

THE GENUS *ENOCHRUS* THOMSON (COLEOPTERA: HYDROPHILIDAE) FROM TURKEY, CHECKLIST AND NEW RECORDS

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Abstract — A review of the *Enochrus* species recorded from Turkey is provided. Twelve species of the genus recorded by previous authors are summarized, *Enochrus halophilus* (Bedel) and *Enochrus politus* (Kuster) are recorded for the first time to the Turkish fauna and additional some records are provided from the country. Diagnostic characters of some species as well as the photographs of their aedeagophores are provided. Several species known previously from only a few localities in Turkey have been shown to have much wider distributions in the country.

Key words: *Enochrus*, Hydrophilidae, Coleoptera, checklist, new records, Turkey

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INTRODUCTION

The aquatic Coleoptera of the genus *Enochrus* Thomson are among the commonest species of the European hydrophilids that they have rather many species, of which some usually occur in high numbers on the suitable localities. Their taxonomy is still poorly known, and in consequence many species are confused and many old records are based on misidentification, especially in ecological studies conducted by nonspecialists. As a result of this, the distribution, biology as well as ecological characteristics are only vaguely known even for the common species. Inadequate identification of the species also makes comparison between works of different authors virtually impossible (Ribera et al., 1997).

The Turkish fauna has not been investigated completely until now. Up to date, 12 species of the *Enochrus* belonging to the family Hydrophilidae have been recorded from Turkey (Chiesa, 1964; Özesmi and Önder, 1988; Ribera et al., 1997; Schödl, 1997, 1998; Hebauer, 2004; Hebauer and Ryndevich, 2005; İncekara et al., 2005; Darılmaz and Kiyak, 2006; Kiyak et al., 2006; Mart et al., 2009).

The aim of this paper is to summarize all known

data on the *Enochrus* species from Turkey, and add some new data from Turkey.

MATERIALS AND METHODS

Samples were collected from the edge of various water bodies with a sieve, a ladle and a net having meshes size of 1 mm. The beetles were killed with 70% alcohol, and in the laboratory were cleaned off from clayey and muddy substances with a small paintbrush. The aedeagophore was dissected under a stereomicroscope.

The newly recorded species was described and photographs of important aedeagus showing diagnostic taxonomic characters were taken. The classification reported by Hansen (2004) is followed in this paper.

The following codens are used for the collections where material is located: ZMGU Zoological Museum of Gazi University, Ankara, Turkey; NMPC Národní Museum, Praha, Czech Republic

RESULTS

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

Synonyms: *Hydrophilus melanocephalus* Olivier,

1792; *Hydrophilus bicolor* Gyllenhal, 1808; *Hydrobius atricapillus* Stephens, 1829; *Hydrophilus melanocephalus* var. *striatus* Cristofori & Jan, 1832; *Enochrus bicolor* var. *italus* Kuwert, 1890

Records in Turkey: Aksaray, Erzincan (İncekara et al., 2005; Darılmaz and Kiyak, 2006).

Range: A western Palaearctic species, ranging from North Africa and Spain across Europe including Scandinavia to Turkey and Israel (Hansen 2004).

2. *Enochrus (Lumetus) ater* (Kuwert, 1888)

Synonym: *Philydrus ater* Kuwert, 1888

Records in Turkey: Antalya (Hebauer and Ryndevich, 2005).

Range: An eastern European and Central Asian species, ranging from Italy and central Europe across Near East to Kazakhstan and Turkmenistan (Hansen, 2004).

3. *Enochrus (L.) bicolor* (Fabricius, 1792)

Synonyms: *Dytiscus chrysomelinus* Fabricius, 1787; *Hydrophilus bicolor* Fabricius, 1792; *Hydrophilus fulvus* Marsham, 1802; *Hydrophilus torquatus* Marsham, 1802; *Hydrophilus grisescens* Gyllenhal, 1827; *Hydrobius grisescens* Dejean, 1833; *Hydrobius ferrugineus* Küster, 1849; *Philhydrus maritimus* Thomson, 1853; *Philydrus grisescens* var. *labiatus* Rey, 1885; *Philydrus ferrugineus* var. *rubicundus* Kuwert, 1888; *Philydrus sternospina* Kuwert, 1888; *Philydrus atricornis* Kuwert, 1888; *Philydrus unguidebilis* Kuwert, 1888; *Philydrus sahlbergi* Kuwert, 1888; *Philydrus flavus* Kuwert, 1890; *Philhydrus levanderi* J. Sahlberg, 1892; *Philhydrus mediterraneus* J. Sahlberg, 1900; *Enochrus yukinoae* Matsui, 1994.

Additional material examined: Turkey, Edirne env. (drain in flooded meadow), 16.vi.2001, Fikáček & Hájek lgt., 1 male, 2 spec., det. M. Fikáček & S. Schödl (coll. NMPC).

