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N. Samin^{1,*}, W. B. Jędrzykowski², H. Sakenin Chelav³. A FAUNISTIC STUDY ON THE COLEOPTERA (INSECTA) FROM SOME AQUATIC AND SEMI-AQUATIC ECOSYSTEMS IN NORTHWESTERN IRAN. – *Far Eastern Entomologist*. 2015. N 302: 18-24.

1) *Young Researchers and Elite Club, Science and Research Branch, Islamic Azad University, Tehran, Iran. *Corresponding author E-mail: n_samin63@yahoo.com*

2) *University of Ecology and Management; Faculty of Ecology; Warsaw, Poland. E-mail: wjedrycz@plusnet.pl*

3) *Department of Plant Protection, Qaemshahr Branch, Islamic Azad University, Mazandaran, Iran. E-mail: hchelave@yahoo.com*

Summary. The fauna of aquatic and semi-aquatic beetles (Coleoptera) from northwestern Iran is studied in this paper. Totally 28 species from 5 families, Dytiscidae (16 species, 11 genera), Haliplidae (2 species, 2 genera), Helophoridae (3 species, 1 genus), Hydrophilidae (6 species, 6 genera) and Noteridae (1 species, 1 genus), were collected and identified. Four species *Agabus (Gaurodytes) didymus* (Olivier 1795), *Hydroporus bodemeyeri* Ganglbauer 1900, *Nebrioporus (Nebrioporus) suavis* (Sharp 1882) (Dytiscidae) and *Helophorus griseus* Herbst 1793 (Helophoridae) are new records for the fauna of Iran.

Key words: Coleoptera, aquatic beetles, fauna, distribution, new records, Iran.

Н. Самин^{1,*}, В. Б. Едричковский², Г. Сакемин Челав³. К фауне жесткокрылых (Insecta: Coleoptera) водных и полуводных экосистем северо-западного Ирана // *Дальневосточный энтомолог*. 2015. N 302. С. 18-24.

Резюме. В статье рассматривается фауна водных и полуводных жесткокрылых (Coleoptera) северо-западного Ирана. Собрано и определено 28 видов из 5 семейств: Dytiscidae (16 видов из 11 родов), Haliplidae (2 вида из 2 родов), Helophoridae (3 вида из 1 рода), Hydrophilidae (6 видов из 6 родов) и Noteridae (1 вид из 1 рода). Впервые для фауны Ирана указываются 4 вида: *Agabus (Gaurodytes) didymus* (Olivier 1795), *Hydroporus bodemeyeri* Ganglbauer 1900, *Nebrioporus (Nebrioporus) suavis* (Sharp 1882) (Dytiscidae) и *Helophorus griseus* Herbst 1793 (Helophoridae).

INTRODUCTION

Aquatic Coleoptera constitute an important part of the macrozoobenthos of freshwater habitats. Small and temporary water bodies have more species than large and permanent ones (Larson, 1985). Aquatic beetles have their greatest abundance and diversity in the temperate regions (Spangler, 1982). These insects are not particular in their choice of water bodies and occur in a wide variety of habitats (Galewski, 1971; Zaitsev, 1953) although many species may prefer certain types of water bodies (Hosseinie, 1978). Many of them, especially dytiscids and many hydrophilids are generally found in habitats of small, shallow water bodies or margin of rivers and marshes and they occupy the zone of emergent vegetation, mats of plant debris or flooded terrestrial vegetation along the shore line (Jach & Margalit, 1987; Zalat *et al.*, 1999). On the other hand some aquatic beetles such as Noterids are common among

roots of floating aquatic plants (Saleh, 1991; Zalat *et al.*, 2000). The aquatic beetle fauna of Iran is partly known. Hosseinei (1992a, b, 1994, 1995a, b) studied the aquatic beetles fauna of Fars, Guilan, Mazandaran and Khuzestan provinces, Ostovan and Niakan (2004) studied the diversity, abundance and biology of aquatic insects, including the aquatic beetles in Fars province. The fauna of diving beetles was studied in Markazi province (Vafaei *et al.*, 2008).

The other most important publications on Iranian aquatic beetles are Atamehr *et al.* (2004), Atamehr & Alaei (2006), Hematyian *et al.* (2010), Ghahari & Jedryczkowski (2011), Ahmadi *et al.* (2011), Farzam Motlagh *et al.* (2012), Fery *et al.* (2012). Since the fauna of aquatic beetles was not studied in northwestern Iran, this paper deals with the species diversity of these insects in the mentioned region.

MATERIALS AND METHODS

The aquatic beetle samples were collected by means of a sieve, ladle and net with 1 mm pores, from shallow areas of various springs, streams, brackish water and ponds. The beetles were killed by using ethyl acetate or 70% alcohol solution, and preserved as dry or in 95% alcohol, which was replaced by 75% alcohol and 5% glycerin mix after 24 hours. In some cases Aedeagophores were dissected out under a stereo microscope and exposed to 10% KOH solution for 1–2 h. For each species the detailed locality records contains sampling locations, date of sampling and total number of individuals are given. Classification, nomenclature and distribution data of suggested by Löbl and Smetana (2003, 2004) have been followed.

