

New Record Rotifer Species for the Turkish Fauna

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Abstract: Forty-seven rotifer species were recorded from 11 freshwater bodies in Turkey. In all, 11 of these species, *Cephalodella eva* (Gosse, 1887), *C. gibboides* Wulfert, 1950, *C. intuta* Myers, 1924, *C. maior* (Zavadovsky, 1926), *C. tenuiseta* (Burn, 1890), *Collotheca tenuilobata* (Anderson, 1889), *Monommata dentata* Wulfert, 1940, *Mytilina bisulcata* (Lucks, 1912), *Notommata tripus* Ehrenberg, 1838, *Paradicranophorus sordidus* Donner, 1968, and *Proales fallaciosa* Wulfert, 1937 are new records for the Turkish fauna. Some of the recorded species were illustrated using light microscopy.

Key Words: Rotifera, new records, taxonomy, *Paradicranophorus*, Turkey

Türkiye Faunası İçin Yeni Kayıt Rotifer Türleri

Özet: Türkiye'de 11 tatlısu bölgesinden 47 rotifer türü kaydedildi. Bu türlerden 11 tanesi; *Cephalodella eva* (Gosse, 1887), *C. gibboides* Wulfert, 1950, *C. intuta* Myers, 1924, *C. maior* (Zavadovsky, 1926), *C. tenuiseta* (Burn, 1890), *C. tenuilobata* (Anderson, 1889), *Monommata dentata* Wulfert, 1940, *Mytilina bisulcata* (Lucks, 1912), *Notommata tripus* Ehrenberg, 1838, *Paradicranophorus sordidus* Donner, 1968 and *Proales fallaciosa* Wulfert, 1937 Türkiye faunası için yeni kayıttır. Kaydedilen türlerin bazıları ışık mikroskobu kullanılarak şekillendirildi.

Anahtar Sözcükler: Rotifera, yeni kayıtlar, taksonomi, *Paradicranophorus*, Türkiye

Introduction

Although there are many studies describing the environmental conditions of Turkish lakes, most have dealt with seasonal fluctuations and hydrological change. During the last 2 decades many investigators focused their attention on the zooplankton fauna of Turkish inland waters, resulting in significant progress in the assessment of the Rotifera fauna of Turkey (Dumont and De Ridder, 1987; Segers et al., 1992).

According to all published studies (included the present study), 281 rotifer species have been recorded from Turkey. The present study reports 47 rotifer species, of which 5 were illustrated using light microscopy.

Materials and Methods

The samples for this study were collected from 11 freshwater sites using 50- and 55- μ m plankton nets, and were fixed in 4% formalin. Specimens were analyzed under a stereomicroscope and identified using a compound microscope. Four of the new record species and *Paradicranophorus hudsoni* were drawn using a camera lucida. The other new record species could not be drawn because of their contracted body shape and scarcity. Sampling localities are shown in Figure 1, and listed with sampling dates, in Table 1.

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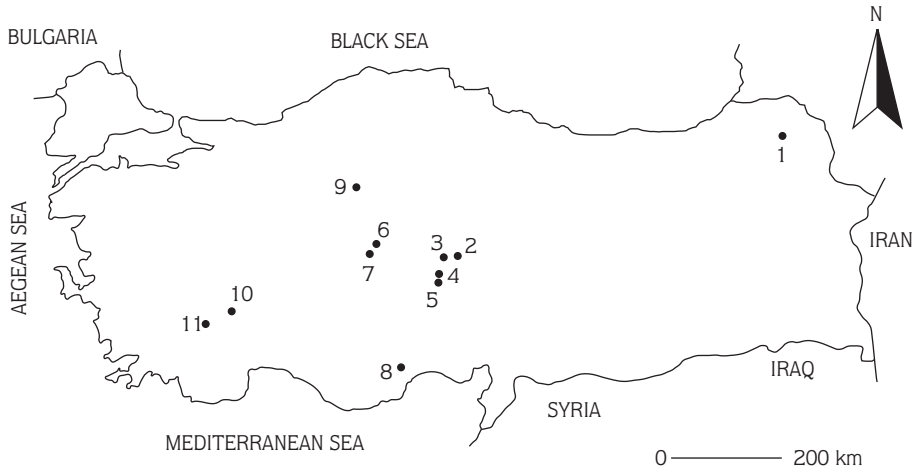


Figure 1. Sampling localities.

