



Contributions to the Knowledge of Dytiscidae (Insecta: Coleoptera) Fauna of Batman Province

Medeni AYKUT^{1*}, Sadreddin TUSUN²

¹ Dicle University, Ziya Gökalp Education Faculty, Maths and Science Education Department, Diyarbakır, Türkiye

¹ Dicle University, Ziya Gökalp Education Faculty, Maths and Science Education Department, Diyarbakır, Türkiye

Medeni AYKUT ORCID No: 0000-0001-6824-1394

Sadreddin TUSUN ORCID No: 0000-0002-0696-4244

*Corresponding author: medeniaykut@hotmail.com

(Received: 27.09.2022, Accepted: 24.11.2022, Online Publication: 28.12.2022)

Keywords

Diving
Beetles
Coleoptera,
Dytiscidae,
Faunistic

Abstract: The present study was carried out between September-2018 and June-2019 in Batman Province which is located in South-eastern Region with the aim of determination of the species of family Dytiscidae (Predaceous diving beetles). The specimens were collected from 39 different localities of Batman province and its districts. 23 species belonging to 11 genera of family Dytiscidae were recorded from the study area. Twenty of the 23 identified species were new records for the Batman province.

Batman İli Yırtıcı Dalgıç Böcekleri (Coleoptera: Dytiscidae) Faunasına Katkılar

155

Anahtar Kelimeler

Dalgıç
Böcekleri,
Kın
Kanatlılar,
Dytiscidae,
Faunistik

Öz: Güneydoğu Anadolu Bölgesinde yer alan Batman ilinin Dytiscidae (Yırtıcı dalgıç böcekleri) familyasına ait türlerin belirlenmesine yönelik yapılan bu çalışma Eylül-2018 ile Haziran-2019 tarihleri arasında gerçekleştirilmiştir. Böcek örnekleri Batman ili ve ilçelerini kapsayan 39 farklı istasyondan toplanmıştır. Çalışma alanından Dytiscidae familyasının 11 cinsine ait 23 tür tespit edilmiştir. Tespit edilen türlerin 20'si Batman ili için yeni kayıt özelliği göstermektedir.

1. INTRODUCTION

The family Dytiscidae Leach, 1815 is an important component of the aquatic life. The members of the family are known as ‘‘predaceous diving beetles’’ and they could generally be found in all freshwater habitats such as; small streams, puddles, springs, rainwater puddles, etc.

In current the family is represented by 182 genera and approximately 4600 species around the world [1]. In Palearctic region where Türkiye is located these values are; 80 genera and around 650 species [2].

So far, in Türkiye numerous field studies have been conducted with the relation of the family Dytiscidae. As a result of mentioned studies a total of 165 species belong to 28 genera have been recorded, from of these 38 are endemic for Türkiye [3-23]. According to our

literature searches up to now just one study has been carried out in Batman province [22]. According to our

investigations, only tree species from Batman [*Deronectes kabilcevzi* Aykut, Yıldırım, Tusun & Fery, 2019, *Deronectes propedoriae* Aykut, Yıldırım, Tusun & Fery, 2019 and *Deronectes evelynae* Fery & Hosseinie, 1998] have been reported so far.

With this study we tried to determine the species of Batman province belong to the family Dytiscidae.

2. MATERIAL AND METHOD

2.1. Description of the Study Area

Batman province is located in the Dicle Section of the Southeastern Anatolia Region of Türkiye. Batman province has five districts, these are; Sason, Kozluk, Beşiri, Hasankeyf and Gercüş. Of these, Sason district is located in the Eastern Anatolia Region. While the city center has an altitude of 550 meters, the north and northeast of the city have high steep mountains and rough terrain. Southern parts of the province are less

mountainous, rugged and have an altitude compared to the northern parts. Batman province is surrounded by Muş province in the north, Diyarbakır province in the west, Bitlis and Siirt provinces in the east and Mardin province in the south (Figure 1.) [24].