RESULTS

In this research totally 28 species of aquatic beetles from the families Dytiscidae, Halipididae, Helophoridae, Hydrophilidae and Noteridae were collected and identified from some aquatic and semi-aquatic ecosystems in northwestern Iran. The list of species is given below alphabetically. Four species *Agabus (Gaurodytes) didymus* (Olivier 1795), *Hydroporus bodemeyeri* Ganglbauer 1900, *Nebrioporus (Nebrioporus) suavis* (Sharp 1882) (Dytiscidae) and *Helophorus griseus* Herbst 1793 (Helophoridae) are new records for the fauna of Iran.

LIST OF THE SPECIES

Family Dytiscidae Leach, 1815

Genus *Agabus* Leach, 1817

Agabus (Acatodes) congener (Thunberg, 1794)

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Ourmieh, 37°33'N 45°00'E, (2), August 2013.

DISTRIBUTION. Iran, Europe, Palearctic Asia.

Agabus (Gaurodytes) didymus (Olivier, 1795)

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Kaleybar, 38°54'N 47°03'E, (2), August 2011.

DISTRIBUTION. Iran (new record), Europe, Israel, Lebanon, Syria, Turkey.

Agabus (Gaurodytes) nebulosus (Forster, 1771)

MATERIAL EXAMINED. **Iran:** Ardabil province, Khalkhal, 37°37'N 48°32'E, (1), September 2010.

DISTRIBUTION. Iran, Europe, North Africa, Palearctic Asia.

Genus *Colymbetes* Clairville, 1806

***Colymbetes fuscus* (Linnaeus, 1758)**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Salmas, 38°11'N 44°44'E, (2), April 2013.

DISTRIBUTION. Iran, Europe, North Africa, Palearctic Asia.

Genus *Cybister* Curtis, 1827

***Cybister (Cybister) tripunctatus lateralis* (Fabricius, 1798)**

MATERIAL EXAMINED. **Iran:** Ardabil province, Germe, 39°00'N 47°57'E, (1), September 2010.

DISTRIBUTION. Iran, Azerbaijan, Palearctic Asia.

Genus *Dytiscus* Linnaeus, 1758

***Dytiscus dimidiatus* Bergsträsser, 1778**

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Kaleybar, 38°54'N 47°03'E, (2), August 2011. West Azarbaijan province, Khoy, 38°33'N 44°57'E, (1), May 2012.

DISTRIBUTION. Iran, Europe, Syria, Turkey.

Genus *Eretes* Laporte, 1833

***Eretes sticticus* (Linnaeus, 1767)**

= *Dytiscus griseus* Fabricius, 1781.

MATERIAL EXAMINED. **Iran:** Ardabil province, Namin, 38°23'N 48°31'E, (2), September 2010.

DISTRIBUTION. Iran, Europe, Asia, Afrotropical Region, Oriental region.

Genus *Hydaticus* Leach, 1817

***Hydaticus leander* (Rossi, 1790)**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Miandoab, 36°57'N 46°00'E, (2), April 2013.

DISTRIBUTION. Iran, Europe, Palearctic Asia, Afrotropical Region.

Genus *Hydroporus* Clairville, 1806

***Hydroporus bodemeyeri* Ganglbauer, 1900**

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Maragheh, 37°23'N 46°24'E, (1) September 2008.

DISTRIBUTION. Iran (new record), Albania, Bulgaria, Greece, Turkey.

***Hydroporus marginatus* (Duftschmid, 1805)**

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Ahar, 38°30'N 47°08'E, (1), August 2011. West Azarbaijan province, Miandoab, 36°57'N 46°00'E, (2), April 2013.

DISTRIBUTION. Iran, Europe, Algeria, Morocco, Israel, Turkey.

Genus *Hygrotus* Stephens, 1828

***Hygrotus inaequalis* (Fabricius, 1777)**

MATERIAL EXAMINED. **Iran:** Ardabil province, Germe, 39°00'N 47°57'E, (1), September 2010.

DISTRIBUTION. Iran, Europe, Algeria, Morocco, Palearctic Asia.

Hygrotus (Coelambus) lernaeus (Schaum, 1857)

MATERIAL EXAMINED. **Iran:** Ardabil province, Khalkhal, 37°37'N 48°32'E, (2), September 2010. West Azarbaijan province, Salmas, 38°11'N 44°44'E, (1), April 2013.

DISTRIBUTION. Iran, South Europe, Egypt, Morocco, Israel, Kuwait, Syria, Turkey.

Genus *Laccophilus* Leach, 1815

Laccophilus minutus (Linnaeus, 1758)

MATERIAL EXAMINED. **Iran:** Ardabil province, Khalkhal, 37°37'N 48°32'E, (1), September 2010. West Azarbaijan province, Ourmieh, 37°33'N 45°00'E, (2), August 2013.