Table 1. Sampling localities and date of collection.

1.	40°28'N, 42°44'E (Kars): 20.08.1990.
2.	Soysallı, Develi (Kayseri): 25.12.2005.
3.	Ağcaşar Dam Lake, Develi (Kayseri): 25.12.2005.
4.	Zamantı River, Develi (Kayseri): 28.12.2005.
5.	Homurlu Stream, Develi (Kayseri): 27.12.2005.
6.	Kızılırmak, Karakeçili (Kırıkkale): 18.12.2005.
7.	Acısu, Karakeçili (Kırıkkale): 18.12.2005.
8.	Lamas (Mersin): 15.05.2005.
9.	Atatürk Orman Çiftliği (Ankara): 01.12.2005
10.	Lake Kovada (Isparta): 02.10.2005.
11.	Lake Burdur (Burdur): 02.10.2005.

Results and Discussion

Forty-seven rotifer species were recorded (Table 2) from 11 freshwater bodies in Turkey. In all, 11 of these species, *Cephalodella eva* (Gosse, 1887), *C. gibboides* Wulfert, 1950, *C. intuta* Myers, 1924, *C. maior* (Zavadovsky, 1926), *C. tenuiseta* (Burn, 1890), *Collotheca tenuilobata* (Anderson, 1889), *Monommata dentata* Wulfert, 1940, *Mytilina bisulcata* (Lucks, 1912), *Notommata tripus* Ehrenberg, 1838, *Paradicanophorus sordidus* Donner, 1968, and *Proales fallaciosa* Wulfert, 1937 are new to the Turkish fauna. *Paradicanophorus* Wiszniewski, 1929: *P. hudsoni* was identified as a new genus for Turkey by Emir (Akbulut) and Yıldız (2005) and 2 species of the genus *Paradicanophorus* were found in the present study.

Paradicanophorus hudsoni (Glasscott, 1893) (Figure 2A,B) was found during the cold season in Belgium in shallow water by De Smet (2003). In the present study we found it in central Anatolia, also during the cold season. It may be more common in cold brackish waters. Trophi measurements: total length: 38.2 µm; manubrium: 29. µm 7; ramus: 23.3 µm; fulcrum: 6.7 µm; uncus: 11.5 µm.

Paradicanophorus sordidus Donner, 1968 (Figure 2C,D) has only been recorded from its type locality, Neusiedler See, Austria (Koste and Zhuge, 1995) and Blokkersdijk, Antwerp, Belgium (De Smet, 2003), and (as a misidentified *Encentrum*) from the Antarctic (Dartnall, 1997). Trophi measurements: total length: 29.9 µm; manubrium: 23.6 µm; ramus: 18.2 µm; fulcrum: 5.5 µm; uncus: 10.3 µm.

Mytilina bisulcata (Lucks, 1912) (Figure 3A-D) was collected from Atatürk Orman Çiftliği (Ankara, Turkey) on 01.12.2005 and is a new record for the Turkish rotifer fauna. According to Pourriot (1996) the body length is 149.1 ± 8.3 µm, the body width is 72.8 ± 8.9 µm, and the toes are 51.7 ± 2.4 µm long, but our measurements were as follows: body length: 180.2-229.9 µm; body width: 82.1-91.3 µm; toes: 61.8-72.3 µm. Our specimens were larger than those described by Pourriot (1996).

Cephalodella maior (Zavadovsky, 1926) (Figure 4A) measurements: total length: 124.3 µm; foot: 19.4 µm; fulcrum: 21.8 µm; manubrium: 20.6 µm.

Proales fallaciosa Wulfert, 1937 (Figure 4B,C): vitellarium generally with 8 nuclei. Uncus with 5 teeth.

Table 2. Rotifer species and their collection localities.