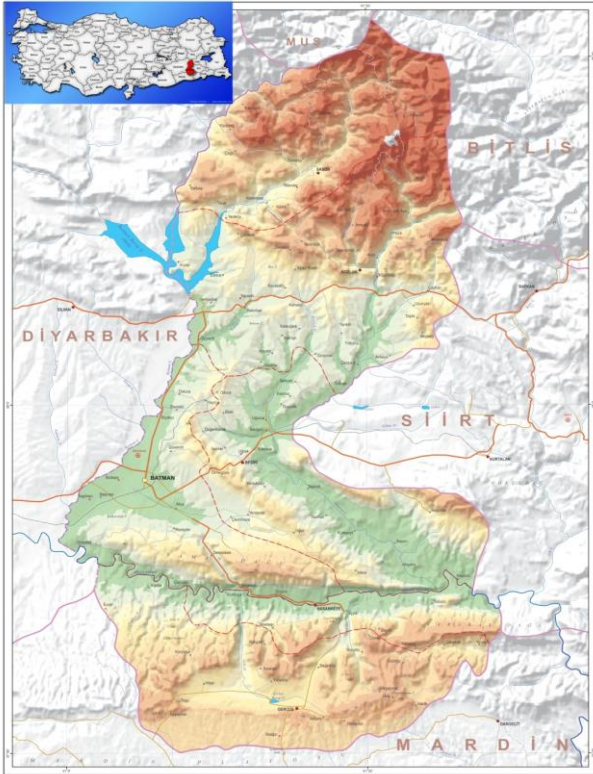


Figure 1. Map of study area, Batman province, Türkiye

2.2. Material and Methods

The specimens were collected from 39 different fresh water habitats (Table 1.) of Batman province and its districts using nets with a mesh diameters of 0.5 - 1 cm between September - 2017 and June - 2019. The handheld GPS tool (Magellan Explorist 610) was used for the coordinates and altitude information's of the localities. 70% ethyl alcohol solution was used at spot for fixation and preservation of collected specimens. In laboratory a small paintbrush was used to remove the clay and muddy substances on the surfaces of collected specimens. The specimens which collected from the study area have been deposited in the private collection of the correspond author at Dicle University, Ziya Gökalp Education Faculty, Diyarbakır, Türkiye.

3. RESULTS

Totally 934 adult specimens of 23 species in 3 subfamilies and 11 genera of family Dytiscidae were collected and described from the study area. Of 23 identified species in Batman province, 20 are new for the study area. By now, 23 dytiscid species are known from Batman province. The determined species and their locality data are listed below:

Family: DYTISCIDAE Leach, 1815

Subfamily: Agabinae Thomson, 1867

Tribe: Agabini Thomson, 1867

Genus: *Agabus* Leach, 1817

***Agabus biguttatus* (Olivier, 1795)**

Material examined and locality information: B2, 5 ex.; B4, 3 ex.; B6, 3 ex.; B9, 5 ex.; B11, 2 ex.; B14, 3 ex.; B16, 7 ex.; B19, 6 ex.; B24, 8 ex.; B27, 3 ex.; B29, 2 ex.; B33, 6 ex.; B36, 3 ex.; B38, 1 ex.

***Agabus bipustulatus* (Linnaeus, 1767)**

Material examined and locality information: B2, 3 ex.; B3, 2 ex.; B4, 2 ex.; B6, 5 ex.; B13, 6 ex.; B15, 4 ex.; B18, 4 ex.; B21, 5 ex.; B23, 3 ex.; B25, 4 ex.; B27, 2 ex.; B29, 3 ex.; B31, 2 ex.; B32, 1 ex.; B34, 2 ex.; B39, 5 ex.

***Agabus conspersus* (Marsham, 1802)**

Material examined and locality information: B1, 2 ex.; B4, 3 ex.; B7, 4 ex.; B11, 7 ex.; B14, 3 ex.; B17, 2 ex.; B20, 5 ex.; B22, 7 ex.; B26, 4 ex.; B30, 3 ex.; B33, 2 ex.; B37, 1 ex.

