( <i>heydeni</i> Wehn.)”)	
3	<i>Haliplus ruficollis</i> (DE GEER, 1774)	ZAITZEV (1946b): Khunzakh	8 (1)
4	<i>Peltodytes caesus</i> (DUFTSCHMID, 1805)	KLICHEVA et al. (2009): from Bryansk to Chechen’ Island	
<b>Gyrinidae</b>			
1	<i>Aulonogyrus concinnus</i> KLUG, 1834	JAKOBSON (1905–1915): Terskaya Obl.; ZAITZEV (1928): Kizlyar; KASYMOV (1972): Kizlyar	5 (2), 8 (2)
2	<i>Gyrinus caspius</i> MÉNÉTRIÉS, 1832	ZAITZEV (1915, 1928): Kizlyar	27 (1), 32 (1)
3	<i>Gyrinus colymbus</i> ERICHSON, 1837	ZAITZEV (1928): “Dagestan”	
4	* <i>Gyrinus distinctus</i> AUBÉ, 1838		28 (3), 31 (1)
5	<i>Gyrinus marinus</i> GYLLENHAL, 1808	JAKOBSON (1905–1915): “Dagestan”; ZAITZEV (1928): “Dagestan”	
6	* <i>Gyrinus paykulli</i> OCHS, 1927		14 (1)
<b>Hydrophilidae</b>			
1	* <i>Anacaena limbata</i> (F., 1792)		8 (2), 14 (5), 15B (2)
2	* <i>Anacaena lutescens</i> (STEPHENS, 1829)		5 (1), 8 (5), 14 (8), 15A (1)
3	* <i>Paracymus aeneus</i> (GERMAR, 1824)		1 (1), 5 (1), 8 (3), 14 (50)
4	* <i>Berosus bispina</i> REICHE & SAULCY, 1856		1 (1), 2A (3), 5 (7), 8 (40), 13 (1), 14 (5), 27 (1)

5	<i>*Berosus frontifoveatus</i> KUWERT, 1888		8 (5), 14 (27), 20 (2)
6	<i>*Berosus signaticollis</i> (CHARPENTIER, 1825)		5 (2), 8 (10), 14 (9), 19 (2)
7	<i>Berosus spinosus</i> (STEVEN, 1808)	KASYMOV (1972): Talginka River	3 (3), 8 (147), 14 (59), 15A (1)
8	<i>*Cymbiodyta marginella</i> (F., 1792)		8 (8), 14 (1)
9	<i>*Enochrus affinis</i> (THUNBERG, 1794)		8 (27), 14 (1)
10	<i>*Enochrus bicolor</i> (F., 1792)		3 (7), 8 (13), 13 (2), 14 (5)
11	<i>*Enochrus coarctatus</i> (GREDLER, 1863)		10 (1), 43 (3)
12	<i>*Enochrus fuscipennis</i> (THOMSON, 1884)		5 (49), 8 (134), 14 (13), 20 (1), 24 (6), 29 (15)
13	<i>*Enochrus melanocephalus</i> (OLIVIER, 1792)		8 (14), 14 (8), 24 (1)
14	<i>Enochrus quadripunctatus</i> (HERBST, 1797)	JAKOBSON (1905–1915): “Dagestan”	8 (36), 14 (127), 19 (18), 24 (1)
15	<i>*Enochrus testaceus</i> (F., 1801)		8 (29)
16	<i>*Helochaeres obscurus</i> (MÜLLER, 1776)		5 (3), 8 (2), 14 (8)
17	<i>Hydrobius fuscipes</i> (L., 1758)	JAKOBSON (1905–1915): Terskaya Obl.	1 (1), 5 (2), 14 (60), 19 (2), 20 (2)
18	<i>*Limnoxenus niger</i> (GMELIN, 1790)		1 (1), 5 (7), 14 (4)
19	<i>*Hydrochara affinis</i> (SHARP, 1873)		5 (3), 8 (2)
20	<i>Hydrochara caraboides</i> (L., 1758)	JAKOBSON (1905–1915): Terskaya Obl. (as <i>Hydrophilus caraboides</i> (L., 1758))	15A (1), 16 (1)
21	<i>*Hydrochara dichroma</i> (FAIRMAIR, 1892)		19 (1)
22	<i>*Hydrochara flavipes</i> (STEVEN, 1808)		3 (1), 14 (30), 15A(3)
23	<i>*Hydrophilus piceus</i> (L., 1758)		3 (1), 7 (2), 8 (1), 14 (3), 15A (1), 21 (1)
24	<i>*Laccobius colon</i> (STEPHENS, 1829)		14 (1)
25	<i>*Laccobius minutus</i> L., 1758		5 (2)
26	<i>*Coelostoma orbiculare</i> (F., 1775)		5 (5), 8 (2), 10 (3), 20 (4), 43 (2)
27	<i>Sphaeridium bipustulatum</i> F., 1781	JAKOBSON (1905–1915): “Dagestan”	
<b>*Spercheidae</b>			
1	<i>*Spercheus emarginatus</i> (SCHALLER, 1783)		14 (16)