<i>Ascomorpha ecaudis</i> Perty, 1850: Locs. 4,9.	<i>H. intermedia</i> (Wiszniewski, 1929): Loc. 10.
<i>Cephalodella catellina</i> (Müller, 1786): Locs. 2,10.	<i>Itura aurita</i> (Ehrenberg, 1830): Loc. 4.
* <i>C. eva</i> (Gosse, 1887): Loc. 8.	* <i>Monommata dentata</i> Wulfert, 1940: Locs. 4,9.
<i>C. forficula</i> (Ehrenberg, 1830): Loc. 4.	* <i>Mytilina bisulcata</i> (Lucks, 1912): Loc. 9.
<i>C. gibba</i> (Ehrenberg, 1830): Locs. 3-7,9,10.	<i>M. mucronata</i> (Müller, 1773): Loc. 9.
* <i>C. gibboides</i> Wulfert, 1950: Loc. 4.	<i>M. ventralis</i> (Ehrenberg, 1830): Locs. 4,5.
* <i>C. intuta</i> Myers, 1924: Locs. 4,11.	<i>Notommata cyrtopus</i> Gosse, 1886: Loc. 10.
* <i>C. maior</i> (Zavadovsky, 1926): Loc. 11.	* <i>N. tripus</i> Ehrenberg, 1838: Loc. 1.
* <i>C. tenuiseta</i> (Burn, 1890): Loc. 2.	<i>Paradicranophorus hudsoni</i> (Glasscott, 1893): Loc. 7.
<i>C. ventripes</i> (Dixon-Nuttall, 1901): Locs. 3-5,10.	* <i>P. sordidus</i> Donner, 1968: Loc. 7.
* <i>Collotheca tenuilobata</i> (Anderson, 1889): Loc. 4.	<i>Pleurotrocha petromyzon</i> (Ehrenberg, 1830): Loc. 5.
<i>Conochilus dossuarius</i> Hudson, 1885: Loc. 10.	<i>Polyarthra vulgaris</i> Carlin, 1943: Locs. 3,6,11.
<i>Dicranophoroides caudatus</i> (Ehrenberg, 1834): Loc. 4.	<i>Pompholyx sulcata</i> Hudson, 1885: Loc. 10.
<i>Dicranophorus epicharis</i> Harring and Myers, 1928: Loc. 5.	* <i>Proales fallaciosa</i> Wulfert, 1937: Locs. 4,6.
<i>D. luetkeni</i> (Bergendal, 1892): Locs. 8,11.	<i>Resticula nyssa</i> Harring & Myers, 1924: Loc. 5.
<i>Dissotrocha aculeata</i> (Ehrenberg, 1832): Loc. 9.	<i>Rotaria rotatoria</i> (Pallas, 1766): Loc. 9.
<i>Encentrum uncinatum</i> (Milne, 1886): Locs. 4,5,9.	<i>Scaridium longicaudum</i> (Müller, 1786): Loc. 4.
<i>Eosphora najas</i> Ehrenberg, 1830: Locs. 4,9.	<i>Synchaeta oblonga</i> Ehrenberg, 1832: Locs. 6,9,11.
<i>Euchlanis dilatata</i> Ehrenberg, 1832: Locs. 1,10,11.	<i>S. pectinata</i> Ehrenberg, 1832: Locs. 9.
<i>E. incisa</i> Carlin, 1939: Loc. 4.	<i>Testudinella emarginula</i> (Stenroos, 1898): Loc. 4.
<i>E. lyra</i> Hudson, 1886: Loc. 8.	<i>T. patina</i> (Hermann, 1783): Locs. 4, 6.
<i>Filinia limnetica</i> (Zacharias, 1893): Loc. 10.	<i>Trichotria pocillum</i> (Müller, 1776): Locs. 4,5,9,10.
<i>F. terminalis</i> (Plate, 1886): Loc. 3.	<i>T. tetractis</i> (Ehrenberg, 1830): Loc. 11.
<i>Hexarthra fennica</i> (Levander, 1892): Loc. 11.	

*New record for the Turkish rotifer fauna.

