

A CONTRIBUTION TO THE KNOWLEDGE OF THE TURKISH WATER BEETLES FAUNA (COLEOPTERA)

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ABSTRACT: A total of 28 species of water beetles were collected from 11 sampling stations in the semiarid central Turkey (Aksaray, Kırşehir and Konya provinces) between 2004 and 2005. They belong to the following families (species numbers in parentheses): Gyrinidae (4), Haliplidae (2), Noteridae (1), Dytiscidae (9), Helophoridae (4) and Hydrophilidae (8). One species of Dytiscidae [*Oreodytes septentrionalis* (Gyllenhal, 1826)] and two species of Hydrophilidae [*Enochrus (Enochrus) melanocephalus* (Olivier, 1792), *Enochrus (Lumetus) fuscipennis* (Thomson, 1884)] are reported from Turkey for the second time. Also ten new records are added for the Coleoptera fauna of the Central Anatolia region with this study. For some remarkable species phenologies, habitats and additional distributional notes are given.

KEY WORDS: Coleoptera, Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae, contribution, Turkey.

Aquatic beetle fauna of Aksaray province and its surroundings are almost completely unknown. Only Gueorguiev (1981), Angus (1988), İncekara et al. (2003a), Schödl (1998) and Mart et al. (2001) published aquatic beetle data, altogether 7 species mentioned from this territory.

The aim of this study was to make a contribution to Turkish aquatic beetle fauna. In accordance literature data the list of Turkey aquatic Coleoptera contains 13 species of Gyrinidae, 18 species of Haliplidae, 3 species of Noteridae, 143 species of Dytiscidae, 50 species of Helophoridae and 63 species of Hydrophilidae (Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zaitsev, 1972; Bertrand, 1928; Zimmermann, 1920; Gueorguiev, 1968, 1981; Balfour - Browne, 1963; Nilsson & Holmen 1995; Shaverdo, 2002; Holmen, 1987; Brinck, 1978; Van Vondel, 991, 1992; Angus, 1984, 1985, 1988; Schödl, 1997; Gentili & Chiesa, 1975; Gentili, 1979, 2000; Nardi, 2001; Fery et al., 2001; Erman & Fery, 2000; Erman & Erman, 2002, 2004; İncekara et al., 2002, 2003a, 2003b, 2004a, 2004b, 2005a, 2005b, 2005c; Mart&Erman, 2001; Mart et al., 2003; Hebauer, 1994).

MATERIAL AND METHOD

This study is based on 152 specimens of aquatic beetles collected from Aksaray, Konya and Kırşehir provinces between 2004 and 2005. Specimens were collected from spring water area, with a sieve, ladle and net having a 1 mm mesh size. The beetles were killed with 70 % alcohol and in the laboratory were cleaned of clayey and muddy

substances on their surfaces with a small paintbrush. Aedeagophore was dissected under the stereomicroscope and left in 10 % KOH solution for about 1–2 hours. Materials have been deposited in the Gazi University Zoological Museum (=ZMGU), Ankara, Turkey. The examined materials of this study were identified and collected by Ms. Sci. Biolog Mustafa Darılmaz.

Family Gyrinidae

Gyrinus distinctus Aubé, 1836

Materials: Aksaray: 3 males, 2 females, Sarıyahşi (Sarılık Lake), 38°58'N 33°49'E, 1014 m, 27.06.2004; 1 female, Near the organized Industry region (Tekke-Acisu spring) 38°15'N 34°01'E, 970 m, 05.08.2004; Konya: 7 males, 8 females, Derbent (Dereagzi Lake) 38°01'N 32°01'E, 1521 m, 01.07.2004.

Phenology: June–August. **Habitat:** Coasts of lakes and slowly flowing streams; fresh and brackish water. **Distribution in Turkey:** Adana (Suluhan, Bolkar Mountains), Bursa (Uludağ Mountain, Karacabey), İzmir (Efes) (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Distribution in the world:** Afghanistan, Armenia, Caucasia, China, Cyprus, Denmark, Egypt, England, Estonia, Finland, Hungary, Iran, Iraq, Israel, Latvia, Lebanon, Lithuania, Mongolia, Norway, Russia, Sudan, Sweden, Syria (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Remarks:** This species is new record for the Gyrinidae fauna of Central Anatolia Region.

Gyrinus suffriani Scriba, 1855

Materials: Konya: 6 males, 5 females, Derbent (Dereagzi Lake) 38°01'N 32°01'E, 1521 m, 01.07.2004.

Phenology: July. **Habitat:** Coast of lakes; fresh water. **Distribution in Turkey:** Localities are not clear (Brinck, 1978; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Distribution in the world:** Albania, Austria, Bulgaria, Caucasus, Denmark, England, Finland, Germany, Greece, Hungary, Israel, Italy, Lebanon, Macedonia, Norway, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Syria, Ukraine (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Remarks:** This species is new record for the Gyrinidae fauna of the Central Anatolia Region.

