

Faunistic Investigation of Diyarbakır Province in Terms of Hydrophilidae and Helophoridae (Coleoptera) Families[&]

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Abstract

In this study, samples belonging to Hydrophilidae and Helophoridae families collected from Diyarbakır were evaluated. Samples were collected between May-September 2016 and April-October 2017 among plants and mosses in shallow parts of various streams, springs, streams, deposits and ponds. In the study area, 12 taxa (species) from 7 genera belonging to Hydrophilidae family and 10 taxa (species) from 1 genus belonging to Helophoridae families were determined. Among these species, *Paracymus scutellaris* (Rosenhauer, 1856), *Anacaena lutescens* (Stephens, 1829), *Helophorus discrepans* (Rey, 1885), *Helophorus frater* (d'Ochymont, 1926) were recorded for the first time in both the Southeastern Anatolia Region and the research area. In addition, *E. (L.) fuscipennis* (Thomson, 1884) and *Hydrobius fuscipes* (Linnaeus) were recorded for the first time only from the study area.

Key words: Helophoridae, Hydrophilidae, Fauna, Diyarbakır, Turkey

Diyarbakır İlinin Hydrophilidae ve Helophoridae (Coleoptera) Familyaları Açısından Faunistik İncelenmesi

Öz

Bu çalışmada Diyarbakır ilinden toplanan Hydrophilidae ve Helophoridae familyalarına ait örnekler değerlendirilmiştir. Örnekler Mayıs-Eylül 2016 ve Nisan-Ekim 2017 tarihleri arasında çeşitli akarsu, kaynak, dere, birikinti ve göletlerin sığ kesimlerindeki bitki ve yosunlar arasından toplanmıştır. Araştırma bölgesinde Hydrophilidae familyasına ait 7 cins'ten 12 takson (tür) ve Helophoridae familyalarına ait 1 cins'ten 10 takson (tür) tespit edilmiştir. Bu türlerden, *Paracymus scutellaris* (Rosenhauer, 1856), *Anacaena lutescens* (Stephens, 1829), *Helophorus discrepans* (Rey, 1885), *Helophorus frater* (d'Ochymont, 1926) türleri hem Güneydoğu Anadolu Bölgesi hem de araştırma bölgesinden ilk defa kaydedilmiştir. Ayrıca, *E. (L.) fuscipennis* (Thomson, 1884) ve *Hydrobius fuscipes* (Linnaeus), türleri ise yalnızca araştırma bölgesinden ilk defa kaydedilmiştir.

Anahtar kelimeler: Helophoridae, Hydrophilidae, Fauna, Diyarbakır, Türkiye

Introduction

Represented by more than 200 species in the world, the Helophoridae family has a wide distribution area (Balfour-Browne, 1958; Angus, 1969, 1970a, 1970b, 1971a, 1971b, 1984, 1985a, 1985b, 1988, 1992, 1996, 1998a, 1998b; Smetana, 1985, 1988; Hansen, 1987; İncekara et al., 2004). Of these, 156 were recorded in the Palearctic (Angus, 1984, 1985a, 1992), 41 in the

Nearctic region (Smetana, 1985; Hansen, 1987), and only four species were recorded from the Ethiopian region (Angus, 1992). 51 species are known in our country (Darılmaz & İncekara, 2011).

The Hydrophilidae family is represented by 172 genera and approximately 2932 species identified all over the world and constitutes the most populous group of the upper family (Mart,

2009; Fikáček *et al.*, 2010; Polat *et al.*, 2010; Taşar, 2018).

In our country, 100 species and 3 subspecies have been defined that are more similar to the Asian fauna (Kosswing, 1995).

In Diyarbakır, which is located in the Southeastern Anatolia region of our country, there is no comprehensive study such as master's and doctorate studies other than a few publications about these families (Bektaş *et al.*, 2014; Taşar, 2017, 2018) and therefore the region was chosen as a research area.

The aim of this study is to determine the distribution areas of Helophoridae and Hydrophilidae (Coleoptera) species in Diyarbakır province, to reveal the aquatic insect fauna in Diyarbakır and to contribute to the fauna of our country.

Materials and Methods

Field studies; Between May-September 2016 and April-October 2017, samples belonging to the families Hydrophilidae and Helophoridae were collected from the wetlands of Diyarbakır city center, its districts and the villages of these districts at different altitudes using a sieve and aspirator. After the collected samples were killed in the field with the help of ethyl acetate, they were brought to the laboratory in dried form in suitable bottles. The samples brought to the laboratory were softened in moistening containers before the examination. After the softening process, the aedeogophores are removed with dissection needles under a stereomicroscope, and large specimens are pricked with insect needles, Small samples were made ready for preparation with their aedeophors by sticking them to the labels. Species diagnoses were made using aedeogophores and some other important morphological characters. Photographs of the aedeogophores and morphological characters were taken with an Olympus SZX16 stereomicroscope equipped with a camera. The body measurements of the species with large numbers of individuals were taken by taking the average of 10 male and 10 female individuals, and the body measurements of the species that were caught with a small number of individuals were made on the available samples. After the samples were examined, they were labeled and stored in the Bingöl University Faculty of Arts and Sciences laboratory (L 7).

