

A FAUNISTIC STUDY ON THE HYDROPHILIDAE IN SİVAS PROVINCE (TURKEY)

Sinan Bayram*, **Abdullah Mart****, **Ümit İncekara*****,
Ahmet Polat*** and **Gani Erhan Taşar*****

* Bayburt University, Education Faculty, Bayburt, 69000, TURKEY. E-mail: sbayram@bayburt.edu.tr

** Bingöl University, Science Faculty, Biology Department, Bingöl, 12000, TURKEY.

*** Atatürk University, Science Faculty, Biology Department, Erzurum, 25240, TURKEY.

[**Bayram, S., Mart, A., İncekara, Ü., Polat, A. & Taşar, G. E.** 2012. A faunistic study on the Hydrophilidae in Sivas province (Turkey). *Munis Entomology & Zoology*, 7 (2): 881-892]

ABSTRACT: In this study, it has been evaluated the specimens of the Hydrophilidae collected from Sivas province. In the research area totally, 32 species have been determined which of 30 species and 2 subspecies belonging to 13 genus of the Hydrophilidae. Nine of these species have been recorded from Central Anatolia region for the first time and nineteen of these species have been recorded from research area for the first time.

KEY WORDS: Coleoptera, Hydrophilidae, faunistic, Sivas, Turkey.

The Hydrophilidae, also known as water scavenger beetles, is a large family that has just four subfamily (Horelophinae, Horelophopsinae, Hydrophilinae and Sphaeridiinae). Hydrophilinae and Sphaeridiinae subfamilies are only recorded from the Palearctic and Oriental regions (Hansen, 1999; Fikáček, 2006; Mart, 2009).

Aim of this study is to determine the Hydrophilidae in Sivas province and make a contribution to the Turkish aquatic Coleoptera fauna.

MATERIAL AND METHODS

In summer seasons between 2009 and 2010, specimens of Hydrophilidae were collected by means of a sieve, ladle and net with 1 mm pores from the shallow areas of various springs, streams, lakes and ponds in Sivas province of Turkey (Fig. 1). Firstly collected samples were killed by ethyl acetate in the research area and then aedeagophores of the beetles were dissected under a stereo microscope in the laboratory. Photographs of the main diagnostic characters were made using a Nikon SMZ-1500 microscope. All samples have been deposited in the Zoological Museum, Atatürk University, Science Faculty, Department of Biology, Erzurum, Turkey.

Countries have been coded as follows after Hansen (2004).

E-Europe: AB Azerbaijan, AL Albania, AN Andorra, AR Armenia, AU Austria, AZ Azores, BE Belgium, BH Bosnia Herzegovina, BU Bulgaria, BY Belarus, CR Croatia, CT Russia: Central European Territory, CZ Czech Republic, DE Denmark, EN Estonia, FA Faeroe Islands, FI Finland, FR France (incl. Corsica, Monaco), GB Great Britain (incl. Channel Islands), GE Germany, GG Georgia, GR Greece (incl. Kriti) HU Hungary, IC Iceland, IR Ireland, IT Italy (incl. Sardegna, Sicilia, San Marino), KZ Kazakhstan, LA Latvia, LS Liechtenstein, LT Lithuania, LU Luxembourg, MAMalta, MC Macedonia, MD Moldavia, NL The Netherlands, NR Norway, NT Russia: North European Territory, PL Poland, PT Portugal, RO Romania, RU Russia, SK Slovakia, SL Slovenia, SP Spain (incl. Gibraltar), SR

Svalbard (Spitzbergen), ST Russia: South European Territory, SV Sweden, SZ Switzerland, TR Turkey, UK Ukraine, YU Yugoslavia (Serbia, Montenegro).

N-North Africa: AG Algeria, CI Canary Islands, EG Egypt, LB Libya, MO Morocco (incl. Western Sahara), MR Madeira Archipelago, TU Tunisia.

A-Asia: AE Arab Emirates, AF Afghanistan, AP India: Arunachal Pradesh, BA Bahrain, BT Bhutan, CE China: Central Territory, CH China, CY Cyprus, ES Russia: East Siberia, FE Russia: Far East, HP India: Himachal Pradesh, IN Iran, IQ Iraq, IS Israel, JA Japan, JO Jordan, KA India: Kashmir, KI Kyrgyzstan, KU Kuwait, KZ Kazakhstan, LE Lebanon, MG Mongolia, NP Nepal, NE China: Northeast Territory, NC North Korea, NO China: Northern Territory, NW China: Northwest Territory, OM Oman, PA Pakistan, QA Qatar (incl. United Arab Emirates), RU Russia, SA Saudi Arabia, SC South Korea, SD India: Sikkim, Darjeeling District, SE China: Southeastern Territory (incl. Macao, Hongkong), SI Egypt: Sinai, SW China: Southwestern Territory, SY Syria, TD Tajikistan, TM Turkmenistan, TR Turkey, UP India: Uttaranchal, Uttar Pradesh, UZ Uzbekistan, WP China: Western Plateau, WS, Russia: west Siberia, YE Yemen (incl. Socotra).

RESULTS

Hydrophilidae

Hydrochara caraboides (Linnaeus, 1758)

Material examined: S4, 01.VI.2009, 2♂♂ 3♂♂. S20, 23.VII.2009, 1♂ 2♂♂.

Distribution: AL, AU, BE, BH, BU, CR, CZ, DE, EN, FI, FR GB, GE, GR, HU, IT, LA, LT, NL, NR, PL, RO, RU, SK, SL, SP, SV, SZ, TR (Bayburt, Isparta, İzmir, Sivas) UK, YU . (İncekara et al., 2003a; 2008, Hansen, 2004; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

Hydrochara dichroma (Fairmaire, 1892)

Material examined: S31, 27.VI.2010, 2♂♂ 1♀.