The results of our study bring the total number of Dagestan water beetles of the studied families to 102 species and one subspecies: Noteridae (2 spp.), Dytiscidae (62 spp., 1 ssp.), Haliplidae (4 spp.), Gyrinidae (6 spp.), Hydrophilidae (27 spp.), and Spercheidae (1 sp.).

### Faunistic notes

#### *Agabus coxalis schmidti* ZAITZEV, 1913

This is the first record from Dagestan and the southern territory of Russia. The subspecies was previously known from Armenia, Georgia, and Turkey (NILSSON & HÁJEK 2013).

#### *Cybister lateralimarginalis torquatus* (FISCHER VON WALDHEIM, 1829)

This is the first record from Dagestan and the southern territory of Russia. The subspecies was previously known in the Caucasus Region only from Azerbaijan and Georgia (NILSSON & HÁJEK 2013). Most likely, central Dagestan (namely the area between the Sulak and Terek Rivers) is the north-western limit of the distribution of this subspecies, where it meets the range of the nominative subspecies. The distribution and taxonomic status of these two subspecies are in need of further investigation.

#### *Cybister tripunctatus lateralis* (F., 1798)

This is the first record from Dagestan and the southern territory of Russia. This subspecies is widely spread in Asia and was previously known in the Caucasus Region only from Azerbaijan (NILSSON & HÁJEK 2013).

#### *Hydaticus transversalis* (PONTOPPIDAN, 1763)

ZAITZEV (1927) recorded this species from Kizlyar (p. 31) and Terskaya Obl. (p. 38) on the basis of the record by HOCHHUTH (1846) but doubted it, considering that the studied specimen might belong to *H. inderiensis* ZAITZEV, 1915, which is in fact a synonym of *H. transversalis*.

#### *Hydroglyphus geminus* (F., 1792)

KASYMOV (1972) reported this species from Talginka River and Adzhisu of Dagestan. We could not locate the latter in Dagestan; most likely it is a mistake. There are two similar names to consider: Achisu, a town situated south of Makhachkala and Adzhi Lake, a different name for Lake Papas.

#### *Nebrioporus steppensis* (MOTSCHULSKY, 1860)

Based on two specimens, ZAITZEV (1946a) assumed that this species (as *Deronectes ceresyi*) occurs in Dagestan: “label handwritten by Kenig [= E. König] 'Ca. Käwar tschai', i.e. Caucasus, Kyavar-Chay. I know only one river with such a name – it is in Armenia and it enters into Sevan Lake. However, it is impossible to assume that these specimens were from it, since *D. ceresyi* – an exceptional halophile – inhabits saline lakes and pools along seashores. I would rather assume that there is a small river with the same name somewhere in Dagestan, and these beetles were collected in salt water on the Caspian Sea coast, near the confluence of this river” [translation from Russian].

We could not find this locality and, therefore, it is not placed on the map. Unfortunately, we were not able to locate these two specimens in any collection. In our opinion, Zaitzev's record belongs to *N. steppensis* rather than to *N. ceresyi*, because at that time, he did not recognize *N. steppensis* as a valid species and considered the populations east of the Crimea Peninsula as *N. ceresyi*. However, later, ZAITZEV (1953) treated it as a subspecies of *N. ceresyi* (as “*Potamonectes ceresyi steppensis* (MOTSCHULSKY, 1860)”) and wrote about its distribution: “SSSR: steppe zone of European part, steppe zone of Caspian Sea, western Siberia, Kazakhstan, Turkmenistan, Talysh” [translation from Russian], indicating the subspecies as occurring almost exclusively in saline water-bodies of steppe and pools along seashores.

