

Check list of the Hydrophilidae (Coleoptera) Species of Turkey and a New Record for the Turkish Fauna

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Abstract: A check list of Hydrophilidae species known in Turkey is presented for the first time. In addition, their distributions in Turkey are given. Fifty-four species are determined. Of these, *Hydrophilus atterimus* Eschscholtz, 1822, a new record for the Turkish fauna, is reviewed and compared with *H. piceus* (Linnaeus, 1758).

Key Words: Coleoptera, Hydrophilidae, Systematics, New record, Turkey.

Türkiye Hydrophilidae (Coleoptera) Türlerinin Listesi ve Türkiye Faunası İçin Bir Yeni Kayıt

Özet: Türkiye'den bilinen Hydrophilidae türlerinin listesi, ilk defa ve Türkiye'deki dağılımlarıyla birlikte verilmiştir. Toplam ellidört tür tespit edilmiştir. Türkiye faunası için yeni kayıt olan *Hydrophilus atterimus* Eschscholtz, 1822'un kısa tanımı verilmiş ve *H. piceus* (Linnaeus, 1758) ile karşılaştırılmıştır.

Anahtar Sözcükler: Coleoptera, Hydrophilidae, Sistematik, Yeni kayıt, Türkiye.

Introduction

The Hydrophilidae is a large family, represented in all parts of the world and consisting of numerous genera and about 2200 known species (1).

Generally, the aquatic Hydrophilids live in shallow or very shallow water. Apart from a few forms (e.g. *Hydrophilus*, *Berosus*) they are rather poor swimmers, and more adapted to climbing among vegetation. Most species of Hydrophilidae are active swimmers. The species belonging the genus *Sphaeridium* Fabricius, 1781, are strictly terrestrial (1-4).

Moving from the temperate zones towards the warmer climates many genera show a pronounced increase in the number of species and the Hydrophilids form a group where a large number of species are yet to be described (2).

Fifty-four species and three subspecies have been recorded belonging to Hydrophilidae known in Turkey (1-31). This study adds one new record.

Materials and Methods

The samples were collected by means of a sieve, ladle and net with 1 mm pores from shallow areas of various springs, streams and ponds in May 1999-October 2002. The beetles were killed by ethyl acetate or in 70% alcohol solution. Aedeagophores were dissected out under the stereomicroscope and exposed in 10% KOH solution for nearly 1-2 h. The figures of aedeagophores were drawn using a Nikon type 104 microscope.

Fifty-four species were determined belonging to eight tribes. The tribes are listed according to phylogenetic order. Subtribes are listed under the relevant tribe. Species are listed alphabetically by their valid name under each genus (in some cases subgenus).

Systematics

Family Hydrophilidae

Body in general oblong-oval to broadly oval, its outline not or only weakly interrupted between pronotum and elytra (except Horelophinae) (2). Ocelli absent.

Scutellum distinct. Abdomen with visible sternites, seldom with 6th retractable sternite visible, in a few exotic genera the number of visible abdominal sternites is reduced to 4. Antennae 7 to 9 segmented with a pubescent 3 segmented club. Tarsi 5 segmented, only very seldom 4 segmented (*Cymbiodyta* and *Berosus*), claw segment almost always much shorter than preceding segments. Hind wing venation of the cantharoid type. Aedeagus of the trilobed type (1).

List of Hydrophilidae Species Known From Turkey

Fifty-four species belonging to eight tribes were determined. Of these, 22 belong to the tribus Laccobiini Bertrand, 1967; 11 to Berosini Mulsant, 1844; three to Anacaenini Hansen, 1991; one to Chaetarhriini Bedel, 1881; one to Coleostomatini Hansen, 1191; three to Megasternini Hansen, 1991; one to Sphaeridiini Latreille, 1802; and 12 to Hydrophilini Latreille, 1802.

Tribus: Laccobiini Bertrand, 1967

1. *Laccobius (Composolaccobius) decorus* (Gyllenhal, 1827)

Distribution: without detailed locality (5).