Gyrinus caspius Ménériés, 1832

Materials: Aksaray: 1 male, 2 females, Near the organized industry region (Tekke-Acisu spring), 38°15'N 34°01'E, 970 m, 05.08.2004.

Phenology: August. **Habitat:** Slowly flowing streams; brackish water. **Distribution in Turkey:** Adana (Suluhan, Toros Mountains), Edirne (Çopköy, Ermenköy), Hatay (İskenderun) (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Distribution in the world:** Algeria, Armenia, Caucasian, China, Denmark, England, Estonia, France, Germany, Iran, Iraq, Ireland, Israel, Italy, Lebanon, Latvia, Lithuania, Morocco, Netherlands, Norway, Poland, Russia, Sweden, Syria (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981;

Holmen, 1987; Zaitsev, 1972). **Remarks:** This species is new record for the Gyrinidae fauna of the Central Anatolia Region.

***Aulonogyrus concinnus* (Klug, 1834)**

Materials: Aksaray: 2 males, 1 female, Near the organized industry region (Tekke-Acisu spring), 38°15'N 34°01'E, 970 m, 05.08.2004.

Phenology: August. **Habitat:** Slowly flowing streams; brackish water. **Distribution in Turkey:** Eskişehir, Adana (Toros Mountains), Hakkari (Şemdinli) (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Distribution in the world:** Afghanistan, Albania, Algeria, Austria, Belgium, Bulgaria, China, Cyprus, France, Germany, Greece, Hungary, Iran, Iraq, Italy, Lebanon, Macedonia, Mongolia, Netherlands, Poland, Romania, Slovenia, Spain, Switzerland, Syria, Tibet, Ukraine (Brinck, 1978; Franciscolo, 1979; Gueorguiev, 1981; Holmen, 1987; Zaitsev, 1972). **Remarks:** This species is new record for the Gyrinidae fauna of the research area.

Family Haliplidae

***Pelodytes caesus* (Duftschmid, 1805)**

Materials: Aksaray: 1 female, Ulurmak Regülâtörü, 38°23'N 34°03'E, 1038 m, 06.09.2004.

Phenology: September. **Habitat:** Puddles; fresh water. **Distribution in Turkey:** Adana (Ceyhan, Toros mountains), Afyon (Isaklı, Sivrihisar, Sultan dağ-Çay), Aydın, Balıkesir (Ayvalık), Bolu (Gerede), Isparta (Eğridir), İzmir (Selçuk), Konya (Beyşehir lake) (Franciscolo, 1979; Gueorguiev, 1968, 1981; Holmen, 1987; Van Vondel, 1992; Lenistea, 1978). **Distribution in the world:** Afghanistan, Belarus, Denmark, England, France, Germany, Greece, Hungary, Iran, Iraq, Israel, Italy, Kazakhstan, Lithuania, Morocco, Poland, Portugal, Russia, Spain, Sweden, Syria, Netherlands, Ukraine (Franciscolo, 1979; Zaitsev, 1972; Gueorguiev, 1968, 1981; Holmen, 1987; Van Vondel, 1992; Ribera et.al., 2003; Lenistea, 1978; Lundberg & Gustafsson, 1995). **Remarks:** This species is new record for the Haliplidae fauna of the research area.

***Haliplus variegatus* Sturm, 1834**

Materials: Konya: 1 male, 1 female, Cihanbeyli (Karaküllük village-Acıgöl Lake), 38°31'N 33°12'E, 932 m, 01.07.2004.

Phenology: July. **Habitat:** Shallow water pools with gravel bottoms and sparse vegetation; brackish water. **Distribution in Turkey:** Adana (Ceyhan, Toros Mountains), Bilecik, Bolu, Isparta (Eğridir), Sakarya (Karasu) (Holmen, 1987; Franciscola, 1979; Lenistea, 1978; Gueorguiev, 1981; Van Vondel, 1991). **Distribution in the world:** Afghanistan, Algeria, Belarus, Cyprus, Denmark, England, Estonia, Finland, France, Germany, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Russia, Spain, Sweden, Syria (Holmen, 1987; Franciscola, 1979; Lenistea, 1978; Gueorguiev, 1981; Van Vondel, 1991). **Remarks:** This species is new record for the Haliplidae fauna of the Central Anatolia Region.

Family Noteridae

Noterus clavicornis (De Geer, 1774)

Materials: Aksaray: 1 male, Bağlı village (Near at the water pump), 38°16'30"N 34°03'62"E, 968 m, 20.06.2004; 4 males, 5 females, Gülağaç (Gülyurt small town-Kayı lake), 38°24'26"N 34°22'63"E, 1193 m, 19.06.2005.

