

# Adephagous water beetles of Armenia

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

H. V. SHAVERDO

### Abstract

Forty species of Dytiscidae, three species of Haliplidae, and one species of Noteridae were collected from 54 sampling stations in Armenia during an excursion from the end of April to beginning of June, 2001. Fourteen species of Dytiscidae and two species of Haliplidae are recorded from Armenia for the first time. In accordance with the present study and literature data the list of Armenian aquatic Adephaga contains 65 species of Dytiscidae, seven species of Gyrinidae, five species of Haliplidae, and one species of Noteridae.

**Key words:** Coleoptera, Dytiscidae, Gyrinidae, Haliplidae, Noteridae, faunistics, Armenia.

### Introduction

There are many works which include information about the adephagous water beetles of the Caucasus but most of them do not specifically refer to the fauna of Armenia: HOCHHUTH (1846), SCHNEIDER & LEDER (1877), LEDER (1879, 1886), REITTER (1888), HEYDEN (1891), RADDE (1899), CLERMONT (1909), ZAITZEV (1913), EICHLER (1923), and BELYASHEVSKY (1991). Faunistic data of Armenian aquatic Adephaga are given in several papers. FALDERMANN (1835) recorded *Hydaticus grammicus* (GERMAR) (as *H. lineolatus* MÉNÉTRIÉS), *Agabus undulatus* (SCHRANK) (as *Colymbetes ruficeps* MÉNÉTRIÉS), *Gyrinus caspius* MÉNÉTRIÉS, and *Orectochilus involvens* FALDERMANN from Armenia and Iran. KOLENATI (1845) described *Agabus luniger* from Armenia which was later synonymized with *A. conspersus* (MARSHAM) (ZAITZEV 1927, 1953b). ZAITZEV (1927, 1928, 1946a, 1946b, 1947, 1953a, 1953b) listed 51 species of Dytiscidae, three species of Gyrinidae, three species of Haliplidae, and one species of Noteridae for the present territory of Armenia. ZAITZEV (1927) also recorded species from Turkish Armenia (Provinces: Artvin, Kars, Erzurum, Erzinçan, Bingöl, and Van) which is now the eastern part of Turkey and Nakhichevan which is now an autonomous republic of Azerbaijan. Some data on Armenian adephagous water beetles are found in more recent publications (KIREJTSHUK 2001, NILSSON 2003, MAZZOLDI 2003, and VONDEL 2003).

The purpose of this paper is to present a checklist of the adephagous water beetles of Armenia (in the present geopolitical sense) combining literature data and the results of my collecting trip in 2001.

### Material and description of sampling stations

Between April 29<sup>th</sup> and June 2<sup>nd</sup>, 2001 a field trip to Armenia was carried out by H.V. Shaverdo and H. Schillhammer. During this trip 87 sampling stations were examined. Only those 54 stations, which yielded adephagous water beetles are listed below and presented on the map (Fig. 1). The results are based on the study of 122 adults of Haliplidae, 57 adults of Noteridae, and about 1000 adults and 400 larvae of Dytiscidae. The specimens are deposited in the Natural

History Museum, Vienna, the collections of the J.B. Wallis Museum, University of Manitoba, Winnipeg, and in the author's private collection. In addition, some material from other collections was studied: coll. Khnzorian (in collection of M. Kalashian), Erevan, Armenia (CKhn) and Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZISP), Dr. A.G. Kirejtshuk.

- Stn. 1:** Gekhard River including small rivulets, some of them springheads, substrate: gravel and rocks up to 30 cm diameter; geology: basalt; ca. 1200 m a.s.l.; near Garni, E Erevan, coordinates not recorded; 29.IV.2001.
- Stn. 2:** Small tributary to stn. 1, still-water areas, plenty of submerged vegetation and *Lemna*; substrate: clay, mud; 29.IV.2001.
- Stn. 4:** Hrazdan River, riverbed with sand and small-sized gravel, water edge with submerged vegetation; ca. 1280 m a.s.l.; SE Lusakert, SW Charentsavan, N Erevan, geographical coordinates not recorded; 30.IV.2001.
- Stn. 5:** Small puddles near stn. 4, mostly sandy bottom, some puddles with decaying plant material; 30.IV.2001.
- Stn. 8:** Broad and slowly flowing stretch of Hrazdan River, shallow, furcation area; as stn. 4; 30.IV.2001.
- Stn. 9:** Springhead rivulets, slow-flowing, almost stagnant, dense *Phragmites*, muddy, ca. 1300 m a.s.l.; below Atsavan, E Erevan (ca. halfway between Erevan and Garni), geographical coordinates not recorded; 1.V.2001.
- Stn. 10:** Stream, substrate: clay; as stn. 9; 1.V.2001.
- Stn. 12:** Large stagnant water-body with plenty of reed; as stn. 9; 1.V.2001.
- Stn. 18:** Small river, fast flowing, ca. 2 - 5 m wide, exceedingly cold (ca. 5°C), most aquatic beetles from small accompanying rivulets with dense aquatic vegetation (including moss); geology: volcanic; ca. 2100 m a.s.l.; near Amberd, NW Byurakan, Aragats Mt., S - slope, 40°24.34'N 44°13.65'E; 6.V.2001.
- Stn. 19:** Near stn. 18; small stream flowing through meadow, 0.5 - 1 m wide; ca. 2180 m a.s.l.; 40°24.43'N 44°14.29'E; 6.V.2001.
- Stn. 20:** Amberd River, ca. 5 m wide, with large boulders, ca. 1580 m a.s.l., beetles from almost stagnant portion near riverbank, little to moderate vegetation, bottom with gravel and stones (5 - 50 cm diameter); above Byurakan (Orgov Gorge - between Antarat and Orgov villages), Mt. Aragats, S - slope, 40°21.60'N 44°15.06'E; 6.V.2001.
- Stn. 22:** "Arzakan" River, fast flowing (through oak forest), ca. 3 - 5 m wide, subject to frequent floods; geology: volcanic and crystalline; ca. 1850 m a.s.l.; near Agveran Resort, near Arzakan, NW Charentsavan, N Erevan, 40°30.10'N 44°34.97'E; 7.V.2001.
- Stn. 25:** Shallow stagnant area and flooded grassland, ca. 10 cm deep; near Marmaryk River; geology: granite with volcanic and crystalline components; ca. 1970 m a.s.l.; below Ankavan, 24 km NW Hrazdan, N Erevan, 40°38.22'N 44°32.34'E; 9.V.2001.
- Stn. 26:** Ca. 3 km below stn. 25; flooded area near Marmaryk River, mainly on grassland; ca. 1850 m a.s.l.; 21 km NW Hrazdan, 40°37.72'N 44°33.20'E; 9.V.2001.
- Stn. 28:** Kasagh River, slowly flowing, polluted, high spate; ca. 1950 m a.s.l.; N Aparan, 40°37.10'N 44°19.90'E; 10.V.2001.
- Stn. 30:** As stn. 20, but river with much lower spate; 10.V.2001.