Distribution: BU, CH, CY, GR, HU, IN, IS, RU, TD, TM, TR (Adana, Ankara, Bayburt, Bingöl, Erzincan, Erzurum, Gümüşhane, İstanbul, Ordu, Samsun, Sivas), UK, UZ, (Smetana, 1980; Hansen, 1987, 1999; İncekara et al., 2003a, 2009; İncekara, 2004; Mart, 2005, 2009; Vafei et al., 2007).

Remark: Newly recorded from Sivas province.

Berosus (Enoplurus) guttalis (Rey, 1883)

Material examined: S42, 28.V.2010, 1♂ 3♀♀.

Distribution: AG, FR MG, TR (Bitlis, Sivas, Van), TU, (Özemiş & Önder, 1988, Schödl, 1991; Hansen, 1999; İncekara et al., 2003a).

Remark: Newly recorded from the Central Anatolia Region.

Berosus (Enoplurus) spinosus (Steven, 1808)

Material examined: S52, 21.V.2010, 2♂♂ 3♀♀.

Distribution: AB, AF, AG, AL, AU, BU, CH, DE, EN, FI, FR GB, GE, GR, HU, IN, SV, IT, KI, KZ, LA, MG, NL, NR, PL, RO, RU, SK, TD, TM, TR (Adana, Afyon, Ankara, Antalya, Aydın, Bingöl, Edirne, Elazığ, Erzincan, Içel, Kars, Malatya, Samsun, Sivas, Van) UZ, (Hansen, 1987, 1999; Schödl, 1991; İncekara et al., 2003a, 2009; İncekara, 2004; Mart, 2005; Kiyak et al., 2006, Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

Berosus (s. str.) *signaticollis* (Charpentier, 1825)

Material examined: S33, 23.V.2010, 2♂♂ 1♀; S17, 21.V.2010, 1♂ 2♀♀.

Distribution: AF, AG, AL, AU, BE, BH, BU, CR, CZ, DE, EN, FR GB, GE, GR, HU, IR, IN, IT, KZ, LT, MC, NL, NR, PL, RO, RU, SK, SL, SP, SV, SZ, TD, TM, TR (Amasya, Antalya, Aydın, Bayburt, Bingöl, Erzincan, İzmir, Kars, Kastamonu, Ordu, Sivas), UK, UZ, YU,

(Hansen, 1987, 1999; Friday, 1988; Schödl, 1993; Garrido-Gonzales et al., 1994; Pederzani, 1998; İncekara et al., 2003a; İncekara, 2004; Bouzid & İncekara, 2006; Mart, 2005, 2009).
Remark: Newly recorded from Sivas province.

***Chaetarthria seminulum* (Herbst, 1797)**

Material examined: S5, 01.VI.2009, 1♂.

Distribution: AU, BH, CR, CZ, DE, EN, FI, FR GE, GB, GR, HU, IN, IT, LA, LT, MC, NL, NR, PL, RU, SL, SP, SV, SZ, TR (Balıkesir, Bayburt, Çanakkale, Erzincan, Giresun, Gümüşhane, Ordu, Sivas, Trabzon, Van) UK, YU. (Endrödy-Younga, 1967; Hansen, 1987, 1999; Hebauer, 1993; Garrido-Gonzales et al., 1994; Angus & Shaarawi, 1997; Sainz & Aceituno, 1997; Cuppen et al., 1998; Vorst & Cuppen, 2003; İncekara et al., 2003a; İncekara, 2004; Mart, 2009).

Remark: Newly recorded from the Central Anatolia Region.

***Cymbiodyta marginella* (Fabricius 1972)**

Material examined: S55, 21.V.2010, 4♂♂ 2♀♀.

Distribution: AB, AR, AU, BU, CR, CZ, DE, EN, FI, FR GB, GE, GR, HU, IR, IT, KZ, LA, LT, NL, NP, NR, PL, PT, RO, RU, SK, SP, SV, SZ, TR (Kayseri, Samsun, Sivas), UK, UZ, (Hansen, 2004; Mart, 2009; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Laccobius (Microlaccobius) alternus* Motschulsky, 1855**

Material examined: S1, 14.IX.2010, 1♂ 2♀♀; S16, 21.V.2010, 1♂ 1♀; S25, 28.VII.2010, 2♂♂ 1♀.

Distribution: AF, AG, AU, BE, BH, BU, FR GR, HU, IN, IS, IT, KZ, LB, LE, PT, RO, RU, SK, SP, SZ, TR (Erzincan, Sivas), TU, UK, UZ, YU. (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988; Shatrovskiy, 1984; Hansen, 1987, 1999; Sainz & Alba, 1991; Hebauer, 1994; Valladares, 1995; İncekara et al., 2003a, 2009; Mart et al., 2003; İncekara, 2004; Mart, 2005; Vafei et al., 2007; Karaman et al., 2008; Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

***Laccobius (Microlaccobius) gracilis gracilis* Motschulsky, 1855**

Material examined: S1, 14.IX.2010, 5♂♂ 2♀♀; S27, 23.V.2010, 1♂ 2♀♀.

Distribution: AF, AG, AU, BE, BH, BU, FR GR, HU, IN, IS, IT, KZ, LB, LE, PT, RO, RU, SK, SP, SZ, TU, TR (Adana, Adiyaman, Ankara, Antakya, Antalya, Artvin, Aydın, Bayburt, Bahıkesir, Bilecik, Bingöl, Bitlis, Bolu, Burdur, Bursa, Çanakkale, Çorum, Denizli, Diyarbakır, Edirne, Erzincan, Erzurum, Gaziantep, Giresun, Hakkari, Isparta, İstanbul, İzmir, Kars, Kastamonu, Kayseri, Manisa, Mardin, Mersin, Muğla, Muş, Niğde, Ordu, Rize, Samsun, Sinop, Sivas, Tatvan, Trabzon, Toros mountains, Van), UK, YU, UZ, (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988; Shatrovskiy, 1984; Hansen, 1987, 1999; Sainz & Alba, 1991; Hebauer, 1994; Valladares, 1995; İncekara et al., 2003a, 2009; Mart et al., 2003; İncekara, 2004; Mart, 2005; Vafei et al., 2007; Karaman et al., 2008).

