

A new species and new records of Hydrophilidae (Coleoptera) from Turkey

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Abstract: A new species belonging to the genus *Helochares* Mulsant, 1844 (Coleoptera: Hydrophilidae) is described on the basis of a single male specimen collected in Ordu province, Turkey. The species is described and an identification key to the species of the *Helochares lividus* group is provided. In addition, *Helochares pallens* MacLeay, 1825 and *Hydrobius convexus* Brullé, 1835 are recorded in Turkey for the first time.

Key words: Coleoptera, Hydrophilidae, *Helochares*, *Hydrobius*, new species, new records, Turkey, Palaearctic

Türkiye'den Hydrophilidae (Coleoptera) familyasının yeni bir türü ve yeni kayıtları

Özet: Türkiye'nin Ordu ilinden toplanan bir erkek örneğe dayanılarak *Helochares* Mulsant, 1844 (Coleoptera: Hydrophilidae) cinsine ait yeni bir tür tanımlanmıştır. Bu türün tanımlanması yapılmış ve *Helochares lividus* group türlerinin teşhis anahtarı verilmiştir. Ayrıca, *Helochares pallens* MacLeay, 1825 ve *Hydrobius convexus* Brullé, 1835 Türkiye'den ilk olarak kayıt edilmiştir.

Anahtar sözcükler: Coleoptera, Hydrophilidae, *Helochares*, *Hydrobius*, yeni tür, yeni kayıtlar, Türkiye, Paleartik

Introduction

Hydrophilidae is a large family of beetles represented in all parts of the world, consisting of 172 genera and about 2700 known species (Hansen, 1999; Short and Hebauer, 2006). Two of the 4 subfamilies of the Hydrophilidae (Hydrophilinae and Sphaeridiinae) are recorded from the Palaearctic region (Komarek, 2003). Representatives of the subfamily Hydrophilinae, comprising more than 1780 described species, are mostly aquatic. A total of 34 genera of aquatic Hydrophilidae are known from the Palaearctic

region. So far, 15 genera and 60 species of Hydrophilidae have been recorded from Turkey (Gentili, 2000; Gentili and Whitehead, 2000; İncekara et al., 2003a, 2003b, 2004, 2005a, 2005b; Mart et al., 2003, 2006, 2009; Darılmaz and Kıyak, 2006a, 2006b; Kıyak et al., 2006, Mart, 2009).

Helochares Mulsant, 1844 is a large genus including more than 150 species distributed in all zoogeographical regions. The genus is divided into 5 subgenera (*Sindolus* Sharp, 1882; *Helochares* s.str. Mulsant, 1844; *Helocharimorphus* Kuwert, 1890;

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Hydrobaticus McLeay, 1871 and *Batochaes* Hansen, 1991). All European species belong to the *Helochaes* (s.str.) *lividus* species group and are generally very uniform. The group has been revised by Hansen (1982), who recognized 3 species: *H. lividus* (Forster, 1771); *H. punctatus* Sharp, 1869; and *H. obscurus* (Müller, 1776). The fourth species, *Helochaes lividoides* Hansen & Hebauer, 1988, belonging also to the *H. lividus* species group, was described later from Israel by Hansen and Hebauer (1988). During our surveys of Turkish fauna of the Hydrophilidae, we recently found another species of the *H. lividus* species group not corresponding with any known species mentioned above. This new species is described within this paper.

Hydrobius Leach, 1815 is a small genus represented in the Palaearctic and Nearctic regions (Hansen, 1987; İncekara and Bouzid, 2007). It comprises only about 9 species in the world, 6 of which occur in the Palaearctic. So far, 2 *Hydrobius* species are known from Turkey (Hansen, 2004; Mart et al., 2006; Jia and Short, 2009).

Materials and methods

Material examined for this study was collected by means of a sieve, ladle, and net with 1 mm pores in various parts of Turkey. The beetles were killed using ethyl acetate or 70% alcohol solution. Aedeagophores were dissected under a stereomicroscope and cleared in 10% KOH solution for 1-2 h. The photographs were taken using an Olympus type BX51 compound microscope and a Nikon type SMZ 1500 stereomicroscope. All material mentioned within this study is deposited in the Zoological Museum, Atatürk University, Erzurum, Turkey.