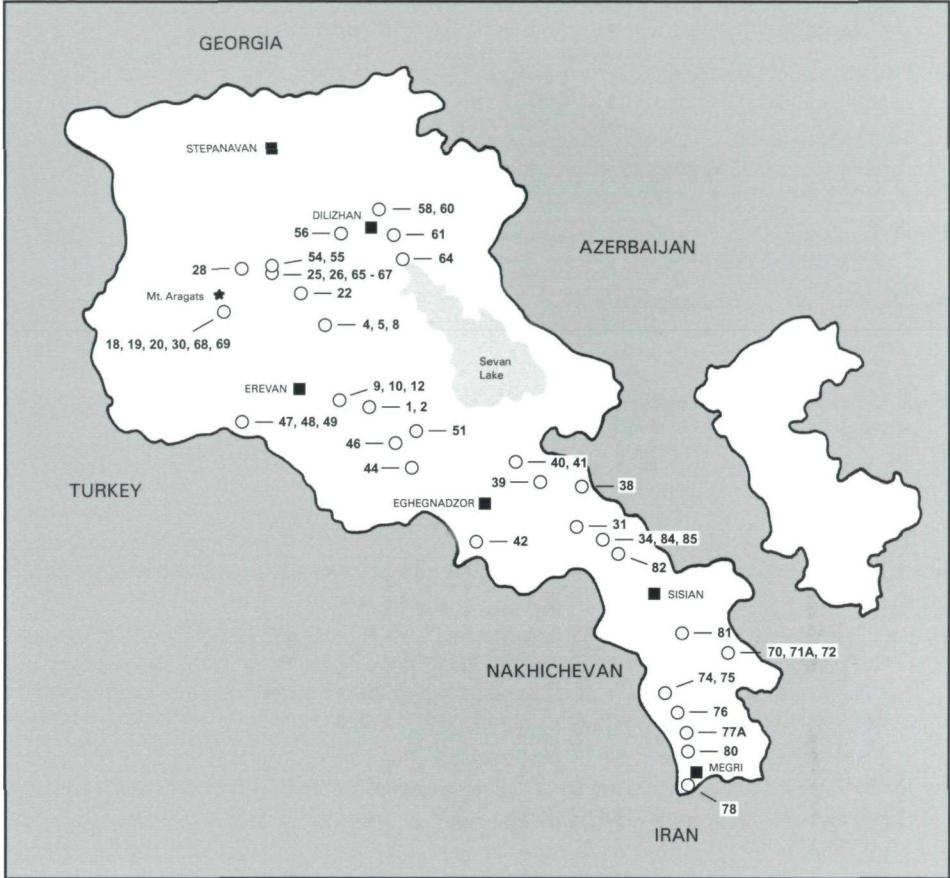


Fig. 1: Map of Armenia showing sampling stations.

- Stn. 31:** Arpa River, ca. 7 - 10 m wide, slowly flowing, plenty of floating *Ranunculus*, bottom stony-sandy; geology: volcanic and limestone; ca. 1400 m a.s.l.; ca. 5 km SW Gndevas (close to junction on old road to Dzhermuk), E Eghegnadzor, SE Erevan, 39°41.80'N 45°33.62'E; 11.V.2001.
- Stn. 34:** Stagnant waters, swamps, puddles along Vorotan River bank, with *Lemna*, decaying plant material; geology: volcanic; ca. 2050 m a.s.l.; E - slope of pass, above Sisian Reservoir, 7 km E Bazarchay, E Eghegnadzor, SE Erevan, 39°41.10'N 45°46.64'E; 12.V.2001.
- Stn. 38:** Arpa River, 15 - 20 m wide, still water area near river bank, flooded grass, bottom stony-sandy; ca. 2000 m a.s.l.; Dzhermuk, E Eghegnadzor, SE Erevan, 39°50.27'N 45°40.60'E; 12.V.2001.
- Stn. 39:** Stream flowing through alpine plain, 2 - 4 m wide, very shallow, gravel (up to 10 cm diameter), occasional still water areas with flooded grass, otherwise no aquatic vegetation; geology: volcanic; ca. 2050 m a.s.l.; 2 km W Karmrashen, E Eghegnadzor, SE Erevan, 39°49.71'N 45°30.88'E; 13.V.2001.