***Agabus nebulosus* (Forster, 1771)**

Material examined and locality information: B2, 3 ex.; B5, 4 ex.; B8, 5 ex.; B11, 5 ex.; B13, 3 ex.; B18, 2 ex.; B21, 5 ex.; B24, 5 ex.; B26, 2 ex.; B28, 5 ex.; B30, 3 ex.; B31, 1 ex.; B32, 6 ex.; B38, 2 ex.

Subfamily: Hydroporinae Aubé, 1836

Tribe: Bidessini Sharp, 1880

Genus: *Bidessus* Sharp, 1880

***Bidessus calabricus* (Guignot, 1957)**

Material examined and locality information: B1, 5 ex.; B3, 7 ex.; B7, 3 ex.; B11, 7 ex.; B13, 4 ex.; B16, 8 ex.; B18, 13 ex.; B21, 10 ex.; B25, 13 ex.; B28, 3 ex.; B31, 5 ex.; B33, 2 ex.; B35, 3 ex.; B37, 3 ex.; B38, 9 ex.

Genus: *Deronectes* Sharp, 1882

***Deronectes evelynae* Fery & Hosseinie, 1998**

Material examined and locality information: B10, 5 ex.

***Deronectes kabilcevz* Aykut, Yıldırım, Tusun & Fery, 2019**

Material examined and locality information: B10, 7 ex.

***Deronectes propedoriae* Aykut, Yıldırım, Tusun & Fery, 2019**

Material examined and locality information: B10, 5 ex.

Genus: *Hydroglyphus* Motschulsky, 1853

***Hydroglyphus geminus* (Fabricius, 1792)**

Material examined and locality information: B2, 6 ex.; B7, 3 ex.; B12, 3 ex.; B14, 5 ex.; B19, 7 ex.; B23, 4 ex.; B28, 3 ex.; B32, 4 ex.; B39, 3 ex.

Table 1. Location of the sampling sites of Batman province where the specimens were found.

