

**CONTRIBUTION TO THE KNOWLEDGE ON
DISTRIBUTION OF AQUATIC COLEOPTERA IN
HAKKARI AND MALATYA PROVINCES IN TURKEY
(HELOPHORIDAE AND HYDROPHILIDAE)**

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ABSTRACT: The collected aquatic Coleoptera (Helophoridae and Hydrophilidae) specimens from inland water in Hakkari and Malatya provinces are examined. In this study 14 taxa belonging to two family were determined and their distribution Turkey are given.

KEY WORDS: Helophoridae, Hydrophilidae, Hakkari, Malatya, Turkey

The Helophoridae is a large family consisting of a single subfamily only of a single genus, *Helophorus*. This genus comprises more than 190 species, represented in three major zoogeographical regions (Palearctic, Nearctic and Ethiopian) (Angus, 1992; Smetana, 1985; Hansen, 1987, 2004; Hebauer, 1994).

The Hydrophilidae is also a large family, represented in all parts of the world and consisting of 172 genera and about 2716 known species. Of the four subfamilies recognized only two (Hydrophilinae, Sphaeridiinae) are recorded from the Palearctic region (Hansen, 1999; Fikáček, 2006).

The purpose of this study is to make a contribution to Turkish aquatic Coleoptera fauna.

MATERIAL AND METHODS

In summer seasons between 2012 and 2013, 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 Hakkari and Malatya provinces of Turkey. 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 Olympus SZX16 microscope. All samples have been deposited in the Zoological Museum, Bingöl University, Science and Arts Faculty, Department of Biology, Bingöl, Turkey.

RESULTS

Family Helophoridae

Genus *Helophorus* Fabricius, 1775

Helophorus (Helophorus) syriacus Kuwert, 1885

Material examined: Hakkari-Çukurca: 2♂♂ 2♀♀, 37°14'44 K, 43°36'16 D, 1228 m, 11.05.2013. Hakkari-Şemdinli: 2♂♂ 1♀, Bağlar, 37°17'24 K, 44°31'14 D, 1355 m, 08.05.2013; 18 ♂♂ 8♀♀, Karaağaç, 37°21'54 K, 44°23'056 D, 1505 m, 11.05.2013; 2♂♂ 1♀, Yeşil öz, 36°16'42 K, 44°36'40 D, 1464 m, 13.05.2013; 2♂♂ 1♀, Üçgöze 37°16'29 K, 44°34'42 D, 1396 m, 13.05.2013.

Distribution in Turkey: Adana, Antakya, Amanos mountains, Balıkesir, Bingöl, Çorum, Denizli, Diyarbakır, Erzincan, Elazığ, Gaziantep, İzmir, Kastamonu, Mardin, Muş, Samsun and Tokat (Topkara & Balık, 2010; Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Hakkari province.

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

Material examined: Hakkari-Şemdinli: 1♂ 1♀, Bağlar, 37°17'24 K, 44°31'14 D, 1355 m, 08.05.2013; 1♂, Yeşil öz, 36°16'42 K, 44°36'40 D, 1464 m, 13.05.2013; 2♂♂ 1♀, Üçgöze, 37°16'29 K, 44°36'42 D, 1396 m, 13.05.2013.

Distribution in Turkey: Adana, Aksaray, Ankara, Bayburt, Bilecik, Bingöl, Bitlis, Bursa, Bolu, Çorum, Diyarbakır, Erzincan, Erzurum, Elazığ; Hakkâri, Giresun, Gümüşhane, Isparta, İçel, İstanbul, Kars, Kastamonu, Kayseri, Kırklareli, Mardin, Muş, Ordu, Sakarya, Samsun, Sinop, Sırnak and Van (Darılmaz & İncekara, 2011; Mart et al., 2014b).

***Helophorus (Eutrichelophorus) micans* Falderman, 1835**

Material examined: Malatya-Yazihan: 8♂♂ 1♀, Kuruçay, 38°34'16 K, 38°14'37 D, 711 m, 26.V.2012; Malatya-Arguvan: 5♂♂ 1♀, Keban road, 38°41'30 K, 38°21'46 D, 707 m, 26.V.2012. Hakkari-Çukurca: 1♂1♀, 37°14'44 K, 43°36'16 D, 1228 m, 11.05.2013.

Distribution in Turkey: Adana, Ağrı, Aksaray, Bayburt, Bingöl, Hatay, Balıkesir, Burdur, Çanakkale, Çorum, Diyarbakır, Erzincan, Erzurum, Elazığ, Giresun, İçel, İzmir, Kayseri, Muş, Samsun, Tokat, Trabzon, Tuz Lake and Van Lake (Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Hakkari and Malatya provinces. Until the present work, no record of belonging to the Helophoridae family has been known in Malatya province.