- Stn. 40:** Eghegis River, 3 - 6 m wide, large boulders, riffles and small rapids, bottom partly sandy, no aquatic vegetation, river bank with *Salix*; ca. 1850 m a.s.l.; near Gyadikvank, 3 - 4 km E Gyullidus, NE Eghegnadzor, SE Erevan, 39°53.29'N 45°28.97'E; 13.V.2001.
- Stn. 41:** Near stn. 40; small puddle at road-side, ca. 4 - 5 m<sup>2</sup>, 10 - 15 cm deep, stones covered with algae, shore with grass, very warm; 13.V.2001.
- Stn. 42:** Small limestone creek, ca. 1 m wide, very shallow, stones and partly water plants covered by travertine; ca. 1310 m a.s.l.; near Gneshik, S Eghegnadzor, SE Erevan, 39°42.21'N 45°20.81'E; 13.V.2001.
- Stn. 44:** Pond, 30 x 20 m, little aquatic vegetation, turtles; geology: limestone; ca. 1700 m a.s.l.; ca. 5 km W Lusashogh, NE Areni, SE Erevan, 39°51.96'N 44°56.87'E; 14.V.2001.
- Stn. 46:** Pond, 50 x 20 m, near Vedi River, plenty of *Typha*; ca. 1150 m a.s.l.; close to entrance of Khosrov Nature Reserve, ca. 15 km N Urtsadzor, NE Areni, SE Erevan, 39°56.27'N 44°52.01'E; 14.V.2001.
- Stn. 47:** System of ponds connected by channels; bottom fine gravel; ca. 850 m a.s.l.; near Erasghaun, SW Echmiadzin, W Erevan, 40°04.54'N 44°12.49'E; 15.V.2001.
- Stn. 48:** Very large pond, with small separated puddles; bottom clay; ca. 860 m a.s.l.; W Erevan, S of Echmiadzin railway station, 40°03.36'N 44°14.96'E; 15.V.2001.
- Stn. 49:** Channel near stn. 48; ca. 850 m a.s.l.; 40°03.63'N 44°15.75'E; 15.V.2001.
- Stn. 51:** Small temporary limestone creek; ca. 1380 m a.s.l.; Khosrov Nature Reserve, SE Erevan, 39°59.13'N 44°53.57'E; 17.V.2001.
- Stn. 54:** Forest stream, ca. 2 - 3 m wide, quickly flowing, shores with grass, partly undercut with exposed roots hanging into water, no aquatic vegetation, banks with *Betula* and *Salix*, adjacent slopes with *Quercus* and *Pinus*; substrate sandy to stony (up to 30 cm diameter); geology: crystalline; ca. 2050 m a.s.l.; above Ankavan, ca. 30 km NW Hrazdan, N Erevan, 40°37.35'N 44°28.02'E; 19.V.2001.
- Stn. 55:** As stn. 54; small springhead puddles, bottom sandy-stony, thick layer of decaying leaves, grass, twigs and branches, banks with *Caltha*; 19.V.2001.
- Stn. 56:** Puddles on boggy ground (moss), bottom with mud, decaying leaves; ca. 1730 m a.s.l.; above Fioletovo, 32 km SE Vanadzor, 40°42.52'N 44°44.37'E; 20.V.2001.
- Stn. 58:** Small puddles near forest stream (*Fagus* forest); ca. 1450 m a.s.l.; near Haghartsin monastery, NE Dilizhan, 40°48.05'N 44°53.31'E; 21.V.2001.
- Stn. 60:** Large puddle, caused by deep car tracks, probably long-lasting, shaded, with much flooded vegetation (*Ranunculus*); ca. 1300 m a.s.l.; below Haghartsin monastery, NE Dilizhan, 40°47.99'N 44°54.35'E; 21.V.2001.
- Stn. 61:** Puddle in surrounding forest, same characteristics as stn. 60; ca. 1330 m a.s.l.; Parzlich Lake, E Dilizhan, 40°45.19'N 44°57.72'E; 22.V.2001.
- Stn. 64:** Large swampy area and flooded meadow along channels, water shallow, bottom soil and decaying *Carex*; ca. 1940 m a.s.l.; near Tzovagyugh, ca. 10 km N Sevan, 40°36.48'N 44°57.29'E; 22.V.2001.
- Stn. 65:** As stn. 25, but with lower water level; 27.V.2001.
- Stn. 66:** As stn. 26, but with lower water level water; 27.V.2001.
- Stn. 67:** As stn. 26; pond (25 x 10m), plenty of aquatic vegetation; 27.V.2001.
- Stn. 68:** As stn. 18; 28.V.2001.
- Stn. 69:** As stn. 20, but river swollen due to opened sluice of dam; 28.V.2001.