Abbreviation	Sampling sites	Coordinates	Altitude (m)
B1	Batman, Sason district, Boğazkapı village	38°21'34"N, 41°26'53"E	886
B2	Batman, Sason district, Taşyuva village	38°21'57"N, 41°28'51"E	1326
B3	Batman, Sason district, Çalırsırlar village	38°23'19"N, 41°29'07"E	1075
B4	Batman, Sason district, Kınalı village	38°24'58"N, 41°28'49"E	974
B5	Batman, Sason distyric, Derince village	38°26'19"N, 41°28'36"E	1009
B6	Batman, Sason district, Sarıkız village	38°25'58"N, 41°34'21"E	1496
B7	Batman, Sason district, Karayün village	38°24'52"N, 41°35'07"E	1647
B8	Batman, Sason district, Karaağaç village	38°24'59"N, 41°34'41"E	1702
B9	Batman, Sason district, Meşeli village	38°25'49"N, 41°28'48"E	1027
B10	Batman, Sason district, Dereiçi village	38°30'32"N, 41°31'53"E	735
B11	Batman, Kozluk district entrance	38°09'57"N, 41°28'27"E	694
B12	Batman, Kozluk district, Merga stream	38°11'51"N, 41°30'42"E	667
B13	Batman, Kozluk district, İnişli village	38°13'32"N, 41°29'36"E	954
B14	Batman, Kozluk district, Bekirhan Küllük stream	38°08'50"N, 41°18'22"E	649
B15	Batman, Kozluk district, Parmakkapı village	38°06'48"N, 41°14'57"E	638
B16	Batman, Kozluk district, Konaklı village	38°08'10"N, 41°16'39"E	655
B17	Batman, Kozluk district, Geyikli village	38°13'05"N, 41°26'05"E	948
B18	Batman, Beşiri district, Yaylıca village	37°59'48"N, 41°13'55"E	710
B19	Batman, Beşiri district, Bilek village	37°58'49"N, 41°15'51"E	703
B20	Batman, Beşiri district, Bahçeçayırı township	37°57'28"N, 41°20'28"E	560
B21	Batman Beşiri district, Durucak village	38°00'32"N, 41°19'58"E	583
B22	Batman Beşiri district, Yontukyazı village	37°52'59"N, 41°19'32"E	681
B23	Batman, Beşiri stream	37°53'55"N, 41°17'52"E	754
B24	Batman -Hasankeyf road, 27. Km	37°45'24"N, 41°16'09"E	673
B25	Batman, Hasankeyf district, Suçeken village	37°43'58"N, 41°18'51"E	541
B26	Batman, Hasankeyf district, Sinniboğaz stream	37°44'28"N, 41°25'56"E	625
B27	Batman, Hasankeyf district, Akyar picnic area	37°39'21"N, 41°27'05"E	738
B28	Batman, Hasankeyf district, Gürbüz village	37°38'22"N, 41°25'43"E	826
B29	Batman, Batman Thermal area	38°21'58"N, 41°11'12"E	836
B30	Batman, Batman thermal road	38°21'43"N, 41°10'02"E	902
B31	Batman, Karayün village	37°50'33"N, 41°06'51"E	645
B32	Batman, Güvercin village	37°56'28"N, 41°10'39"E	687
B33	Batman, Gercüş district, Karalan village	37°36'53"N, 41°18'23"E	826
B34	Batman, Gercüş district, Esentepe village	37°36'17"N, 41°17'08"E	776
B35	Batman, Gercüş district, Yücekök village	37°35'59"N, 41°19'55"E	928
B36	Batman, Gercüş district entrance	37°34'41"N, 41°23'39"E	922
B37	Batman, Gercüş district, Özler village	37°34'39"N, 41°25'19"E	978
B38	Batman, Gercüş district, Yamanlar village	37°33'10"N, 41°27'46"E	1122
B39	Batman, Gercüş district, Koçak village	37°33'58"N, 41°31'52"E	1193

***Hydroglyphus pusillus* (Fabricius, 1781)**

Material examined and locality information: B4, 2 ex.; B9, 3 ex.; B15, 3 ex.; B21, 5 ex.; B22, 1 ex.; B25, 4 ex.; B26, 1 ex.; B30, 2 ex.; B33, 4 ex.; B37, 5 ex.

Tribe: Hydroporini Aubé, 1836**Genus: *Nebriporus* Régimbart, 1906b*****Nebriporus stearinus stearinus* Kolenati, 1845**

Material examined and locality information: B1, 2 ex.; B3, 5 ex.; B5, 3 ex.; B6, 7 ex.; B8, 2 ex.; B9, 1 ex.; B12, 2 ex.; B27, 13 ex.; B35, 2 ex.

Genus: *Scarodytes* Gozis, 1914***Scarodytes halensis* (Fabricius, 1787)**

Material examined and locality information: B2, 2 ex.; B4, 2 ex.; B5, 1 ex.; B7, 4 ex.; B9, 3 ex.; B11, 2 ex.; B13, 6 ex.; B16, 12 ex.; B18, 6 ex.; B20, 8 ex.; B22, 3 ex.; B24, 1 ex.; B26, 4 ex.; B28, 3 ex.; B30, 5 ex.; B32, 4 ex.; B34, 2 ex.; B38, 2 ex.

Genus: *Hydroporus* Clairville, 1806***Hydroporus discretus* (Fairmaire and Brisout, 1859)**

Material examined and locality information: B1, 2 ex.; B5, 3 ex.; B14, 3 ex.; B17, 4 ex.; B23, 2 ex.; B31, 3 ex.; B33, 5 ex.

***Hydroporus planus* (Fabricius, 1782)**

Material examined and locality information: B2, 3 ex.; B5, 1 ex.; B8, 1 ex.; B12, 2 ex.; B13, 3 ex.; B16, 1 ex.; B21, 1 ex.; B24, 2 ex.; B27, 2 ex.; B29, 4 ex.; B34, 3 ex.