2. *L. (s. str.) albipes* Kuwert, 1890

Distribution: Ankara, Balıkesir, Erzurum (3,6-13).

3. *L. (s. str.) minutus* (Linnaeus, 1758)

Distribution: Kars (3,10-12,14).

Material examined: Grassy pond, 27.IX.2001, 2 ♂♂, 1 ♀, Çat, Erzurum; 13.VII.2000, 1 ♂, 2 ♀♀, Ispir, Erzurum; 14.VIII.2000, 3 ♂♂, 2 ♀♀, Rize.

4. *L. (Microlaccobius) alternus* Motschulsky, 1855

Distribution: without detailed locality (5,15).

5. *L. (M.) exilis* Gentili, 1974

Distribution: Antalya, Denizli, Mardin, Mersin, Niğde (3,10,16).

6. *L. (M.) gracilis* Motschulsky, 1855

Distribution: Adana, Adıyaman, Antalya, Aydın, Balıkesir, Bingöl, Bitlis, Bolu, Bursa, Burdur, Çanakkale, Çorum, Denizli, Edirne, Erzincan, Erzurum, Gaziantep, Giresun, Hakkari, Hatay (Antakya), Isparta, İstanbul, İzmir, Kars, Kastamonu, Kayseri, Manisa, Mardin, Mersin, Muğla, Muş, Niğde, Ordu, Rize, Sinop, Sivas, Trabzon, Van (3,6,11,12,15,16-21).

7. *L. (M.) orientalis* Knisch, 1924 (possibly *exilis*)

Distribution: without detailed locality (5).

8. *L. (M.) quaesitus* Gentili, 1988

Distribution: Adana (11,16).

9. *L. (Dimorpholaccobius) bipunctatus* (Fabricius, 1775)

Distribution: Afyon, Bolu, Kastamonu (1,3,11-14,16,18,20).

10. *L. (D.) chiesai* Gentili, 1974

Distribution: Ankara (3,11,16).

11. *L. (D.) halophilus* Gentili, 1982

Distribution: Antalya, Diyarbakır, Erzurum, Mersin, Muğla (3,10,11).

12. *L. (D.) hauserianus* Kniz, 1914

Distribution: Mersin (3,10,11).

13. *L. (D.) hindukuschi* Chiesa, 1966

Distribution: Adıyaman, Ankara, Antakya, Antalya, Bingöl, Denizli, Erzurum, Gümüşhane, Kastamonu, Kilis, Mardin, Niğde, Tunceli (3,10,11,14,16).

14. *L. (D. s) lycius* Gentili & Whitehead, 2000

Distribution: Muğla (Fethiye) (11).

15. *L. (D.) obscuratus* Rottenberg, 1874

15a. *L. (D.) obscuratus aegaeus* Gentili, 1974

Distribution: Adana, Ankara, Antalya, Artvin, Aydın, Bitlis (Tatvan), Bolu, Burdur, Bursa, Çanakkale, Çorum, Denizli, Erzurum, Erzincan, Gümüşhane, İstanbul, İzmir, Kastamonu, Kırklareli, Kocaeli (İzmit), Konya, Manisa, Mersin, Muğla, Ordu, Osmaniye, Rize, Sinop, Toros Mountains, Uludağ, Van (3,7,11,12,16,19,22).

15b. *L. (D.) obscuratus obscuratus* Rottenberg, 1874

Distribution: Bitlis (Tatvan), Hakkari (Yüksekova), Şemdinli and Van (11,12,19).

15c. *L. (D.) obscuratus orchymonti* Gentili, 1976

Distribution: Adıyaman, Antalya, Gaziantep (11).

16. *L. (D.) sculptus* d'Orchymont, 1936

Distribution: Diyarbakır, Şanlıurfa (3,10,11,16).

17. *L. (D.) scutellaris* Motschulsky, 1855

Distribution: Adana, Antalya, Bitlis, Kahramanmaraş, Konya, Mersin, Siirt, Şırnak (3,6,11-13,16,17,19,20).