***Laccobius (Dimorpholaccobius) bipunctatus* (Fabricius, 1775)**

Material examined: S9, 28.V.2009, 4♂♂ 7♀♀; S37, 31.VII.2010, 9♂♂ 11♀♀; S2, 24.VII.2009, 2♂♂ 1♀; S3, 31.VII.2010, 2♂♂ 4♀♀; S12, 22.V.2010, 1♂ 1♀; S27, 23.V.2010, 2♂♂ 3♀♀; S44, 27.VII.2010, 2♂♂ 1♀; S46, 23.V.2010, 1♂; S48, 31.VII.2010, 5♂♂ 9♀♀; S47, 14.IX.2010, 5♂♂ 3♀♀; S54, 23.V.2010, 1♂ 3♀♀; S25, 28.VII.2010, 2♂♂ 1♀; S32, 27.VI.2010, 3♂♂ 3♀♀; S26, 28.VII.2010, 11♂♂ 17♀♀.

Distribution: AR, AU, BE, BH, BU, BY, CZ, DE, EN, FI, FR GE, GB, GR, HU, IR, IT, KZ, LT, MC, MO, NR, PL, PT, RO, RU, SK, SL, SP, SV, SZ, TM, TR (Afyon, Bayburt, Bingöl, Bolu, Erzincan, Erzurum, Gümüşhane, Kastamonu, Ordu, Sivas, Trabzon), TU, UK, YU. (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988, 1995; Shatrovskiy, 1984; Hansen, 1987, 1999; Hebauer, 1994; Valladares, 1995; Mart, 1999, 2005, 2009; İncekara, 2001, 2004; Mart et al., 2003; İncekara et al., 2003a; Karaman et al., 2008, Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

***Laccobius (Dimorpholaccobius) simulatrix* d'Orchymont, 1932**

Material examined: S1, 14.IX.2010, 13♂♂ 9♀♀; S2, 24.VII.2009, 3♂♂ 4♀♀; S3, 31.VII.2010,

1♂ 3♀♀; S7, 28.VII.2010, 2♂♂ 1♀; S6, 28.VII.2010, 4♂♂ 1♀; S16, 21.V.2010, 4♂♂ 4♀♀; S30, 22.V.2010, 4♂♂ 2♀♀; S18, 28.V.2009, 1♂ 3♀♀; S22, 28.VII.2010, 3♂♂ 1♀; S23, 28.VII.2010, 3♂♂ 6♀♀; S25, 28.VII.2010, 3♂♂ 5♀♀; S28, 28.VII.2010, 4♂♂ 1♀; S41, 31.VII.2010, 9♂♂ 6♀♀; S45, 28.V.2009, 1♂ 2♀♀; S44, 27.VII.2010, 5♂♂ 8♀♀; S48, 31.VII.2010, 1♂; S47, 14.IX.2010, 1♂ 2♀♀; S51, 23.V.2010, 2♂♂ 1♀; S49, 23.V.2010, 6♂♂ 3♀♀.

Distribution: AB, AF, AU, BH, BU, CZ, FR GR, HU, IN, IT, MC, PL, RO, SK, TR (Ağrı, Ankara, Antalya, Artvin, Aydın, Bayburt, Bingöl, Bitlis, Bolu, Bursa, Çanakkale, Çorum, Denizli, Edirne, Isparta, Erzincan, Erzurum, Giresun, Gümüşhane, Hakkâri, İstanbul, İzmir, Kahramanmaraş, Kars, Kayseri, Kırklareli, Manisa, Muğla, Niğde, Ordu, Osmaniye, Samsun, Sivas, Trabzon, Toros mountains, Van), YU, (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988, 2000; Shatrovskiy, 1984; Hansen, 1999; Mart, 1999, 2005, 2009; İncekara, 2001, 2004; Mart et al., 2003; İncekara et al., 2003a; Kiyak et al., 2006; Karaman et al., 2008, Darılmaz & İncekara, 2011).

***Laccobius (Dimorpholaccobius) hauserianus* Knisch, 1914**

Material examined: S41, 31.VII.2010, 1♂ 2♀♀; S44, 27.VII.2010, 1♂ 3♀♀.

Distribution: IN, IQ, RU, TD, TR (Erzincan, Erzurum, Mersin, Sivas, Van) (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988, 1991; Shatrovskiy, 1984; Hansen, 1999; Mart, 1999; İncekara, 2001, 2004; Mart et al., 2003; Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

***Laccobius (Dimorpholaccobius) sulcatulus* Reitter, 1909**

Material examined: S28, 28.VII.2010, 1♂ 4♀♀; S44, 27.VII.2010, 1♂ 1♀.