However, the occurrence of *Nebrioporus steppensis* in Dagestan still needs confirmation.

***Hygrotus confluens* (F., 1787)**

KASYMOV (1972) reported this species under the name as *Coelambus confluens* from “Adzhisu” River, which we could not locate (see above, under *Hydroglyphus geminus*).

***Hygrotus pallidulus* AUBÉ, 1850**

This is the first record from Dagestan. In the southern territory of Russia, this species was previously reported from the north-western Caucasus (SHAPOVALOV & SHOKHIN 2007). The species is also known from western and southern Europe, North Africa (incl. Sinai Peninsula), the Caucasus Region (including Azerbaijan and Georgia), and several other Asian countries (Turkey, Syria, Iran, and Turkmenistan).

***Haliplus dalmatinus* (MÜLLER, 1900)**

ZAITZEV (1946b) reported this species from Dagestan (Khanukhlyar) under the name “*H. fulvus dalmatinus* J. Müller”. However, Khanukhlyar is situated in Nakhichevan, an autonomous area of Azerbaijan.

***Haliplus heydeni* (WEHNCKE, 1875)**

ZAITZEV (1946b) reported this species from Kizlyar under the name “*H. (i. sp.) transversus* Thoms. (*heydeni* When.)”, obviously considering *H. transversus* THOMSON, 1870 (now a synonym of *H. lineolatus* MANNERHEIM, 1844) and *H. heydeni* to be the same species. *Haliplus lineolatus* does not occur in the Caucasus Region, but in northern and eastern Europe, Siberia, Kazakhstan, and Mongolia.

***Enochrus coarctatus* (GREDLER, 1863)**

This species was newly recorded from the southern territory of Russia (north-western Caucasus) by SHAPOVALOV & SHOKHIN (2007).

***Enochrus melanocephalus* (OLIVIER, 1792)**

This species was newly recorded from the southern territory of Russia (north-western Caucasus) by SHAPOVALOV & SHOKHIN (2007).

***Spercheus emarginatus* (SCHALLER, 1783)**

This is the first record of the family from Dagestan. This species was previously recorded from the southern territory of Russia by JAKOBSON (1905–1915) from Voronezh and Saratov Provinces, as well as by SHATROVSKIY (1985) and HANSEN (2004) without exact localities. Hansen’s record was most likely based on Shatrovskiy’s data, which are based on specimens from ZISP. The latter collection, as well as Hansen’s collection, does not include any specimens from Dagestan (pers. comm. by A.G. Kirejtshuk and A. Solodovnikov).

### List of collecting localities with species lists

The list includes the sampling sites, localities of the specimens from the collections and from literature sources.

The sequence of the species/subspecies of Dytiscidae and Hydrophilidae is based on the World Catalogue of Insects (Apollo Books). In the remaining families the listing is alphabetical.

#### Lowland region of Dagestan

**Terskaya Oblast’:** **Dytiscidae:** *Agabus conspersus*, *Ilybius subaeneus*, *Colymbetes fuscus*, *Acilius sulcatus*, *Graphoderus cinereus*, *Cybister lateralimarginalis lateralimarginalis*, *Hydaticus seminiger*, *H. transversalis*, *Hydroglyphus geminus*, *Hygrotus caspius*, *H. impressopunctatus*, *H. inaequalis*, *Laccophilus poecilus*;  
**Gyrinidae:** *Aulonogyrus concinnus*; **Hydrophilidae:** *Hydrobius fuscipes*, *Hydrochara caraboides*.

1) **Noteridae:** *Noterus crassicornis*; **Hydrophilidae:** *Paracymus aeneus*, *Berosus bispina*, *Hydrobius fuscipes*, *Limnoxenus niger*.

