



The Diving Beetle Fauna of Diyarbakır and Bingöl Provinces, Turkey (Coleoptera: Dytiscidae) with a New Record

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ABSTRACT

The present study was carried out from September 2013 to August 2015 in Bingöl and Diyarbakır provinces in the Eastern and South-eastern Anatolian regions of Turkey. A total of 3,990 dytiscid specimens were collected from 118 different localities and identified. In total, 40 species in 17 genera of family Dytiscidae were recorded, of which 37 were new to the study area. *Eretes sticticus* (Linnaeus, 1767) is the second record for Turkish fauna. Furthermore, *Hydroporus inscitus* Sharp, 1882 is new record for the Turkish fauna.

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Key words

Coleoptera, Dytiscidae, Diving beetles.

INTRODUCTION

The family Dytiscidae Leach, 1815 is a conspicuous important component of aquatic beetles. The members of this family are known as predaceous diving beetles and could be found in all type of fresh water habitats. The family is represented by 182 genera and approximately 4,450 species, which are distributed around the world (Nilsson and Hájek, 2017a). In the Palearctic region, it is represented by 15 tribes, 80 genera and approximately 600 species (Nilsson and Hájek, 2017b). Darılmaz and Kiyak (2009a) listed 28 genera and 136 species from Turkey. With subsequent studies (Darılmaz and Kiyak, 2009b; Fery and Erman, 2009; Fery, 2009; Fery and Hendrich, 2011a, b; Fery and Przewozny, 2011; Hájek *et al.*, 2011; Hernando *et al.*, 2012; Vorst and Fery, 2014; Aykut and Fery, 2017) this value increased by 20 and reached to 156. Of these 36 are endemic to Turkey (Aykut and Fery, 2017; Nilsson and Hájek, 2017a). Up to now considerable faunistic studies of diving beetles have been conducted in Turkey and as a result; 32 of the 81 provinces have been studied (Fig. 1). Up to now, only a single study about Water Scavenger beetles (Coleoptera: Hydrophilidae) have been conducted in Bingöl Province (Mart and Erman, 2017). There isn't such any study in the remaining 49 provinces. Especially in south eastern region of Anatolia, (Diyarbakır is located in this region) we couldn't find any faunistic study about this family. According to our investigations, only four species from Bingöl

[*Agabus biguttatus* (Olivier, 1795), *Graptodytes veterator behningi* Zaitzev, 1927, *Scarodytes halensis* (Fabricius, 1787) and *Scarodytes costates*, Aykut and Fery, 2017] and six species from Diyarbakır [*Agabus faldermanni* Zaitzev, 1927, *Ilybius chalconatus* (Panzer, 1796), *Deronectes evelynae* Fery and Hosseinie, 1998, *Deronectes syriacus* Wewalka, 1970, *Graptodytes sedilloti phrygius* Guignot, 1942 and *Hygrotus lernaeus* (Schaum, 1857)] have been reported so far. The aim of this study was to determine the diving beetles fauna of Bingöl and Diyarbakır provinces of Turkey.

MATERIALS AND METHODS

Description of the study area

Diyarbakır province is located in the northern part of the South-eastern region of Anatolia, with an area of 15,188 km². The altitude at the city centre is 674 m. It is generally surrounded by mountains, and the middle has a slightly hollowed outlook. The southern part of the city is covered by extensive farmlands while the northern parts with mountainous terrains. Bingöl province is located in the Eastern Anatolian region of Turkey and has a surface area of 8,253 km² with a large number of aquatic sites with high altitudes. The altitude at the city centre is 1,159 m (Fig. 2).

Materials

Specimens were collected from freshwater habitats in Bingöl and Diyarbakır provinces (Turkey) using a net with a mesh diameter of 0.5 mm from 2013 to 2015 (Supplementary Table I). Seven field trips were carried out during the study period. In Diyarbakır province, a total of 135 samplings were performed at 58 different localities.

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Fig. 1. Faunistic studies of the family Dytiscidae in Turkey. Studied (black) and unstudied (grey) provinces. Provinces shown in red indicate the present study area.