Results

Family: Helophoridae

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

Material examined: Merkez: 2♀♀ Dibek, 37°54'3"K 39°52'11"D, 905m, 23.IV.2017; Lice:1♀ Lice, 38°23'48"K 40°44'44"D, 800m, 17.VI.2016.

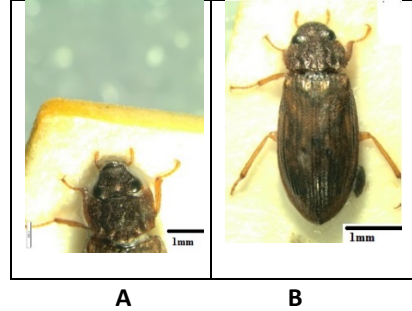


Figure 1. *Helophorus aquaticus*, A: Head and pronotum. B: General body, dorsally.

Distribution in Turkey: Adana, Adıyaman, Aksaray, Ankara, Antalya, Aydın, Batman, Bayburt, Bilecik, Bingöl, Burdur, Bursa, Bolu, Bitlis, Çorum, Diyarbakır, Elazığ, Erzurum, Giresun, Gümüşhane, Hakkâri, Isparta, Içel, İstanbul, Kahramanmaraş, Kars, Kastamonu, Kayseri, Kırklareli, Mardin, Muş, Ordu, Sakarya, Samsun, Sinop, Şırnak, Tokat and Van (Angus, 1985, 1992; Darılmaz and İncekara 2011; Darılmaz *et al.*, 2010, 2012; Mart *et al.*, 2014a; Aslan *et al.*, 2015; Akünal and Aslan, 2014, 2017; Taşar, 2017, 2018).

2. *Helophorus (Helophorus) syriacus* (Kuwert, 1885)

Material examined: Çermik: 1♂ 1♀Karamusa, 38°9'11"K 39°31'56"D, 826m, 24.VI.2017; Çüngüş: 1♀ Malkaya, 38°13'44"K 39°15'29"D, 905 m, 24.VI.2017; Lice:1♂ Budak, 38°22'44"K 40°45'57"D, 770m, 03.VII.2016; 1♂ Merkez, 38°23'48"K 40°44'44"D, 800m, 10.IX.2016.

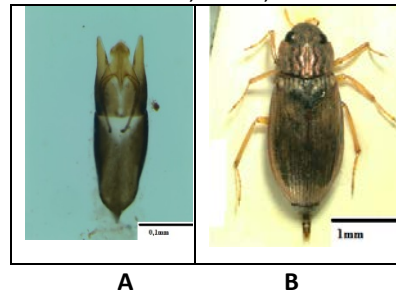


Figure 2. *Helophorus syriacus*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Adana, Antakya, Amonos dağları, Bingöl, Çorum, Denizli, Diyarbakır,

Gaziantep, Gaziantep, İzmir, Mardin, Samsun, Tokat (Angus, 1970a, 1992; Darılmaz *et al.*, 2010, 2012; Yılmaz Akünal and Çilbıroğlu Aslan, 2014; Taşar, 2018).

3. *Helophorus (Empleurus) nubilus* (Fabricius, 1776)

Material examined: Çermik: 3♂♂ 5♀♀ Günaşan, 38°2'33"K 39°22'27"D, 805m, 24.VI.2017.

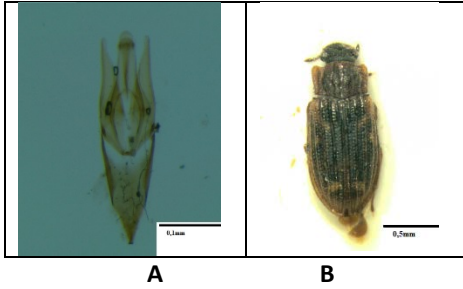


Figure 3. *Helophorus nubilus*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Adana, Amanos dağları, Ankara, Bingöl, Bitlis, Elazığ, Erzurum, Diyarbakır, İstanbul, Isparta, Kırklareli, Kahramanmaraş, Mersin, Muğla, Muş, Sakarya, Toros dağları, Yalova, Van and Zonguldak (Angus, 1984, 1988, 1992; Darılmaz and İncekara, 2011; Darılmaz *et al.*, 2012; Mart *et al.*, 2014a; Erdihan, 2017; Taşar, 2018).

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

Material examined: Merkez: 1♂ Övündüler, 37°54'5"K 39°55'8"D, 905m, 24.VI.2017.