DISTRIBUTION. Iran, Europe, Palearctic Asia, North Africa, Oriental Region.

Laccophilus poecilus Klug, 1834

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Oshnavieh, 37°03'N 45°05'E, (1), May 2013.

DISTRIBUTION. Iran, Palearctic Region.

Genus *Nebrioporus* Regimbart, 1906

Nebrioporus (Nebrioporus) suavis (Sharp, 1882)

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Maragheh, 37°23'N 46°24'E, (2) September 2008.

DISTRIBUTION. Iran (new record), South Europe, Syria, Turkey.

Genus *Scarodytes* Gozis, 1914

Scarodytes halensis halensis (Fabricius, 1787)

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Miandoab, 36°57'N 46°00'E, (3), April 2013.

DISTRIBUTION. Iran, Europe, North Africa, Israel, Lebanon, Egypt, Syria, Turkey.

Family Haliplidae Aubé, 1836

Genus *Haliplus* Latreille, 1802

Haliplus ruficollis (De Geer, 1774)

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Salmas, 38°11'N 44°44'E, (2), April 2013.

DISTRIBUTION. Iran, Europe, Palearctic Asia.

Genus *Peltodytes* Régimbart, 1878

Peltodytes caesus (Duftschmid, 1805)

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Khoy, 38°33'N 44°57'E, (2), May 2012.

DISTRIBUTION. Iran, Europe, Morocco, Palearctic Asia.

Family Helophoridae Leach, 1815

Genus *Helophorus* Fabricius, 1775

***Helophorus aquaticus* (Linnaeus, 1758)**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Oshnavieh, 37°03'N 45°05'E, (1), May 2013.

DISTRIBUTION. Iran, Europe, Caucasus, Turkey, West Siberia.

***Helophorus brevipalpis* Bedel, 1881**

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Kaleybar, 38°54'N 47°03'E, (2), August 2011. West Azarbaijan province, Oshnavieh, 37°03'N 45°05'E, (3), May 2013.

DISTRIBUTION. Iran, Europe, Cyprus, Iraq, Israel, Lebanon, Syria, Turkey, Nearctic Region.

***Helophorus griseus* Herbst, 1793**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Miandoab, 36°57'N 46°00'E, (1), April 2013.

DISTRIBUTION. Iran (new record), Europe, Caucasus, Turkey.

Family Hydrophilidae Latreille, 1802

Genus *Berosus* Leach, 1817

***Berosus (Enoplurus) spinosus* (Steven, 1808)**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Ourmieh, 37°33'N 45°00'E, (2), August 2013.

DISTRIBUTION. Iran, Europe, Palearctic Asia.

Genus *Colostoma* Meyrick, 1922

***Colostoma orbiculare* (Fabricius, 1775)**

MATERIAL EXAMINED. **Iran:** Ardabil province, Khalkhal, 37°37'N 48°32'E, (2), September 2010. West Azarbaijan province, Ourmieh, 37°33'N 45°00'E, (5), August 2013.

DISTRIBUTION. Iran, Europe, Palearctic Asia.

Genus *Enochrus* Thomson, 1859

***Enochrus (Lumetus) fuscipennis* (Thomson, 1884)**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Miandoab, 36°57'N 46°00'E, (3), April 2013.

DISTRIBUTION. Iran, Europe, Kyrgyzstan, Kazakhstan, Turkey.

Genus *Hydrochara* Berthold, 1827

***Hydrochara dichroma* (Fairmaire, 1892)**

MATERIAL EXAMINED. **Iran:** Ardabil province, Germe, 39°00'N 47°57'E, (4), September 2010.

DISTRIBUTION. Iran, Europe, Palearctic Asia.

Genus *Hydrophilus* Mueller, 1764

***Hydrophilus (Hydrophilus) piceus* (Linnaeus, 1758)**

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Kaleybar, 38°54'N 47°03'E, (2), August 2011. West Azarbaijan province, Oshnavieh, 37°03'N 45°05'E, (1), May 2013.

DISTRIBUTION. Iran, Europe, Egypt, Palearctic Asia.

Genus *Laccobius* Erichson, 1837

***Laccobius gracilis* Motschulsky, 1855**

MATERIAL EXAMINED. **Iran:** West Azarbaijan province, Khoy, 38°33'N 44°57'E, (2), May 2012.

DISTRIBUTION. Iran, Europe, North Africa, Israel, Turkey.

Family Noteridae C.G. Thomson, 1860

Genus *Noterus* Clairville, 1806

***Noterus crassicornis* (O.F.Müller, 1776)**

MATERIAL EXAMINED. **Iran:** East Azarbaijan province, Ahar, 38°30'N 47°08'E, (3), August 2011.

DISTRIBUTION. Iran, Europe, Cyprus, Siberia, Kashmir.

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Address: Institute of Biology and Soil Science, Far East Branch of Russian Academy of Sciences, 690022, Vladivostok-22, Russia.

E-mail storozhenko@biosoil.ru

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