Results

Helochaes* (s.str.) *pallens W.S. MacLeay, 1825: 35

Material examined: Adana: 2 ♀♀, 10 km N of Adana, Karaömerli env., Seyhan Barajı [dam], in the littoral, 37°07'N 35°20'E, 80 m a.s.l., 21.-22.vi.2001, M. Fikáček, J. Hájek & J. Straka lgt., det. F. Hebauer.

Published records in the Middle East: Egypt, Israel, Lebanon, Saudi Arabia, and Yemen (Hansen, 2004).

Distribution outside the Middle East: Asia: Japan, Nepal, Afrotropical region (Benin, Botswana, Chad, Congo, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Namibia, Rwanda, South Africa, Sudan, Tanzania, Zambia), Oriental region (Bangladesh, Burma, China, India, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand), Australian region (Papua New Guinea, Vanuatu) (Hansen, 1999, 2004).

Remarks: This species is recorded here for the Turkish fauna for the first time.

Helochaes* (s.str.) *lividoides Hansen & Hebauer, 1988: 27

Published records in the Middle East: Israel, Turkey (Çanakkale) (Hansen and Hebauer, 1988; Hebauer and Ryndevich, 2005).

Distribution outside the Middle East: The species does not occur outside the Middle East.

Helochaes* (s.str.) *lividus (Forster, 1771): 52

Material examined: Adana: 1 ♂, 3 ♀♀, 25 km N of Adana, Eğlence env., flooded drain with submerged grasses, 37°17'N 35°13'E, 150 m a.s.l., 22.vi.2001, M. Fikáček, J. Hájek & J. Straka lgt., det. M. Fikáček. **Edirne:** 1 ♂, 4 ♀♀, Edirne env., flooded meadow with drain, 41°37'N 26°37'E, 225 m a.s.l., 16.vi.2001, M. Fikáček, J. Hájek & J. Straka lgt., det. M. Fikáček. **Ordu:** 1♂, Lake Kilise, Fatsa, 40°58'N 37°30'E, 63 m a.s.l., 27.v.2007, A. Mart, H. Karaca lgt.; 1♂ 1♀, Lake Kilise, Fatsa, 40°58'N 37°30'E, 25.vi.2007, A. Mart, H. Karaca lgt.; 2♂♂ 2♀♀, Asarkaya village, Ünye, 40°04'N 37°19'E, 24 m a.s.l., 30.viii.2007, A. Mart, H. Karaca lgt.; 1♂, Kayatepe village, Çatalpınar, 40°53'N 37°27'E, 920 m a.s.l., 27.v.2007, A. Mart, H. Karaca lgt., det. A. Mart. **Trabzon:** 1♂, İyisu village, Araklı, 40°47'N 39°59'E, 184 m, 22.v.2007, A. Mart, H. Karaca lgt., det. A. Mart.

Published records in the Middle East: Syria, Turkey (Aksaray, Bingöl, Erzurum) (Hansen 1982, 2004; Darılmaz and Kiyak, 2006a).

Distribution outside the Middle East: Europe: Austria, Bosnia Herzegovina, Bulgaria, Czech Republic, France, Great Britain, Germany, Greece, Hungary, Italy, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Switzerland. Asia: Algeria, Morocco, Tunisia (Hansen, 1999, 2004).