**Prikumskie stepi: Dytiscidae:** *Ilybius quadriguttatus*, *Colymbetes semenowi*, *Hygrotus enneagrammus*.

**Bazhigan: Dytiscidae:** *Cybister lateralimarginalis lateralimarginalis*.

2) **Dytiscidae:** *Ilybius fuliginosus*, *Cybister lateralimarginalis lateralimarginalis*, *Hygrotus pallidulus*, *Laccophilus poecilus*; **Hydrophilidae:** *Berosus bispina*.

3) **Hydrophilidae:** *Berosus spinosus*, *Enochrus bicolor*, *Hydrochara flavipes*, *Hydrophilus piceus*.

**From Bryansk to Chechen' Island: Dytiscidae:** *Ilybius cinctus*, *Rhantus bistriatus*, *R. exsoletus*, *R. frontalis*, *R. suturalis*, *Liopterus haemorrhoidalis*, *Hydrovatus cuspidatus*; **Halipilidae:** *Pelodytes caesus*.

**Tushilovka: Dytiscidae:** *Graphoderus cinereus*.

4) **Dytiscidae:** *Agabus conspersus*, *A. nebulosus*, *Rhantus suturalis*.

5) **Dytiscidae:** *Ilybius subaeneus*, *Rhantus latitans*, *R. suturalis*, *Graphoderus austriacus*, *Eretes griseus*, *Hydaticus grammicus*, *Hydrovatus cuspidatus*, *Hygrotus impressopunctatus*, *Laccophilus minutus*; **Gyrinidae:** *Aulonogyrus concinnus*; **Hydrophilidae:** *Anacaena lutescens*, *Paracymus aeneus*, *Berosus bispina*, *B. signaticollis*, *Enochrus fuscipennis*, *Helochares obscurus*, *Hydrobius fuscipes*, *Limnoxenus niger*, *Hydrochara affinis*, *Laccobius minutus*, *Coelostoma orbiculare*.

**Karanogayskie stepi: Dytiscidae:** *Cybister lateralimarginalis lateralimarginalis*.

6) **Dytiscidae:** *Dytiscus persicus*.

7) **Dytiscidae:** *Agabus amoenus*, *Ilybius cinctus*, *Colymbetes fuscus*, *C. semenowi*, *Graphoderus cinereus*, *Cybister lateralimarginalis lateralimarginalis*, *Eretes griseus*, *Hydaticus seminiger*, *H. grammicus*, *H. transversalis*, *Bidessus nasutus*, *Hydroglyphus signatellus*, *Hygrotus confluentis*, *H. impressopunctatus*, *H. nigrolineatus*, *H. polonicus*, *Laccophilus poecilus*; **Halipilidae:** *Haliplus heydeni*; **Gyrinidae:** *Aulonogyrus concinnus*, *Gyrinus caspius*; **Hydrophilidae:** *Hydrophilus piceus*.

8) **Dytiscidae:** *Ilybius cinctus*, *Rhantus suturalis*, *Graphoderus austriacus*, *Cybister lateralimarginalis lateralimarginalis*, *Eretes griseus*, *Hydaticus grammicus*, *Hydroglyphus geminus*, *Hydrovatus cuspidatus*, *Hygrotus enneagrammus*, *H. impressopunctatus*, *Laccophilus poecilus*, *L. minutus*; **Halipilidae:** *Haliplus ruficollis*; **Gyrinidae:** *Aulonogyrus concinnus*; **Hydrophilidae:** *Anacaena limbata*, *A. lutescens*, *Paracymus aeneus*, *Berosus bispina*, *B. frontifoveatus*, *B. signaticollis*, *B. spinosus*, *Cymbiodyta marginella*, *Enochrus affinis*, *E. bicolor*, *E. fuscipennis*, *E. melanocephalus*, *E. quadripunctatus*, *E. testaceus*, *Helochares obscurus*, *Hydrochara affinis*, *Hydrophilus piceus*, *Coelostoma orbiculare*.

9) **Dytiscidae:** *Rhantus suturalis*, *Cybister tripunctatus lateralis*, *Hydroglyphus geminus*.

10) **Hydrophilidae:** *Enochrus coarctatus*, *Coelostoma orbiculare*.

11) **Dytiscidae:** *Agabus guttatus*, *Cybister lateralimarginalis torquatus*.