18. *L. (D.) simulatrix* d'Orchymont, 1932

Distribution: Ağrı, Ankara, Antalya, Aydın, Bayburt, Bitlis (Tatvan), Bolu, Bursa, Çanakkale, Çorum, Denizli, Edirne, Erzurum, Erzincan, Hakkari, Isparta (Eğirdir), İstanbul, İzmir, Kahramanmaraş, Kars, Kayseri, Kırklareli, Manisa, Muğla, Niğde, Osmaniye, Samsun, Sivas, Trabzon, Toros Mountains, Van (3,6,11,12,16,19).

19. *L. (D.) sipylus* d'Orchymont, 1939

Distribution: Antalya, Artvin, Balıkesir, Çanakkale, Çorum, Denizli, Diyarbakır, Hatay (Antakya), Kayseri, Mersin, Tokat (3,7,10-13,16,19).

20. *L. (D.) striatulus* (Fabricius, 1801)

Distribution: Adapazarı, Ankara, Antakya, Antalya, Artvin, Bayburt, Bitlis, Bolu, Bursa, Çanakkale, Erzurum, Eskişehir, Gümüşhane, Isparta, İstanbul, Kocaeli (İzmit), İzmir, Kütahya, Konya, Malatya, Manisa, Muğla, Sivas, Van (1,3,7,10-14,18,19).

21. *L. (D.) sulcatulus* Reitter, 1909

Distribution: Amasya, Ankara, Antalya, Ardahan, Bayburt, Bitlis (Tatvan), Burdur, Diyarbakır, Erzurum, Erzincan, Gümüşhane, Kars, Konya (Ereğli), Manisa, Toros Mountains, Van (3,6,10-13,19).

22. *L. (D.) syriacus* Guillebeau, 1896

Distribution: Adana, Ankara, Antalya, Artvin, Aydın, Bayburt, Bitlis (Tatvan), Burdur, Çorum, Denizli, Diyarbakır, Edirne, Eğirdir, Gaziantep, Erzurum, Erzincan, Hakkari, Hatay (Antakya), Isparta, İzmir, Kars, Kayseri, Kahramanmaraş, Kastamonu, Konya, Mardin, Mersin, Muğla, Ordu, Osmaniye, Rize, Samsun, Sinop, Şanlıurfa, Trabzon, Toros Mountains, Van (3,6-8,11-13,16,19).

Tribus: Berosini Mulsant, 1844

23. *Berosus (Enoplurus) bispina* Reiche & Saulcy, 1856

Distribution: Adana, Afyon, Antakya (Hatay), Kayseri (3,5,23,31).

24. *B. (E.) frontifoveatus* Kuwert, 1888

Distribution: Balıkesir, Bursa, Elazığ, Isparta, İçel (3, 23).

25. *B. (E.) fulvus* Kuwert, 1888

Distribution: Burdur (3,23).

26. *B. (E.) jaechi* Schödl, 1991

Distribution: Adana, İzmir (3,23).

27. *B. (E.) spinosus* (Steven, 1808)

Distribution: Adana, Afyon, Ankara, Antalya, Aydın, Edirne, Elazığ, Mersin (Erdemli), İçel, Kars, Malatya, Van (3,23).

28. *B. (s. str.) affinis* Brulle, 1922

Distribution: Adana, Antalya, Burdur, Bursa, Çanakkale, Antakya (Hatay), İçel, İstanbul, İzmir, Kırklareli, Kocaeli, Kastamonu, Konya, Manisa, Muğla, Ordu (Ünye), Samsun, Sakarya. (3,5,24).

29. *B. (s. str.) byzantinus* Ganglbauer, 1904

Distribution: Aydın, İzmir (3,24).

30. *B. (s. str.) dispar* Reiche & Saulcy, 1856

Distribution: Adana (3,24).

31. *B. (s. str.) hispanicus* Küster, 1847

Distribution: Çanakkale (3,24).

32. *B. (s. str.) luridus* (Linnaeus, 1761)

Distribution: Hakkari (Yüksekova), Ordu, Kars, Kastamonu (3,5,24).