Helochares (s.str.) obscurus O.F. Müller, 1776: 69

Material Examined: **Adana:** 1 ♂, 1 ♀, 10 km N of Adana, Karaömerli env., Seyhan Barajı [dam], in the littoral, 37°07'N 35°20'E, 80 m a.s.l., 21.-22.vi.2001, M. Fikáček, J. Hájek & J. Straka lgt., det. M. Fikáček. **Bayburt:** 2 ♂♂, Oruçbeyli village, 40°13'N 40°02'E, 1651 m a.s.l., 20.x.2007, A. Mart, H. Karaca lgt., det. A. Mart. **Giresun:** 1 ♂ 3 ♀♀, Ekecek village, Şebinkarahisar, 40°17'N 38°22'E, 1362 m a.s.l., 28.viii.2007, A. Mart, Ü. İncekara lgt., det. A. Mart. **Ordu:** 8 ♂♂ 6 ♀♀, Lake Ulugöl, Mesudiye, 40°23'N 37°50'E, 1608 m a.s.l., 25.v.2007, A. Mart, Ü. İncekara lgt.; 2 ♂♂ 1 ♀, Kumru, 40°43'N 37°11'E, 1243 m a.s.l., 27.V.2007, A. Mart, H. Karaca lgt.; 16 ♂♂ 14 ♀♀, Güneyce village, Mesudiye, 40°24'N 37°47'E, 1574 m a.s.l., 24.vi.2007, A. Mart, H. Karaca lgt.; 1 ♂ 2 ♀♀, Beyağaç village, Mesudiye, 40°34'N 37°50'E, 1692 m a.s.l., 24.vi.2007, A. Mart, H. Karaca lgt., det. A. Mart.

Published records in the Middle East: Azerbaijan, Georgia, Israel, Turkey (Bingöl, Erzincan) (Hansen, 1982, 1987, 2004; İncekara, 2004; Mart, 2005).

Distribution outside the Middle East: Europe: Austria, Belarus, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Germany, Greece, Hungary, Italy, Latvia, Lithuania, the Netherlands, Norway, Russia Poland, Sweden, Switzerland, Ukraine. Asia: Kazakhstan (Hansen, 1982, 1999, 2004).

***Helochares obliquus* sp.n.**

Type locality: Turkey, Ordu province, Mesudiye, Lake Ulugöl, 40°24'N 37°49'E, 1605 m a.s.l.

Type material: Holotype 1 ♂: TURKEY, Ordu province, Mesudiye, Lake Ulugöl, 40°24'N 37°49'E, 1605 m a.s.l., 30.viii.2007, A. Mart, H. Karaca lgt.

Description

Length 5.0 mm, width 2.5 mm. Body elongate oval, moderately convex, pronotum narrowed posteriorly. Dorsal surface reddish brown. Head darker posteriorly, with well defined paler preocular spots (Figure 1). Labrum reddish yellow with posterior 2/3 darker. Antenna reddish yellow with brownish club. Maxillary palpi reddish yellow with distal 1/6 of apical segment slightly infuscate. Elytra with incomplete longitudinal rows of dark spots which can be very



Figure 1. Colouration of the head of *Helochares obliquus* sp.n.

distinct in some areas. Dorsal surface shining, elytra very finely and densely punctured, distance between punctures not larger than diameter of punctures. Head and pronotum with slightly denser punctation than elytra. The elytral punctures are distinctly coarser than *H. lividus* and slightly slender than *H. obscurus*. Antennomere 9 about 2× as long as wide. Underside black, pubescent. Legs reddish yellow with pubescent portion of femora black. Femora pubescent ventrally, except on distal 1/7. Apical margin of abdominal ventrite 5 with a small semicircular emargination bordered with fringe of short, stiff setae.

Aedeagus (Figures 2 and 3) with inner face of parameres rounded apically, not angular, not bearing



Figure 2. Aedeagophore of *H. obliquus* sp.n. (Scale: 0.5 mm).



Figure 3. Extended aedeagophore (apical portion) of *H. obliquus* sp.n. (Scale: 0.2 mm).

tooth-like projections. External face of parameres swollen outwards, evenly rounded subapically. Membraneous inner sac on each side with several small dentiform bulges (Figure 3).

Differential diagnosis: Closely resembling *H. obscurus* in almost all external characters, and differing by slightly slender elytral punctation and aedeagal characters with external face of parameres more swollen outwards.

Etymology: This species is named after the shape of the parameres.

Biology: The holotype was collected on the edge of Lake Ulugöl, which is overgrown by marsh grasses. The area is located near to temporary human settlements inhabited seasonally as a summer resort.