***Hydroporus pubescens* (Gyllenhal, 1808)**

Material examined and locality information: B1, 3 ex.; B3, 1 ex.; B5, 1 ex.; B6, 3 ex.; B8, 3 ex.; B9, 2 ex.; B15, 4 ex.; B18, 4 ex.; B22, 2 ex.; B26, 2 ex.; B30, 5 ex.; B31, 3 ex.; B36, 2 ex.; B29, 3 ex.

***Hydroporus tessellatus* (Drapiey, 1819)**

Material examined and locality information: B1, 2 ex.; B3, 2 ex.; B7, 1 ex.; B11, 1 ex.; B14, 1 ex.; B16, 2 ex.; B19, 2 ex.; B21, 4 ex.; B24, 5 ex.; B27, 3 ex.; B30, 3 ex.; B33, 1 ex.; B39, 1 ex.

Genus: *Graptodytes* Seidlitz, 1887***Graptodytes flavipes* (Olivier, 1795)**

Material examined and locality information: B2, 2 ex.; B4, 5 ex.; B6, 3 ex.; B8, 3 ex.; B12, 4 ex.; B17, 6 ex.; B20, 3 ex.; B23, 6 ex.; B26, 3 ex.; B29, 7 ex.; B32, 9 ex.; B35, 7 ex.

Genus: *Hydrovatus* Motschulsky, 1853***Hydrovatus cuspidatus* (Kunze, 1818)**

Material examined and locality information: B2, 1 ex.; B5, 1 ex.; B7, 2 ex.; B8, 2 ex.; B12, 1 ex.; B15, 2 ex.; B19, 3 ex.; B24, 1 ex.; B34, 2 ex.; B37, 1 ex.

Tribe: *Hygrotini* Portevin, 1929**Genus: *Hygrotus* Stephens, 1828*****Hygrotus confluens* (Fabricius, 1787)**

Material examined and locality information: B7, 2 ex.; B16, 3 ex.; B23, 4 ex.; B32, 1 ex.; B38, 1 ex.

***Hygrotus inaequalis* (Fabricius, 1777)**

Material examined and locality information: B3, 5 ex.; B5, 3 ex.; B6, 5 ex.; B9, 14 ex.; B11, 8 ex.; B12, 7 ex.; B14, 3 ex.; B15, 2 ex.; B18, 6 ex.; B20, 2 ex.; B23, 4 ex.; B25, 2 ex.; B26, 6 ex.; B27, 3 ex.; B29, 5 ex.; B32, 11 ex.; B35, 6 ex.; B36, 4 ex.; B39, 8 ex.

***Hygrotus saginatus* (Schaum, 1857)**

Material examined and locality information: B1, 2 ex.; B4, 17 ex.; B9, 8 ex.; B13, 4 ex.; B16, 4 ex.; B22, 3 ex.; B24, 6 ex.; B28, 2 ex.; B29, 13 ex.; B33, 1 ex.

Subfamily: *Laccophilinae* Gistel, 1848**Tribe: *Laccophilini* Gistel, 1848****Genus: *Laccophilus* Leach, 1815*****Laccophilus hyalinus* (De Geer, 1774)**

Material examined and locality information: B2, 2 ex.; B4, 3 ex.; B8, 6 ex.; B9, 2 ex.; B12, 4 ex.; B17, 4 ex.; B19, 3 ex.; B20, 3 ex.; B22, 4 ex.; B26, 8 ex.; B31, 1 ex.; B35, 3 ex.; B38, 2 ex.

***Laccophilus minutus* (Linnaeus, 1758)**

Material examined and locality information: B2, 3 ex.; B6, 6 ex.; B9, 3 ex.; B15, 8 ex.; B18, 2 ex.; B22, 4 ex.; B27, 7 ex.