- Stn. 70:** Water reservoir "Davidbeksoe" (ca. 1000 x 500 m), SW-shore, surrounded by *Fagus* forest (hornbeam), shore with plenty of low vegetation, bottom with decaying plant material, water rather warm; ca. 1400 m a.s.l.; near Norarachadzor, 25 km N Kapan, S-Armenia; 30.V.2001.
- Stn. 71A:** As stn. 70; Khashuni River, 4 - 8 m wide, flowing through the forest and into the reservoir; fast flowing, with occasional still water areas; rocks (1.5 m diameter), bottom gravel and sand, submerged stones covered by travertine; geology: mainly limestone, big rocks; beetles riparian; 30.V.2001.
- Stn. 72:** Near stn. 70; small forest puddles; 30.V.2001.
- Stn. 74:** Residual pools (ca. 4 x 1 m) in dry river bed (river course probably artificially changed), large stones (0.5 - 1 m diameter), bottom covered by decaying plant material, riverine forest (*Juglans*, *Salix*, *Liquidambar*, *Rosa*); ca. 1700 m a.s.l.; Darmanadzor (Aramazd) Gorge, between Kapan and Kadzharan, S-Armenia, coordinates not recorded; 30.V.2001.
- Stn. 75:** As stn. 74; artificial river-bed, 0.5 - 1 m wide, shallow, bottom with sand, gravel, and soil washed in from the meadow, bank with grass partly hanging into the water; 30.V.2001.
- Stn. 76:** Puddles on the banks of Kadzharan River, between large granite rocks (diameter ca. 3 m), plenty of *Heracleum*, bottom of puddles covered by decaying plant material; ca. 2000 m a.s.l.; near "Old Kadzharan", 3 km above Kadzharan, S-Armenia; 31.V.2001.
- Stn. 77A:** Small puddle, probably residual pool of vanished stream; ca. 2500 m a.s.l.; Megri Pass, ca. 9 km S Kadzharan, S-Armenia; 31.V.2001.
- Stn. 78:** Two ponds (300 x 100 m, 100 x 50 m); bottom with clay, scattered small stones and gravel; ca. 850 m a.s.l.; close to Iran border, near Megri, S-Armenia; 31.V.2001.
- Stn. 80:** Puddle near large stream, flowing through *Quercus* forest; ca. 2130 m a.s.l.; 16 km SW Kadzharan, S-Armenia; 31.V.2001.
- Stn. 81:** River, 1.5 - 4.5 m wide, stones (up to 20 cm diameter), often moss-covered, in places gravel, riverbank completely overgrown by *Heracleum*; ca. 1870 m a.s.l.; near Lernashen, SSE Sisian; 1.VI.2001.
- Stn. 82:** Pond (15 x 4 m), bottom muddy, stones, threads of algae; ca. 2120 m a.s.l.; 22 km E Bazarchay; E Eghegnadzor, SE Erevan; 1.VI.2001.
- Stn. 84:** As stn. 34; 1.VI.2001.
- Stn. 85:** As stn. 34; deep water-filled car tracks, algae; 1.VI.2001.

## Results

The results of the study are given as a checklist of the species and a list of the stations with the species collected. The species checklist is based mainly on identified adults since the larvae of some genera (particularly those of *Hydroporus*, *Hygrotus*, and *Dytiscus*) can not be identified with certainty. Also the checklist includes the species not collected but which were reported for Armenia in the literature and were represented in the collections studied. Altogether, 40 species of Dytiscidae, three species of Haliplidae, and one species of Noteridae have been collected. Fourteen species of Dytiscidae and two species of Haliplidae are recorded from Armenia for the first time (in the list they are indicated by an asterisk). Records of *Haliplus furcatus* SEIDLITZ and *H. heydeni* (WEHNCKE) in VONDEL 2003 are based on the present material. One species of *Ilybius* (*chalconatus*-group) could not be identified with certainty since it was represented only by one female and one larva. They most likely belong to *Ilybius satunini* (ZAITZEV). Specimens of the *Hydroporus nigellus*-group from CKhn and ZISP collections were found to belong to either *H. nigellus* MANNERHEIM or *H. mtiula* ZAITZEV. Their status could not be clarified, however, pending a revision of this species group. In addition, one species of *Hydroporus* appears to

represent a new species. It will be described by H. Fery in the near future. Larvae (L2, L3) of *Hydroporus* probably belong to five different species, larvae (L2, L3) of *Hygrotus* represent three species, and larvae (L1, L2, L3) of *Dytiscus* most likely belong to *D. persicus* WEHNKE. The data of these larvae have not been included in the "List of adephagous water beetles" but they are present in the "List of the stations with collected species". If a species was collected in both adult and larval stages, its data are given like "*Agabus bipustulatus* (+L1, L2, L3)" where L1, L2, L3 are instars of the larvae.

Table 1: List of adephagous water beetles recorded from Armenia. Species recorded from Armenia for the first time are indicated by an asterisk (\*).