Distribution: AB, AR, IN, RU, TD, TM, TR (Amasya, Ankara, Antalya, Ardahan, Bayburt, Bitlis, Burdur, Diyarbakır, Ereğli, Erzincan, Erzurum, Gümüşhane, Kars, Konya, Manisa, Sivas, Toros mountains, Van), (Gentili & Chiesa, 1975; Gentili, 1979, 1991, 2000; Shatrovskiy, 1984; Hansen, 1999; Mart, 1999, 2009; İncekara, 2001, 2004; Mart et al., 2003; İncekara et al., 2003a; Kiyak et al., 2006, Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Laccobius (Dimorpholaccobius) cus* Guillebeau, 1896**

Material examined: S29, 31.VII.2010, 1♂ 3♀♀; S30, 22.V.2010, 1♂ 2♀♀; S32, 27.VI.2010, 1♂. S33, 23.V.2010, 2♂♂ 3♀♀; S37, 31.VII.2010, 2♂♂ 1♀; S42, 28.V.2010, 1♂ 2♀♀; S32, 27.VI.2010, 7♂♂ 11♀♀; S2, 24.VII.2009, 1♂ 3♀♀; S3, 31.VII.2010, 2♂♂ 4♀♀; S8, 24.VII.2009, 2♂♂ 2♀♀; S12, 22.V.2010, 3♂♂ 5♀♀; S11, 22.V.2010, 1♂ 2♀♀; S22, 28.VII.2010, 1♂ 1♀; S23, 28.VII.2010, 4♂♂ 8♀♀; S25, 28.VII.2010, 10♂♂ 11♀♀; S26, 28.VII.2010, 7♂♂ 9♀♀; S40, 31.VII.2010, 6♂♂ 11♀♀; S39, 31.VII.2010, 1♂ 2♀♀; S48, 31.VII.2010, 4♂♂ 6♀♀; S51, 23.V.2010, 1♂ 1♀; S26, 28.VII.2010, 7♂♂ 5♀♀; S24, 28.VII.2010, 7♂♂ 9♀♀.

Distribution: AB, AF, BH, BU, CY, CZ, EG, GR, HU, IN, IQ, IS, KZ, LE, MC, RO, RU, SK, TD, TM, TR (Adana, Ankara, Antakya, Antalya, Artvin, Aydın, Bayburt, Bingöl, Bitlis, Burdur, Çorum, Denizli, Diyarbakır, Edirne, Erzincan, Erzurum, Gaziantep, Giresun, Gümüşhane, Hakkâri, Isparta, İzmir, Kahramanmaraş, Kars, Kayseri, Kastamonu, Konya, Mardin, Mersin, Muğla, Ordu, Osmaniye, Rize, Samsun, Sinop, Sivas, Şanlıurfa, Trabzon, Toros, Van), YU, (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988, 2000; Shatrovskiy, 1984; Hansen, 1987, 1999; Hebauer, 1994; Mart, 1999, 2005, 2009; İncekara, 2001, 2004; Mart et al., 2003; İncekara et al., 2003a, 2009; Vafei et al., 2007; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Laccobius (Dimorpholaccobius) hindukuschi* Chiesa, 1966**

Material examined: S1, 14.IX.2010, 1♂ 2♀♀; S25, 28.VII.2010, 1♂; S49, 23.V.2010, 1♂ 1♀; S51, 23.V.2010, 1♂ 2♀♀.

Distribution: AB, AF, AR, GG, IN, IND, IQ, PA, RU, TD, TM, TR (Adıyaman, Artvin, Ankara, Antakya, Antalya, Bayburt, Bingöl, Bitlis, Burdur, Denizli, Diyarbakır, Erzincan, Erzurum, Gaziantep, Giresun, Gümüşhane, Kastamonu, Kilis, Mardin, Mersin, Muş, Niğde, Ordu, Sivas, Tunceli, Van) UZ, (Gentili & Chiesa, 1975; Gentili, 1979, 1982, 1988, 1991, 1995;

Shatrovskiy, 1984; Hansen, 1999; Mart, 1999, 2005, 2009; İncekara, 2001, 2004; Mart et al., 2003; İncekara et al., 2003a, Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Laccobius (Dimorpholaccobius) sipylus* Orchymont, 1939**

Material examined: S41, 31.VII.2010, 2♂♂ 3♀♀; S44, 27.VII.2010, 1♂ 1♀.

Distribution: AB, AR, IN, IQ, LE, TR (Antalya, Artvin, Balıkesir, Çanakkale, Çorum, Denizli, Diyarbakır, Erzincan, Hatay, Kayseri, Mersin, Sivas, Tokat) (Gentili, 1979, 1982, 1988, 1991; Shatrovskiy, 1984; Hansen, 1999; İncekara et al., 2003a; Mart et al., 2003; İncekara, 2004; Vafei et al., 2007; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Laccobius (Dimorpholaccobius) obscuratus aegaeus* Gentili, 1974**

Material examined: S2, 24.VII.2009, 4♀♀ 3♂♂; S3, 31.VII.2010, 1♂ 2♀♀; S7, 28.VII.2010, 1♂ 1♀.

Distribution: GR, TR (Adana, Ankara, Antalya, Artvin, Aydın, Bayburt, Bingöl, Bitlis, Bolu, Burdur, Bursa, Çanakkale, Çorum, Denizli, Erzincan, Erzurum, Giresun, Gümüşhane, İstanbul, İzmir, İzmit, Kastamonu, Kırklareli, Konya, Manisa, Mersin, Muğla, Ordu, Osmaniye, Rize, Sinop, Samsun, Sivas, Toros mountains, Trabzon, Van), (Gentili & Chiesa, 1975; Sainz & Aceituno, 1997; Mart, 1999, 2005, 2009; Gentili, 2000; İncekara, 2001, 2004; İncekara et al., 2003a, 2009; Mart et al., 2003; Karaman et al., 2008, Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Hydrobius fuscipes* (Linnaeus, 1758)**

Material examined: S34, 23.V.2010, 2♂♂ 4♀♀; S2, 24.VII.2009, 1♂ 2♀♀; S7, 28.VII.2010, 1♂ 1♀; S13, 23.VII.2009, 1♂ 1♀; S15, 22.V.2010, 1♂ 2♀♀; S42, 28.V.2009, 1♂ 1♀; S19, 27.VII.2010, 2♂♂ 4♀♀; S25, 28.VII.2010, 4♂♂ 5♀♀; S22, 28.VII.2010, 4♂♂ 1♀; S41, 31.VII.2010, 3♂♂ 1♀; S40, 31.VII.2010, 1♂ 1♀; S44, 27.VII.2010, 3♂♂ 1♀; S46, 23.V.2010, 1♂ 1♀.