33. *B. (s. str.) signaticollis* (Charpentier, 1825)

Distribution: Amasya (Ladik gölü), Antalya, Aydın, İzmir, Kastamonu, Kars, Ordu (Mesudiye) (3,24).

Tribus: Anacaenini Hansen, 1991

34. *Anacaena limbata* (Fabricius, 1792)

Distribution: without detailed locality (3,25).

35. *(A.) rufipes* (Guillebeau, 1896)

Distribution: without detailed locality (3,25).

36. *Paracymus aeneus* Germar, 1824

Distribution: without detailed locality (3,5).

Tribus: Chaetarthriini Bedel, 1881

37. *Chaetarthria seminulum* (Herbst, 1797)

Distribution: Balıkesir, Çanakkale, Erzincan (3,26).

Material examined: edge of running water, 3.VI.1999, 3 ♂♂, 3 ♀♀, Çat, Erzurum; 17.VII.2000, 4 ♂♂,

1♀, Pazaryolu, Erzurum; 25.IX.2000, 1 ♂, 1 ♀, Şenkaya, Erzurum; 16.VII.2001, 2 ♂♂, 4 ♀♀, Ayder, Rize.

Tribus: Coleostomatini Hansen, 1991

38. *Coleostoma* (s. str.) *orbiculare* (Fabricius, 1775)

Distribution: without detailed locality (3,5,21).

Material examined: 12.IX.2001, 3 ♂♂, 2 ♀♀, Plateau of Tuzluca village, Çat, Erzurum.

Tribus: Megasternini Hansen, 1991

39. *Cercyon* (s. str.) *haemorrhoidalis* (Fabricius, 1775)

Distribution: without detailed locality (3).

40. *Cercyon* (s. str.) *marinus* Thomson, 1853

Distribution: without detailed locality (3).

41. *Cercyon* (s. str.) *putricola* Wollaston, 1867

Distribution: without detailed locality (3).

Tribus: Sphaeridiini Latreille, 1802

42. *Sphaeridium substratum* Falderman, 1838

Distribution: without detailed locality (3).

Tribus: Hydrophilini Latreille, 1802

Subtribus: Acidocerina Hansen, 1991

43. *Enochrus* (*Methydrus*) *nigritus* (Sharp, 1872)

Distribution: İstanbul, Kirklareli (3,27).

44. *Enochrus* (*Lumetus*) *ater* (Kuwer, 1888)

Distribution: without detailed locality (3,28).

45. *E. (L.) bicolor* (Fabricius, 1792)

Distribution: Ankara, Antalya, Erzincan, Kars, Van (3,29).

46. *E. (L.) salmonis* (Shalberg, 1900)

Distribution: without detailed locality (3,28).

47. *E. (L.) segmentinotatus* Kuwert, 1888

Distribution: Adana, Aydın, Çanakkale, Hakkari, İçel, İzmir, Konya, Mersin (Erdemli), Muğla (3,29).

Subtribus: Hydrobiina Mulsant, 1844

48. *Hydrobius rufipes* (Linnaeus, 1758) record needs confirmation (3).

49. *Limnoxenus niger* Gamelin, 1790

Distribution: without detailed locality (3).

Subtribus: Hydrophilina Mulsant, 1856

50. *Hydrochara caraboides* (Linnaeus, 1758)

İzmir (3,30).

51. *H. dichorama* (Fairmaire, 1892)

Distribution: Adana, Ankara, İstanbul (3,30).

Material examined: contaminated water, 11.VI.2000, 2 ♂♂, 13 ♀♀, Dumlu, Erzurum; 24.VIII.2001, 7 ♂♂, 2 ♀♀, 26.IX.2001, 2 ♂♂, 1 ♀, Çat, Erzurum.

52. *H. flavipes* (Steven, 1808)

Distribution: Adana, Ankara (3,30).

53. *Hydrophilus* (s. str.) *piceus* (Linnaeus, 1758)

Distribution: without detailed locality (3).

Material examined: 31.X.1992, 3 ♂♂, 1 ♀, 11.VIII.2000, 1 ♀, Ilıca, Erzurum.