Phenology: June. **Habitat:** Coasts of lakes with vegetation; fresh water. **Distribution in Turkey:** Ankara (Mogan lake), Balıkesir (Ayvalık), Bilecik, Bolu (Gerede, Abant lake), Isparta (Gölçuk-Bozdağ, Eğridir), İzmir (Menemen, Selçuk, Efes), Kayseri (Erciyes Mountain), Konya (Beyşehir lake), Manisa (Manisa mountain-Marmara lake) (Gueorguiev, 1968, 1981; Balfour - Browne, 1963; Holmen, 1987; Nilsson, 2003; Lenistea, 1978; Zaitsev, 1972). **Distribution in the world:** Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China (Heilongjiang, Shaanxi, Xinjiang), Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Great Britain, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Jordan, Kashmir, Kazakhstan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldavia, Mongolia, Netherlands, Norway, Poland, Portugal, Russia (Central European Territory, East Siberia, South European Territory, West Siberia), Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Turkmenistan, Ukraine, Yugoslavia (Gueorguiev, 1968, 1981; Balfour - Browne, 1963; Holmen, 1987; Nilsson, 2003; Lenistea, 1978; Zaitsev, 1972; Toledo, 2004; Zimmermann, 1920). **Remarks:** This species is new record for the Noteridae fauna of the research area.

Family Dytiscidae

Hydroglyphus geminus (Fabricius, 1792)

Materials: Aksaray: 4 males, 1 female, Ulurmak Regulator, 38°23'N 34°03'E, 1038 m, 06.09.2004.

Phenology: September. **Habitat:** Puddles; fresh water. **Distribution in Turkey:** Adana (Toros Mountains-Yeniköy, Ceyhan), Ankara (Mogan Lake), Antalya (Finike), Aydın, Balıkesir (Ayvalık), Bolu (Gerede), Bursa (İnegöl), Edirne, Gümüşhane (Kelkit), İçel (Erdemli), İzmir (Menemen), Kastamonu (Tosya), Kayseri (Kızılören), Kilis, Konya (Beyşehir Lake, Sivrihisar, Eğridir), Manisa (Manisa Mountain-Marmara Lake), Nevşehir (Acı Göl), Tuz Gölü, Trabzon (Akçaabat), (Franciscolo, 1979; Nilsson, 2003; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Distribution in the world:** Afghanistan, Albania, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Belarus, Bulgaria, China, Croatia, Cyprus, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Iraq, Israel, Italy, Kazakhstan, Kirghizistan, Korea, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldavia, Mongolia, Morocco, Netherlands, Norway, Pakistan, Poland, Portugal, Rumania, Russia, Saudi Arabia, Slovakia, Slovenia, Spain, Sudan, Sweden, Switzerland, Syria, Tajikistan, Tunisia, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia (Franciscolo, 1979; Nilsson, 2003;

Gueorguiev, 1981; Nilsson & Holmen, 1995; Zaitsev, 1972; Zimmermann, 1920; Telnov & Kalniņš, 2003; Lundberg & Gustafsson, 1995).

***Hydroporus pubescens* Gyllenhal, 1808**

Materials: Aksaray: 8 males, 1 female, Bağlı village (Near at the water pump), 38°.16'.30"N 34°.03'.62"E, 968 m, 23.05.2004.

Phenology: May. **Habitat:** Slowly flowing water canals with vegetation; fresh water. **Distribution in Turkey:** Adana (Bolkar mountains), Antalya (Baba Dağ, Bozburun Dağ), Bilecik (Karaköy), Bursa, Erzincan (Keşiş mountains), İzmir (Adatepe, Efes), Manisa (Manisa Dağ), Niğde (Ulukişla), Ordu (Akkuş), Sakarya (Ormanköy), Trabzon (Manastır) (Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Bertrand, 1928; Nilsson et al., 1995). **Distribution in the world:** Albania, Algeria, Austria, Azerbaijan, Belarus, Belgium, Bosnia Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Ireland, Israel, Italy, Jordan, Latvia, Lebanon, Luxembourg, Macedonia, Moldavia, Morocco, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Tunisia, Ukraine, Yugoslavia (Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Bertrand, 1928; Nilsson et al., 1995; Zimmermann, 1920). **Remarks:** This species is a new record for the Dytiscidae fauna of the research area.

***Oreodytes septentrionalis* (Gyllenhal, 1826)**

Materials: Konya: 1 female, Cihanbeyli (Karaküllük Village-Acıgöl Lake), 38°31'N 33°12'E, 932 m, 01.07.2004.

Phenology: July. **Habitat:** Shallow water pools with gravel bottoms and sparse vegetation; brackish water. **Distribution in Turkey:** Erzurum (Teke Brook) (Erman et al., 2002). **Distribution in the world:** Austria, Czech Republic, England, Finland, France, Germany, Ireland, Italy, Mongolia, Netherlands, Norway, Poland, Portugal, Russia, Siberia, Slovenia, Spain, Sweden, Switzerland (Zaitsev, 1972; Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Erman et al., 2002). **Remarks:** The first record of *Oreodytes septentrionalis* was given by Erman et al. (2002) in Turkey. In this study the second record is given for Turkey. Also this species is new record for the Dytiscidae fauna of the Central Anatolia Region.

***Scarodytes halensis halensis* (Fabricus, 1787)**

Materials: Aksaray: 1 male, Ulurmak (At the Regulator exit to 2 km), 38°.22'N 34°.03'E, 1004 m, 17.05.2004; 3 males Ulurmak Regulator, 38°.23'N 34°.03'E, 1038 m, 06.09.2004.

