

New Genera and Species of the Family Hydrophilidae (Coleoptera) from Turkey

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Abstract: Two hydrophilid genera, *Cymbiodyta* Bedel 1881 and *Chasmogenus* (Watanabe, 1987), and 3 species, *Cymbiodyta marginella* (Fabricius, 1792), *Enochrus* (*Methydrus*) *coarctatus* (Gredler, 1863), and *Chasmogenus* (*Crephelochares*) *orbis* (Watanabe, 1987), are reported for the first time from Turkey. The ecological findings and morphological characters of these species are described, and their aedeagi are illustrated. Biological observations and distribution records for all the newly recorded species are also presented. Diagnostic characters are supported with microscope micrographs.

Key Words: *Cymbiodyta* sp., *Chasmogenus* sp., *Enochrus* sp., new records, Hydrophilidae, Coleoptera, Turkey

Türkiye Hydrophilidae (Coleoptera) Faunası için Yeni Cins ve Türler

Özet: İki Hidrofilid cinsi (*Cymbiodyta* Bedel 1881, *Chasmogenus* (Watanabe, 1987)) ve üç Hidrofilid türü *Cymbiodyta marginella* (Fabricius, 1792), *Enochrus* (*Methydrus*) *coarctatus* (Gredler, 1863) ve *Chasmogenus* (*Crephelochares*) *orbis* (Watanabe, 1987) Türkiye'den ilk defa kaydedilmiştir. Bu türlere ilişkin ekolojik bulgular, morfolojik karakterler ve aedeagus resimleri sunulmuştur. Tüm yeni kayıtlar ile ilgili dağılım bilgileri ve biyolojik gözlemler belirtilmiştir. Ayırt edici karakterler mikroskop fotoğrafları ile desteklenmiştir.

Anahtar Sözcükler: *Cymbiodyta* sp., *Chasmogenus* sp., *Enochrus* sp., yeni kayıtlar, Hydrophilidae, Coleoptera, Türkiye

Introduction

The genus *Cymbiodyta* Bedel, 1881 (Coleoptera: Hydrophilidae) is widely distributed in the Nearctic region, and a single species, *Cymbiodyta marginella* (Fabricius, 1792), occurs in the Palearctic region (Smetana, 1974; Hansen, 1991; 1999; Löbl and Smetana, 2004). According to Smetana (1974), *C. marginella* is widely distributed throughout Europe, except for the northernmost and southernmost regions. A worldwide distribution map of this species was also presented by Smetana.

The genus *Chasmogenus* (Watanabe, 1987) comprises 2 subgenera, *Chasmogenus* s. str. Sharp, 1882 and *Crephelochares* Kuwert, 1890. The first have 8-segment antennae and a simple, tri-lobed aedeagophore. It is distributed exclusively in America. The second have 9-segment antennae and the aedeagophore is more differentiated. It is widely distributed throughout the old world to Australia, though it is mainly represented in Africa. Three species (*C. abnormalis* (Sharp, 1890), *C. livornicus* (Kuwert, 1890), and *C. orbis* (Watanabe, 1987)) occur in the Palearctic region (Watanabe, 1987;

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Hansen, 1991, 1999; Hebauer, 1992; Löbl and Smetana, 2004). To date, there are no records of the 2 subgenera—*Chasmogenus* s. str. Sharp, 1882 and *Crephelochares* Kuwert, 1890—in Turkey.

Enochrus Thomson, 1859 is a large Hydrophilidae genus with worldwide distribution (Hansen, 1991; Schödl, 1998; Löbl and Smetana, 2004). They are particularly abundant in warmer climates. Most *Enochrus* species occur in vegetated, lentic, or somewhat lotic bodies of water. Until now, 8 species belonging to the 3 subgenera have been reported from Turkey (Hebauer and Ryndevich, 2005; Incekara et al., 2005). Although *Enochrus* (*Methydrus*) *coarctatus* (Gredler, 1863) is frequently collected in Europe and Asia, there are no records from Turkey. The present paper adds 3 new species (*Cymbiodyta marginella* (Fabricius, 1792), *Enochrus* (*Methydrus*) *coarctatus* (Gredler, 1863), and *Chasmogenus* (*Crephelochares*) *orbis* (Watanabe, 1987)) and 2 new genera (*Cymbiodyta* Bedel 1881 and *Chasmogenus* (Watanabe, 1987)) to the Turkish hydrophilid fauna.

Material and Methods

Specimens were collected from various parts of Turkey during surveys conducted in 2007 and 2008. The beetles were killed using ethyl acetate. Aedeagophores of the beetles were dissected under a stereo microscope and placed in 10% KOH solution for 1-2 h at room temperature. Photographs were made using a Nikon SMZ-1500 microscope. Voucher specimens were deposited in the Zoological Museum, Atatürk University, Erzurum, Turkey.

Results

Cymbiodyta marginella (Fabricius, 1792) (Figure 1).