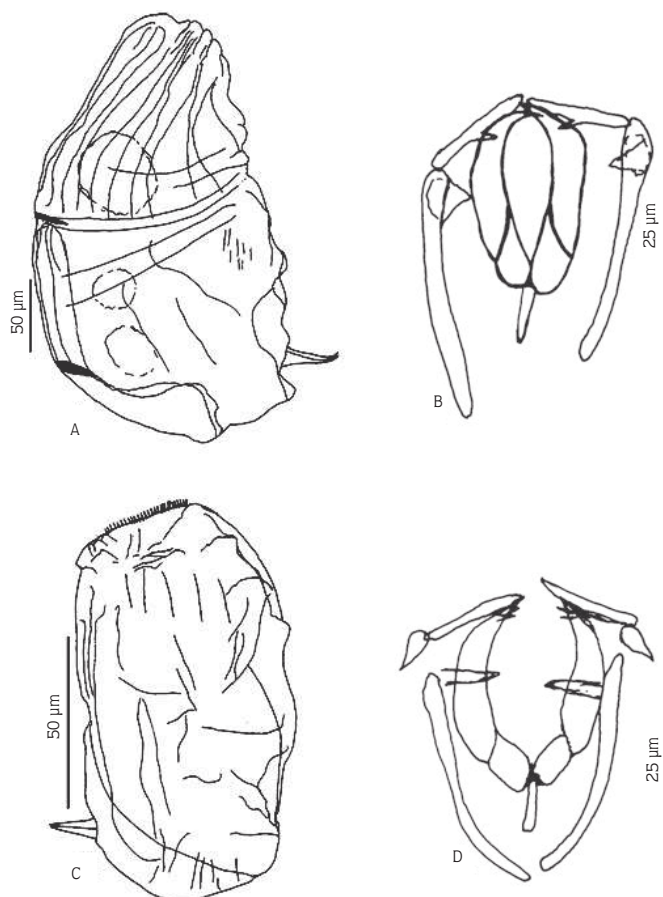


Figure 2. A. *Paradicranophorus hudsoni* (Acisu-Kırıkkale), B. *P. hudsoni* TR (Acisu-Kırıkkale), C. *Paradicranophorus sordidus* (Acisu-Kırıkkale), D. *P. sordidus* TR (Acisu-Kırıkkale).

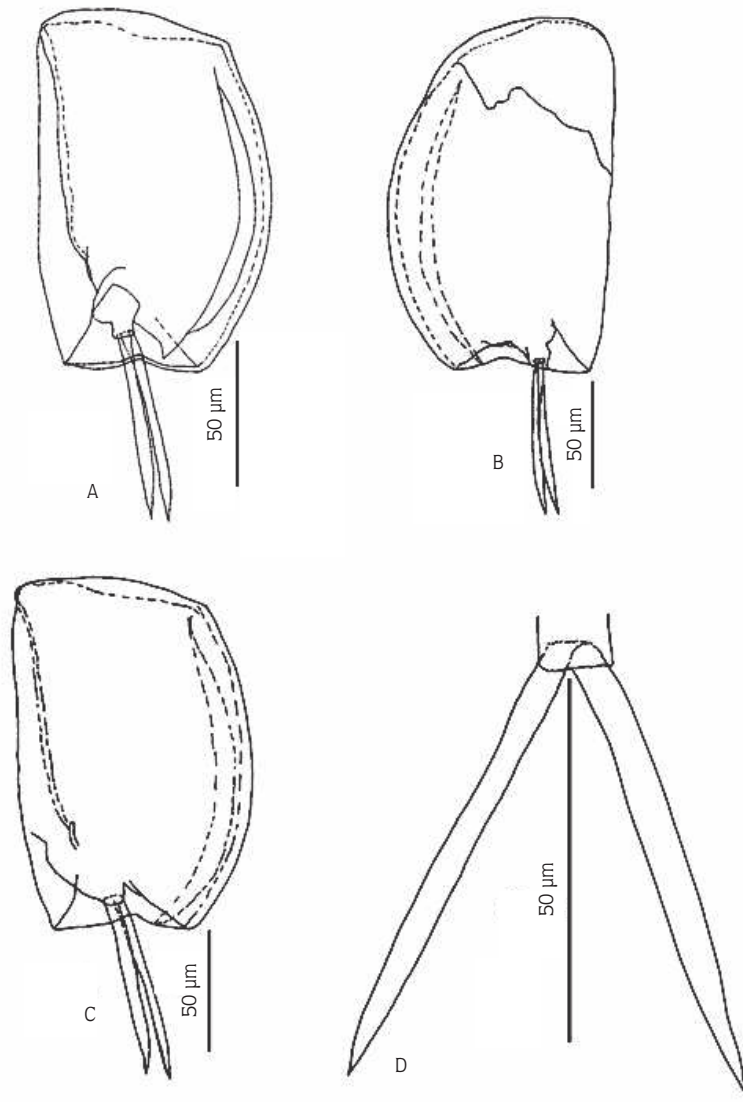


Figure 3. A,B,C,D. *Mytilina bisulcata* (Atatürk Orman Çiftliği-Ankara).