Phenology: May, september. **Habitat:** Slowly flowing streams and puddles; fresh water. **Distribution in Turkey:** Afyon (Başköy), Ankara (Bala), Bursa (İnegöl), Eskişehir (Sivrihisar), Gümüşhane (Köse), Isparta (Eğridir), İçel, İzmir, Kayseri (Erciyes mountain), Van

(Van Gölü), Yozgat (Akdağmadeni) (Gueorguiev, 1968, 1981; Franciscolo, 1979; Lenistea, 1978; Nilsson & Holmen, 1995). **Distribution in the world:** Albania, Algeria, Armenia, Austria, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Israel, Italy, Latvia, Lebanon, Lithuania, Luxembourg, Macedonia, Moldavia, Morocco, Netherlands, Norway, Poland, Portugal, Rumania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Tunisia, Ukraine, Yugoslavia (Gueorguiev, 1968, 1981; Franciscolo, 1979; Lenistea, 1978; Nilsson & Holmen, 1995; Nilsson, 2003; Zaitsev, 1972; Zimmermann, 1920; Telnov & Kalniņš, 2003).

***Agabus biguttatus* (Oliver, 1795)**

Materials: Aksaray: 3 males, 1 female, Ulurmak Regulator, 38°.23'N 34°.03'E, 1038 m, 12.07.2004; 1 female, same locality, 06.09.2004.

Phenology: July, September. **Habitat:** Puddles; fresh water. **Distribution in Turkey:** Adana (Bolkar mountains, Toros Mountains, Bürücek, Yeniköy, Külek Boğazı), Ankara (Beynam), Bilecik (Karaköy), Bursa, Çankırı, Elazığ (Karaboğa mountain), Gaziantep (Nurdağ), Isparta (Salur), İzmir (Yamanlar Mountain, Efes), Kastamonu, Sakarya (Sapanca), Trabzon (Horos Mountains), Yozgat (Gueorguiev, 1968, 1981; Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Bertrand, 1928; Zimmermann, 1920). **Distribution in the world:** Afghanistan, Albania, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Egypt, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Jordan, Kirghizistan, Lebanon, Libya, Liechtenstein, Luxembourg, Macedonia, Morocco, Netherlands, Pakistan, Poland, Portugal, Rumania, Russia, Saudi Arabia, Slovakia, Slovenia, Spain, Switzerland, Syria, Tunisia, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia (Gueorguiev, 1968, 1981; Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zimmermann, 1920). **Remarks:** This species is a new record for the Dytiscidae fauna of the research area.

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

Materials: Aksaray: 1 female, Near at the organized industry region (Tekke-Acisu spring), 38°.15'N 34°.01'E, 970 m, 20.06.2004.

Phenology: June. **Habitat:** Slowly flowing streams; brackish water. **Distribution in Turkey:** Afyon (Çay, Başköy), Erzurum (Ilıca), İzmir (Ödemiş-Bozdağ), Nevşehir (Acıgöl) (Franciscolo, 1979; Nilsson, 2003; Zaitsev, 1972; Bertrand, 1928; Zimmermann, 1920; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Distribution in the world:** Algeria, Armenia, Austria, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Iran, Ireland, Israel, Italy, Kazakhstan, Latvia, Lebanon, Liechtenstein,

Lithuania, Luxembourg, Macedonia, Malta, Morocco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Tunisia, Ukraine, Yugoslavia (Franciscolo, 1979; Nilsson, 2003; Zaitsev, 1972; Bertrand, 1928; Zimmermann, 1920; Gueorguiev, 1981; Nilsson & Holmen, 1995; Lundberg & Gustafsson, 1995).

***Rhantus suturalis* (MacLeay, 1825)**

Materials: Aksaray: 6 males, 5 females, Uluirmak Regulator, 38°23'N 34°03'E, 1038 m, 12.07.2004; 3 males 1 female, same locality, 06.09.2004.

Phenology: July, september. **Habitat:** Puddles; fresh water.

Distribution in Turkey: Konya, Manisa (Manisa Dağ-Marmara gölü), Trabzon (Nilsson, 2003; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Distribution in the world:** Afghanistan, Albania, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Japon, Jordan, Kirghizistan, Korea, Kuwait, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malta, Mongolia, Morocco, Nepal, Netherlands, New Zealand, Norway, Pakistan, Poland, Portugal, Russia, Saudi Arabia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia (Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zaitsev, 1972; Zimmermann, 1920; Nilsson & Holmen, 1995; Lundberg & Gustafsson, 1995). **Remarks:** This species is a new record for the Dytiscidae fauna of the research area.

***Laccophilus hyalinus* (DeGeer, 1774)**

Materials: Kırşehir: 1 female, Kızılırmak (Kesikköprü), 38°57'N 34°10'E, 872 m, 27.06.2004.