12) **Dytiscidae:** *Ilybius subaeneus*, *Rhantus suturalis*.

13) **Noteridae:** *Noterus crassicornis*; **Dytiscidae:** *Agabus conspersus*, *Hygrotus marklini*, *Laccophilus minutus*; **Hydrophilidae:** *Berosus bispina*, *Enochrus bicolor*.

14) **Dytiscidae:** *Ilybius cinctus*, *I. quadriguttatus*, *I. subaeneus*, *Colymbetes fuscus*, *Rhantus bistriatus*, *R. latitans*, *R. suturalis*, *Liopterus haemorrhoidalis*, *Graphoderus austriacus*, *G. cinereus*, *Eretes griseus*, *Hydaticus seminiger*, *H. grammicus*, *Hydroglyphus geminus*, *H. signatellus*, *Hygrotus corpulentus*, *H. enneagrammus*, *H. impressopunctatus*, *H. nigrolineatus*, *H. pallidulus*, *H. parallelogrammus*, *H. decoratus*, *H. inaequalis*, *H. quinquelineatus*, *H. versicolor*, *Laccophilus poecilus*, *L. minutus*; **Halipilidae:** *Haliplus fulvus*; **Gyrinidae:** *Gyrinus paykulli*; **Hydrophilidae:** *Anacaena limbata*, *A. lutescens*, *Paracymus aeneus*, *Berosus bispina*, *B. frontifoveatus*, *B. signaticollis*, *B. spinosus*, *Cymbiodyta marginella*, *Enochrus affinis*, *E. bicolor*, *E. fuscipennis*, *E. melanocephalus*, *E. quadripunctatus*, *Helochares obscurus*, *Hydrobius fuscipes*, *Limnoxenus niger*, *Hydrochara flavipes*, *Hydrophilus piceus*, *Laccobius colon*; **Spercheidae:** *Spercheus emarginatus*.

15) **Dytiscidae:** *Ilybius quadriguttatus*, *Cybister tripunctatus lateralis*, *Hydroglyphus geminus*, *H. impressopunctatus*, *Laccophilus poecilus*; **Hydrophilidae:** *Anacaena limbata*, *A. lutescens*, *Berosus spinosus*, *Hydrochara caraboides*, *H. flavipes*, *Hydrophilus piceus*.

16) **Dytiscidae:** *Agabus conspersus*, *Hydaticus grammicus*; **Hydrophilidae:** *Hydrochara caraboides*.

17) **Dytiscidae:** *Hydroglyphus geminus*, *Hydroporus pubescens*, *Hygrotus pallidulus*.

18) **Dytiscidae:** *Agabus guttatus*, *Platambus lunulatus*.

19) **Dytiscidae:** *Rhantus frontalis*, *Hydaticus grammicus*, *Hydrovatus cuspidatus*, *Hygrotus inaequalis*, *Laccophilus minutus*; **Hydrophilidae:** *Berosus signaticollis*, *Enochrus quadripunctatus*, *Hydrobius fuscipes*, *Hydrochara dichroma*.

20) **Dytiscidae:** *Colymbetes fuscus*, *Hydrovatus cuspidatus*; **Hydrophilidae:** *Berosus frontifoveatus*, *Enochrus fuscipennis*, *Hydrobius fuscipes*, *Coelostoma orbiculare*.

**Foothill region of Dagestan**

- 21) **Hydrophilidae:** *Hydrophilus piceus*.  
 22) **Dytiscidae:** *Agabus conspersus*.  
 23) **Dytiscidae:** *Agabus coxalis schmidti*.  
 24) **Dytiscidae:** *Ilybius subaeneus*, *Rhantus suturalis*, *Hydroglyphus geminus*; **Hydrophilidae:** *Enochrus fuscipennis*, *E. melanocephalus*, *E. quadripunctatus*.  
 25) **Dytiscidae:** *Graptodytes bilineatus*.  
 26) **Dytiscidae:** *Hydroglyphus geminus*.  
**Talginka River:** **Dytiscidae:** *Hydroglyphus geminus*; **Hydrophilidae:** *Berosus spinosus*.  
**Buynaksk:** **Dytiscidae:** *Hygrotus enneagrammus*.  
 27) **Dytiscidae:** *Hydroglyphus geminus*; **Gyrinidae:** *Gyrinus caspius*; **Hydrophilidae:** *Berosus bispina*.  
 28) **Gyrinidae:** *Gyrinus distinctus*.  
 29) **Hydrophilidae:** *Enochrus fuscipennis*.