***Helophorus (Empleurus) nubilis* Fabricius, 1776**

Material examined: Hakkari-Çukurca: 2♂♂ 3♀♀, 37°14'44 K, 43°36'16 D, 1228 m, 11.05.2013. Hakkari-Şemdinli: 2♂♂ 10♀♀, Bağlar, 37°17'24 K, 44°31'14 D, 1355 m, 08.05.2013; 2♂♂ 7♀♀, Üçgöze, 37°16'29 K, 44°36'42 D, 1396 m, 13.05.2013; 1♀, Yeşilöz, 36°16'42 K, 44°26'40 D, 1464 m, 13.05.2013.

Distribution in Turkey: Adana, Ağrı, Amanos mountains, Ankara, Bayburt, Bingöl, Bitlis, Erzincan, Erzurum, Elazığ, Giresun, Gümüşhane, Hakkâri, Isparta, İçel, İstanbul, İzmir, Kırklareli, Konya, Muğla, Muş, Ordu, Sakarya, Sırnak, Tokat, Van and Zonguldak (Darılmaz & İncekara, 2011; Mart et al., 2014b).

***Helophorus (Atracthelophorus) daedalus* d'Orchymont, 1932**

Material examined: Hakkâri-Şemdinli: 1♀, 37°23'47 K, 44°29'36 D, 1838 m, 08.08.2012.

Distribution in Turkey: Ankara, Bayburt, Bingöl, Bitlis, Bolu, Çorum, Diyarbakır, Erzincan, Erzurum, Elazığ, Giresun, Gümüşhane, Hakkâri, İzmir, Kayseri, Muş, Ordu, Samsun, Şırnak, Tokat and Van (Topkara & Balık, 2010; Darılmaz & İncekara, 2011; Mart et al., 2014b).

***Helophorus (Atracthelophorus) lewisi* Angus, 1985**

Material examined: Malatya-Darende: 1♂, Ayvalı, 38°42'02 K, 37°33'39 D, 1642 m, 26. V. 2012.

Distribution in Turkey: Bayburt, Bingöl, Bitlis, Çorum, Diyarbakır, Erzincan, Elazığ, Giresun, Gümüşhane, Hatay, Kastamonu, Kayseri, Muş, Ordu, Samsun, Şırnak and Tokat (Topkara & Balık, 2010; Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Malatya province. Until the present work, no record of belonging to the Helophoridae family has been known in Malatya province.

***Helophorus (Rhopalhelophorus) frater* d'Orchymont, 1926**

Material examined: Hakkari-Şemdinli: 1♂ 1♂ Bağlar, 37°17'24 K, 44°31'14 D, 1355 m, 08.05.2013.

Distribution in Turkey: Bayburt, Bingöl, Erzincan, Erzurum, Elazığ, Giresun, Gümüşhane, İzmir, Kayseri, Muş, Samsun, Tokat and Van (Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Hakkari province.

Family Hydrophilidae**Genus *Enochrus* Thomson, 1859*****Enochrus (Lumetus) bicolor* (Fabricius, 1792)**

Material examined: Malatya-Arguvan: 2♂♂ 1♀, Keban road, 38°41'30 K, 38°21'46 D, 707 m, 26.V.2012.

Distribution in Turkey: Aksaray, Ankara, Antalya, Bitlis, Denizli, Edirne, Erzincan, Elazığ, İçel, İzmir, Kars, Kayseri, Kırşehir, Muş, Ordu, Sivas and Van (Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Malatya province.

Enochrus (Lumetus) fuscipennis (Thomson, 1884)

Material examined: Malatya-Arguvan: 5♂♂ 2♀♀, Keban road, 38°41'30 K, 38°21'46 D, 707 m, 26.V.2012. Malatya-Darende: 5♂♂ 4♀♀, Karaçayır, 38°50'24 K, 37°41'00 D, 1221 m, 26.V.2012; 1♂ 1♀, Ayvalı, 38°42'02 K, 37°33'39 D, 1642 m, 26.V.2012. Malatya-Yaygın: 1♂ 3♀♀, 38°17'41 K, 38°31'25 D, 1106 m, 26.V.2012. Malatya-Yazlıhan: 1♂ 1♀, Kuruçay, 38°34'16 K, 38°14'37 D, 711 m, 26.V.2012.

Distribution in Turkey: Artvin, Aksaray, Ankara, Balıkesir, Bayburt, Bingöl, Bitlis, Bolu, Bursa, Çanakkale, Çorum, Denizli, Erzincan, Erzurum, Elazığ, Giresun, Gümüşhane, Hatay, Hakkâri, Isparta, İzmir, Kayseri, Muş, Ordu, Rize, Sivas and Van (Topkara & Balık, 2010; Darılmaz & İncekara, 2011; Mart et al., 2014a-b).

Remarks: Newly recorded from Malatya province.

Enochrus (Lumetus) quadripunctatus (Herbst, 1797)

Material examined: Malatya-Darende: 1♀, Ayvalı, 38°42'02 K, 37°33'39 D, 1642 m, 26.V.2012.