Phenology: June. **Habitat:** Standing and slow running water with rich vegetation; fresh water. **Distribution in Turkey:** Adana (Toros Mountains-Suluhan, Bolkar Mountains), Afyon (Başköy), Aydın, Bolu (Abant Lake), Isparta (Eğridir), İzmir, Kilis, Manisa (Boz Mountain-Gölçuk, Manisa Mountain-Marmara lake), Sakarya (Karasu) (Zaitsev, 1972; Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zimmermann, 1920; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Distribution in the world:** Algeria, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia Herzegovina, Bulgaria, Cyprus, Czech Republic, Denmark, England, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iran, Iraq, Israel, Italy, Jordan, Latvia, Lebanon, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Morocco, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, Syria, Sweden, Switzerland, Tunisia, Turkmenistan, Ukraine, Yugoslavia (Zaitsev, 1972; Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zimmermann, 1920; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Remarks:** This

species is a new record for the Dytiscidae fauna of the Central Anatolia Region.

***Laccophilus minutus* (Linnaeus, 1758)**

Materials: Aksaray: 1 male, Ulurmak Regulator, 38°.23'N 34°.03'E, 1038 m, 06.09.2004.

Phenology: September. **Habitat:** Puddles; fresh water. **Distribution in Turkey:** Adana (Toros Mountains), Afyon (Isakli), Ankara (Mogan Lake), Aydın, Balıkesir (Ayvalık), Bolu (Gerede), Bursa (İnegöl), Isparta (Eğridir), İzmir (Menemen), Kayseri (Kızılören), Manisa (Bozdağ-Gülçul, Manisa Dağ-Marmara Lake), Sinop (Burun), Sivas, Trabzon (Akçaabat) (Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zaitsev, 1972; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Distribution in the world:** Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Japon, Jordan, Kazakhstan, Kirghizistan, Latvia, Libya, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Mongolia, Morocco, Netherlands, Norway, Pakistan, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Tunisia, Turkmenistan, Ukraine, Yugoslavia (Franciscolo, 1979; Nilsson, 2003; Lenistea, 1978; Zaitsev, 1972; Gueorguiev, 1981; Nilsson & Holmen, 1995). **Remarks:** This species is a new record for the Dytiscidae fauna of the research area.

Family Helophoridae

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

Materials: Aksaray: 1 male, Ulurmak (At the Regulator exit to 2 km), 38°.22'N 34°.03'E, 1004 m, 17.05.2004; 1 male, Near at the organized industry region (Tekke-Acisu spring), 38°.15'N 34°.01'E, 970 m, 23.05.2004.

Phenology: May. **Habitat:** Slowly flowing streams; fresh and brackish water. **Distribution in Turkey:** Ankara (Soğuksu National Park), Bingöl, Bitlis, Bolu (Yeniçağ), Bursa, Diyarbakır (Karacadağ), Erzurum (Tortum), Eskişehir, Hakkâri (Şemdinli), Isparta (Eğridir), İstanbul (Belgrat Forests, Kilyos), İzmir, Kars (Karakurt, Digor), Kastamonu (Ağlı), Kırklareli (Demirköy), Mardin (Derik, Mardin Mountains), Muş, Sinop, Şırnak, Van (Başkale, Güzeldere, Tatvan) (Lenistea, 1978; Hansen, 1987; Angus, 1988, 1992; Mart et al., 2001). **Distribution in the world:** Denmark, England, Estonia, Finland, France, Germany, Hungary, Iran, Israel, Italy, Latvia, Lithuania, Netherlands, Norway, Russia, Spain, Switzerland (Lenistea, 1978; Ribera et al., 2003; Hansen, 1987; Angus, 1992; Mart et al., 2001; Angus, 1988; Csabai, 2000; Lundberg & Gustafsson, 1995). **Remarks:** This species is a new record for the Helophoridae fauna of the research area.

***Helophorus micans* Falderman, 1835**

Materials: Aksaray: 1 female, Bağlı village (Near at the water pump), 38°.16'N 34°.03'E, 968 m, 23.05.2004.

Phenology: May. **Habitat:** Coasts of pond with vegetation; fresh water. **Distribution in Turkey:** Balıkesir (Ayvalık), Burdur (Çerçin), Diyarbakır (Karacadağ), Hatay (Islahiye), İzmir, Tuz Gölü, Van Gölü (Angus, 1988, 1992; Mart et al., 2001). **Distribution in the world:** Afghanistan, Austria, Bulgaria, Cyprus, Hungary, Iran, Israel, Pakistan, Russia, Uzbekistan, Tajikistan, Syria (Lenistea, 1978; Hebauer, 1994; Angus, 1988, 1992; Mart et al., 2001; Csabai, 2000).

***Helophorus brevialipis* Bedel, 1881**

Materials: Aksaray: 1 male, Near at the organized industry region (Tekke-Acisu spring), 38°.15'N 34°.01'E, 970 m, 23.05.2004; 1 male, 2 females, Bağlı village (Kanlıca location, pond) 38°.16'N 34°.03'E, 975 m, 23.05.2004; 1 female, Gülağaç (between Aksaray and Gülağaç, pond) 38°.23'N 34°.07'E, 1171 m, 26.06.2004.