Species	Station, or reference, or collection
<b>Dytiscidae</b>	
<i>Bidessus nasutus</i> SHARP	ZAITZEV (1927): Echmiadzin, Burulan, Arazdayan, Erevan
<i>Hydroglyphus geminus</i> (F.)	5, 8, 12, 44, 46, 47, 48, 49, 70
<i>Hydroglyphus signatellus</i> (Klug)	ZAITZEV (1927) as <i>Bidessus thermalis</i> GERMAR: Sadarak, Darachichag [Tsakhkadzor], Echmiadzin, Erevan
* <i>Deronectes doriae</i> SHARP	74, 75
<i>Deronectes parvicollis</i> (SCHAUM)	20, 39
* <i>Hydroporus ampliatus</i> ZAITZEV	26
<i>Hydroporus angustatus</i> STURM	12
<i>Hydroporus discretus ponticus</i> ZAITZEV	18, 25, 26, 39, 41, 55, 60, 65, 68, 74, 75, 76, 77A
<i>Hydroporus jonicus caucasicus</i> ZAITZEV	25, 34, 55, 58, 60, 85
* <i>Hydroporus kozlovskii</i> ZAITZEV	26
<i>Hydroporus marginatus</i> (DUFTSCHMID)	25, 26, 39, 40, 41, 66, 85
* <i>Hydroporus nigellus</i> MANNERHEIM or <i>H. mtula</i> ZAITZEV	CKhn, ZISP (Aragats Mt.)
* <i>Hydroporus thracicus</i> GUÉORGUIEV	25, 26, 34, 41, 55, 61, 65, 66, 74, 82, 85
<i>Hydroporus palustris</i> L.	ZAITZEV (1947): Akhpara village
<i>Hydroporus planus</i> (F.)	44, 61, 66, 70, 71A, 72, 80
* <i>Hydroporus</i> sp.n.	18, 55, 61, 65, 76
<i>Nebrioporus airumilus</i> (KOLENATI)	1, 4, 5, 8, 40, 70
<i>Nebrioporus stearinus</i> (KOLENATI)	ZAITZEV (1927) as <i>Deronectes (Potamonectes) variegatus</i> AUBÉ: Erevan
<i>Nebrioporus suavis</i> (SHARP)	ZAITZEV (1927) as <i>Deronectes (Potamonectes) variegatus</i> AUBÉ: Erevan
* <i>Nebrioporus turca</i> (SEIDLITZ)	20, 30
* <i>Oreodytes davisii davisii</i> (CURTIS)	38, 40
<i>Scarodytes halensis</i> (F.)	ZAITZEV (1927, 1947): Darachichag [Tsakhkadzor], Sevan Lake, Erevan, Zanga River [Hrazdan River]
<i>Stictotarsus griseostriatus</i> (DE GEER)	ZAITZEV (1927): Agmangan [Geghamskiy] Range
<i>Hydrovatus cuspidatus</i> (KUNZE)	9, 12, 48
<i>Herophydrus musicus musicus</i> (Klug)	ZAITZEV (1927) as <i>H. musicus fragilinea</i> (SOLSKY): Darachichag [Tsakhkadzor], Erevan
<i>Hygrotus armeniacus</i> (ZAITZEV)	ZAITZEV (1927, 1947, 1953a): Elenovka village [Sevan], Akhpara village, Erevan

<i>Hygrotus confluens</i> (F.)	ZAITZEV (1927): Erevan, Dzhelal-ogly [Stepanavan]
<i>Hygrotus flaviventris</i> (MOTSCHULSKY)	ZAITZEV (1927): Tokman-khan Lake near Erevan
<i>Hygrotus impressopunctatus impressopunctatus</i> (SCHALLER)	28, 64, 85
<i>Hygrotus marklini</i> (GYLLENHAL)	64
<i>Hygrotus inaequalis</i> (F.)	67
<i>Agabus bergi</i> ZAITZEV	ZAITZEV (1927, 1953a): Gel'-yurt near Leninakan [G'umri], Kanly-gel' Lake on Agmangan [Geghamskiy] Range, Erevan
* <i>Agabus congener</i> (THUNBERG)	55
<i>Agabus coxalis schmidti</i> ZAITZEV	ZAITZEV (1953b): Armenia
<i>Agabus labiatus</i> (BRAHM)	64
<i>Agabus undulatus</i> (SCHRANK)	FALDERMANN (1835) as <i>Colymbetes ruficeps</i> MÉNÉTRIÉS; ZAITZEV (1927): Erevan
<i>Agabus biguttatus</i> (OLIVIER)	10, 39, 41, 51, 71, 74, 75
<i>Agabus bipustulatus</i> (L.)	2, 8, 9, 12, 18, 25, 26, 31, 34, 41, 44, 47, 55, 56, 61, 65, 66, 68, 70, 82, 84, 85,
<i>Agabus conspersus</i> (MARSHAM)	12, 48, 61, 70, 71A, 72, 74, 75, 80, 81
* <i>Agabus glacialis</i> HOCHHUTH	58, 71A, 76
<i>Agabus nebulosus</i> (FORSTER)	44, 61
* <i>Agabus paludosus</i> (F.)	34
* <i>Ilybius fuliginosus</i> (F.)	18, 25, 34, 38, 69, 85
<i>Ilybius subaeneus</i> ERICHSON	ZAITZEV (1927): Dzhelal-ogly [Stepanavan], Erevan
* <i>Ilybius</i> sp. ( <i>chalconatus</i> -group)	19, 61
<i>Platambus lunulatus</i> (STEVEN)	1, 4, 18, 22, 38, 40, 42, 54, 69, 71A, 76
* <i>Platambus maculatus</i> (L.)	31
<i>Colymbetes fuscus</i> (L.)	25, 26, 65, 66
<i>Rhantus frontalis</i> (MARSHAM)	ZAITZEV (1927) as <i>R. suturalis</i> LACORDAIRE: Sevan Lake, Erevan
<i>Rhantus suturalis</i> (MACLEAY)	47, 48
<i>Copelatus haemorrhoidalis</i> (F.)	ZAITZEV (1927, 1946b) as <i>C. ruficollis</i> (SCHALLER): Darachichag [Tsakhkadzor], Kanly-gel' Lake on Agmangan [Geghamskiy] Range, Erevan
<i>Laccophilus hyalinus hyalinus</i> (DE GEER)	4, 8, 10, 31, 46, 47, 48, 61, 78
<i>Laccophilus minutus</i> (L.)	31, 44, 47, 48, 61, 66, 70
<i>Laccophilus poecilus</i> KLUG	12, 47, 48, 78
<i>Acilius sulcatus</i> (L.)	61
<i>Graphoderus austriacus</i> (STURM)	ZAITZEV (1927): Dzhelal-ogly [Stepanavan], Erevan
<i>Graphoderus cinereus</i> (L.)	47
<i>Graphoderus zonatus zonatus</i> (HOPPE)	ZAITZEV (1927): Dzhelal-ogly [Stepanavan], Erevan
<i>Cybister lateralimarginalis lateralimarginalis</i> (DE GEER)	12, 48
<i>Dytiscus circumflexus</i> F.	ZAITZEV (1927): Darachichag [Tsakhkadzor], Erevan
<i>Dytiscus dimidiatus</i> BERGSTRÄSSER	ZAITZEV (1927): Sevan Lake, Erevan
<i>Dytiscus persicus</i> WEHNCKE	25
<i>Eretes sticticus</i> L.	ZAITZEV (1927): Dzhelal-ogly [Stepanavan], Erevan