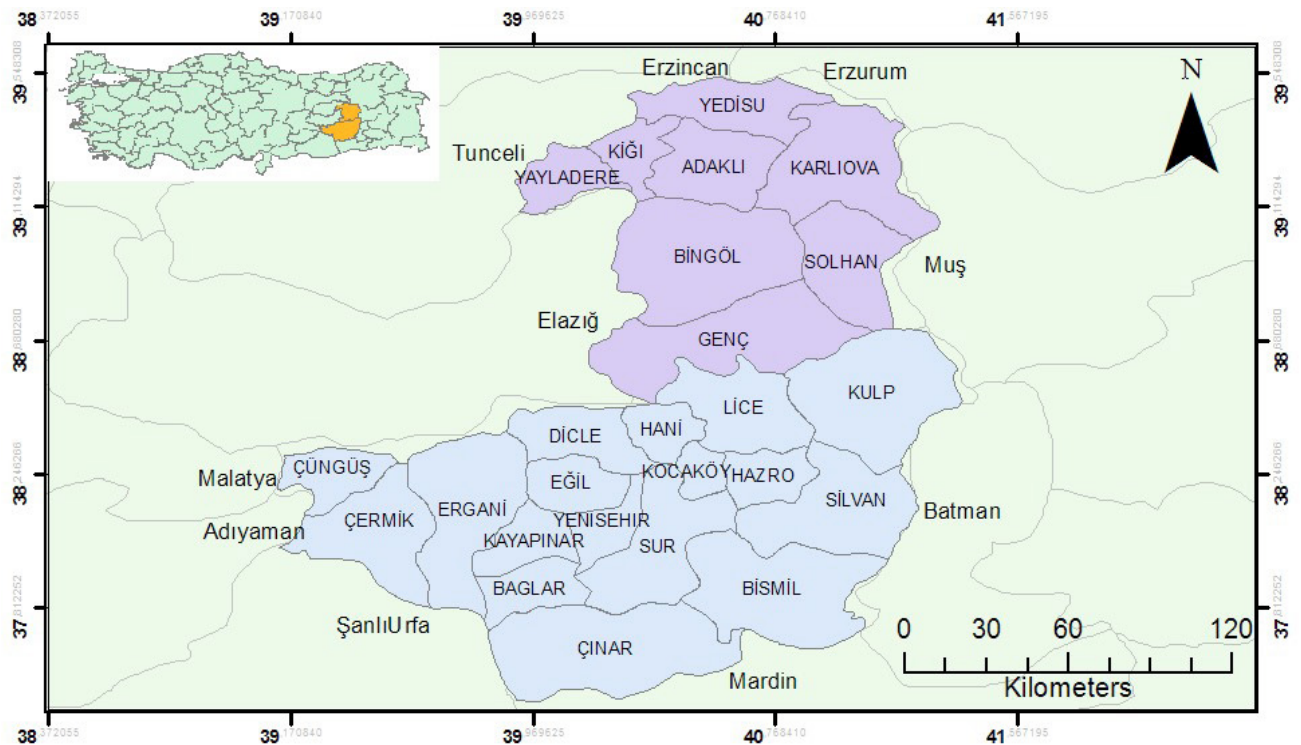


Fig. 2. Map of the study area in the Turkish provinces of Bingöl and Diyarbakır.

In Bingöl province, 105 samplings were performed at 60 different localities. The coordinates and altitude information of the localities were taken directly from a handheld GPS tool (Magellan Explorist 610). As a result of

these seven field trips and 240 samplings, 3,990 specimens were collected. The collected specimens were fixed and preserved in 70% ethyl alcohol solution at spot. The clay and muddy substances on their surfaces were brushed

off with a small paintbrush in the laboratory, and each specimen was checked for identification. Confirmation of the identified species was performed in part by Dr. Hans Fery (Berlin, Germany). The examined materials have been deposited in the private collection of the author at Dicle University, Diyarbakır, Turkey.

RESULTS

A total of 3,390 adults of 40 species in 17 genera of family Dytiscidae were collected and described from the study area. The species are listed in [Supplementary Table II](#). Of 34 identified species in Diyarbakır province, 31 were new for the South-eastern Anatolian region of Turkey, and 6 of 36 identified species in Bingöl were new to the Eastern Anatolian region of Turkey. *Eretes sticticus* (Linnaeus, 1767) was the second record for Turkey. *Hydroporus inscitus* Sharp, 1882 was the first record for Turkey. By now, 37 dytiscid species are known from Bingöl province, 40 species from Diyarbakır province and 157 species from Turkey. The determined species and their locality data are listed below:

Family: DYTISCIDAE Leach, 1815

1. *Agabus biguttatus* (Olivier, 1795)

Material examined

B4, 17.V.2014, 2 ex.; B7, 18.V.2014, 14 ex.; B14, 19.V.2014, 1 ex.; B16, 19.V.2014, 3 ex.; B27, 17.VII.2014, 3 ex.; B28, 17.VII.2014, 4 ex.; B30, 17.VIII.2014, 1 ex.; B37, 20.VIII.2014, 5 ex.; B38, 20.VIII.2014, 6 ex.; B40, 20.VIII.2014, 3 ex.; 22.VIII.2015, 4 ex.; B41, 20.VIII.2014, 3 ex.; 22.VIII.2015, 3 ex.; B43, 20.V.2015, 1 ex.; B48, 21.V.2015, 9 ex.; B49, 21.V.2014, 3 ex.; B52, 23.V.2015, 5 ex.; B53, 23.V.2015, 7 ex.; B57, 25.V.2015, 11 ex.; D3, 9.IX.2013, 7 ex.; D8, 10.IX.2013, 13 ex.; D11, 10.IX.2013, 7 ex.; D16, 13.IX.2013, 5 ex.; D23, 21.IV.2014, 10 ex.; D27, 22.IV.2014, 5 ex.; D29, 22.IV.2014, 9 ex.; D34, 23.IV.2014, 6 ex.; D38, 25.IV.2014, 9 ex.; D43, 25.IV.2014, 6 ex.; D47, 8.IX.2014, 13 ex.; D50, 10.IX.2014, 13 ex.; D56, 11.IX.2014, 9 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

2. *Agabus bipustulatus* (Linnaeus, 1767)