54. *H. (s. str.) atterimus* Eschscholtz, 1822

Description

Body 30 mm in length, head black, sometimes greenish, all surface micropunctate. Antennae reddish and asymmetrical. Maxillary palpi reddish brown. Posterior margin of the head emarginated. "Y" groove distinct. Pronotum black with greenish tinge. Spots large, untidy and sparsely scattered. Between the large spots with micropunctuation. Heaps of spots located in antero-laterally are distinct. Elytra black or greenish, rows of punctures more distinct apically. Elytra narrowed posteriorly and its apex at the stural angle with a small obtuse spine (Fig. 1A). Legs black, sometimes reddish. Claw segment fairly enlarged and triangular (Fig. 1B). All segments bear a setae bunch on dorsal side (Fig. 1B). Claws fairly long and curved.

Aedeagophore 0.80 mm in length. Parameres shorter than basal piece, tapered and curved outwards at the apex bearing an additional projection resembling a hat. Median lobe shorter than parameres, struts long and sinuate.

Material examined: rather eutrophic water with muddy bottom, sunny pond, 28.IX.1999, 3 ♂♂, Plateau

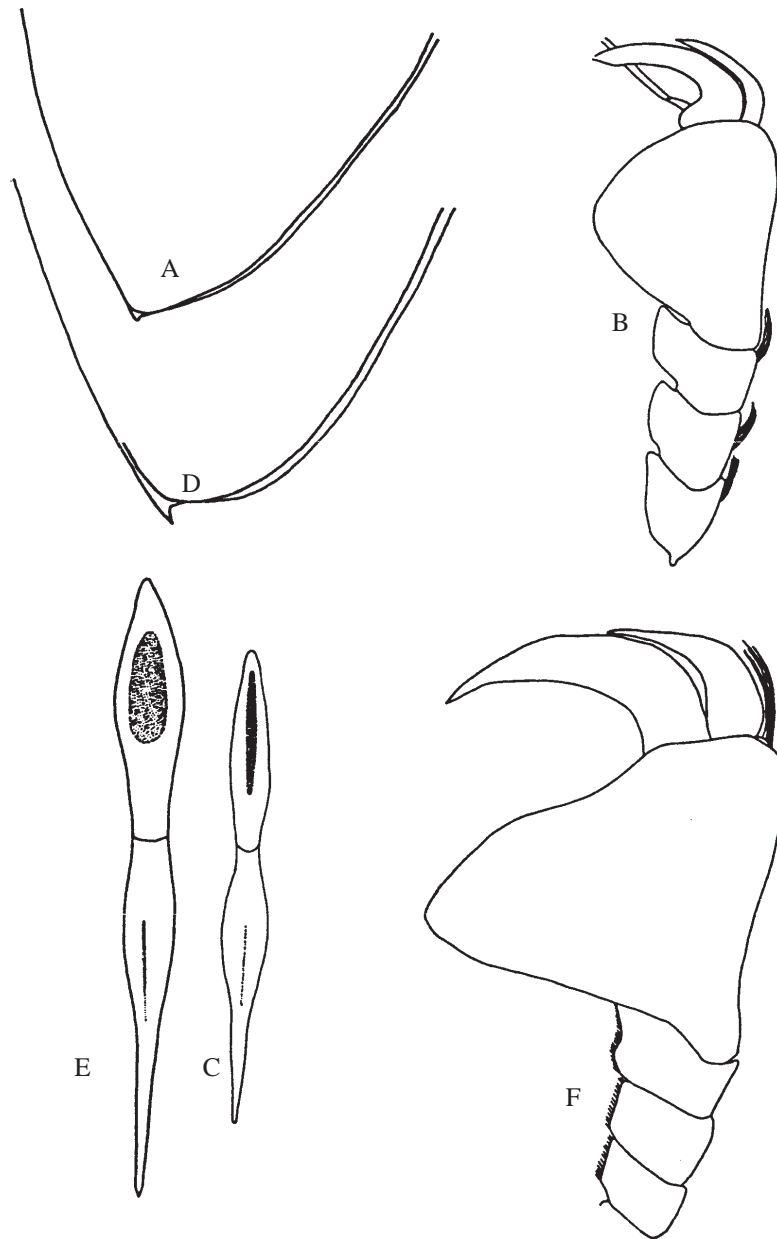


Figure 1. *Hydrophilus atterimus*: A) Elytral angle, B) Protarsus, C) Mesosternal keel. *Hydrophilus piceus*: D) Elytral angle, E) Mesosternal keel, F) Protarsus.