Records in Turkey: Aksaray, Ankara, Antalya, Denizli, Erzincan, Kars, Kırşehir, Van, İçel (Schödl, 1998; Darılmaz and Kiyak, 2006; Kiyak et al., 2006).

Range: A Palaearctic species distributed from Europe across Central Asia to Russian Far East (Schödl, 1998; Hansen, 2004; Hebauer & Ryndevich 2005).

Remarks: First record of European part of Turkey.

4. *Enochrus (L.) fuscipennis* (Thomson, 1884)

Synonyms: *Philydrus nigricans* Schwarz, 1872; *Philydrus marginatus* Sahlberg, 1875; *Philydrus fuscipennis* Thomson, 1884; *Philydrus sahlbergi* Fauvel, 1887; *Philydrus berlinensis* Kuwert, 1888; *Philydrus caspius* Kuwert, 1888; *Philydrus melanocephalus* var. *fasciatus* Kuwert, 1888; *Philydrus nigricans* var. *similis* Kuwert, 1888.

Records in Turkey: Aksaray, Artvin, Denizli, Erzincan, Erzurum, Rize (İncekara et al., 2005; Darılmaz and Kiyak, 2006; Kiyak et al., 2006).

Range: A western Palaearctic species ranging from Europe to the Near East and Central Asia (Hansen, 2004).

5. *Enochrus (L.) halophilus* (Bedel, 1878)

Synonyms: *Philydrus halophilus* Bedel, 1878; *Philydrus salinus* Kuwert, 1888; *Philydrus brevipalpis* Sharp, 1914

Diagnosis: Body length 4.5 - 5.5 mm. Head paler, frons rather pale; labrum pale, in male often darkened in medially. Pronotum, however, not black in middle with a large brownish rather vaguely demarcated spot. Maxillary palpi uniformly reddish yellow and apex of terminal segment indistinct brown. Ventral surface yellowish to brown. Very similar to *E. fuscipennis* and *E. quadripunctatus*. One constant feature that can also be used in the identification is the coloration of the pronotum, without a defined dark spot in middle, unlike *E. fuscipennis* and *E. quadripunctatus*. Aedeagus is on Fig. 1.

Material examined: Turkey, West Anatolia, Afyon Province, Çay District (Pazarağaç Village-Marsh), 38°36'N 30°51'E, 996 m, 17.VI.2009, 35 ex., Darılmaz leg. and det. (Coll. ZMGU).

Range: The distribution area of this species includes most of northern and central Europe and Cyprus

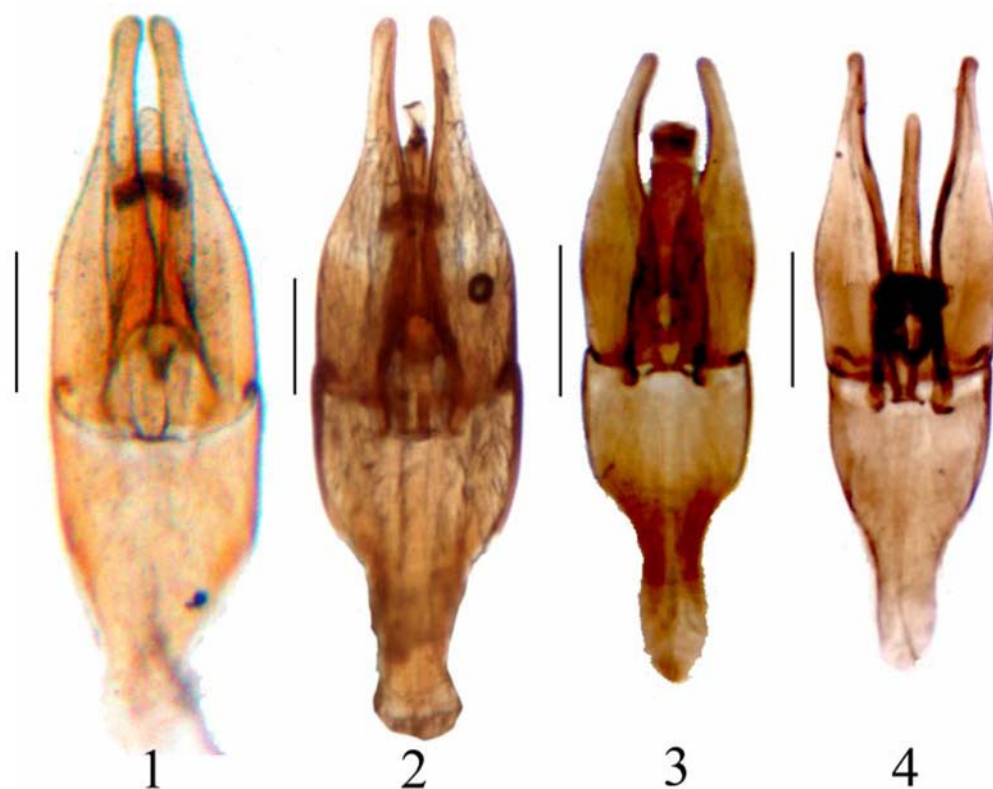


Fig. 1-4. Aedeagophore. (1) *E. halophilus*; (2) *E. politus*, (3) *E. coarctatus*, (4) *E. nigrinus*. Scale bar = 100 μ m.