Material examined

B2, 17.V.2014, 4 ex.; B3, 17.V.2014, 6 ex.; B4,

17.V.2014, 2 ex.; B5, 17.V.2014, 8 ex.; B6, 18.V.2014, 13 ex.; B7, 18.V.2014, 2 ex.; B8, 18.V.2014, 5 ex.; B10, 18.V.2014, 6 ex.; B13, 19.V.2014, 8 ex.; B16, 19.V.2014, 17 ex.; B17, 20.V.2014, 6 ex.; B18, 20.V.2014, 2 ex.; B20, 20.V.2014, 3 ex.; B24, 22.V.2014, 5 ex.; 31, 17.VIII.2014, 14 ex.; B32, 18.VIII.2014, 1 ex.; B34, 18.VIII.2014, 4 ex.; B37, 20.VIII.2014, 3 ex.; B39, 20.VIII.2014, 1 ex.; B41, 20.VIII.2014, 5 ex.; B48, 21.V.2015, 3 ex.; B49, 21.V.2014, 5 ex.; B54, 25.V.2015, 5 ex.; B56, 25.V.2015, 4 ex.; B58, 20.VIII.2014, 5 ex.; 23.VIII.2015, 3 ex.; D1, 9.IX.2013, 3 ex.; D2, 9.IX.2013, 2 ex.; D6, 10.IX.2013, 4 ex.; D8, 10.IX.2013, 2 ex.; D13, 12.IX.2013, 6 ex.; D15, 12.IX.2013, 4 ex.; D19, 13.IX.2013, 2 ex.; D23, 21.IV.2014, 4 ex.; D25, 22.IV.2014, 6 ex.; D29, 22.IV.2014, 4 ex.; D33, 23.IV.2014, 8 ex.; D38, 25.IV.2014, 2 ex.; D46, 25.IV.2014, 4 ex.; D47, 8.IX.2014, 6 ex.; D48, 8.IX.2014, 3 ex.; D52, 10.IX.2014, 7 ex.; D55, 11.IX.2014, 8 ex.; D58, 11.IX.2014, 7 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

3. *Agabus caraboides* (Sharp, 1882)

Material examined

B15, 19.V.2014, 4 ex.; B16, 19.V.2014, 1 ex.; B17, 20.V.2014, 1 ex.; B26, 17.VIII.2014, 7 ex.; B34, 18.VIII.2014, 5 ex.; B36, 18.VIII.2014, 4 ex.; B37, 20.VIII.2014, 5 ex.; B40, 20.VIII.2017, 3 ex.; B42, 20.V.2015, 1 ex.; B43, 20.V.2015, 2 ex.; D5, 9.IX.2013, 5 ex.; D11, 10.IX.2013, 3 ex.; D14, 12.IX.2013, 5 ex.; D16, 13.IX.2013, 7 ex.; D24, 21.IV.2014, 2 ex.; D27, 22.IV.2014, 3 ex.; D35, 23.IV.2014, 6 ex.; D48, 8.IX.2014, 4 ex.; D50, 10.IX.2014, 2 ex.; D53, 10.IX.2014, 1 ex.; D57, 11.IX.2014, 6 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

4. *Agabus conspersus* (Marsham, 1802)

Material examined

B4, 17.V.2014, 4 ex.; B26, 17.VII.2014, 2 ex.; B27, 17.VII.2014, 3 ex.; B32, 18.VIII.2014, 11 ex.; B35, 18.VIII.2014, 9 ex.; B40, 20.VIII.2014, 5 ex.; B41, 20.VIII.2014, 6 ex.; B45, 20.V.2015, 17 ex.; B56,

25.V.2015, 7 ex.; D1, 9.IX.2013, 2 ex.; D8, 10.IX.2013, 3 ex.; D11, 10.IX.2013, 6 ex.; D13, 12.IX.2013, 5 ex.; D19, 13.IX.2013, 3 ex.; D24, 21.IV.2014, 9 ex.; D29, 22.IV.2014, 7 ex.; D36, 23.IV.2014, 4 ex.; D47, 8.IX.2014, 3 ex.; D52, 10.IX.2014, 6 ex.; D54, 10.IX.2014, 2 ex.; D57, 11.IX.2014, 3 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

5. *Agabus didymus* (Olivier, 1795)

Material examined

B29, 17.VIII.2014, 4 ex.; B37, 18.VIII.2014, 3 ex.; D5, 9.IX.2013, 3 ex.; D8, 10.IX.2013, 2 ex.; D19, 13.IX.2013, 5 ex.; D22, 21.IV.2014, 3 ex.; D55, 11.IX.2014, 3 ex.

Remarks

New for eastern and south eastern Regions of Turkey.

Distribution

Palaeartic.

6. *Agabus dilatatus* (Brullé, 1832)

Material examined

B4, 17.V.2014, 3 ex.; B26, 22.V.2014, 2 ex.; B27, 17.VIII.2014, 2 ex.; B33, 18.VIII.2014, 8 ex.; B35, 17.VIII.2014, 1 ex.; B38, 20.VIII.2014, 4 ex.; B39, 20.VIII.2014, 1 ex.; B40, 20.VIII.2014, 1 ex.

Distribution

Palaeartic.