Key to *Helochares lividus* species group

- 1- Length 4.5-6.00 mm (*lividus*-group).....2
- Length 2.5-3.5 mm.....6
- 2- Elytra moderately strongly and very densely punctuate, almost without recognizable longitudinal rows of coarser punctures. Aedeagus as in Figure 4..... *H. obscurus*
- Elytra more finely punctuate, with 2-3 distinct longitudinal rows of coarser setiferous punctures.....3
- 3- Labrum almost entirely dark. Elytral punctation moderately fine, rather dense;



Figure 4. Aedeagophore of *H. obscurus*.

distance between punctures not larger than diameter of punctures; each elytron with 2-3 well-recognizable longitudinal rows of setiferous punctures, but these punctures are only slightly larger than surrounding punctures. Aedeagus as in Figure 5.....*H. punctatus*



Figure 5. Aedeagophore of *H. punctatus*.

- Labrum reddish yellow, at most darker posteriorly. Elytral punctation finer and a little less dense; distance between punctures generally larger than diameter of punctures; each elytron with very conspicuous 2-3 longitudinal rows of setiferous punctures, punctures generally markedly larger than surrounding punctures.....4

- 4- Elytral punctation slightly coarser; distance between punctures only somewhat larger than diameter of punctures ventral (inner) margin of apical portion of parameres almost straight (Figure 6).....*H. lividooides*

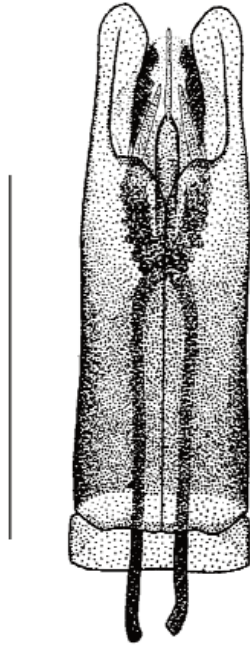


Figure 6. Aedeagophore of *H. lividooides*.

- Elytral punctation very fine; distance between punctures much larger than diameter of punctures.....5
- 5- Outer margin of apical portion of parameres straight (Figure 7).....*H. lividus*
- Outer margin of apical portion of parameres more swollen outwards (Figures 1 and 2)*H. obliquus* sp. n.
- 6- Dorsal surface, including head, yellow. Mentum coarsely punctate. Metasternum totally pubescent.....*H. pallens*
- Dorsal surface yellow, head black with well defined yellow preocular spots. Mentum smooth, impunctate. Metasternum with a smooth glabrous area anterior to metacoxae.....*H. minutissimus*



Figure 7. Aedeagophore of *H. lividus*. (Figures 4-7 from Hansen 1982 and Hansen & Hebauer 1988. Scale: 0.6 mm).

***Hydrobius convexus* Brullé, 1835: 282**

Material Examined: Ordu: 1 ♂, Kabadüz, 40°38'N 37°56'E, 1729 m, 12.vii.2008, A. Mart, H. Karaca lgt., det. A. Mart

Distribution outside the Middle East: Algeria France, Italy, Portugal, and Spain (Hansen, 1991, 1999, 2004; İncekara and Bouzid, 2007).

Remarks: This species is recorded for the first time from the Middle East.

Discussion

The external differences between the European species of the *H. lividus* species-group are very small. Particularly, *H. lividus* and *H. lividooides* are really very similar to each other externally, as is *Helochares obliquus*. The new species can be, however, very easily distinguished from these species as well as from all other species of the *Helochares lividus* group by the shape of the male genitalia (especially by the lateral swelling of the parameres).



Figure 8. Aedeagophore of *Hydrobius convexus* (Scale: 0.7 mm).

Hydrobius convexus is difficult to distinguish from *Limnoxenus niger* by general appearance, but can be easily distinguished by the shape of the mesosternal keel, mesosternal process (at least in the lateral view), and the recessions on the parameres of aedeagophore (Figure 8). To date, 3 *Helochares* species (*H. obscurus*, *H. lividus*, and *H. lividoides*) and 2 *Hydrobius* species (Hansen, 2004; Mart et al., 2006) are known from Turkey (Hansen, 2004; Hebauer and Ryndevich, 2005). This study adds 2 new records (*Hydrobius convexus* Brullé, 1835 and *Helochares* (s.str.) *pallens* W.S. MacLeay, 1825) for the Turkish fauna and 1 species new to science.

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