Phenology: May, June. **Habitat:** Coasts of pond with vegetation; fresh and brackish water. **Distribution in Turkey:** Ankara (Mogan Lake), Antalya (Topraktepe), Artvin (Fındıklı), Bursa (Kaynarca), Diyarbakır (Karacadağ), İstanbul (Altınşehir, Halkalı, Emirgan, Kilyos, Ömerli, Şile-Ağva), İzmir (Bergama), Kahramanmaraş, Kırklareli (Demirköy), Muğla (Marmaris), Niğde (Ulukışla), Samsun (Çarşamba), Sinop, Tuz Gölü, Van (Van Gölü, Başkale, Güzeldere) (Hansen, 1987; Hebauer, 1994; Angus, 1985, 1992; Mart et al., 2001; İncekara et al., 2005a). **Distribution in the world:** America, Austria, Azerbaijan, Belarus, Bulgaria, Cyprus, Denmark, England, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Latvia, Lebanon, Lithuania, Mongolia, Morocco, Netherlands, Norway, Poland, Russia, Spain, Sweden, Switzerland, Syria, Tunisia, Yugoslavia (Ribera et al., 2003; Hansen, 1987; Hebauer, 1994; Angus, 1988, 1992; Mart et al., 2001; Smetana, 1985; İncekara et al., 2005a; Csabai, 2000; Telnov & Kalniņš, 2003; Lundberg & Gustafsson, 1995).

***Helophorus longitarsis* Wollaston, 1864**

Materials: Aksaray: 2 males, 1 female, Mamasun Dam, 38°.24'N 34°.07'E, 1099 m, 20.06.2004.

Phenology: June. **Habitat:** Coast of dam lakes; fresh water. **Distribution in Turkey:** Ankara (Mogan lake), Burdur, Erzincan (Lenistea, 1978; Mart et al., 2001; İncekara et al., 2004a; Angus, 1988). **Distribution in the world:** Austria, Canary Islands, England, France, Germany, Greece, Hungary, Israel, Italy, Kazakhstan, Morocco, Netherlands, Poland, Russia, Spain, Syria, Tunisia, Ukraine, Yugoslavia (Lenistea, 1978; Mart et al., 2001; İncekara et al., 2004a; Angus, 1988, 1992; Ribera et al., 2003; Hansen, 1987; Hebauer, 1994; Csabai, 2000). **Remarks:** This species is a new record for the Helophoridae fauna of the research area.

Family Hydrophilidae

Laccobius simulatrix d'Orchymont, 1932

Materials: Aksaray: 1 male, 1 female, Bağlı village (Near at the water pump), 38°.16'N 34°.03'E, 968 m, 23.05.2004; 1 male, Near at the organized industry region (Tekke-Acisu spring) 38°.15'N 34°.01'E, 970 m, 05.08.2004; Kırşehir: 2 males, 1 female, Kızılırmak (Kesikköprü), 38°.57'N 34°.10'E, 872 m, 27.06.2004.

Phenology: May-August. **Habitat:** Coasts of ponds and standing water with rich vegetation; fresh and brackish water. **Distribution in Turkey:** Ağrı (Doğubeyazıt), Ankara (Kızılcahamam), Antalya (Finike, Toros Mountains, Gazipaşa), Artvin (Şavşat, Borçka), Aydın, Balıkesir (Ayvalık), Bayburt, Bitlis (Hizan-Tatvan), Bolu (Abant Lake, Mudurnu), Bursa (Çanak), Çanakkale (Sarımsaklı, Ezine, Truva), Çorum (Sungurlu, Delice, Boğazköy), Denizli (Dalaman, Acipayam), Edirne (Keşan), Erzincan (Sakaltutan pass), Erzurum (Aşkale, Çoruh river), Hakkâri (Yüksekova), Isparta (Eğridir), İçel (Anamur), İstanbul (Kâğıthane), İzmir (Bozdağ, Menemen, Zeytindağ, Midilli, Armutlu, Seferihisar), Kahramanmaraş (Elbistan), Kars (Aras-Kağızman, Digor, Horasan, Tuzluca), Kayseri (Kızılören), Kırklareli, Manisa (Alaşehir, Marmara Göl, Çerkes), Muğla (Karaçulha, Zine), Niğde, Osmaniye, Samsun (Vezirköprü), Sivas (Akdağmadeni), Trabzon, Van (Süphan Dağ), (İncekara et al., 2003a; Gentili, 2000; Gentili & Chiesa, 1975). **Distribution in the world:** Afghanistan, Albania, Austria, Azerbaijan, Bosnia Herzegovina, Bulgaria, Czech Republic, England, France, Greece, Hungary, Iran, Italy, Poland, Romania, Russia, Yugoslavia (Lenistea, 1978; Ribera et al., 2003; Gentili & Chiesa, 1975.; Gentili, 1979; Csabai, 2000). **Remarks:** This species is a new record for the Helophoridae fauna of the research area.