4. DISCUSSION AND CONCLUSION

In 39 different freshwater habitats of Batman province 23 species belong to 11 genera of family Dytiscidae were recorded. With this study a total of 934 specimens were collected and identified. Of these *Hygrotus inaequalis* (Fabricius, 1777) was the most dominant (11, 13%), followed by *Bidessus calabricus* Guignot, 1957 (10, 06%), *Scarodytes halensis* (Fabricius, 1787) (7, 49%), *Hygrotus saginatus* (Schaum, 1857) (6, 42%), *Graptodytes flavipes* (Olivier, 1795) (6, 21%) and *Agabus biguttatus* (Olivier, 1795) (6, 1%). *Deronectes evelynae* Fery & Hosseinie, 1998, *D. kabilceviz* Aykut, Yıldırım, Tusun & Fery, 2019 and *D. propedoriae* Aykut, Yıldırım, Tusun & Fery, 2019 has an abundance of less than 1%. *Hygrotus inaequalis*, *Scarodytes halensis* (Fabricius, 1787), *Agabus bipustulatus* (Linnaeus, 1767), *Bidessus calabricus* Guignot, 1957, *Agabus biguttatus* (Olivier, 1795) and *A. nebulosus* (Forster, 1771) were the most widespread species found in our study area. These mentioned six species were found respectively; *H. inaequalis* in 19, *S. halensis* in 18, *A. bipustulatus* in 16, *B. calabricus* in 15, *A. biguttatus* and *A. nebulosus* in 14 sites. *Deronectes evelynae*, *D. kabilceviz* and *D. propedoriae* were restricted to a single site each.

Acknowledgement

This study was supported by the Research Fund of Dicle University (DUBAP), project no ZGEF.17.014. This study was presented orally in summary in 5 th International Eurasian Conference on Biological and Chemical Sciences (EurasianBiochem 2022) held online on 23-25 November, Ankara, Türkiye.

REFERENCES

- [1] Nilsson AN, Hájek J. A world catalogue of the family Dytiscidae (Coleoptera, Adephaga). World Wide Web Electronic Publication; 2022 [Cited 2022 September 5]. Available from: <http://www.waterbeetles.eu/>
- [2] Nilsson AN, Hájek J. Catalogue of Palearctic Dytiscidae (Coleoptera). World Wide Web Electronic Publication; 2022 [Cited 2022 September 5]. Available from: <http://www.waterbeetles.eu/>
- [3] Erman ÖK, Erman O. First records of *Oreodytes* Seidlitz, 1887 (Dytiscidae, Coleoptera) from Turkey: *Oreodytes septentrionalis* (Gyllenhal, 1826) and *Oreodytes davisii* (Curtis, 1831). Turk J Zool. 2002; 26(3): 295-299.
- [4] Erman ÖK, Erman O. First record of *Graptodytes bilineatus* (Sturm, 1835) (Coleoptera, Dytiscidae) from Turkey. Turk J Zool. 2004; 28(1): 87- 90.
- [5] Erman ÖK, Fery H. *Hydroporus neclae* sp. n. from north-eastern Turkey, a new member of the memnonius-group of *Hydroporus* Clairville