Distribution in Turkey: Ankara, Antalya, Bingöl, Bitlis, Denizli, Edirne, Elazığ, Isparta, Ordu, Sivas and Van (Topkara & Balık, 2010; Darılmaz & İncekara, 2011; Mart et al., 2014a-b).

Remarks: Newly recorded from Malatya province.

Enochrus (Lumetus) politus (Küster, 1849)

Material examined: Malatya.

Distribution in Turkey: Adana, Bitlis, Gaziantep, Hatay, Kahramanmaraş, Kilis, Osmaniye, Muş, Uşak and Van (Darılmaz & İncekara, 2011; Bektaş et al., 2014; Mart et al., 2014a-b).

Remarks: Newly recorded from Malatya province.

Genus *Laccobius* Erichson, 1837

Laccobius (Dimorpholaccobius) syriacus Guillebeau, 1896

Material examined: Malatya-Arguvan: 1♂, Keban road, 38°41'30 K, 38°21'46 D, 707 m, 26.V.2012. Malatya-Darende: 2♂♂ 1♀, Ayvalı, 38°42'02 K, 37°33'39 D, 1642 m, 26.V.2012.

Distribution in Turkey: Adana, Afyon, Aksaray, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bayburt, Bingöl, Bilecik, Bitlis, Bolu, Burdur, Bursa, Çorum, Denizli, Diyarbakır, Edirne, Erzincan, Erzurum, Elazığ, Gaziantep, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İzmir, Kahramanmaraş, Kars, Kayseri, Kastamonu, Konya, Mardin, Mersin, Muğla, Muş, Ordu, Osmaniye, Rize, Sakarya, Samsun, Sinop, Sivas, Şanlıurfa, Tokat, Trabzon and Van (Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Malatya province.

Laccobius (Dimorpholaccobius) simulatrix d'Orchymont, 1932

Material examined: Malatya-Hekimhan: 1♂, 38°51'50 K, 37°48'10 D, 1427 m, 26.V.2012. Malatya-Yazlıhan: 5♂♂ 6♀♀, Kuruçay, 38°34'16 K, 38°14'37 D, 711 m, 26.V.2012.

Distribution in Turkey: Adana, Ağrı, Aksaray, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bayburt, Bingöl, Bitlis, Bolu, Bursa, Çanakkale, Çankırı, Çorum, Denizli, Edirne, Erzincan, Erzurum, Elazığ, Eskişehir, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İçel, İstanbul, İzmir, Kahramanmaraş, Kars, Kastamonu, Kayseri, Kırklareli, Kırşehir, Kocaeli, Kütahya, Manisa, Muğla, Muş, Niğde, Ordu, Osmaniye, Samsun, Sivas, Tokat, Trabzon, Van and Yozgat (Topkara & Balık, 2010; Darılmaz & İncekara, 2011; Mart et al., 2014a-b).

Remarks: Newly recorded from Malatya province.

Laccobius (Dimorpholaccobius) hindukuschi Chiesa, 1966

Material examined: Malatya-Darende: 1♂, Ayvalı, 38°42'02 K, 37°33'39 D, 1642 m, 26.V.2012. Malatya-Hekimhan: 5♂♂ 1♀, 38°51'50 K, 37°48'10 D, 1427 m, 26.V.2012.

Distribution in Turkey: Antalya, Artvin, Balıkesir, Bayburt, Bingöl, Bitlis, Burdur, Denizli, Diyarbakır, Erzincan, Erzurum, Elazığ, Gaziantep, Giresun, Gümüşhane, Isparta, İstanbul, İzmir, Kastamonu, Kayseri, Mardin, Muş, Ordu, Sivas, Tokat, Tunceli and Van (Darılmaz & İncekara, 2011; Mart et al., 2014b).

Remarks: Newly recorded from Malatya province.

DISCUSSION

In this study, totally 14 species belonging to two family of the aquatic Coleoptera (Helophoridae and Hydrophilidae) were determined in Malatya and Hakkari provinces. Of these, *Helophorus (Eutrichelophorus) micans* has been recorded in both Hakkari and Malatya provinces for the first time. *Helophorus (Atracthelophorus) lewisi*, *Enochrus (Lumetus) bicolor*, *Enochrus (Lumetus) fuscipennis*, *Enochrus (Lumetus) quadripunctatus*, *Enochrus (Lumetus) politus*, *Laccobius (Dimorpholaccobius) syriacus*, *Laccobius (Dimorpholaccobius) simulatrix*, *Laccobius (Dimorpholaccobius) hindukuschi* have been recorded in Malatya province for the first time. *Helophorus (Helophorus) syriacus*, *Helophorus (Rhopalhelophorus) frater* have only been recorded in Hakkari province for the first time.

Until the present work, no record of belonging to the Helophoridae family has been known in Malatya province but only two species have been known (*Laccobius striatulus* and *Berosus spinosus*) belonging to Hydrophilidae family.

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