7. *Agabus nebulosus* (Forster, 1771)

Material examined

B3, 17.V.2014, 1 ex.; B4, 17.V.2014, 2 ex.; B5, 17.V.2014, 1 ex.; B6, 18.V.2014, 2 ex.; B7, 18.V.2014, 6 ex.; B8, 18.V.2014, 13 ex.; B10, 18.V.2014, 1 ex.; B15, 19.V.2014, 4 ex.; B17, 20.V.2014, 7 ex.; B23, 19.V.2014, 1 ex.; B24, 22.V.2014, 2 ex.; B43, 20.V.2015, 1 ex.; B48, 21.V.2015, 1 ex.; D2, 9.IX.2013, 6 ex.; D7, 10.IX.2013, 3 ex.; D9, 10.IX.2013, 5 ex.; D14, 12.IX.2013, 11 ex.; D28, 22.IV.2014, 2 ex.; D30, 22.IV.2014, 5 ex.; D31, 23.IV.2014, 4 ex.; D33, 23.IV.2014, 4 ex.; D38, 25.IV.2014, 2 ex.; D41, 25.IV.2014, 1 ex.; D44, 8.IX.2014, 10 ex.; D47, 8.IX.2014, 9 ex.; D50, 10.IX.2014, 3 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

8. *Bidessus calabricus* (Guignot, 1957)

Material examined

B1, 17.V.2014, 1 ex.; B2, 17.V.2014, 2 ex.; B4, 17.V.2014, 1 ex.; B9, 18.V.2014, 1 ex.; B22, 22.V.2014, 3 ex.; B30, 17.VIII.2014, 1 ex.; B54, 25.V.2015, 7 ex.; B55, 25.V.2015, 2 ex.; B56, 25.V.2015, 4 ex.; D4, 9.IX.2013, 1 ex.; D6, 10.IX.2013, 3 ex.; D12, 12.IX.2013, 2 ex.; D25, 21.IV.2014, 5 ex.; D29, 22.IV.2014, 1 ex.; D33, 23.IV.2014, 1 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

9. *Bidessus unistriatus* (Goeze, 1777)

Material examined

B48, 21.V.2015, 7 ex.; B35, 21.VIII.2015, 3 ex.; D5, 9.IX.2013, 17 ex.; D18, 13.IX.2013, 13 ex.; D31, 23.IV.2014, 3 ex.; D42, 25.IV.2014, 6 ex.; D49, 8.IX.2014, 3 ex.; D58, 11.IX.2014, 5 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

10. *Colymbetes fuscus* (Linnaeus, 1758)

Material examined

B47, 21.V.2015, 7 ex.; B51, 23.V.2015, 4 ex.; B54, 25.V.2015, 6 ex.; D4, 9.IX.2013, 3 ex.; D9, 10.IX.2013, 7 ex.; D12, 12.IX.2013, 7 ex.; D17, 13.IX.2013, 5 ex.; D24, 21.IV.2014, 1 ex.; D28, 22.IV.2014, 5 ex.; D31, 23.IV.2014, 4 ex.; D35, 23.IV.2014, 6 ex.; D39, 25.IV.2014, 3 ex.; D43, 25.IV.2014, 1 ex.; D46, 8.IX.2014, 8 ex.; D51, 10.IX.2014, 7 ex.; D57, 11.IX.2014, 1 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

11. *Dytiscus marginalis* (Linnaeus, 1758)*Material examined*

B52, 23.V.2015, 3 ex.; B54, 25.V.2015, 8 ex.; B57, 25.V.2015, 2 ex.; D8, 10.IX.2013, 6 ex.; D11, 10.IX.2013, 2 ex.; D15, 12.IX.2013, 9 ex.; D23, 21.IV.2014, 3 ex.; D43, 25.IV.2014, 5 ex.; D51, 10.IX.2014, 4 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

12. *Eretes sticticus* (Linnaeus, 1767)*Material examined*

B1, 17.V.2014, 3 ex.

Remarks

Second record from Turkey. Previously this species was recorded for the first time from Adana, Toros Mountains by Gueorguiev (1981) without any detailed coordinates. It is also new for eastern Region of Turkey.

Distribution

Afrotropical, Nearctic, Neotropical, Palaeartic.

13. *Graptodytes veterator* (Zaitzev, 1927)*Material examined*

B31, 17.VIII.2014, 32 ex.; B38, 20.VIII.2014, 7 ex.; B43, 20.V.2015, 7 ex.; B59, 26.V.2015, 3 ex.

Remarks

New for eastern Region of Turkey.

Distribution

Palaeartic.

14. *Hydroglyphus geminus* (Fabricius, 1792)*Material examined*

B6, 18.V.2014, 8 ex.; B10, 18.V.2014, 2 ex.; B12, 19.V.2014, 2 ex.; B18, 20.V.2014, 3 ex.; B24, 22.V.2014, 3 ex.; B32, 18.VIII.2014, 1 ex.; B43, 20.V.2015, 7 ex.; B45, 20.V.2015, 5 ex.; B48, 21.V.2015, 8 ex.; B54, 23.V.2015, 2 ex.; B56, 23.V.2015, 1 ex.; B57, 23.V.2015, 6 ex.; B60, 26.V.2015, 4 ex.; D2, 9.IX.2013, 6 ex.; D11, 10.IX.2013, 3 ex.; D15, 12.IX.2013, 1 ex.; D17, 13.IX.2013, 2 ex.; D22, 21.IV.2014, 27 ex.; D23, 21.IV.2014, 8 ex.; D27, 22.IV.2014, 7 ex.; D33, 23.IV.2014, 5 ex.; D46, 8.IX.2014,

3 ex.; D48, 8.IX.2014, 32 ex.; D50, 10.IX.2014, 15 ex.; D53, 10.IX.2014, 21 ex.; D56, 11.IX.2014, 9 ex.; D57, 11.IX.2014, 1 ex.; D58, 11.IX.2014, 4 ex.

