Baltic J. Coleopterol. 8(2) 2008
ISSN 1407 - 8619

An Annotated checklist and key to the Turkish Elongated Water Scavenger Beetles (Coleoptera: Hydrochidae)

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Darılmaz M.C., Kıyak S. 2008. An Annotated checklist and key to the Turkish Elongated Water Scavenger Beetles (Coleoptera: Hydrochidae). *Baltic J. Coleopterol., 8(2): 149 – 154.*

An annotated checklist of the genera of Hydrochidae known from Turkey is presented, with some materials and selected references. *Hydrochus elongatus* (SCHALLER), is recorded for the first time to the Turkish fauna; and proposes *Hydrochus flavipennis* KUSTER as new in West Anatolia. For each taxon, the paper also includes zoogeographical remarks and chorotype information. A key to the species of the genus from Turkey is presented.

Key words: Hydrochidae, *Hydrochus*, new record, Turkey, Zoogeography.

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INTRODUCTION

According to HANSEN (1991) the family Hydrochidae is a monophyletic and monogeneric taxon well differentiated from all the other lines within the Hydrophiloidea, and only includes the genus *Hydrochus* Leach, 1817 holding ca. 180 species all over the world. 28 species inhabit the territory of Palearctic, four recorded species out of them were from Turkey (Berge Henegouwen 1988; Hansen 1991, 2004; İncekara et al. 2004; Makhan 2005; Jäch & Balke 2008).

Unfortunately, taxonomic research in this family has been badly corrupted by a single unqualified author, and it is therefore most difficult to keep track with the number of ill-defined new taxa and resulting synonymies being published each year, a thorough revision is dearly needed. In the family Hydrochidae, Makhan described more than 100 species, most of which are synonyms (Jäch 2006, Jäch & Balke 2008).

The characteristic features of it are body more or less elongate, often rather narrow, seldom broader, its outline markedly interrupted between pronotum and elytra; pronotum widest in front of middle, distinctly narrowed behind, without anterior shelflike projection concealing head, the latter not strongly deflexed Hansen (1991).

The Turkish fauna has not been investigated completely until now. Four species have been reported from Turkey. This study based, besides on recent catalogues, on new collections made by M. DARILMAZ, adds a new record, *Hydrochus elongatus*, to the Turkish fauna; and proposes *Hydrochus flavipennis* as new in West Anatolia.

MATERIAL AND METHODS

Samples were collected from the edge of various water bodies: brooks of cool running water, rivers, fountains, 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 material is deposited in Gazi University (Ankara).

Information in our text is given in the following order: Data, i.e. the present name of the taxon, and the literature about its presence in Anatolia; Synonyms, as possible as the whole synonyms proposed; Material examined: only the new records for Turkey; Records in Turkey, given by various authors in the preceding literature, evaluated as only concerning provinces in related references; Range: the whole distribution area in the world; Remarks: specific characters of the studied taxon; Chorotype, based on the chorotype classification of Anatolian fauna, recently proposed by Vigna Taglianti et al. (1999); Photos as in the Figs 1-2 were captured by using a Leica type MZ-16 stereomicroscope; Map is given in Fig 3; for each taxon, a map showing distribution patterns in Turkey is produced.

TAXONOMY

Genus *Hydrochus* Leach, 1817
Type species *Silpha elongata* Schaller, 1783

Synonyms: *Amrishius* Makhan, 1998; *Deepakius* Makhan, 1998; *Kiransus* Makhan, 1994; *Rishwanius* Makhan, 1998

1. *Hydrochus brevis* (Herbst, 1793)

Records in Turkey (Fig. 3): Artvin, Erzurum (Incekara et al. 2004).

Range: Europe: Austria, Belgium, Byelorussia, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Germany, Hungary, Italy, Latvia, Lithuania, The Netherlands, Norway, Poland, Russia (Central European Territory, North European Territory), Slovakia, Sweden, Switzerland, Ukraine. **Asia:** Russia (East Siberia) (Hansen 2004).

Remarks: This species is recorded first time by Incekara et al. (2004) to Turkish fauna. Probably it rather widely distributed in Turkey.

Chorotype: This species has the Sibero-European chorotype.

2. *Hydrochus elongatus* (Schaller, 1783)

Synonms: *cicindeloides* Marsham, 1802; *crenulatus* Motschulsky, 1860; *elongatus* Fabricius, 1792; *sibiricus* Motschulsky, 1860

Material examined (Fig. 3): Turkey, West Anatolia, Afyon Province, Ihsaniye District, Emre Lake, 1154 m. 39°06'N 30°26'E, 19.VI.2007, 5 ex.; Cay District, Eber Lake, 973 m. 38°36'N 31°09'E, 27.VI.2007, 6 ex.