Distribution: AU, BE, BH, BU, CH, CR, CY, CZ, DE, EN, FI, FR GB, GE, GR, HU, IN, IR, IS, IT, KZ, LA, LT, MG, NL, NR, PL, PT, RO, RU, SL, SP, SY, SZ, TR (Bayburt, Bingöl, Erzincan, Giresun, Gümüşhane, Samsun, Sivas, Trabzon), YU, (Hansen, 1987, 1999; İncekara, 2004; Mart, 2005, 2009; Bouzid & İncekara, 2006; Vafei et al., 2007; İncekara et al., 2009).

Remark: Newly recorded from Sivas province.

***Limnoxenus niger* (Gmelin, 1790)**

Material examined: S52, 21.V.2010, 1♂.

Distribution: AU, BU, BY, CA, CZ, DE, FR GB, GE, GR, IR, IT, NL, PL, PT, RO, RU, SK, SP, TR (Aydın, Bursa, Kayseri, Samsun, Sivas, Tokat), YU, (Hansen, 1987, 1999; Kiyak et al., 2006; İncekara et al., 2009; Ertorun & Tanatmış, 2009; Polat et al., 2010; İncekara et al., 2010).

Remark: Newly recorded from Sivas province.

***Paracymus relaxus* (Rey, 1884)**

Material examined: S42, 28.V.2010, 5♀♀ 8♂♂; S12, 22.V.2010, 1♂ 1♀; S42, 28.V.2010, 2♂♂ 3♀♀; S36, 22.V.2010, 1♂ 2♀♀.

Distribution: AG, CI, CR, CY, EG, GR, IN, IQ, IS, IT, KU, LB, NP, RO, RU, SA, SP, TD, TM, TU, TR (Çorum, Denizli, Kayseri, Samsun, Sivas) YE. (Mart et al., 2006; Darılmaz & Kiyak, 2009b; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Paracymus aeneus* (Germar, 1824)**

Material examined: S12, 22.V.2010, 1♂ 2♀♀; S42, 28.V.2010, 1♂ 2♀♀; S36, 22.V.2010, 1♂.

Distribution: AL, AG, AU, BU, CR, CY, CZ, DE, EG, FR GB, GE, GR, IR, IS, IT, KZ, MG, NL, NR, PT, RO, RU, SL, SP, SV, TR (Bayburt, Kayseri, Samsun, Sivas) (Mart, 2009; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Anacaena rufipes* (Guillebeau, 1896)**

Material examined: S1, 14.IX.2010, 13♂♂ 9♀♀; S3, 31.VII.2010, 1♂ 2♀♀; S13, 23.VII.2009, 1♂ 1♀; S19, 27.VII.2010, 4♂♂ 2♀♀; S21, 28.VII.2010, 1♂; S50, 23.V.2010, 4♂♂ 1♀.

Distribution: BH, GR, IS, IT, LE, TR (Bayburt, Bingöl, Giresun, Gümüşhane, İstanbul, Ordu, Sivas, Trabzon), (Henegouwen, 1986; Hebauer & Klausnitzer, 1998; Hansen, 1999; İncekara et al., 2003a; İncekara, 2004; Mart, 2005, 2009, Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

***Anacaena limbata* (Fabricius, 1792)**

Material examined: S15, 22.V.2010, 4♂♂ 2♀♀; S46, 23.V.2010, 4♂♂ 1♀; S50, 23.V.2010, 1♂ 1♀.

Distribution: AU, BE, CA, CZ, DE, FI, FR GB, GE, GR, HU, IR, IS, IT, NL, PL, SP, SV, SZ, TR (Artvin, Bayburt, Bingöl, Giresun, Gümüşhane, Ordu, Sivas, Trabzon), YU, (Henegouwen, 1986; Hansen, 1987, 1999; Balke & Hendrich, 1991; Hebauer, 1994; Hebauer & Klausnitzer, 1998; İncekara et al., 2003a; Mart, 2005; Bouzid & İncekara, 2006; Karaman et al., 2008, Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

***Anacaena lutescens* (Stephens, 1829)**

Material examined: S38, 27.VII.2010, 2♂♂ 3♀♀; S3, 31.VII.2010, 3♂♂ 1♀; S6, 28.VII.2010, 1♂ 3♀♀; S15, 22.V.2010, 2♂♂ 1♀; S19, 27.VII.2010, 2♂♂ 2♀♀; S46, 23.V.2010, 1♂ 1♀; S50, 23.V.2010, 7♂♂ 4♀♀; S55, 21.V.2010, 1♂ 3♀♀.

Distribution: AG, AU, BE, CA, CZ, DE, EG, EN, FI, FR GB, GE, IR, IT, LA, LT, LU, MA, NL, NR, PT, RU, SP, SV, SZ, TR (Artvin, Bayburt, Bingöl, Erzincan, Gümüşhane, Ordu, Sivas, Trabzon), (Henegouwen, 1986; Hansen, 1987, 1999; Balke & Hendrich, 1991; Hebauer & Klausnitzer, 1998; İncekara, 2004; İncekara et al., 2004; Mart, 2005, 2009; Vafei et al., 2007).

Remark: Newly recorded from the Central Anatolia Region.

***Helochares (s.str.) obscurus* (Müller, 1776)**

Material examined: S14, 23.VII.2009, 1♀ 3♂♂; S53, 27.VII.2010, 1♂ 1♀.