Distribution

Oriental and Palaeartic.

15. *Hydroporus discretus* (Fairmaire and Brisout, 1859)*Material examined*

B6, 18.V.2014, 11 ex.; B16, 19.V.2014, 7 ex.; B27, 17.VII.2014, 5 ex.; B34, 21.VIII.2015, 7 ex.; B35, 21.VIII.2015, 4 ex.; D7, 10.IX.2013, 26 ex.; D10, 10.IX.2013, 12 ex.; D20, 21.IV.2014, 9 ex.; D21, 21.IV.2014, 6 ex.; D40, 25.IV.2014, 3 ex.; D45, 8.IX.2014, 12 ex.; D51, 10.IX.2014, 19 ex.

Remarks

New for eastern and south eastern Regions of Turkey.

Distribution

Palaeartic.

16. *Hydroporus inscitus* (Sharp, 1882)*Material examined*

B1, 17.V.2014, 3 ex. (Fig. 3)

Remarks

First record from Turkey. This species was previously known from Iran, Iraq, Kuwait, Oman, and Yemen.

Distribution

Palaeartic.



Fig. 3. Habitus of *Hydroporus inscitus* Sharp, 1882.

17. *Hydroporus kozlovskii* (Zaitzev, 1927)*Material examined*

D25, 21.IV.2014, 5 ex.; D36, 23.IV.2014, 9 ex.; D37, 25.IV.2014, 1 ex.; D45, 8.IX.2014, 1 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

18. *Hydroporus marginatus* (Duftschmid, 1805)*Material examined*

D6, 10.IX.2013, 4 ex.; D10, 10.IX.2013, 12 ex.; D18, 13.IX.2013, 7 ex.; D27, 22.IV.2014, 3 ex.; D37, 25.IV.2014, 8 ex.; D38, 25.IV.2014, 1 ex.; D39, 25.IV.2014, 5 ex.; D42, 25.IV.2014, 11 ex.; D43, 25.IV.2014, 2 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

19. *Hydroporus planus* (Fabricius, 1782)*Material examined*

B6, 18.V.2014, 7 ex.; B10, 18.V.2014, 4 ex.; B13, 19.V.2014, 3 ex.; B16, 19.V.2014, 6 ex.; B20, 20.V.2014, 6 ex.; B25, 22.V.2014, 7 ex.; B36, 18.VIII.2014, 1 ex.; B40, 20.VIII.2014, 2 ex.; B49, 21.V.2015, 2 ex.; B55, 25.V.2015, 1 ex.; D3, 9.IX.2013, 2 ex.; D4, 9.IX.2013, 6 ex.; D5, 9.IX.2013, 11 ex.; D8, 10.IX.2013, 2 ex.; D11, 10.IX.2013, 4 ex.; D16, 13.IX.2013, 7 ex.; D22, 21.IV.2014, 5 ex.; D36, 23.IV.2014, 18 ex.; D37, 25.IV.2014, 5 ex.; D48, 8.IX.2014, 1 ex.; D52, 10.IX.2014, 12 ex.; D55, 11.IX.2014, 6 ex.; D58, 11.IX.2014, 2 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

20. *Hydroporus pubescens* (Gyllenhal, 1808)*Material examined*

B15, 19.V.2014, 3 ex.; B17, 20.V.2014, 10 ex.; B18, 20.V.2014, 21 ex.; B23, 19.V.2014, 2 ex.; B27, 17.VIII.2014, 8 ex.; B37, 18.VIII.2014, 17 ex.; B38, 20.VIII.2014, 1 ex.; B43, 20.V.2014, 6 ex.; B54, 25.V.2015, 3 ex.; D6, 10.IX.2013, 2 ex.; D7, 10.IX.2013, 3 ex.; D9, 10.IX.2013, 19 ex.; D10, 10.IX.2013, 1 ex.; D13, 12.IX.2013, 4 ex.; D20, 21.IV.2014, 1 ex.; D23, 21.IV.2014, 13 ex.; D26, 21.IV.2014, 1 ex.; D30, 22.IV.2014, 5 ex.; D32, 23.IV.2014, 1 ex.; D39, 25.IV.2014, 1 ex.; D44, 8.IX.2014, 1 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

21. *Hydroporus tessellatus* (Drapiez, 1819)*Material examined*

B15, 19.V.2014, 5 ex.; B17, 20.V.2014, 4 ex.; B18, 20.V.2014, 12 ex.; B27, 17.VIII.2014, 11 ex.; B38, 20.VIII.2014, 4 ex.; B43, 20.V.2014, 1 ex.; D6, 10.IX.2013, 1 ex.; D7, 10.IX.2013, 2 ex.; D9, 10.IX.2013, 1 ex.; D10, 10.IX.2013, 1 ex.; D13, 12.IX.2013, 3 ex.; D20, 21.IV.2014, 1 ex.; D32, 23.IV.2014, 3 ex.; D39, 25.IV.2014, 1 ex.; D47, 8.IX.2014, 3 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