**Mountainous region of Dagestan**

- 30) **Dytiscidae:** *Agabus glacialis*.  
 31) **Gyrinidae:** *Gyrinus distinctus*.  
 32) **Dytiscidae:** *Agabus guttatus*; **Gyrinidae:** *Gyrinus caspius*.  
 33) **Dytiscidae:** *Agabus biguttatus*.  
 34) **Dytiscidae:** *Agabus glacialis*, *Hydroporus jacobsoni*, *H. transgrediens*.  
**Khunzakh:** **Dytiscidae:** *Agabus biguttatus*, *A. bipustulatus*, *A. conspersus*, *A. nebulosus*, *Acilius sulcatus*, *Dytiscus marginalis*, *D. persicus*, *Hydroporus planus*; **Haliplidae:** *Haliplus ruficollis*.  
 35) **Dytiscidae:** *Agabus glacialis*, *Hydroporus jacobsoni*.  
 36) **Dytiscidae:** *Agabus biguttatus*, *A. glacialis*.  
 37) **Dytiscidae:** *Agabus glacialis*.  
**Gogotl':** **Dytiscidae:** *Nebrioporus airumilus*.  
 38) **Dytiscidae:** *Agabus biguttatus*, *Laccophilus poecilus*, *L. minutus*.  
 39) **Dytiscidae:** *Agabus paludosus*, *Hydroporus jacobsoni*, *H. transgrediens*.  
 40) **Dytiscidae:** *Agabus glacialis*.  
 41) **Dytiscidae:** *Agabus biguttatus*, *Hydroporus jacobsoni*.  
 42) **Dytiscidae:** *Agabus biguttatus*.  
 43) **Hydrophilidae:** *Enochrus coarctatus*, *Coelostoma orbiculare*.  
 44) **Dytiscidae:** *Agabus bipustulatus*, *A. glacialis*.  
 45) **Dytiscidae:** *Agabus biguttatus*.  
 46) **Dytiscidae:** *Agabus bipustulatus*, *Platambus lunulatus*.  
 47) **Dytiscidae:** *Agabus glacialis*.  
 48) **Dytiscidae:** *Agabus guttatus*, *Ilybius fuliginosus*, *I. quadriguttatus*.  
 49) **Dytiscidae:** *Hydroporus melanarius*, *Hygrotus confluens*.  
**Kurush:** **Dytiscidae:** *Hydroporus transgrediens*.

According to our results, most species (81) occur in the lowland region of Dagestan. Among these, nine dytiscids, *Haliplus ruficollis*, *Enochrus coarctatus*, and *Coelostoma orbiculare* are recorded from the mountainous region of Dagestan as well. *Agabus guttatus* and *A. conspersus* were collected in all three regions. *Agabus coxalis* and *Hydroglyphus geminus* are found only in the foothills, and eight species of Dytiscidae (mainly *Agabus* and *Hydroporus*) occur only in the mountainous region of Dagestan. Of course, more intensive collecting throughout the region is necessary to construct a clear picture of horizontal and vertical distribution of the species of water beetles.



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### Zusammenfassung

102 Spezies und eine Unterart aus sechs Wasserkäfer-Familien werden für Dagestan (Russland) gelistet: Noteridae (2 spp.), Dytiscidae (62 spp. + 1 ssp.), Haliplidae (4 spp.), Gyrinidae (6 spp.), Hydrophilidae (27 spp.), Spercheidae (1 sp.). Die Daten basieren auf gesammeltem Material und aus den in der Literatur verfügbaren Daten. Die Familie Spercheidae (mit einer Art) und 43 Spezies sowie eine Unterart aus den restlichen fünf Familien sind neu für Dagestan. Zwei Dytiscidenarten und eine Dytiscidenunterart sind neu für das südliche Territorium Russlands.

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