<i>Hydaticus grammicus</i> (GERMAR)	FALDERMANN (1835) as <i>H. lineolatus</i> MÉNÉTRIÉS; ZAITZEV (1927): Darachichag [Tsakhkadzor], Erevan
<i>Hydaticus schelkovnikovi</i> ZAITZEV	ZAITZEV (1927): Erevan, Dzhelal-ogly [Stepanavan]
<b>Gyrinidae</b>	
<i>Gyrinus caspius</i> MÉNÉTRIÉS	FALDERMANN (1835): Armenia, Iran
<i>Gyrinus colymbus</i> ERICHSON	MAZZOLDI (2003): Armenia
<i>Gyrinus distinctus</i> AUBÉ	ZAITZEV (1947): Erevan
<i>Gyrinus paykulli</i> OCHS	MAZZOLDI (2003): Armenia
<i>Gyrinus substriatus</i> STEPHENS	MAZZOLDI (2003): Armenia
<i>Orectochilus involvens</i> FALDERMANN	FALDERMANN (1835), ZAITZEV (1928, 1947, 1953a, 1953b): Erevan, Echmiadzin, Zanga River [Hrazdan River]
<i>Orectochilus villosus</i> (MÜLLER)	ZAITZEV (1953b): Zanga River [Hrazdan River]
<b>Haliplidae</b>	
* <i>Haliplus furcatus</i> SEIDLITZ	64
* <i>Haliplus heydeni</i> (WEHNCKE)	5, 8, 26, 31, 34, 55, 60, 65, 66, 67, 82
<i>Haliplus lineatocollis</i> (MARSHAM)	5, 18, 20, 68
<i>Haliplus ruficollis</i> (DE GEER)	ZAITZEV (1946a): Sevan Lake
<i>Pelodytes caesus</i> (DUFTSCHMID)	ZAITZEV (1946a): Darachichag [Tsakhkadzor]
<b>Noteridae</b>	
<i>Noterus clavicornis</i> (DE GEER)	9, 12, 31, 46, 47

According to this checklist 78 species of aquatic Adepfaga are currently known from Armenia: Dytiscidae – 65 species, Gyrinidae – seven species, Haliplidae – five species, and Noteridae – one species.

### List of stations with collected species

- Stn. 1:** Dytiscidae: *Nebrioporus airumilus*, *Platambus lunulatus*.
- Stn. 2:** Dytiscidae: *Agabus bipustulatus* (L3).
- Stn. 4:** Dytiscidae: *Nebrioporus airumilus*, *Platambus lunulatus*, *Laccophilus hyalinus*.
- Stn. 5:** Dytiscidae: *Hydroglyphus geminus*, *Nebrioporus airumilus*; Haliplidae: *Haliplus heydeni*, *H. lineatocollis*.
- Stn. 8:** Dytiscidae: *Hydroglyphus geminus*, *Nebrioporus airumilus* (+L3), *Agabus bipustulatus* (L2, L3), *Laccophilus hyalinus*; Haliplidae: *Haliplus heydeni*.
- Stn. 9:** Dytiscidae: *Hydrovatus cuspidatus*, *Hygrotus* sp.1 (*confluens* ?) (L3), *Agabus bipustulatus* (+L3); Noteridae: *Noterus clavicornis*.
- Stn. 10:** Dytiscidae: *Laccophilus hyalinus*, *Agabus biguttatus* (L3).
- Stn. 12:** Dytiscidae: *Hydroglyphus geminus* (+L3), *Hydroporus angustatus*, *Hydrovatus cuspidatus*, *Hygrotus* sp.1 (*H. confluens*?) (L3), *Hygrotus* sp.2 (close to *H. impressopunctatus*) (L3), *Agabus bipustulatus* (L3), *A. conspersus* (L3), *Laccophilus poecilus*, *Cybister lateralimarginalis lateralimarginalis*; Noteridae: *Noterus clavicornis*.