22. *Hydroporus transgrediens* (Gschwendtner, 1923)*Material examined*

B7, 18.V.2014, 1 ex.; B15, 19.V.2014, 1 ex.; B18, 20.V.2014, 1 ex.; B23, 19.V.2014, 15 ex.; B25, 22.V.2014, 3 ex.; B27, 17.VIII.2014, 5 ex.; B28, 18.VII.2014, 1 ex.; B37, 20.VIII.2014, 2 ex.; B38, 20.VIII.2014, 6 ex.; B42, 20.V.2014, 3 ex.; B43, 20.V.2014, 4 ex.; B50, 23.V.2015, 1 ex.; B54, 25.V.2015, 5 ex.; B55, 25.V.2015, 1 ex.; B57, 25.V.2015, 1 ex.; D1, 9.IX.2013, 3 ex.; D8, 10.IX.2013, 2 ex.; D11, 10.IX.2013, 5 ex.; D17, 13.IX.2013, 2 ex.; D19, 13.IX.2013, 7 ex.; D24, 21.IV.2014, 2 ex.; D30, 22.IV.2014, 9 ex.; D34, 23.IV.2014, 1 ex.; D41, 25.IV.2014, 2 ex.; D45, 8.IX.2014, 1 ex.; D52, 10.IX.2014, 1 ex.; D53, 10.IX.2014, 2 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

23. *Hydrovatus cuspidatus* (Kunze, 1818)*Examined material*

B2, 17.V.2014, 4 ex.; B4, 17.V.2014, 2 ex.; B5, 17.V.2014, 1 ex.; B8, 18.V.2014, 5 ex.; B10, 18.V.2014, 6 ex.; B17, 20.V.2014, 8 ex.; B18, 20.V.2014, 12 ex.; B24, 22.V.2014, 2 ex.; 31, 17.VIII.2014, 1 ex.; B32, 18.VIII.2014,

1 ex.; B37, 20.VIII.2014, 3 ex.; B41, 20.VIII.2014, 3 ex.; B49, 21.V.2014, 2 ex.; B56, 25.V.2015, 1 ex.;

Distribution

Afrotropical and Palaearctic.

24. *Hygrotus armeniacus* (Zaitzev, 1927)

Examined material

D15, 10.V.2014, 3 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaearctic.

25. *Hygrotus confluens* (Fabricius, 1787)

Examined material

B43, 20.V.2015, 12 ex.; B49, 21.V.2015, 5 ex.; D23, 21.V.2014, 9 ex.; D24, 21.IV.2014, 4 ex.; D25, 21.IV.2015, 7 ex.

Remarks

New for south eastern Region of Turkey

Distribution

Palaearctic.

26. *Hygrotus impressopunctatus* (Schaller, 1783)

Examined material

B34, 18.VIII.2014, 25 ex., 21.VIII.2015, 39 ex.; D2, 9.IX.2013, 7 ex.; D8, 10.IX.2013, 7 ex.; D35, 23.IV.2014, 5 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Nearctic and Palaearctic.

27. *Hygrotus inaequalis* (Fabricius, 1777)

Examined material

B3, 17.V.2014, 4 ex.; B7, 18.V.2014, 5 ex.; B13, 19.V.2014, 21 ex.; B21, 22.V.2014, 8 ex.; B28, 17.VII.2014, 6 ex.; B31, 17.VIII.2014, 1 ex.; B32, 18.VIII.2014, 3 ex.; B35, 18.VIII.2014, 6 ex., 21.VIII.2015, 5 ex.; B44, 20.V.2015, 2 ex.; B47, 21.V.2015, 3 ex.; B56, 25.V.2015, 7 ex.; D5, 9.IX.2013, 2 ex.; D11, 10.IX.2013, 3 ex.; D14,

12.IX.2013, 7 ex.; D18, 13.IX.2013, 1 ex.; D20, 21.IV.2014, 6 ex.; D26, 21.IV.2014, 4 ex.; D28, 22.IV.2014, 12 ex.; D31, 23.IV.2014, 5 ex.; D38, 25.IV.2014, 7 ex.; D42, 25.IV.2014, 3 ex.; D46, 8.IX.2014, 2 ex.; D49, 8.IX.2014, 8 ex.; D51, 10.IX.2014, 2 ex.; D57, 11.IX.2014, 13 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaearctic.

28. *Hygrotus marklini* (Gyllenhal, 1813)

Examined material

B34, 21.VIII.2015, 9 ex.; D22, 21.IV.2014, 8 ex., 27.IX.2014, 11 ex.; D23, 21.IV.2014, 28 ex.; D24, 21.IV.2014, 13 ex., 27.IX.2014, 9 ex.; D25, 27.IX.2014, 21 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Nearctic and Palaearctic.