Distribution: AB, AU, CR, CZ, DE, EN, FI, GB, GE, GR, HU, IS, IT, KZ, LA, LT, NL, NR, PL, RU, SV, SZ, TR (Bayburt, Bingöl, Giresun, Ordu, Samsun, Sivas), (Pirisuni, 1981; Hansen, 1982, 1987, 1999; Hebauer, 1994; Hebauer & Klausnitzer, 1998; Mart, 2005, 2009).

Remark: Newly recorded from Sivas province.

***Helochares (s. str.) lividus* (Forster, 1771)**

Material examined: S45, 28.V.2009, 3♂♂ 1♀; S17, 21.V.2010, 3♂♂ 2♀♀; S47, 14.IX.2010, 1♂ 2♀♀; S42, 28.V.2010, 3♂♂ 1♀; S52, 21.V.2010, 2♂♂ 2♀♀; S52, 21.V.2010, 4♂♂ 2♀♀; S53, 27.VII.2010, 1♂ 1♀; S55, 21.V.2010, 4♂♂ 2♀♀.

Distribution: AG, AU, BH, BU, CZ, FR GB, GE, GR, HU, IT, MO, NL, PL, PT, SP, SZ, TR (Bingöl, Ordu, Sivas, Trabzon), TU, (Pirisuni, 1981; Hansen, 1982, 1999; Hansen & Hebauer, 1988; Hebauer, 1994; Hebauer & Klausnitzer, 1998; Mart, 2005, 2009; Bouzid & İncekara, 2006; Karaman et al., 2008).

Remark: Newly recorded from Sivas province.

***Enochrus (Lumetus) ater* (Kuwert 1888)**

Material examined: S29, 31.VII.2010, 5♂♂ 3♀♀; S37, 31.VII.2010, 1♂; S10, 27.VII.2010, 2♂♂ 2♀♀; S44, 27.VII.2010, 2♂♂ 1♀.

Distribution: AG, AU, BH, CR, CY, EG, FR GR, IN, IQ, IS, IT, JO, KZ, KU, LE, OM, RO, SA, SP, SY, TD, TM, TR (Afyon, Antalya, Sivas), UZ, YU, (Hansen, 2004; Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

***Enochrus (Lumetus) bicolor* (Fabricius, 1792)**

Material examined: S42, 28.V.2009, 5♂♂ 3♀♀; S31, 27.VI.2010, 1♂ 1♀; S32, 27.VI.2010, 7♂♂ 11♀♀; S13, 23.VII.2009, 1♂ 1♀; S18, 28.V.2009, 4♂♂ 5♀♀.

Distribution: AB, , AG, AU, BU, CR, CZ, DE, EG, EN, FI, FR GB, GE, GR, HU, IN, IT, JA, KZ, LA, MA, NL, NR, PT, PL, RO, RU, SK, SL, SP, SV, TM, TR (Ankara, Antalya, Erzincan,

Kars, Ordu, Sivas, Van), TU, UK, UZ, YU, (Hansen, 1987, 1999; Schödl, 1998; İncekara et al., 2003a; Kiyak et al., 2006; Darılmaz & Kiyak, 2009a; Vafei et al., 2007; Darılmaz & Kiyak, 2009a; Mart, 2009; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

Enochrus (Lumetus) quadripunctatus (Herbst, 1797)

Material examined: S30, 22.V.2010, 1♂ 4♀♀; S32, 27.VI.2010, 5♂♂ 1♀; S33, 23.V.2010, 1♂ 2♀♀; S34, 23.V.2010, 5♂♂ 2♀♀; S36, 22.V.2010, 2♂♂; S42, 28.V.2009, 4♂♂ 3♀♀; S38, 27.VII.2010, 2♂♂ 1♀; S1, 14.IX.2010, 2♂♂ 5♀♀; S3, 31.VII.2010, 2♂♂ 4♀♀; S11, 22.V.2010, 1♂ 1♀; S12, 22.V.2010, 15♀♀ 10♂♂; S13, 23.VII.2009, 1♂; S19, 27.VII.2010, 17♂♂ 13♀♀; S25, 28.VII.2010, 1♂ 1♀; S27, 23.V.2010, 1♂ 3♀♀; S41, 31.VII.2010, 8♂♂ 5♀♀; S44, 27.VII.2010, 4♂♂ 1♀; S47, 14.IX.2010, 5♂♂ 2♀♀; S52, 21.V.2010, 1♂ 4♀♀; S52, 21.V.2010, 3♂♂ 2♀♀.

Distribution: AU, BH, BU, CH, CR, CZ, DE, EN, FI, FR GB, GE, HU, IN, IS, IT, KZ, LT, NL, NR, RU, SL, SV, SZ, TR (Antalya, Bingöl, Denizli, Ordu, Sivas), UK, (Balfour-Browne, 1958; Hansen, 1987, 1999; Hebauer, 1994; Hebauer & Ryndevich, 2005; Mart, 2005, 2009; Vafei et al., 2007; Darılmaz & Kiyak, 2009a, Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

Enochrus (Lumetus) fuscipennis (Thomson, 1884)

Material examined: S31, 27.VI.2010, 2♂♂ 1♀; S35, 01.VI.2009, 2♂♂ 3♀♀; S32, 27.VI.2010, 7♂♂ 11♀♀; S2, 24.VII.2009, 8♂♂ 7♀♀; S8, 24.VII.2009, 2♂♂ 2♀♀; S16, 21.V.2010, 1♂ 5♀♀; S17, 21.V.2010, 7♂♂ 2♀♀; S25, 28.VII.2010, 2♂♂ 1♀; S1, 15.IX.2010, 2♂♂ 5♀♀; S51, 23.V.2010, 2♂♂; S43, 15.IX.2010, 2♂♂ 3♀♀.