Laccobius syriacus Guillebeau, 1896

Materials: Aksaray: 1 female, Gülağaç (Gülyurt small town-Kayı lake), 38°.24'N 34°.22'E, 1193 m, 19.06.2005.

Phenology: June. **Habitat:** Coast of lakes with rich vegetation; fresh water. **Distribution in Turkey:** Adana (Ceyhan), Afyon (Dazkırı), Ankara (Gölbaşı), Antalya (Toros Mountains, Manavgat), Artvin (Karagöl), Aydın (Köşk), Bayburt, Bitlis (Tatvan), Bolu (Abant Lake, Gerede), Burdur (Burdur Lake), Çorum (Boğazkale), Denizli (Dalaman pass, Acipayam), Diyarbakır (Bismil, Karacadağ), Edirne, Erzincan (Sakaltutan pass), Erzurum (Tortum lake, Oltu, Palandöken mountains, Pazaryolu), Gaziantep (Kilis, Fevzipaşa), Gümüşhane, Hatay (Islahiye, Kırıkhan), Isparta (Eğridir Lake), İçel (Erdemli, Anamur, Silifke), İzmir (Bozdağ), Kars (Digor, Horasan, Kağızman), Kastamonu (İnebolu), Kayseri (Kızılören, İncesu), Konya (Karahasan pass, Ermenek-Hadim), Maraş (Ekinözü, Elbistan), Mardin, Muğla (Kayra, Babadağ), Ordu (Harçbeli pass, Mesudiye), Osmaniye, Rize (Ayder, Çamlıhemşin), Samsun (Çarşamba, Vezirköprü), Sinop (Helaldı, Dırnaz), Trabzon (Sürmene), Tuz Gölü, Urfa (Kaynak), Van (Başkale, Gevaş, Van Gölü, Yüksekova) (Lenistea, 1978; İncekara et al., 2003a; Mart et al., 2003; Gentili, 1979, 2000; Gentili & Chiesa, 1975). **Distribution in the**

world: Afghanistan, Austria, Azerbaijan, Bosnia Herzegovina, Bulgaria, Czech Republic, Egypt, Greece, Hungary, India, Iraq, Iran, Israel, Kazakhstan, Lebanon, Romania, Russia, Syria, Tajikistan, Turkmenistan, Uzbekistan, Yugoslavia (Lenistea, 1978; Gentili, 1979, 2000; Hebauer, 1994; Gentili & Chiesa, 1975; Shatrovskiy, 1984; Csabai, 2000).

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

Materials: Aksaray: 1 male, Saryyahşi (Boğazköy lake), 38°56'N 33°05'2"E, 973 m, 21.05.2004; 3 males, 2 females, Evren (Hirfanlı dam), 39°02'N 33°48'E, 1002 m, 27.06.2004; Kırşehir: 5 males, 7 females, Kızılırmak (Kesikköprü), 38°57'N 34°10'E, 872 m, 27.06.2004.

Phenology: May-June. **Habitat:** Coast of lakes with rich vegetation and standing water; fresh water. **Distribution in Turkey:** Adana, Afyon, Ankara, Antalya, Aydın, Edirne, Elazığ, İçel (Erdemli), Kars, Malatya, Van (İncekara et al., 2003a; Cuppen et al., 1998). **Distribution in the world:** Afghanistan, Albania, Austria, Azerbaijan, Bulgaria, China, Croatia, Denmark, Estonia, Finland, Georgia, Germany, Greece, Hungary, Iran, Italy, Kazakhstan, Kirghizistan, Macedonia, Mongolia, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Sweden, Syria, Tajikistan, Turkmenistan, Ukraine, Uzbekistan (Ribera et al., 2003; Hansen, 1987; Cuppen & Van Maanen, 1998; Hebauer, 1994; Csabai, 2000). **Remarks:** This species is a new record for the Hydrophilidae fauna of the research area.

***Enochrus melanocephalus* (Olivier, 1792)**

Materials: Aksaray: 1 female, Gülağaç (Gülyurt village-Kayı Lake), 38°24'N 34°22'E, 1193 m, 19.06.2005.

Phenology: June. **Habitat:** Coast of lakes with rich vegetation; fresh water. **Distribution in Turkey:** Erzincan (Mollaköy) (İncekara et al., 2005c). **Distribution in the world:** Algeria, Austria, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland, Yugoslavia (Lenistea, 1978; Ribera et al., 2003; Hansen, 1987; İncekara et al., 2005c; Hebauer, 1994; Csabai, 2000; Telnov & Kalniņš, 2003; Lundberg & Gustafsson, 1995). **Remarks:** The first record of *Enochrus melanocephalus* was given by İncekara et al. (2005c) in Turkey. In this study the second record is given for Turkey. Also this species is a new record for the Hydrophilidae fauna of the Central Anatolia Region.

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

Materials: Kırşehir: 1 male, 1 female, Kızılırmak (Kesikköprü), 38°57'N 34°10'E, 872 m, 27.06.2004; Aksaray: 4 males, 4 females, Gülağaç (Gülyurt small town-Kayı lake), 38°24'N 34°22'E, 1193 m, 19.06.2005.