29. *Ilybius chalconatus* (Panzer, 1796)

Examined material

B4, 17.V.2014, 1 ex.; B10, 18.V.2014, 8 ex.; B19, 20.V.2014, 5 ex.; B22, 22.V.2014, 1 ex.; B23, 22.V.2014, 6 ex.; B27, 17.VII.2014, 1 ex.; B39, 20.VIII.2014, 1 ex.; B43, 20.V.2015, 3 ex.; D7, 10.IX.2013, 2 ex.; D11, 10.IX.2013, 3 ex.; D18, 13.IX.2013, 1 ex.; D39, 25.IV.2014, 4 ex.; D43, 25.IV.2014, 1 ex.; D51, 10.IX.2014, 3 ex.;

Distribution

Palaearctic.

30. *Ilybius fuliginosus* (Fabricius, 1792)

Examined material

B7, 18.V.2014, 3 ex.; B9, 18.V.2014, 2 ex.; B11, 18.V.2014, 11 ex.; B12, 19.V.2014, 2 ex.; B13, 19.V.2014, 6 ex.; B47, 21.V.2015, 1 ex.; B53, 23.V.2015, 6 ex.; B55, 25.V.2015, 7 ex.; D1, 9.IX.2013, 11 ex.; D2, 9.IX.2013, 5 ex.; D6, 10.IX.2013, 4 ex.; D14, 12.IX.2013, 1 ex.; D20, 21.IV.2014, 9 ex.; D21, 21.IV.2014, 11 ex.; D32, 23.IV.2014, 5 ex.; D39, 25.IV.2014, 10 ex.; D57, 11.IX.2014, 2 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

31. *Laccophilus hyalinus* (De Geer, 1774)*Examined material*

B1, 17.V.2014, 17 ex.; B3, 17.V.2014, 14 ex.; B6, 18.V.2014, 4 ex.; B14, 19.V.2014, 3 ex.; B20, 20.V.2014, 9 ex.; B21, 22.V.2014, 12 ex.; B33, 18.VIII.2014, 5 ex.; B39, 20.VIII.2014, 10 ex.; B41, 20.VIII.2014, 3 ex.; B53, 23.V.2015, 3 ex.; B56, 25.V.2015, 2 ex.; D2, 9.IX.2013, 3 ex.; D5, 9.IX.2013, 8 ex.; D11, 10.IX.2013, 7 ex.; D17, 13.IX.2013, 4 ex.; D19, 13.IX.2013, 17 ex.; D23, 21.IV.2014, 2 ex.; D27, 22.IV.2014, 12 ex.; D33, 23.IV.2014, 6 ex.; D48, 8.IX.2014, 3 ex.; D49, 8.IX.2014, 2 ex.; D51, 10.IX.2014, 15 ex.; D53, 10.IX.2014, 21 ex.; D58, 11.IX.2014, 4 ex.

Distribution

Palaeartic.

32. *Laccophilus minutus* (Linnaeus, 1758)*Examined material*

B5, 17.V.2014, 3 ex.; B6, 18.V.2014, 5 ex.; B15, 19.V.2014, 2 ex.; B20, 20.V.2014, 6 ex.; B23, 22.V.2014, 4 ex.; B30, 17.VIII.2014, 1 ex.; B31, 17.VIII.2014, 4 ex.; B34, 21.VIII.2015, 14 ex.; B37, 20.VIII.2014, 5 ex.; B43, 20.V.2015, 7 ex.; B47, 21.V.2015, 4 ex.; B49, 21.V.2015, 1 ex.; D1, 9.IX.2013, 3 ex.; D9, 10.IX.2013, 6 ex.; D17, 13.IX.2013, 2 ex.; D20, 21.IV.2014, 5 ex.; D31, 23.IV.2014, 5 ex.; D34, 23.IV.2014, 3 ex.; D39, 25.IV.2014, 1 ex.; D42, 25.IV.2014, 11 ex.; D49, 8.IX.2014, 3 ex.; D55, 11.IX.2014, 2 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Oriental and Palaeartic.

33. *Laccophilus poecilus* (Klug, 1834)*Examined material*

B8, 18.V.2014, 5 ex.; B17, 20.V.2017, 4 ex.; B31, 17.VIII.2014, 7 ex.; B59, 26.V.2015, 7 ex.; D4, 9.IX.2013, 4 ex.; D6, 10.IX.2013, 13 ex.; D10, 10.IX.2013, 3 ex.; D12, 12.IX.2013, 10 ex.; D27, 22.IV.2014, 3 ex.; D30, 22.IV.2014, 52 ex.; D34, 23.IV.2014, 12 ex.; D36, 23.IV.2014, 7 ex.; D40, 25.IV.2014, 2 ex.; D43, 25.IV.2014, 4 ex.; D44, 8.IX.2014, 10 ex.; D47, 8.IX.2014, 9 ex.; D50, 10.IX.2014, 3 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

34. *Nebrioporus airumilus* (Kolenati, 1845)*Examined material*

B34, 18.VIII.2014, 4 ex., 21.VIII.2015, 2 ex.; B42, 20.V.2015, 3 ex.; B53, 23.V.2015, 3 ex.; D29, 22.IV.2014, 5 ex.; D58, 11.IX.2014, 8 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