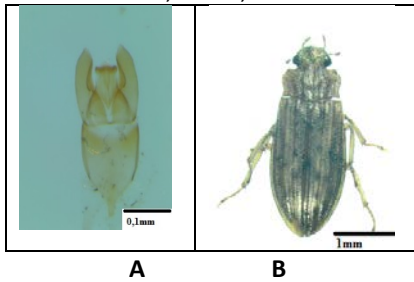


Figure 4. *Helophorus micans*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Adana, Aksaray, Bayburt, Amanos dağları, Ankara, Bingöl, Bitlis, Çanakkale, Diyarbakır, Elazığ, Erzurum, Giresun, Isparta, İstanbul, Kahramanmaraş, Kayseri, Kırklareli, Manisa, Mersin, Muğla, Muş, Samsun, Sakarya, Tokat, Toros dağları, Trabzon, Tuz Gölü, Yalova, Van and Zonguldak (Angus 1984, 1988, 1992; Darılmaz and İncekara, 2011; Darılmaz *et al.*,

2012; Yılmaz Akünal and Çilbıroğlu Aslan, 2014, 2017; Mart *et al.*, 2014a; Erdihan, 2017; Taşar, 2018).

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

Material examined: Lice: 1♂ Dallica, 38°22'12"K 40°49'12"D, 753m, 26.VIII.2016.

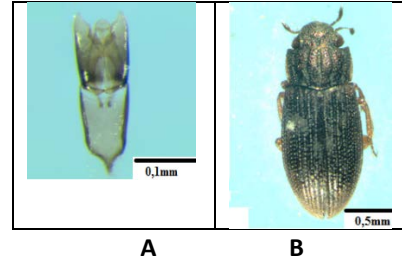


Figure 5. *Helophorus daedalus*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Ankara, Bayburt, Bitlis, Çorum, Diyarbakır, Elazığ, Erzurum, Erzincan, Giresun, Gümüşhane, Hakkâri, İzmir, Kahramanmaraş, Kayseri, Muş, Ordu, Samsun, Şırnak, Tokat and Van (Angus, 1988, 1992; Darılmaz and İncekara, 2011; Darılmaz *et al.*, 2010, 2012; Yılmaz Akünal and Çilbıroğlu Aslan, 2014; Mart *et al.*, 2014a; Erdihan, 2017; Taşar, 2018).

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

Material examined: Bağlar: 1♂ 1♀ Yukarı Dibek, 37°54'3"K 39°52'11"D, 905m, 23.VI.2017.

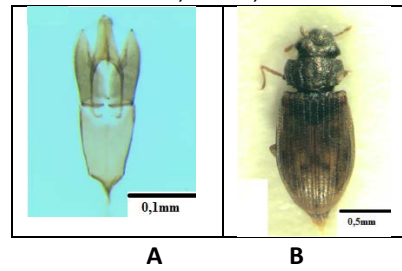


Figure 6. *Helophorus lewisi*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Bayburt, Bingöl, Bitlis, Çorum, Diyarbakır, Elazığ, Erzincan, Erzurum, Giresun, Gümüşhane, Hatay, Kahramanmaraş, Muş, Ordu, Samsun, Şırnak and Tokat (Angus, 1985c, 1988, 1992; Darılmaz and İncekara 2011; Darılmaz *et al.*, 2010, 2012; Erdihan, 2017; Taşar, 2018).

7. *Helophorus (Rhopalhelophorus) pallidipennis* (Mulsant and Wachanru, 1852)

Material examined: Bağlar: 2♂♂ 14♀♀ Yukarı Dibek, 37°54'3"K 39°52'11"D, 905m, 23.VI.2017.

Çermik: 3♂♂ 5♀♀ Karamusa, 38°9'11"K 39°31'56"D, 826m, 24.VI.2017.

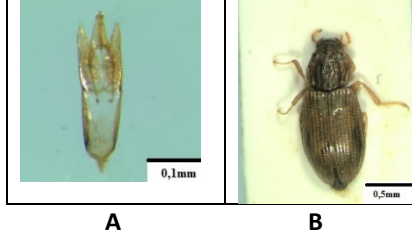


Figure 7. *Helophorus pallidipennis*, A: Male genital organ (Aedeagus), from the top. B: General body, dorsally.

Distribution in Turkey: Adana, Ankara, Çanakkale, Bingöl, Bitlis, Çanakkale, Diyarbakır, Elazığ, Erzincan, Erzurum, İçel, İzmir, Kahramanmaraş, Karaman, Kayseri, Mardin, Muş, Şırnak and Van (Angus, 1998b; Darılmaz and İncekara, 2011; Yılmaz Akünal and Çilbiroğlu Aslan, 2014; Mart et al. 2014a; Erdihan, 2017; Taşar, 2018).

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

Material examined: Lice: 5♂♂ 15♀♀ Budak, 38°22'44"K 40°45'57"D, 770m, 03.VII.2016; 1♂Tepe, 38°23'36"K 40°44'31"D, 784m, 23.VIII.2016; 5♂♂ 5♀♀ Merkez, 38°23'48"K 40°44'44"D, 800 m, 10.XI.2016; Silvan: 1♂ Dağcılar, 38°19'54"K 40°57'3"D, 700m, 19.VII.2016.