- Stn. 18:** Dytiscidae: *Hydroporus discretus ponticus*, *H. sp.n.*, *Agabus bipustulatus*, *Ilybius fuliginosus*, *Platambus lunulatus*; Haliplidae: *Haliplus lineatocollis*.
- Stn. 19:** Dytiscidae: *Ilybius sp. (chalconatus-group)* (L3).
- Stn. 20:** Dytiscidae: *Deronectes parvicollis*, *Nebrioporus turca*; Haliplidae: *Haliplus lineatocollis*.
- Stn. 22:** Dytiscidae: *Platambus lunulatus*.
- Stn. 25:** Dytiscidae: *Hydroporus discretus ponticus*, *H. marginatus*, *H. thracicus*, *H. jonicus caucasicus*, *Agabus bipustulatus*, *Ilybius fuliginosus*, *Colymbetes fuscus* (L1), *Dytiscus persicus*.
- Stn. 26:** Dytiscidae: *Hydroporus ampliatus*, *H. discretus ponticus*, *H. kozlovskii*, *H. marginatus*, *H. thracicus*, *H. sp. 1* (L3), *Agabus bipustulatus* (L2, L3), *Colymbetes fuscus* (L1), *Dytiscus persicus* (L1); Haliplidae: *Haliplus heydeni*.
- Stn. 28:** Dytiscidae: *Hygrotus impressopunctatus*.
- Stn. 30:** Dytiscidae: *Nebrioporus turca*.
- Stn. 31:** Dytiscidae: *Agabus bipustulatus* (L2, L3), *Platambus maculatus*, *Laccophilus hyalinus*, *L. minutus*; Haliplidae: *Haliplus heydeni*; Noteridae: *Noterus clavicornis*.
- Stn. 34:** Dytiscidae: *Hydroporus thracicus*, *H. jonicus caucasicus*, *Agabus bipustulatus* (+L1, L2, L3), *A. paludosus*, *Ilybius fuliginosus*, *Dytiscus persicus* (L1); Haliplidae: *Haliplus heydeni*.
- Stn. 38:** Dytiscidae: *Oreodytes davisii*, *Platambus lunulatus*, *Ilybius fuliginosus*.
- Stn. 39:** Dytiscidae: *Deronectes parvicollis*, *Hydroporus discretus ponticus*, *H. marginatus*, *H. sp. 1* (L2, L3), *Agabus biguttatus* (+L2).
- Stn. 40:** Dytiscidae: *Hydroporus marginatus*, *Oreodytes davisii*, *Nebrioporus airumilus*, *Platambus lunulatus*.
- Stn. 41:** Dytiscidae: *Hydroporus discretus ponticus*, *H. marginatus*, *H. thracicus*, *H. sp. 1* (L2, L3), *Agabus biguttatus*, *A. bipustulatus* (L1, L2, L3).
- Stn. 42:** Dytiscidae: *Platambus lunulatus*.
- Stn. 44:** Dytiscidae: *Hydroglyphus geminus*, *Hydroporus planus*, *Agabus bipustulatus* (+L3), *A. nebulosus* (+L3), *Laccophilus minutus*, *Dytiscus sp.* (L2).
- Stn. 46:** Dytiscidae: *Hydroglyphus geminus*, *Laccophilus hyalinus*; Noteridae: *Noterus clavicornis*.
- Stn. 47:** Dytiscidae: *Hydroglyphus geminus*, *Agabus bipustulatus*, *Rhantus suturalis*, *Laccophilus hyalinus*, *L. minutus*, *L. poecilus*, *Graphoderus cinereus*; Noteridae: *Noterus clavicornis*.
- Stn. 48:** Dytiscidae: *Hydroglyphus geminus* (+L3), *Hydrovatus cuspidatus*, *Hygrotus sp. 2* (close to *H. impressopunctatus*) (L3), *Agabus conspersus*, *Rhantus suturalis* (L2, L3), *Laccophilus hyalinus* (+L3), *L. minutus* (+L3), *L. poecilus*, *Graphoderus cinereus* (+L2), *Cybister lateralimarginalis lateralimarginalis* (L1).
- Stn. 49:** Dytiscidae: *Hydroglyphus geminus* (+L3).
- Stn. 51:** Dytiscidae: *Agabus biguttatus* (L3).
- Stn. 54:** Dytiscidae: *Platambus lunulatus*.
- Stn. 55:** Dytiscidae: *Hydroporus discretus ponticus*, *H. thracicus*, *H. jonicus caucasicus*, *H. sp.n.*, *Agabus bipustulatus* (+L1, L2, L3), *A. congener*; Haliplidae: *Haliplus heydeni*.
- Stn. 56:** Dytiscidae: *Agabus bipustulatus* (L2, L3).
- Stn. 58:** Dytiscidae: *Hydroporus jonicus caucasicus*, *Agabus glacialis*.
- Stn. 60:** Dytiscidae: *Hydroporus discretus ponticus*, *H. jonicus caucasicus*, *H. sp. 4* (L3), *Dytiscus sp.* (L2); Haliplidae: *Haliplus heydeni*.