- (Coleoptera: Dytiscidae). Zootaxa. 2006; 1355: 39-47.
- [6] Darılmaz CM, Kıyak S. Checklist of Gyridae, Haliplidae, Noteridae and Dytiscidae of Turkey (Coleoptera: Adephaga). J Nat Hist. 2009; 43(25): 1585-1636.
- [7] Darılmaz MC, Kıyak S. New and Rare Water Beetles (Coleoptera: Haliplidae: Dytiscidae) for the Fauna of Turkey. Acta Zool Bulg. 2010; 62(1): 99-102.
- [8] Fery H, Erman OK. Five new species of the *longulus*-group of *Hydroporus* Clairville, 1806 from north-eastern Turkey (Coleoptera: Dytiscidae). Zootaxa. 2009; 2033: 1-12
- [9] Fery H. New species of the *Hydroporus longulus*-group from Iran, Armenia and Turkey with a synopsis of the group (Coleoptera: Dytiscidae). Acta Entomol Mus Natl Pragae, 2009; 49(2): 529-558.
- [10] Fery H, Hendrich L. *Hydroporus esersi* sp. n., a new diving beetle from southern Turkey (Coleoptera, Dytiscidae, Hydroporinae). Zootaxa. 2011; 2909: 38-46.
- [11] Fery H, Hendrich L. *Ilybius enpalaiatheka* spec. nov. from Anatolia, Turkey, with a revised key to males of the *Ilybius erichsoni* and *chalconatus* groups. Spixiana. 2011; 34: 39-46.
- [12] Fery H, Przewoźny M. *Ilybius thynias* sp. n. from European Turkey (Coleoptera: Dytiscidae). Zootaxa. 2011; 2740: 59-67.
- [13] Hájek J, Štátný J, Boukal M, Fery, H. Updating the eastern Mediterranean *Deronectes* (Coleoptera: Dytiscidae) with the description of two new species from Turkey. Acta Entomol Mus Natl Pragae. 2011; 51: 463-476.
- [14] Hernando C, Aguilera P, Castro A, Ribera I. A new interstitial species of the *Hydroporus ferrugineus* group from north-western Turkey, with a molecular phylogeny of the *H. memnonius* and related groups (Coleoptera: Dytiscidae: Hydroporinae). Zootaxa. 2012; 3173: 37-53.
- [15] Vorst O, Fery H. *Hydroporus emergens* sp. n. from south-western Turkey (Coleoptera: Dytiscidae). Tijdschr Entomol. 2014; 157: 145-149.
- [16] Aykut M, Fery H. *Scarodytes costatus* nov. sp. from the Bingöl Province in Turkey, the first species of the genus with costate elytra (Insecta: Coleoptera: Dytiscidae: Deronectina). Linz Biol Beitr. 2017; 49: 395-414.
- [17] Aykut M. The Diving Beetle Fauna of Diyarbakır and Bingöl Provinces, Turkey (Coleoptera: Dytiscidae) with a New Record. Pakistan J Zool. 2018; 50 (1): 65-74.
- [18] Aykut M, Taşar GE, Fery H. *Deronectes taron* sp. n. from the eastern Anatolian region of Turkey (Coleoptera, Dytiscidae, Hydroporinae). Zootaxa. 2018; 4422 (2): 403-410.
- [19] Darılmaz MC, Polat A, İncekara Ü. Faunistic study on aquatic Coleoptera of the Eastern Mediterranean Region of Turkey. Turk J Fish Aquat Sci. 2018; 19(5): 409-421.
- [20] Erman ÖK, Taşar GE, Aykut M, Kurt K. First record of *Hydaticus histrio* Clark, 1864 (Coleoptera, Dytiscidae) from Turkey. Acta Biologica Turcica. 2018; 31(4): 174-177.
- [21] Aykut M, Taşar GE. Contributions to the knowledge of Adephagan fauna in Adıyaman Province, Turkey (Coleoptera: Dytiscidae, Gyridae, Haliplidae and Noteridae). Mun Ent Zool. 2018; 13: 249-255
- [22] Aykut M, Yıldırım İH, Tusun S, Fery H. *Deronectes kabilceviz* sp. n. and *D. propedoriae* sp. n. from south-eastern Anatolia (Turkey) (Coleoptera, Dytiscidae, Hydroporinae). Zootaxa. 2019; 4691 (1): 5-10.
- [23] Aykut M, Taşar GE, Fery H. *Bidessus anatolicus adıyaman* ssp. n. from Adıyaman province, southern Turkey (Coleoptera, Dytiscidae, Bidessini). Zootaxa. 2021; 5027(4): 563-575.
- [24] Tuğluk ME, Özfidan T. 2022. Batman ili köy ve bağlı yerleşim birimleri yer adları üzerine bir değerlendirme. Hikmet-akademik edebiyat dergisi. 2022; 16: 464-487.