(Hansen, 2004).

Remarks: *E. halophilus* is here recorded from Turkey for the first time.

6. *Enochrus* (*L.*) *ochropterus* (Marshall, 1802)

Synonyms: *Hydrophilus ochropterus* Marshall, 1802; *Hydrobius frontalis* Erichson, 1837; *Hydrophilus nigricans* Zetterstedt, 1838

Records in Turkey: Bolu (Abant) (Chiesa, 1964).

Range: A Palearctic species ranging from Europe to eastern Siberia (Hansen, 2004).

Remarks: *E. ochropterus* had not been included to Turkish fauna by Hansen (2004). However it was reported from Turkey for the first time by Chiesa (1964).

7. *Enochrus* (*L.*) *politus* (Küster, 1849)

Synonyms: *Hydrobius politus* Küster, 1849; *Philhydrus*

agrigeninus Rottenberg, 1870; *Philhydrus atlanticus* C. E. Blanchard, 1853; *Philhydrus cossyrensis* Rey, 1885; *Philhydrus sahariensis* Fairmaire, 1879

Diagnosis: Body length 5.0 - 5.5 mm. Body shining black on the surface, with a broadly paler border to pronotum. Maxillary palpi testaceous and second segment indistinctly black. Ventral surface pitchy black. Aedeagus is on Fig. 2.

Additional material examined: Turkey, West Anatolia, Uşak Province, Eşme District (1. km-stream), 38°38'N 29°03'E, 554 m, 17.IX.2008, 7 ex., Darilmaz leg. and det. (Coll. ZMGU).

Range: South Mediterranean species ranging from Spain to North Africa and Syria and Israel, reaching Afghanistan (Hansen, 2004).

Remarks: *E. politus* is here recorded from Turkey for the first time.

8. *Enochrus* (*L.*) *quadripunctatus* (Herbst, 1797)

Synonyms: *Hydrophilus quadripunctatus* Herbst, 1797; *Hydrophilus minutus* Paykull, 1798; *Hydrophilus melanocephalus* Fabricius, 1801; *Hydrophilus melanocephalus* var. *dichrous* Krynicki, 1832; *Philhydrus dermestoides* Castelnau, 1840; *Philydrus rectus* J. Sahlberg, 1875; *Philhydrus melanocephalus* var. *frontalis* Dalla Torre, 1877; *Philydrus melanocephalus* var. *fulvipennis* Rey, 1885; *Philydrus ytenensis* Sharp, 1915; *Philydrus quadripunctatus* var. *marginatus* Gozis, 1916.

Additional material examined: Turkey, Edirne env. (drain in flooded meadow), 16.vi.2001, 1 male, 1 female, Fikáček & Hájek lgt., M. Fikáček det. (NMPC).

Records in Turkey: Antalya, Denizli, Isparta (Hebauer and Ryndevich, 2005).

Range: A widespread Palaearctic species, missing only in North Africa and the easternmost parts of the Palaearctic Region (Hansen, 2004).

Remarks: First record in the European part of Turkey.

9. *Enochrus* (L.) *salomonis* (J. Sahlberg, 1900)

Synonym: *Philhydrus salomonis* J. Sahlberg, 1900

Additional material examined: Turkey, Adana vill., 10 km W of Boztahta (flooded meadow with stream), 37°21'N, 35°07'E, 25.-26.vi.2001, M. Fikáček & J. Hájek lgt., 1 female, det. S. Schödl; (coll. NMPC); Adana vill., 10 km N of Adana, Karaömerli env., Seyhan Baraji (dam, littoral), 37°07'N 35°20'E, Fikáček & Hájek lgt., 1 male + 2 spec., S. Schödl det. (NMPC).

Records in Turkey: Without detailed locality (Ribera et al., 1997).

Range: Distributed from Spain and the Near East to Central Asia but absent in central Europe (Hansen, 2004).

Remarks: This species is confirmed for Turkey and the first exact locality is given.