- Stn. 61:** Dytiscidae: *Hydroporus planus*, *H. thracicus*, *H. sp.n.*, *H. sp. 2 (planus ?)* (L3), *Agabus bipustulatus* (+L3), *A. conspersus*, *A. nebulosus* (+L2, L3), *Ilybius sp. (chalconatus-group)*, *Laccophilus hyalinus*, *L. minutus*, *Acilius sulcatus* (+L1), *Dytiscus persicus* (L1).
- Stn. 64:** Dytiscidae: *Hygrotus impressopunctatus*, *H. marklini*, *Hygrotus sp. 2 (close to H. impressopunctatus)* (L3), *Hygrotus sp. 3 (H. marklini ?)* (L3), *Agabus labiatus* (+L2, L3), *Dytiscus persicus* (L1, L3), *Dytiscus sp. 2 (D. circumflexus ?)* (L1); Halipilidae: *Haliplus furcatus*.
- Stn. 65:** Dytiscidae: *Hydroporus discretus ponticus*, *H. thracicus*, *H. sp.n.*, *H. sp. 1* (L3), *H. sp. 3* (L3), *Agabus bipustulatus* (+L1, L2), *Colymbetes fuscus* (L2, L3); Halipilidae: *Haliplus heydeni*.
- Stn. 66:** Dytiscidae: *Hydroporus marginatus*, *H. planus*, *H. thracicus*, *H. sp. 1* (L3), *H. sp. 2 (planus ?)* (L2, L3), *Agabus bipustulatus* (+L1, L2, L3), *Colymbetes fuscus*, *Laccophilus minutus*; Halipilidae: *Haliplus heydeni*.
- Stn. 67:** Dytiscidae: *Hygrotus inaequalis*; Halipilidae: *Haliplus heydeni*.
- Stn. 68:** Dytiscidae: *Hydroporus discretus ponticus*, *H. sp. 5 (discretus ponticus ?)* (L2, L3), *Agabus bipustulatus* (+L1, L2, L3); Halipilidae: *Haliplus lineatocollis*.
- Stn. 69:** Dytiscidae: *Platambus lunulatus*, *Ilybius fuliginosus*.
- Stn. 70:** Dytiscidae: *Hydroglyphus geminus*, *Hydroporus planus*, *Nebrioporus airumilus*, *Agabus bipustulatus*, *A. conspersus*, *Laccophilus minutus*.
- Stn. 71A:** Dytiscidae: *Hydroporus planus*, *Agabus biguttatus*, *A. conspersus*, *A. glacialis*, *Platambus lunulatus*.
- Stn. 72:** Dytiscidae: *Hydroporus planus*, *Agabus conspersus*.
- Stn. 74:** Dytiscidae: *Deronectes doriae*, *Hydroporus discretus ponticus*, *H. thracicus*, *Agabus biguttatus* (+L1, L2, L3), *A. conspersus*, *Dytiscus persicus* (L1).
- Stn. 75:** Dytiscidae: *Deronectes doriae*, *Hydroporus discretus ponticus*, *Agabus biguttatus*, *A. conspersus*.
- Stn. 76:** Dytiscidae: *Hydroporus discretus ponticus*, *H. sp.n.*, *Agabus glacialis*, *Platambus lunulatus*.
- Stn. 77A:** Dytiscidae: *Hydroporus discretus ponticus*.
- Stn. 78:** Dytiscidae: *Laccophilus hyalinus* (+L3), *L. poecilus*.
- Stn. 80:** Dytiscidae: *Hydroporus planus*, *Agabus conspersus*.
- Stn. 81:** Dytiscidae: *Agabus conspersus*.
- Stn. 82:** Dytiscidae: *Hydroporus thracicus*, *Agabus bipustulatus* (L2, L3); Halipilidae: *Haliplus heydeni*.
- Stn. 84:** Dytiscidae: *Agabus bipustulatus*.
- Stn. 85:** Dytiscidae: *Hydroporus marginatus*, *H. thracicus*, *H. jonicus caucasicus*, *Hygrotus impressopunctatus*, *Agabus bipustulatus*, *Ilybius fuliginosus*.

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### Zusammenfassung

Während einer Exkursion nach Armenien zwischen Ende April und Anfang Juni 2001 wurden an 54 Untersuchungspunkten 40 Arten der Dytiscidae, drei Arten der Haliplidae und eine Art der Noteridae gesammelt. Vierzehn Dytiscidae-Arten und zwei Haliplidae-Arten werden zum ersten Mal für Armenien gemeldet. Zusammen mit den aus der Literatur verfügbaren Daten umfasst die Liste der aquatischen Adepaga Armeniens nun 65 Arten der Dytiscidae, fünf Arten der Haliplidae, sieben Arten der Gyrinidae und eine Art der Noteridae.

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Dr. Helena V. SHAVERDO

*Institute of Zoology of NAS of Belarus, Akademicheskaya Str., 27, 220072, Minsk, Belarus* ([shaverdo@mail.ru](mailto:shaverdo@mail.ru))

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