Distribution: AB, AU, BH, BU, DE, FI, GB, GE, HU, IN, IR, IT, LA, NR, RU, SL, SP, SV, TR (Bayburt, Bingöl, Erzincan, Giresun, Gümüşhane, Ordu, Sivas, Trabzon), (Balfour-Browne, 1958; Hansen, 1987, 1999; Valladares, 1995; İncekara, 2004; Mart, 2005, 2009; İncekara et al., 2005; Kiyak et al., 2006; Vafei et al., 2007; Darılmaz & Kiyak, 2009a; Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

Coelostoma (s. str.) orbiculare (Fabricius, 1775)

Material examined: S29, 31.VII.2010, 2♂♂ 1♀; S12, 22.V.2010, 1♂; S22, 28.VII.2010, 3♂♂ 1♀.

Distribution: AG, AR, AU, BE, BU, CZ, DE, EN, FI, FR GB, GE, GR, HU, IN, IR, IT, JA, KZ, LA, LT, NR, PL, RO, RU, SL, SP, SV, SZ, TR (Bayburt, Bingöl, Erzincan, Erzurum, Giresun, Gümüşhane, Ordu, Samsun, Sivas, Trabzon), YU, (Hansen, 1987, 1999; Mardzhanyan, 1997; Hebauer & Klausnitzer, 1998; İncekara et al., 2003a, 2009; İncekara, 2004; Mart, 2005, 2009; Vafei et al., 2007; Karaman et al., 2008, Darılmaz & İncekara, 2011).

Remark: Newly recorded from Sivas province.

Cercyon ustulatus (Preysslner, 1790)

Material examined: S7, 28.VII.2010, 1♂.

Distribution: AG, AU, CA, CZ, DE, EN, FI, FR, GB, GE, HU, IR, IT, LA, LT, MC, NL, NR, PL, PT, RO, RU, SP, SV, SZ, TR, YU. (Hansen, 1987, 1999; İncekara et al., 2003b; İncekara, 2004; Mart, 2005, 2009; Darılmaz & İncekara, 2011).

Remark: Newly recorded from the Central Anatolia Region.

DISCUSSION

In this study, totally 32 species of aquatic Coleoptera belonging to 13 genus of the Hydrophilidae were determined in the research area. *Chaetarthria seminulum* (Herbst, 1797), *Laccobius (Microlaccobius) alternus* Motschulsky, 1855, *L. (Dimorpholaccobius) bipunctatus* (Fabricius, 1775), *L. (D.) hauserianus* Kniz, 1914, *Anacaena lutescens* (Stephens, 1829), *A. rufipes* (Guillebeau, 1896), *Enochrus (Lumetus) ater* (Kuwert, 1888), *E. (L.) quadripunctatus* (Herbst, 1797),

Cercyon ustulatus (Preyßler, 1790) have been recorded from Central Anatolia region for the first time. *Hydrochara caraboides* (Linnaeus, 1758), *H. dichroma* (Fairmaire, 1892), *Berosus (Enoplurus) spinosus* (Steven, 1808), *B.* (s. str.) *signaticollis* (Charpentier, 1825), *L. (D.) sulcatulus* (Reitter, 1909), *L. (D.) syriacus* (Guillebeau, 1896), *L. (D.) hindukuschi* (Chiesa, 1966), *L. (D.) sipylus* d'Orchymont, 1939, *L. (D.) obscuratus aegaeus* (Gentili, 1974), *Hydrobius fuscipes* (Linnaeus, 1758), *Paracymus relaxus* Rey, 1884, *P. aeneus* (Germar, 1824), *Anacaena limbata* (Fabricius, 1792), *Helochaeres* (s. str.) *lividus* (Forster, 1771), *H.* (s.str.) *obscurus* (Müller, 1776), *Cymbiodyta marginella* (Fabricius 1972), *Enochrus (L.) bicolor* (Fabricius, 1792), *E. (L.) fuscipennis* (Thomson, 1884), *Coelostoma* (s. str.) *orbiculare* (Fabricius, 1775), have been recorded from research area for the first time.

* This study is a part of M.S. Thesis by Sinan BAYRAM (2011) supported by Atatürk University Project no: BAP-2009-231.

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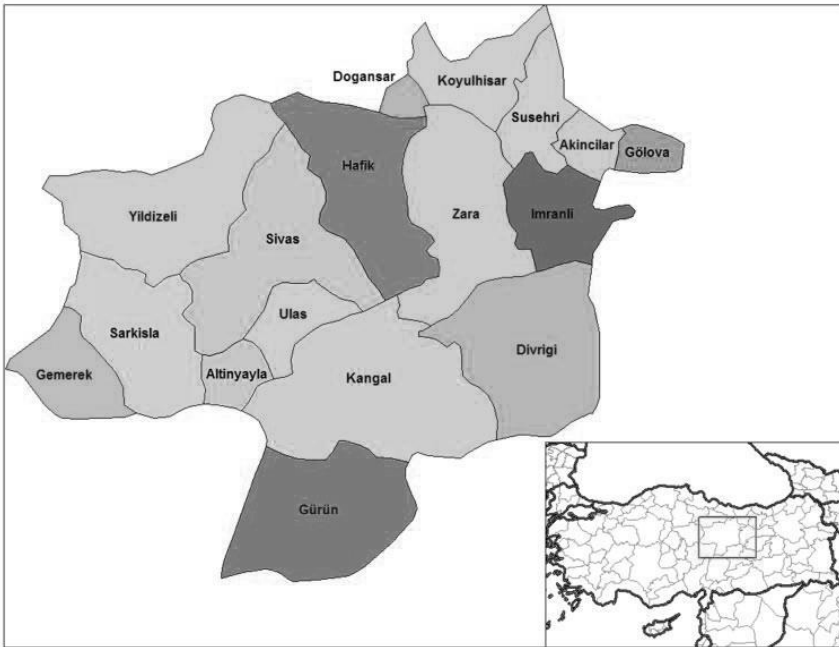


Figure 1. Map of the research area in Turkey.