Material examined: 1♂, Siment Lake, Terme, Samsun Province, 41°43'N, 36°54'E, (0 m a.s.l.), 26.06.2007; 1♂ 3♀♀, Ordulular Village, near Karaboğaz Lake, Bafra, Samsun Province, 40°49'N, 35°58'E, (0 m a.s.l.), 26.06.2007.

World Distribution: Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Nepal, The Netherlands, Norway, Poland, Portugal,

Romania, Russia, Slovakia, Spain, Sweden, Switzerland, and Uzbekistan (Hansen, 1999; Löbl and Smetana, 2004).

Remarks: Although this species and genera are widely distributed in Europe, this is the first time they are reported from Turkey.

Chasmogenus (*Crephelochares*) *orbis* (Watanabe, 1987) (Figure 2).

Material examined: 1♂, Gaga Lake, Fatsa, Ordu Province, 40°58'N 37°30'E, (93 m a.s.l.), 25.06.2007; 7♂♂ 2♀♀, 08.V.2008; 11♂♂ 8♀♀, 05.VI.2008; 9♂♂ 6♀♀, 12.07.2008; 5♂♂ 9♀♀, 08.08.2008.

World Distribution: Japan (Watanabe, 1987; Hebauer, 1992; Hansen, 1999; Löbl and Smetana, 2004).

Remarks: *Chasmogenus orbis* was recently reported by Watanabe (1987) from Japan. With the present study its distribution extends from Japan to Anatolia. This species and genera are new reports for the Turkish fauna.

Enochrus (*Methydrus*) *coarctatus* (Gredler, 1863) (Figures 3-5).

Material Examined: 1♂, Gaga Lake, Fatsa, Ordu Province, 40°58'N 37°30'E (93 m a.s.l.), 25.06.2007; 1♂, 12.07.2008; 1♂ 3♀♀, Turnasuyu, Gülyalı, Ordu Province, 40°58'N 38°00'E (0 m a.s.l.), 08.05.2008.

World Distribution: Austria, Belarus, Belgium, Bosnia-Herzegovina, Britain, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, The Netherlands, Norway, Poland, Russia (north European Territory, Far East, and West Siberia), Slovakia, Sweden, and Switzerland (Hansen, 1987, 1999; Hebauer, 1994; Ribera et al., 1997; Schödl, 1997, 1998; Hebauer and Klausnitzer, 1998; Löbl and Smetana, 2004).

Remarks: *Enochrus coarctatus* is a European species. Its occurrence outside Europe is in Russia's Far East and West Siberian regions. It is recorded from Turkey for the first time.

Discussion

The outer appearance of *Cymbiodyta*, *Chasmogenus*, *Helochares*, and *Enochrus* are similar, but are easily differentiated: *Cymbiodyta* does not have a pentameric tarsi, while the others do; *Cymbiodyta*, *Chasmogenus*, and *Helochares* have longer maxillary palpi than does *Enochrus*; each species' male genitalia are different.



1



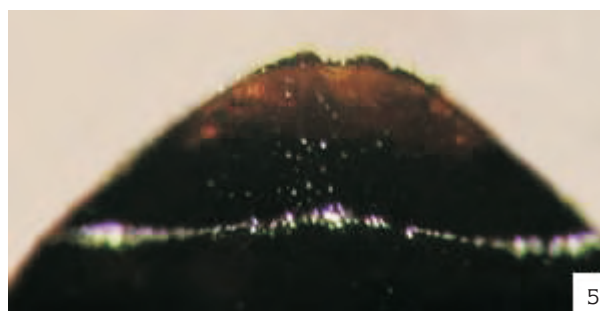
2



3



4



5

Figure 1. Aedeagophore of *Cymbiodyta marginella* (scale bar: 0.4 mm).

Figure 2. Aedeagophore of *Chasmogenus orbus* (scale bar: 0.7 mm).

Figure 3. Aedeagophore of *Enochrus coarctatus* (scale bar: 0.6 mm).

Figure 4. Preocular spots of *Enochrus coarctatus*.

Figure 5. Last abdominal sternite of *Enochrus coarctatus* (seen from ventral side).

Many different habitats have been reported for *Cymbiodyta marginella* (see Smetana, 1974 p: 73). All specimens collected for the present study came from standing water at sea level. One specimen was found in lake vegetation (Simenit Lake). Others (4 specimens) were collected from stagnant, temporary pools (under decomposing matter).

According to Hebauer, there is a little known about the living conditions and habitat preferences of *Chasmogenus* species. They are collected from stagnant water (ponds) that contains decaying plants. For example, Watanabe collected specimens (*Ch. orbus*) in a rice field (Watanabe 1987, Hebauer 1992). Our specimen was collected from a lake that contained decaying plants

(*Thypa* sp., Thyphaceae). The present ecological findings and morphological characters are in accordance with those previously reported.

Enochrus coarctatus occurs at the edges of lentic freshwater, often in somewhat eutrophic, well vegetated, and neutral to somewhat acid waters that are often present in woodlands (*Alnus glutinosa* (L.) Gaertner, Betulaceae). We collected 3 male and 3 female *E.*

coarctatus specimens from the edges of lentic freshwater in a woodland.

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