Range: Europe: Austria, Belgium, Byelorussia, Czech Republic, Denmark, France, Great Britain, Germany, Hungary, Italy, Latvia, Poland, Russia (Central European Territory), Slovakia, Sweden, Switzerland. **Asia:** Kazakhstan, Russia (East Siberia, West Siberia) (Hansen 2004).

Remarks: Body length 3.50 mm - 4.06 mm. Breadth 1.25 mm -1.43 mm. Aedeagophore: Fig. 2. New to Turkey.

Chorotype: This species has the Sibero-European chorotype.

3. *Hydrochus flavipennis* Kuster, 1852

Synonms: *filiformis* Kuwert, 1887; *foveostriatus* Fairmaire, 1859; *fuscipennis* Kuwert, 1887;

obtusicollis Fairmaire, 1877; *testaceipennis* Kuwert, 1887

Material examined (Fig 3): Turkey, West Anatolia, Kütahya Province, Simav District, Yayla Lake, 1309 m. 39°09'N 29°05'E, 22.V.2007, 25 ex.; Same locality, 12.VII.2007, 14 ex.; Same locality, 17.VIII.2007, 4 ex.; Afyon Province, Cay District, Eber Lake, 973 m. 38°36'N 31°09'E, 27.VI.2007**,** 2 ex.

Records in Turkey (Fig 3): Bingöl, Erzurum (Makhan 2005)

Range: Europe: Croatia, Ukraine. **Asia:** Azerbaijan, Israel "Caucasus" "Southeastern Europe" (Hebauer 1994, Hansen 2004).

Remarks: Body length 2.87 mm – 3.37 mm. Breadth 0.93 mm -1.12 mm. Aedeagophore: Fig. 2. This species is recorded first time by Makhan (2005) to Turkish fauna. Thus it is recorded new to the West Anatolian in Turkey with this study.

Chorotype: This species has the Palaestino-Turanian chorotype.

4. *Hydrochus ignicollis* Motschulsky, 1860

Records in Turkey (Fig. 3): Artvin (Incekara et al. 2004)

Range: Europe: Austria, Belgium, Byelorussia, Denmark, Estonia, Finland, Great Britain, Germany, Hungary, Ireland, Latvia, Lithuania, Norway, Poland, Russia (Central European Territory, North European Territory), Sweden, "Czechoslovakia" (Hansen 2004).

Remarks: This species is recorded first time by Incekara et al. (2004) to Turkish fauna. Probably it rather widely distributed in Turkey.

Chorotype: This species has the Centraleuropean chorotype.

5. *Hydrochus megaphallus* Berge Henegouwen, 1988

Records in Turkey (Fig 2): Istanbul (Berge Henegouwen 1988).

Range: Europe: Austria, Belgium, Byelorussia, Czech Republic, Denmark, Estonia, Finland, Great Britain, Germany, Hungary, The Netherlands, Norway, Poland, Romania, Sweden, Turkey (Hansen 2004).

Remarks: This species is recorded only one time recorded by Berge Henegouwen (1988) to Turkish fauna. Probably it distributed in Northwest Turkey.

Chorotype: This species has the Centraleuropean chorotype.

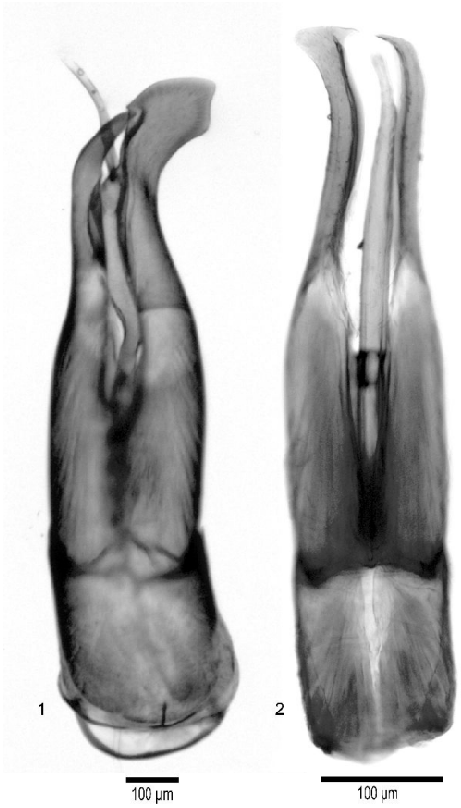

Fig. 1-2. Aedeagophore. **(1)**, *H. elongatus*; **(2)**, *H. flavipennis*.

Key to the species of *Hydrochus* included in this paper

The relevant parts of the key to species presented in Angus (1976), Hansen (1987) Hebauer and Klausnitzer (1998) modified to include the Turkish species and given below.