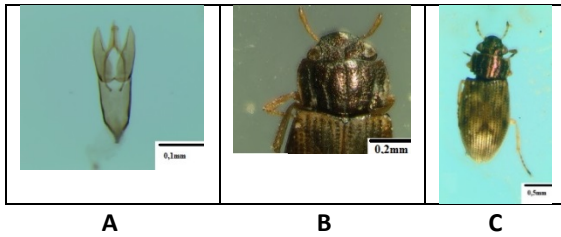


Figure 8. *Helophorus frater*, A: Male genital organ (Aedeagus), from above. B: Pronotum. C: Overall body, dorsal.

Distribution in Turkey: Bayburt, Bingöl, Elazığ, Erzincan, Erzurum, Giresun, Gümüşhane, İzmir, Kayseri, Muş, Samsun, Tokat, Van (Angus, 1988, 1992; Darılmaz and İncekara, 2011; Mart et al., 2014a).

Remark: Recorded for the first time from the research area.

9. *Helophorus (Rhopalhelophorus) hilaris* (Sharp, 1916)

Material examined: Hazro: 1♂ Mutluca, 38°17'7"K 40°53'3"D, 890m, 12.VIII.2016.

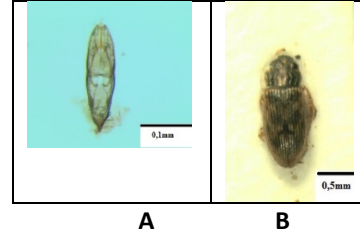


Figure 9. *Helophorus hilaris*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Ağrı, Aydın, Batman, Bayburt, Bingöl, Bitlis, Burdur, Diyarbakır, Elazığ, Erzincan, Erzurum, Giresun, Gümüşhane, Hakkâri, Kahramanmaraş, Kayseri, Mardin, Muş, Ordu, Samsun, Şırnak, Tokat and Van (Angus, 1988, 1992; Darılmaz and İncekara, 2011; Taşar et al., 2012; Mart et al., 2014a; Erdihan, 2017; Taşar, 2018).

10. *Helophorus (Rhopalhelophorus) discrepans* (Rey, 1885)

Material examined: 1♂ Çağlayan, 38°29'21"K 40°48'48"D, 812m, 15.IV.16.

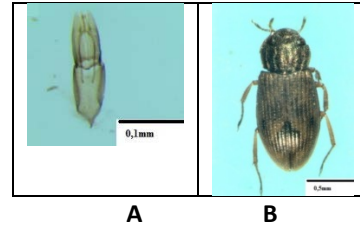


Figure 10. *Helophorus discrepans*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Ağrı, Artvin, Ankara, Antalya, Bayburt, Bingöl, Bitlis, Bolu, Çorum, Erzurum, Erzincan, Giresun, Gümüşhane, Hakkâri, Kahramanmaraş, Kayseri, Muş, Ordu, Tokat, Trabzon, Van and Yozgat (Angus, 1969, 1987, 1988, 1992; Darılmaz and İncekara, 2011; Taşar et al., 2012; Darılmaz et al., 2010, 2012; Mart et al., 2014a; Erdihan, 2017).

Remark: Recorded for the first time from the research area.

Family: Hydrophilidae**11. *Hydrochara dichroma* (Fairmaire, 1982)**

Material examined: 1♂ 2♀♀ Taşköprü, 38°21'2"K 40°33'52"D, 847m, 10.VII.2016. Lice: 1♀ Budak,

38°26'36"K 40°44'32"D, 784m, 24.III.2016; 2♂♂
2♀♀ Merkez, 38°23'47"K 40°44'20"D, 778m,
24.VIII.2016.

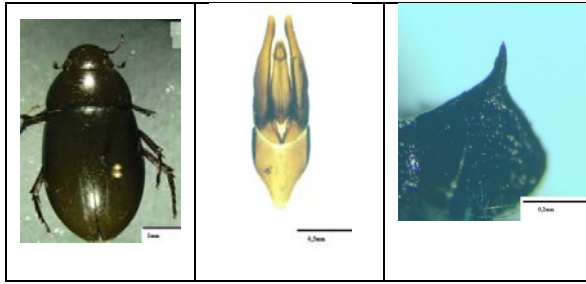


Figure 11. *Hydrochara dichroma*, A: General body, dorsal. B: Male genital organ (Aedeagus), top C: Prosternal protrusion, lateral.

Distribution in Turkey: Adana, Ankara, Amasya, Balıkesir, Bayburt, Bingöl, Çanakkale, Diyarbakır, Erzincan, Erzurum, Giresun, Gümüşhane, Hakkâri, Hatay, İstanbul, İzmir, Kayseri, Muş, Ordu, Rize, Samsun, Sivas, Tokat, Trabzon and Van (İncekara *et al.*, 2003, 2009a, 2009b; Darılmaz and İncekara, 2011; Mart *et al.*, 2014a, 2014b; Taşar, 2018).

12. *Hydrobius fuscipes* (Linnaeus, 1758)

Material examined: Lice: 1♂ 1♀ Budak köyü, 38°26'36"K 40°44'32"D, 784m, 24.III.2016; Merkez, 2♂♂ 1♀ 38°23'58"K 40°44'37"D, 785m, 16.VI.2016; 1♀ 38°23'48"K 40°44'44"D, 800m, 17.VI.2016; 3♂♂ 38°22'44"K 40°45'57"D, 770m, 17.VII.2016.