Phenology: June. **Habitat:** Coast of lakes with rich vegetation and standing water; fresh water. **Distribution in Turkey:** Ankara (Mogan lake), Antalya (Side-Manavgat), Erzincan, İçel (Çamliyayla), Kars

(Kuyucuk lake), Van (Van Gölü) (Lenistea, 1978; Hansen, 1987; İncekara et al., 2003a; Schödl, 1998). **Distribution in the world:** Algeria, Austria, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Egypt, England, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Kazakhstan, Latvia, Lithuania, Mexico, Malta, Mongolia, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Tunisia, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia (Lenistea, 1978; Hansen, 1987; Schödl, 1998; Ribera et al., 2003; Hebauer, 1994; Csabai, 2000; Telnov & Kalniņš, 2003; Lundberg & Gustafsson, 1995). **Remarks:** This species is a new record for the Hydrophilidae fauna of the research area.

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

Materials: Aksaray: 1 female, Near at the organized Industry region (Tekke-Acisu spring), 38°15'N 34°01'E, 970 m, 23.05.2004; 4 males, 4 females, Bağlı Village (near the Kanlıca), 38°16'N 34°03'E, 975 m, 23.05.2004.

Phenology: May. **Habitat:** Slowly flowing streams and marshes with high vegetation; fresh and brackish water. **Distribution in Turkey:** Artvin, Erzincan, Erzurum, Rize (İncekara et al., 2005c). **Distribution in the world:** Austria, Azerbaijan, Bosnia Herzegovina, Bulgaria, Denmark, England, Finland, France, Germany, Hungary, Iran, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Russia, Slovenia, Spain, Sweden (Ribera et al., 2003; Hansen, 1987; İncekara et al., 2005c; Hebauer, 1994; Csabai, 2000; Lundberg & Gustafsson, 1995). **Remarks:** The first record of *Enochrus fuscipennis* in Turkey was given by İncekara et al. (2005c). In this study the second record is given for Turkey. Also this species is a new record for the Hydrophilidae fauna of the Central Anatolia Region.

***Enochrus segmentinotatus* (Kuwert, 1888)**

Materials: Kırşehir: 1 male, 1 female, Kızılırmak (Kesikköprü), 38°57'N 34°10'E, 872 m, 27.06.2004.

Phenology: June. **Habitat:** Standing and slow running water with rich vegetation; fresh water. **Distribution in Turkey:** Adana (Tuzla, Ceyhan), Aydın, Çanakkale, Hakkâri (Yüksekova), İçel (Erdemli, Silifke), İzmir (Selçuk), Konya, Muğla, Tuz Gölü (İncekara et al., 2003a; Schödl, 1998). **Distribution in the world:** Albania, Algeria, Bulgaria, Croatia, Cyprus, Egypt, France, Gambia, Greece, Iran, Iraq, Israel, Italy, Jordan, Kazakhstan, Kuwait, Libya, Mongolia, Morocco, Portugal, Romania, Russia, Saudi Arabia, Slovenia, Spain, Tajikistan, Tunisia, Turkmenistan, Uzbekistan, Yugoslavia (Ribera et al., 2003; Schödl, 1998).

***Hydrochara flavipes* (Steven, 1808)**

Materials: Aksaray: 1 male, Near at the organized Industry region (Tekke-Acisu spring), 38°15'N 34°01'E, 970 m, 20.06.2004.

Phenology: June. **Habitat:** Slowly flowing streams; brackish water. **Distribution in Turkey:** Adana, Ankara (Incekara et al., 2003a). **Distribution in the world:** China, France, Germany, Hungary, Italy, Spain (Ribera et al., 2003; Gentili et al., 1995; Csabai, 2000). **Remarks:** This species is a new record for the Hydrophilidae fauna of the research area.

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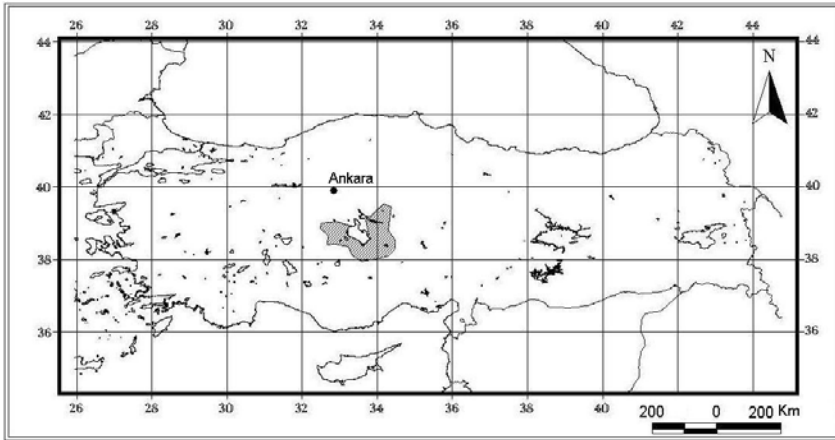


Fig. 1. Map of Turkey and research area (marked)