35. *Nebrioporus stearinus* (Kolenati, 1845)*Examined material*

B9, 18.V.1024, 4 ex.; B11, 18.V.2014, 3 ex.; B21, 22.V.2014, 10 ex.; B27, 17.VIII.2014, 7 ex.; B29, 18.VIII.2014, 1 ex.; B31, 17.VIII.2014, 1 ex.; B35, 21.VIII.2015, 1 ex.; B41, 20.VIII.2014, 7 ex.; B43, 20.V.2015, 1 ex.; B45, 20.V.2015, 1 ex.; B49, 21.V.2015, 1 ex.; B58, 20.VIII.2014, 21 ex.; D19, 13.IX.2013, 7 ex.; D25, 21.IV.2014, 1 ex.; D32, 23.IV.2014, 2 ex.; D33, 23.IV.2014, 2 ex.; D42, 25.IV.2014, 14 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

36. *Oreodytes davisii davisii* (Curtis, 1831)*Examined material*

B35, 18.VIII.2014, 7 ex.; B42, 20.V.2015, 4 ex.; B53, 23.V.2015, 6 ex.

Distribution

Palaeartic.

37. *Platambus lunulatus* (Fischer von Waldheim, 1829)*Examined material*

B46, 20.V.2015, 2 ex.; B47, 21.V.2015, 6 ex.; B52,

23.V.2015, 1 ex.; B57, 4 ex.; D2, 9.IX.2013, 4 ex.; D8, 10.IX.2013, 6 ex.; D15, 12.IX.2013, 3 ex., 25.VIII.2014, 5 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

38. *Platambus maculatus* (Linnaeus, 1758)

Examined material

B44, 20.V.2015, 5 ex.; B48, 25.V.2015, 4 ex.; D51, 10.IX.2014, 4 ex.; D57, 11.IX.2014, 5 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

39. *Rhantus suturalis* (W.S. Macleay, 1825)

Examined material

D12, 12.IX.2013, 5 ex.; D15, 12.IX.2013, 4 ex.; D49, 8.IX.2014, 2 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Australian, Oriental, Pacific and Palaeartic.

40. *Scarodytes halensis* (Fabricius, 1787)

Examined material

B1, 17.V.2014, 7 ex.; B2, 17.V.2014, 14 ex.; B3, 17.V.2014, 1 ex.; B8, 18.V.2014, 12 ex.; B13, 19.V.2014, 5 ex.; B23, 19.V.2014, 13 ex.; 22.V.2014, 17 ex., 17.VIII.2014, 11 ex.; B35, 18.VIII.2014, 33 ex.; B37, 20.VIII.2014, 15 ex.; B40, 20.VIII.2014, 4 ex.; B43, 20.V.2015, 9 ex.; B45, 20.V.2015, 4 ex.; B46, 20.V.2015, 6 ex.; B47, 21.V.2015, 42 ex.; B49, 21.V.2015, 11 ex.; B51, 23.V.2015, 43 ex.; B58, 20.VIII.2014, 12 ex.; D6, 10.IX.2013, 21 ex.; D20, 21.IV.2014, 4 ex.; D27, 22.IV.2014, 11 ex.; D30, 22.IV.2014, 7 ex.; D44, 8.IX.2014, 12 ex.; D49, 8.IX.2014, 63 ex.; D56, 11.IX.2014, 13 ex.; D58, 11.IX.2014, 3 ex.

Remarks

New for south eastern Region of Turkey.

Distribution

Palaeartic.

DISCUSSION

In the freshwater habitats of Bingöl and Diyarbakır provinces 40 diving beetle species belonging to 17 genera were recorded. Of these *Hydroporus inscitus* Sharp, 1882 was recorded from Turkey for the first time, while *Eretes sticticus* (Linnaeus, 1767) was recorded for the second time. The total number of specimens of diving beetles collected from the research area amounts to 3.990. *Scarodytes halensis* was the most dominant species (11.77%), followed by *Agabus bipustulatus* (6.66%), *A. biguttatus* (6.19%), *Hydroglyphus geminus* (5.75%) and *Laccophilus hyalinus* (5.48%). *Agabus didymus*, *Eretes sticticus*, *Hydroporus inscitus*, *H. Kozlovskii*, *Hygrotus armeniacus*, *Nebrioporus airumilus*, *Oreodytes davisii*, *Platambus lunulatus*, *P. maculatus* and *Rhantus suturalis* has an abundance of less than 1%. The remaining 25 species were subdominant with an abundance of 1-5 %.

Agabus bipustulatus, *A. biguttatus*, *Hydroglyphus geminus*, *Hydroporus transgradiens*, *Hygrotus inaequalis*, *Scarodytes halensis* and *Laccophilus hyalinus* were the most widespread species found in our study area. These seven species were found, respectively: *A. bipustulatus* in 43 sites, *A. biguttatus* and *Hydroglyphus geminus* in 29 sites, *Hydroporus transgradiens* in 28 sites, *H. inaequalis* in 26 sites, *Scarodytes halensis* and *Laccophilus hyalinus* in 25 sites. In contrast to these species; *Eretes sticticus*, *Hydroporus inscitus* and *Hygrotus armeniacus* were restricted to a single site each. Additional studies are required to better understand the overall distribution of Turkish Dytiscidae.

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Supplementary material

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Statement of conflict of interest

Authors have declared no conflict of interest.

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