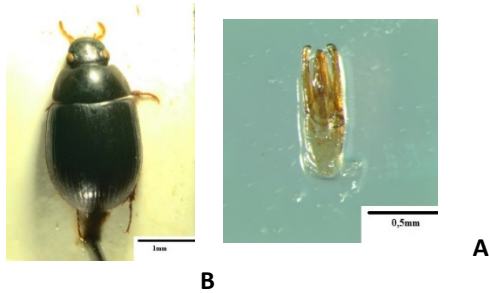


Figure 12. *Hydrobius fuscipes*, A: General body, dorsal. B: Male genital organ (Aedeagus), from above.

Distribution in Turkey: Afyon, Artvin, Ankara, Aydın, Batman, Bayburt, Bilecik, Bingöl, Bitlis, Çorum, Denizli, Erzincan, Erzurum, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İçel, İzmir, Konya, Kocaeli, Kütahya, Manisa, Muğla, Muş, Niğde, Ordu, Osmaniye, Rize, Samsun, Sivas, Tokat, Trabzon and Van, Yozgat (Topkara and Balık, 2008; Polat *et al.*, 2010; Darılmaz and İncekara, 2011; Mart *et al.*, 2014a, 2014b;

Darılmaz *et al.*, 2010, 2012; Yılmaz Akünal and Çilbıroğlu Aslan, 2017; Taşar 2018).

Remark: Recorded for the first time from the research area.

13. *Anacaena rufipes* (Guillebeau, 1896)

Material examined: Lice: 3♂♂ Dallica, 38°22'37"K 40°49'12"D, 753m, 03.VII.2016; 1♂ Budak, 38°22'44"K 40°45'57"D, 770m, 26.VIII.2016.

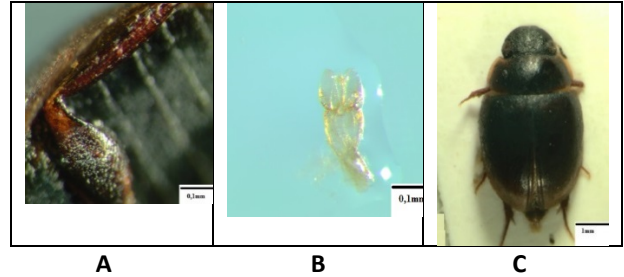


Figure 13. *Anacaena rufipes*, A: End femur, B: Male genital organ (Aedeagus), top. C: General body, dorsal.

Distribution in Turkey: Bayburt, Bingöl, Bitlis, Diyarbakır, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İstanbul, Muş, Ordu, Samsun, Sivas, Tokat, Trabzon and Van (Mart 2009; Polat *et al.*, 2010; Darılmaz and İncekara, 2011; Mart *et al.*, 2014a, 2014b; Yılmaz and Aslan, 2015; Taşar, 2018).

14. *Anacaena limbata* (Fabricius, 1792)

Material examined: Hazro: 1♂ Merkez, 38°19'39"K 40°51'17"D, 822m, 12.VIII.2016. Silvan: 2♂♂ 1♀ Dolapdere, 38°20'56"K 40°53'27"D, 750m, 19.VII.2016.

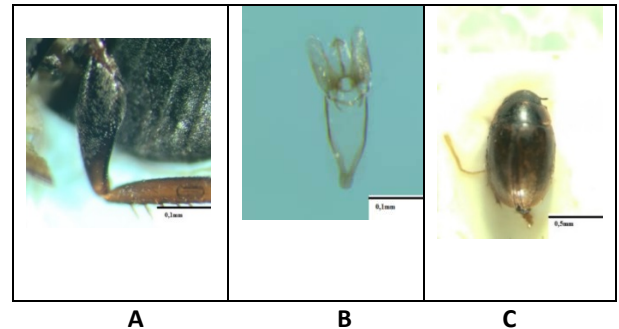


Figure 14. *Anacaena limbata*, A: Last femur. B: Male genital organ (Aedeagus), from above. C: General body, dorsal.

Distribution in Turkey: Afyon, Ankara, Artvin, Bayburt, Bingöl, Bitlis, Çorum, Diyarbakır, Denizli, Giresun, Gümüşhane, Kütahya, Muş, Ordu, Sivas, Trabzon, Yozgat and Van (Karaman *et al.*, 2008; Hızarcıoğlu *et al.*, 2010; Darılmaz and İncekara, 2011; Mart *et al.*, 2014a, 2014b; Darılmaz *et al.*, 2010, 2012; Yılmaz and Aslan, 2015; Taşar, 2018).