10. *Enochrus* (L.) *segmentinotatus* (Kuwert, 1888)

Synonyms: *Philydrus segmentinotatus* Kuwert, 1888; *Philydrus apicinotus* Kuwert, 1888; *Philydrus maculiapex* Kuwert, 1888; *Philydrus vultur* Kuwert, 1888; *Philhydrus mediterraneus* var. *transcaspicus* J. Sahlberg, 1900

Records in Turkey: Adana, Ankara, Aydın, Çanakkale, Hakkari, İçel, İstanbul, İzmir, Kırşehir, Konya, Muğla (Schödl, 1998; Hebauer, 2004; Darılmaz and Kiyak, 2006).

Range: Europe: A widespread Palaearctic species (Hansen, 2004).

11. *Enochrus* (L.) *testaceus* (Fabricius, 1801)

Synonyms: *Hydrophilus testaceus* Fabricius, 1801; *Philhydrus testaceus* var. *maculicollis* Dalla Torre, 1877; *Philydrus lederi* Kuwert, 1888; *Philydrus testaceus* var. *lineatus* Kuwert, 1888.

Records in Turkey: Kayseri (Özesmi and Önder, 1988).

Range: A widespread Palaearctic species, missing only in North Africa and the easternmost parts of the Palaearctic Region (Hansen, 2004).

Remarks: *E. testaceus* is not included for Turkey in Hansen (2004). However, it was found in Turkey by Özesmi and Önder (1988).

12. *Enochrus* (*Methydrus*) *coarctatus* (Gredler, 1863)

Synonyms: *Philhydrus coarctatus* Gredler, 1863; *Philhydrus marginellus* Schwarz, 1872; *Philhydrus suturalis* Sharp, 1872; *Philhydrus coarctatus* var. *fulvipennis* Westhoff, 1881; *Philhydrus labiatus* Kuwert, 1888

Diagnosis: Body length 3.7 - 4.5 mm. Head black, pale spots in front of eyes distinct and yellow. Pronotum brownish with a dark central area. Sutural intervals dark in at least the back two-thirds. Maxillary palpi yellowish-red with terminal segment only rather feebly darkened in middle. Median lobe of aedeagus wide, paramers digitate and arched inwards (Fig. 3).

Additional material examined: Turkey, West

Anatolia, Afyon Province, Çay District, Eber Lake, 973 m. 38°36'N 31°09'E, 19.IV.2008, 21 ex., Darılmaz leg. and det. (Coll. ZMGU).

Records in Turkey: Ordu (Mart et al., 2009)

Range: A widespread Palaearctic species, common especially in central and northern Europe, reaching as far as Greece in the south and Russian Far East in the east (Hansen, 2004; Hebauer & Ryndevich, 2005).

Remarks: The first record of *E. coarctatus* from Turkey was given by Mart et al. (2009). In this study the second record is given for the country.

13. *Enochrus* (*M.*) *nigritus* (Sharp, 1872)

Synonyms: *Philhydrus nigritus* Sharp, 1872; *Enochrus isotae* Hebauer, 1981

Diagnosis: Body length 3.4 - 3.6 mm. Head black, pale spots in front of eyes pale yellow. Pronotum black, with paler margins. Sutural intervals edge of suture and sutural striae narrowly dark but intervals clear. Last segment of maxillary palpi dark at tip and darker than second segment. Aedeagus with long narrow median lobe, apex of paramers slightly sinuate (Fig. 4).

Additional material examined: Turkey, West Anatolia, Afyon Province, Çay District, Eber Lake, 973 m. 38°36'N 31°09'E, 27.VI.2007, 3 ex., Darılmaz leg. and det. (Coll. ZMGU).

Records in Turkey: İstanbul, Kırklareli (Schödl, 1997).

Range: A Palaearctic species, ranging from Great Britain, France and Spain across Iran and Turkey to western Siberia and Kazakhstan, and North Africa (Hansen, 2004).

Remarks: The first record of *E. nigritus* from Turkey was given by Schödl (2002). In this study the second record is given for Turkey. Also this species is new to the Anatolian region.

14. *Enochrus* (*M.*) *tetraspilus* (Régimbart, 1903)

Synonym: *Philhydrus tetraspilus* Régimbart, 1903

Records in Turkey: Adana, Antalya, Gaziantep (Hebauer and Ryndevich, 2005).

Range: Asia: Bhutan, Nepal, Turkey, Yemen, Afrotropical region, Oriental region (Hansen, 2004).

CONCLUSION

This publication includes records of the species *E. halophilus* and *E. politus* new to Turkey, bringing the total number of species known from Turkey to 14 species of the genus *Enochrus*. Furthermore this study includes exact locality of the species of *E. salomonis*. Two species, *E. bicolor* and *E. quadripunctatus*, known previously from only Anatolian part in Turkey have been shown to inhabit the European part of Turkey, in the Marmara region. Although the water beetle fauna of Turkey is now better known, more studies are required to better understand the overall distribution.

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