Total length: 192.5 µm; foot: 8.4 µm; manubrium: 21.8 µm; ramus: 12.7 µm; fulcrum: 8.5 µm. Cosmopolitan.

According to the check-list of Ustaoglu (2004), 229 rotifer taxa are reported from Turkey. Since then, many studies were conducted on Turkish rotifers and the following new records for the Turkish rotifer fauna were recorded: *Asplanchnopus multiceps* and *Notholca salina* (Ustaoglu et al., 2004), *Dicranophorus epicharis*, *Lecane rhytida*, *Lecane obtusa* and *Testudinella parva* (Altındağ et al., 2005), *Anuraeopsis navicula*, *Ascomorphella volvocicola*, *Conochilus coenobasis*, *Ecentrum putorius*,

Euchlanis deflexa, *Lepadella ehrenbergi*, *Notholca caudata*, *Paradicranophorus hudsoni* and *Synchaeta longipes* (Akbulut and Yıldız, 2005), *Asplanchnopus hyalinus*, *Lecane donneri*, *Dissotrocha aculeata*, *Proalides tentaculatus* and *Itura myersi* (Erdogan and Güher, 2005), *Brachionus polyacanthus* and *Lecane haliclysta* (Ustaoglu et al., 2005), *Aspelta labri*, *Dicranophorus robustus*, *Ecentrum uncinatum*, *Ecentrum wiszniewskii*, *Eothinia lamellate*, *Itura aurita*, *Lindia torulosa*, *Lecane arcula*, *Lecane hornemanni*, *Lecane inopinata*, *Proales theodora* and *Wulfertia kivuensis* (Kaya et al., 2007), *Notholca striata*

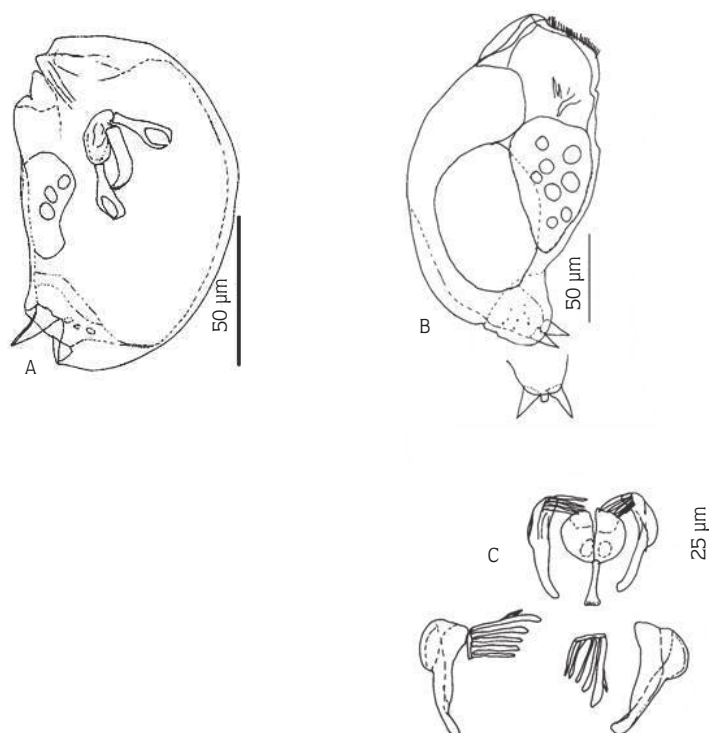


Figure 4. A. *Cephalodella maior* (Lake Eber-Afyon), B. *Proales fallaciosa* (Zamanti River-Kayseri), C. *P. fallaciosa* TR (Zamanti River-Kayseri).

(Kaya and Altındağ, 2007a), *Sinantherina semibullata* and *Cephalodella megalcephala* (Kaya et al., 2008), *Lecane arcuata*, *Lecane gwileti* and *Lecane tenuiseta* (Akbulut and Kaya, 2007), and *Lepadella biloba* (Kaya and Altındağ, 2007b). As a result of these studies the number of the rotifer species increased from 229 to 270. The present study reports 11 new rotifer species for Turkey, bringing the total number of rotifer species in Turkey to 281.

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