15. *Anacaena lutescens* (Stephens, 1829)

Material examined: Hazro: 2♀♀ Mutluca, 38°17'7"K 40°53'3"D, 890m, 12.VIII.2016. Lice: 3♂♂ 1♀ Budak, 38°22'44"K 40°45'57"D, 770 m, 03.V.2016; 8♂♂ 12♀♀ 38°23'58"K 40°44'37"D, 785m, 16.VI.2016; 2♂♂ Kabakaya, 38°22'9"K 40°44'12"D, 796m. 02.VIII.2016; 1♂ 1♀ Tepe, 38°23'36"K 40°44'31"D, 784m, 23.VIII.2016; 1♂ 2♀♀ 38°23'47"K 40°44'20"D, 787 m, 24.VIII.2016; 2♂♂ 38°23'48"K 40°44'44"D, 800m, 10.IX.2016. Silvan: 1♂ Dağcılar, 38°19'54"K 40°57'3"D, 700m, 23.IX.2016.

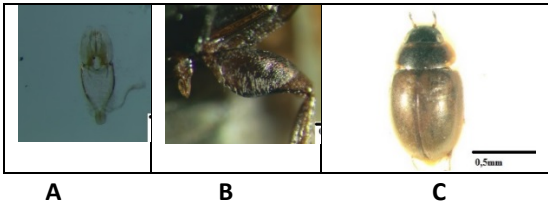


Figure 15. *Anacaena lutescens*, A: Male genital organ (Aedeagus) from above. B: The last femur. C: General body, dorsal.

Distribution in Turkey: Artvin, Bingöl, Erzincan and Sivas (İncekara *et al.*, 2004; Darılmaz and İncekara, 2011; Mart *et al.*, 2014a; Yılmaz and Aslan, 2015).

Remark: Recorded for the first time from the research area.

16. *Paracymus scutellaris* (Rosenhauer, 1856)

Material examined: Lice: 13♂♂ 20♀♀ 38°23'58"K 40°44'37"D, 785m, 16.VI.2016; 3♂♂ 1♀ 38°23'48"K 40°44'44"D, 800m, 17.VI.2016; 2♂♂ 38°23'47"K 40°44'20"D, 787m, 24.VIII.2016; 2♂♂ 38°23'47"K 40°44'20"D, 787m, 17.IX.2016.

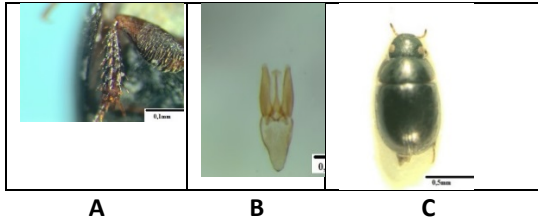


Figure 16. *Paracymus scutellaris*, A: Middle femur. B: Male genital organ (Aedeagus), from above. C: General body, dorsal.

Distribution in Turkey: Bayburt, Bingöl, Gümüşhane, Ordu, Sakarya and Samsun (Mart *et al.*, 2006; Erturun and Tanatmış, 2009; Mart 2009).

Remark: Recorded for the first time from the research area.

17. *Laccobius (Dimorpholaccobius) sculptus* (D'orchymont, 1935)

Material examined: Hazro: 1♂ Merkez, 38°19'39"K 40°51'17"D, 822m, 12.VIII.2016. Kulp: 7♂♂ 20♀♀ Çağlayan, 38°29'21"K 40°48'48"D, 812m, 15.VII.16; 8♂♂ 9♀♀13 Taşköprü, 38°21'20"K 40°53'52"D, 847m, 15.VII.2016; Lice: 2♂♂ Budak köyü, 38°22'44"K 40°45'57"D, 800m, 17.IV.2016; 1♂ 38°22'44"K 40°45'57"D, 770m, 03.VII.2016; 1♂ 38°23'36"K 40°44'31"D, 784m, 23.VIII.2016; 3♂♂ Dallica, 38°22'12"K 40°49'12"D, 753m, 26.VIII.2016; 3♂♂ Kabakaya, 38°22'9"K 40°44'12"D, 796m, 02.VIII.2016; 1♂ Merkez, 38°23'48"K 40°44'44"D, 800m, 23.VIII.2016; 1♂ Merkez, 38°22'44"K 40°45'57"D, 800m, 10.IX.2016. Silvan: 1♂1♀ Dolapdere, 38°20'56"K 40°53'27"D, 750m, 19.VII.2016; 2♂♂ 38°20'56"K 40°53'27"D, 750m, 21.VIII.2016.

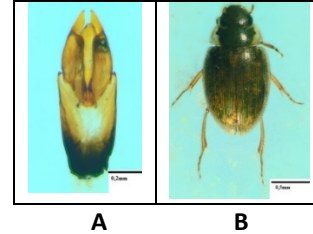


Figure 17. *Laccobius (D.) sculptus*, A: Male genital organ (Aedeagus), top. B: General body, dorsally.

Distribution in Turkey: Batman, Bingöl, Bitlis, Diyarbakır, Mardin, Muş and Şanlıurfa (İncekara *et al.*, 2003; Darılmaz and İncekara, 2011; Taşar, 2018).