Table 1. List of sampling sites in provinces research area.

Abbreviation	Sampling site and Coordinates
S1 Sivas: Akıncılar: Yağlıçayır	40°06'43"N38°20'11"E 869 M
S2 Sivas: Gemerek: Karacaağıl	39°07'29"N36°05'16"E 1226M
S3 Sivas: Gemerek: Yeniçubuk	39°12'16"N 36°05'35"E 1153M
S4 Sivas: Gürün: Davulhöyük Köyü	38°47'13"N 37°12'21"E 1815M
S5 Sivas: Gürün: Gökpnar Göleti	38°39'23"N 37°18'04"E 1484M
S6 Sivas: Gürün: Hasköy	38°45'57"N 37°05'22"E 1620M
S7 Sivas: Gürün: Sularbaşı	38°45'26"N 37°17'24"E 1618M
S8 Sivas: Hafik: Alçıören	39°47'43"N 37°27'31"E 1373M
S9 Sivas: Hafik: Çukurbelen	39°49'26"N 37°10'20"E 1280M
S10 Sivas: Hafik: Dışkapı	39°51'19"N 37°26'29"E 1289M
S11 Sivas: Hafik: Durulmuş	39°51'01"N 37°21'33"E 1312M
S12 Sivas: Hafik: Göydün	39°48'35"N 37°12'34"E 1269M
S13 Sivas: Hafik Gölü	39°52'08"N 37°23'05"E 1296M
S14 Sivas: Hafik: Günyamaç	39°51'24"N 37°26'41"E 1292M
S15 Sivas: Hafik: Pusat Barajı	40°01'50"N 37°27'12"E 1510M
S16 Sivas: Hafik: Yarhisar	39°51'47"N 37°29'52"E 1300M
S17 Sivas: İmranlı: Doğançal	39°52'28"N 38°05'03"E 1594M
S18 Sivas: İmranlı: Kandilköy	39°50'54"N 38°34'44"E 1619M
S19 Sivas: İmranlı: Kemreli	39°51'07"N 38°14'19"E 1683M
S20 Sivas: İmranlı: Piredede Köyü	39°51'48"N 38°12'39"E 1653M
S21 Sivas: Kangal: Armağan	39°15'47"N 37°25'46"E 1477M
S22 Sivas: Kangal: Arpalı	39°14'20"N 37°24'26"E 1517M
S23 Sivas: Kangal: Avcıören	39°02'17"N 37°14'45"E 1664M
S24 Sivas: Kangal: Deligazili	39°13'42"N 37°23'06"E 1545M
S25 Sivas: Kangal: Karanlık	39°16'47"N 37°27'20"E 1496M
S26 Sivas: Kangal: Mancılık	39°05'27"N 37°14'05"E 1505M
S27 Sivas: Kangal: Mürsel	39°15'05"N 37°29'22"E 1474M
S28 Sivas: Kangal: Tersakan Köprüsü	39°08'38"N 37°15'25"E 1481M
S29 Sivas: Centrum: Aşağıyıldızlı	39°45'32"N 36°46'19"E 1270M
S30 Sivas: Centrum: Bepınarı	39°49'22"N 37°10'31"E 1286M
S31 Sivas: Centrum: Dedeli	39°34'11"N 36°58'56"E 1348M
S32 Sivas: Centrum: Hanlı	39°27'28"N 36°39'08"E 1304M
S33 Sivas: Centrum: Karagömlek	39°33'59"N 36°57'37"E 1412M
S34 Sivas: Centrum: Kavlak	39°31'03"N 36°51'45"E 1390M
S35 Sivas: Centrum: Keçili	39°31'05"N 36°51'52"E 1373M
S36 Sivas: Centrum: Kızılkavraz	39°47'44"N 37°12'48"E 1275M
S37 Sivas: Centrum: Koyuncu	39°31'35"N 36°53'04"E 1391M
S38 Sivas: Centrum: Yenice	39°41'09"N 37°00'34"E 1256M
S39 Sivas: Şarkışla: Burnukara	39°25'44"N 36°33'45"E 1339M
S40 Sivas: Şarkışla: Hüyük	39°21'57"N 36°25'28"E 1238M
S41 Sivas: Şarkışla: Kayapınar	39°27'28"N 36°39'08"E 1308M
S42 Sivas: Tödürge Gölü	39°52'20"N 37°36'28"E 1293M
S43 Sivas: Ulaş: Aşağıada	39°29'00"N 37°00'39"E 1366M
S44 Sivas: Ulaş: Karacalar	39°26'46"N 37°01'52"E 1374M
S45 Sivas: Ulaş: Kovalı	39°34'25"N 37°08'57"E 1310M
S46 Sivas: Ulaş: Tecer	39°25'12"N 37°04'06"E 1396M
S47 Sivas: Yıldızeli: Killık	39°48'06"N 36°10'12"E 1214M
S48 Sivas: Yıldızeli: Kumyurt	39°43'01"N 36°49'32"E 1358M
S49 Sivas: Zara: Ahmethacı	39°54'29"N 37°48'12"E 1350M
S50 Sivas: Zara: Atgeçmez	39°38'14"N 37°47'16"E 1547M
S51 Sivas: Zara: Büyükkaya	39°40'34"N 37°45'46"E 1467M
S52 Sivas: Zara: Ekinli	39°52'19"N 37°40'39"E 1315M
S53 Sivas: Zara: Kadriye	39°52'30"N 37°44'33"E 1339M
S54 Sivas: Zara: Kevenli	39°46'35"N 37°44'29"E 1375M
S55 Sivas: Zara: Suçak	39°50'56"N 37°50'45"E 1354M