1. The ridges and striae run to elytral apices without any subapical interruption ……
……..……
2

-. The ridges and striae are interrupted subapically by a transverse ridge, beyond which lie enlarged apical punctures ……..…….....……...**3**

2. Pronotum wider than long, the widest at its anterior margin. Lengths 2.8-3.7 mm. ….....***brevis***

-. Pronotum as long as wide, the widest before the middle. Lengths 3.0-3.8 mm. …***megaphallus***

3. Interstices 2, 4, 6 and 8 not raised in ridges, but if there is some weak elevation of some interstices then interstice 3 just before its base stands higher than 2 or 4. Lengths 2.6-3.7 mm. ……***flavipennis***

-. Interstices 2, 4, 6 and 8 of elytra raised in ridges and interstice 3 just before its base less elevated than 3 and 4. ……..……**4**

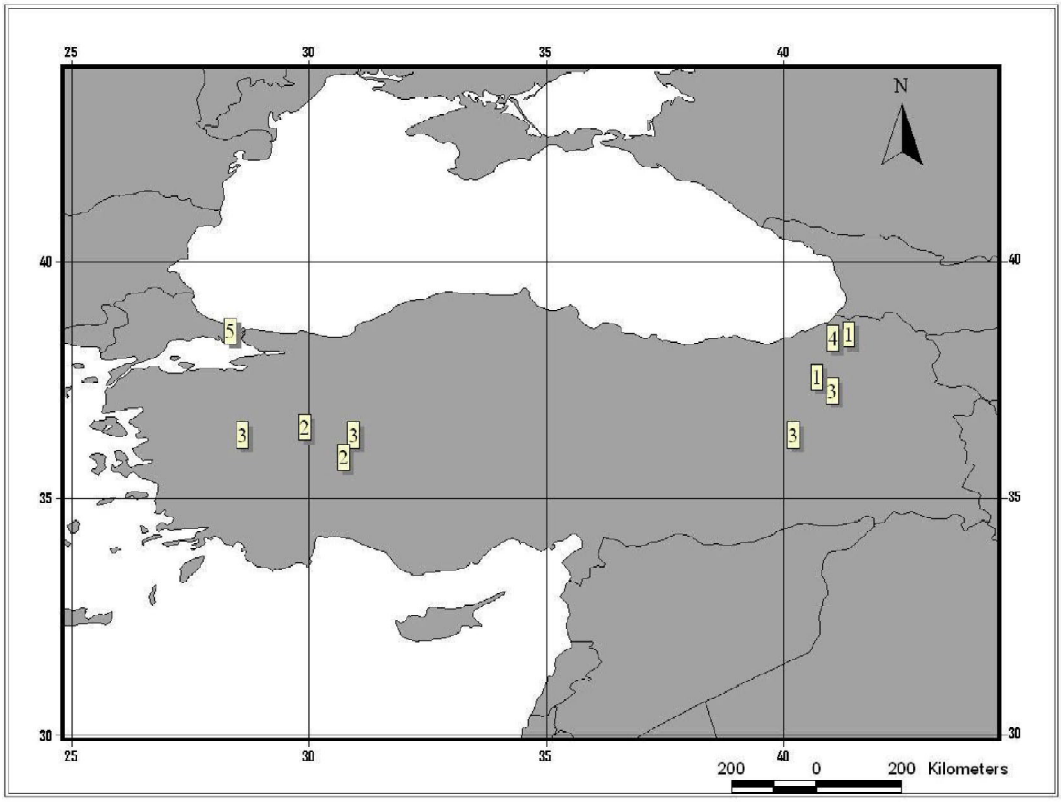

Figure 3 Distribution map of *Hydrochus* in Turkey. (1) *H. brevis*; (2**)** *H. elongatus*; (3) *H. flavipennis*; (4)*H. ignicollis*; (5) *H. megaphallus*.

4. Elytra about twice as long as wide, subparallel in anterior 2/3; apical transverse ridge of elytra normally larger. Lengths 3.3-4.7 mm. ..... …..... ***elongatus***

-. Elytra about 3/4 longer than wide, front humeral angles distinctly widening posteriorly; apical transverse ridge of elytra normally smaller. Lengths 3.6-4.0 mm. …….....… ***ignicollis***

DISCUSSION

The family Hydrochidae in Turkey includes five species. Species numbers, even if accurately estimated, are determined by many factors besides area, including latitude, climate, topography (resulting in habitat diversity), aquatic habitats and geological and biological history of the area (including the impact of Pleistocene glaciations and the degree and duration of isolation from other areas). Within the Palearctic Region, the Mediterranean countries and Anatolia are to be regarded as biodiversity hotspots, at least for certain families (Jäch & Balke 2008).

The tremendous topographic, climatic and aquatic habitat diversity of Turkey could certainly support wide species diversity. Also Turkish hydrochids fauna has not been investigated completely until now.

In Turkey, a large country with distinctly different geographical regions and different climates, the number of *Hydrochus* species must be expected to be much higher than recorded so far. New intensive studies of these insects are suggested.

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Received: 07.04.2008..
Accepted: 01.12.2008.