18. *Laccobius (Dimorpholaccobius) syriacus* (Guillebeau, 1896)

Material examined: Hazro: 7♂♂ 13♀♀ Mutluca, 38°17'7"K 40°53'3"D, 890 m, 12.VIII.2016; Kulp: 1♂3 ♀♀ Çağlayan, 38°29'21"K 40°48'48"D, 812m, 15.VII.2016; Lice: 1♂ Budak, 38°22'44"K 40°45'57"D, 770m, 03.VII.2016; 8♂♂ 1♀ Kabakaya, 38°22'9"K 40°44'12"D, 796m. 02.VIII.2016; 2♂ 38°23'36"K 40°44'31"D, 784m, 23.VIII.2016; 3♂♂ 1♀ Dallica, 38°22'12"K 40°49'12"D, 753m, 26.VIII.2016; Merkez, 1♂ 1♀, 38°23'48"K 40°44'44"D, 800m, 10.IX.2016; Silvan: 1♀3 ♂♂ Dolapdere, 38°20'56"K 40°53'27"D, 750m, 19.VII.2016.

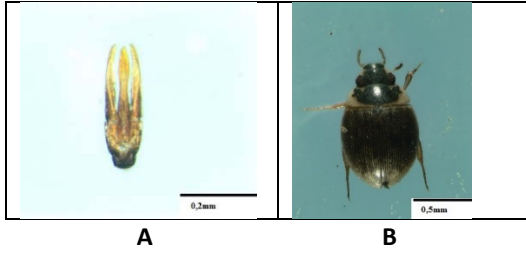


Figure 18. *Laccobius (D.) syriacus*, A: Male genital organ (Aedeagus), from the top. B: General body, dorsally.

Distribution in Turkey: Adana, Afyon, Aksaray, Ankara, Antakya, Antalya, Artvin, Aydın, Bayburt, Batman, Bingöl, Bitlis, Bilecik, Bolu, Bursa, Burdur, Çorum, Denizli, Diyarbakır, Edirne, Eğirdir, Erzincan, Erzurum, Gaziantep, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İzmir, Kahramanmaraş, Kars, Kayseri, Kastamonu, Konya, Mardin, Manisa, Mersin, Muğla, Muş, Ordu, Osmaniye, Rize, Sakarya, Samsun, Sinop, Sivas, Şanlıurfa, Şırnak, Tokat, Trabzon, Toros dağları and Van (Darılmaz and Kıyak, 2006b; Ertorun and Tanatmış, 2009; Darılmaz *et al.*, 2010; Polat *et al.*, 2010; Darılmaz and İncekara, 2011; Darılmaz *et al.*, 2010, 2012; Mart *et al.*, 2014b; Erdihan, 2017; Yılmaz Akünal and Çilbiroğlu Aslan, 2017; Taşar, 2018).

19. *Laccobius (Dimorpholaccobius) sipylus* (D'orchymont, 1939)

Material examined: Lice: ♂1 Tepe, 38°23'36"K 40°44'31"D, 770m, 03.VII.2016; 1♂ Merkez, 38°23'48"K 40°44'44"D, 800m, 23.VIII.2016; 3♂♂1♀ Dallica, 38°22'12"K 40°49'12"D, 753m, 26.VIII.2016; Kulp: 1♂ Çağlayan, 38°29'21"K 40°48'48"D, 812m, 15.VII.2016; 1♂ 2♀♀ Taşköprü, 38°21'20"K 40°53'52"D, 847m, 15.VII.2016; 2♂♂ 10♀♀ Kabakaya, 38°22'9"K 40°44'12"D, 796m, 02.VIII.2016.

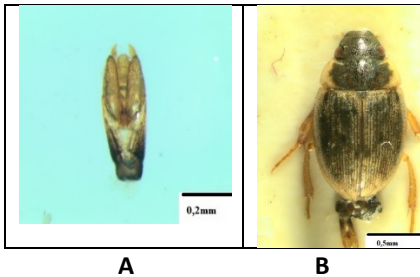


Figure 19. *Laccobius (D.) sipylus*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Antalya, Artvin, Balıkesir, Bingöl, Bitlis, Çanakkale, Çorum, Denizli, Diyarbakır, Erzincan, Giresun, Gümüşhane, Hatay,

Isparta, Kahramanmaraş, Kayseri, Mersin, Muş, Sivas, Samsun, Tokat and Van (İncekara *et al.*, 2003; Polat *et al.*, 2010; Darılmaz and İncekara, 2011; Darılmaz *et al.*, 2012; Erdihan, 2017; Taşar, 2018).

20. *Enochrus (Lumetus) quadripunctatus* (Herbst, 1797)

Material examined: Hazro: 4♂♂ Mutluca, 38°17'7"K 40°53'3"D, 890m, 12.VIII.2016; Kulp: 2♂♂ Taşköprü, 38°21'20"K 40°53'52"D, 847m, 10. VII.16; 4♂♂ 17♀♀ Çağlayan, 38°29'21"K 40°48'48"D, 812m, 15.VII.2016; Lice: 2♂♂ 38°23'58"K 40°44'37"D, 800m, 16.VI.2016; 2♂♂ 13♀♀ Budak köyü, 38°22'44"K 40°45'57"D, 770m, 03.VII.2016; Merkez, 2♂♂ 38°23'48"K 40°44'37"D, 800m, 10.XI.2016; Silvan: 4♂♂ Dolapdere, 38°20'56"K 40°53'27"D, 750m, 19.VII.2016.