of Tuzluca village, Çat, Erzurum; 15.VIII.1993, 1 ♂, Erzurum.

It is a new record for the Turkish fauna.

Discussion

Fifty-four species and three subspecies of the Hydrophilidae are known in Turkey (1-31). This study adds one new record to Turkish fauna.

B. (E.) bispina had been given as a new record for the Turkish fauna by Özemsi and Önder (31). However, this species had been recorded from Turkey by Ienistea previously (5). Furthermore, *L. (s. str.) minutus* and *Chaetarthria seminulum* were recorded from Erzurum and Rize, and *Coleostoma orbiculare* and *Hydrochara dichroma* from Erzurum for the first time.

Hydrophilus atterimus is a very rare species in Europe and has not been collected for about 50 years anywhere

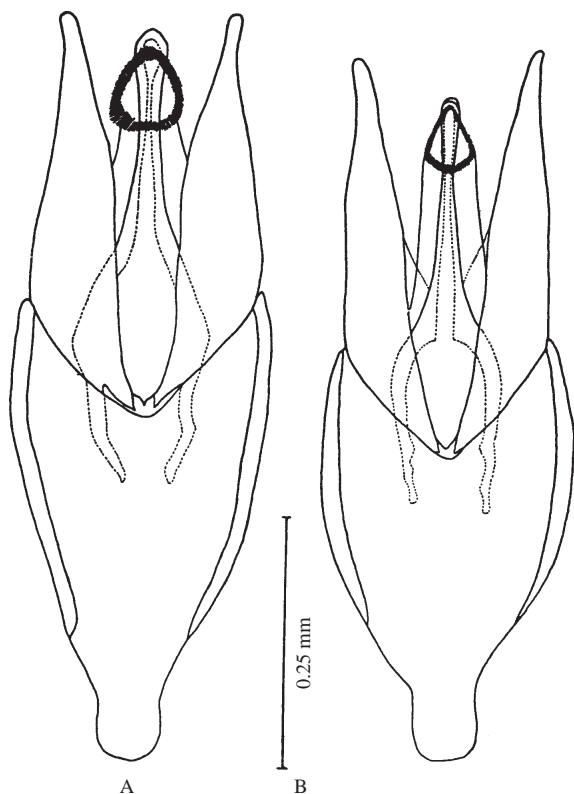


Figure 2. Aedeagophore, dorsal. A) *Hydrophilus piceus*, B) *Hydrophilus atterimus*.

else. *H. atterimus* is similar to *Hydrochara* species, but its body shape is more oval than in *Hydrochara*, and elytra are more strongly narrowed posteriorly. The head and pronotum are almost the same as in *Hydrochara*, but the anterior margin of the clypeus is broadly and feebly emarginated, exposing the articulating membrane of the labrum. The group of setiferous punctures of the head and pronotum are arranged as in *Hydrochara*, especially those of the pronotum; also the elytral rows of setiferous punctures are finer than in *Hydrochara* (1).

Another similar species is *Hydrophilus piceus* (a common species), but it differs by the less strongly narrowed elytra posteriorly, more bluntly raised abdominal sternites, which are more sharply tectiform (except for the last sternite), absence of spines at the stural angle of elytra and longer median furrow of the mesosternal keel (Figs. 1 A,C), the furrow reaching almost the anterior apex of the keel (Figs. 1 D,E) and smaller protarsal segments (Figs. 1 B,F).

The aedeagophore smaller than in *piceus* (Figs. 2 A,B).

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