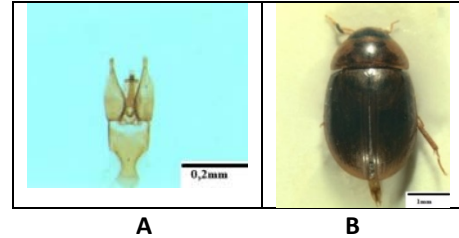


Figure 20. *Enochrus (Lumetus) quadripunctatus*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Ankara, Antalya, Batman, Bingöl, Bitlis, Denizli, Diyarbakır, Edirne, Elazığ, Isparta, İzmir, Manisa, Mardin, Malatya, Muş, Ordu, Sivas, Şırnak and Van (Darılmaz and İncekara, 2011; Yılmaz and Aslan, 2015; Yılmaz Akünal and Çilbiroğlu Aslan, 2017; Taşar, 2018).

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

Material examined: Hazro: 4♂♂ Merkez, 38°19'39"K 40°51'17"D, 822m, 12.VIII.2016; Kulp: 1♂ Taşköprü, 38°21'20"K 40°53'52"D, 847m, 10. VII.2016; 8♂♂20♀♀ Çağlayan, 38°29'21"K 40°48'48"D, 812m, 15.VII.2016; Lice: 2♂♂ Merkez, 38°23'58"K 40°44'37"D, 800m, 16.VI.2016; 1♂ 1♀ Merkez, 38°23'48"K 40°44'44"D, 800m, 17.VI.2016; 1♂ Budak, 38°22'44"K 40°45'57"D, 770m, 03.VII.2016; Silvan: 2♂♂ Dolapdere, 38°20'56"K 40°53'27"D, 750m, 21.VIII.2016; 2♂♂ Dağcılar, 38°19'54"K 40°57'3"D, 700m, 23.XI.2016.

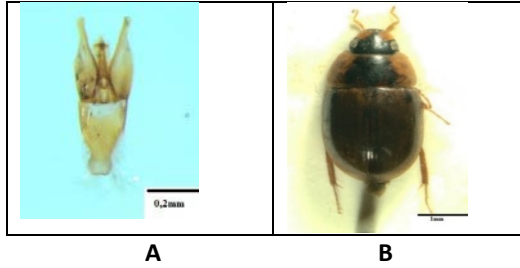


Figure 21. *Enochrus (Lumetus) fuscipennis*, A: Male genital organ (Aedeagus), top. B: General body, dorsally.

Distribution in Turkey: Afyon, Artvin, Aksaray, Ankara, Aydın, Bayburt, Balıkesir, Bingöl, Bitlis, Burdur, Bursa, Çanakkale, Çorum, Denizli, Erzincan, Erzurum, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İzmir, Kayseri, Kütahya, Manisa, Muş, Ordu, Rize, Sivas and Van (İncekara *et al.*, 2005; Kiyak *et al.*, 2006; Darılmaz and Kiyak, 2006b, 2009b; Ertorun and Tanatmış, 2009; Hızarcıoğlu *et al.*, 2010; Darılmaz and İncekara, 2011; Mart *et al.*, 2014b; Yılmaz and Aslan, 2015; Yılmaz Akünel and Çilbıroğlu Aslan, 2017).

Remark: Recorded for the first time from the research area.

22. *Coelostoma orbiculare* (Fabricius, 1775)

Material examined: Hazro: 3♂♂ 3♀♀, 38°14'25"K 40°49'34"D, 988m, 13.IV.2017.

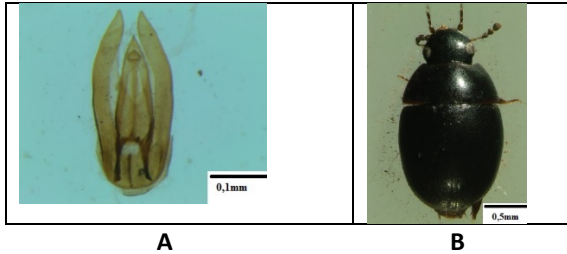


Figure 22. *Coelostoma orbiculare*, A: Male genital organ (Aedeagus), from above. B: General body, dorsally.

Distribution in Turkey: Ankara, Artvin, Bayburt, Burdur, Bursa, Bingöl, Bitlis, Çanakkale, Çorum, Diyarbakır, Erzincan, Erzurum, Giresun, Gümüşhane, Isparta, İçel, Kayseri, Manisa, Muş, Ordu, Samsun, Sivas, Tokat Trabzon and Van (Karaman *et al.* 2008; Ertorun and Tanatmış 2009; İncekara *et al.* 2003, 2009b; Polat *et al.* 2010; Darılmaz and İncekara 2011; Darılmaz *et al.* 2010, 2012; Yılmaz Akünel and Çilbıroğlu Aslan 2017; Taşar 2018).

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