

Faunistic Study on Aquatic Coleoptera of the Eastern Mediterranean Region of Turkey

Mustafa Cemal Darılmaz¹, Ahmet Polat^{2,*} , Umit Incekara²

¹ Aksaray University, Art and Science Faculty, Department of Biology.

² Ataturk University, Science Faculty, Department of Biology.

Article History

Received 30 May 2017
Accepted 14 May 2018
First Online 15 May 2018

Corresponding Author

Tel.: +90.442 2314313
E-mail: ahmetpolat@atauni.edu.tr

Keywords

Coleoptera
Aquatic beetles
New records
Turkey

Abstract

This study was conducted in Adana, Gaziantep, Hatay, Kahramanmaraş, Kilis and Osmaniye provinces of the Eastern Mediterranean Region between the years of 2011 and 2013. In this study, it was attempted to describe 51 species which were determined to belong to the five families. Of all these species, 41 were from Dytiscidae, 1 species was from Gyrinidae, 6 species were from Haliplidae, 2 species were from Noteridae, and 1 species was from Spercheidae. Two of them were new records for Turkey (*Hydroporus scalesianus* and *Hydrovatus acuminatus*), two species were also second record for Turkey (*Haliplus fulvus* and *Ilybius quadriguttalus*) and one species was first exact locality record for Turkey (*Haliplus obliquus*).

Introduction

The Coleoptera includes 4 suborders (Archostemata, Myxophaga, Adephaga and Polyphaga) with about 360,000 species (Jäch & Balke, 2008; Bouchard, Grebennikov, Smith & Douglas, 2009; Van Vondel, Ostovan & Ghahari, 2017). The Polyphaga is the largest group in coleopteran with about 335,000 species placed into 153 families (Slipinski, Lenschen & Lawrence, 2011) and suborder Adephaga comprises 11 families worldwide (Van Vondel *et al.* 2017).

The Dytiscidae, known as the largest family into the suborder Adephaga with about 4450 species in 182 genera in the world, is representing with 155 species from Turkey in 600 species from Palearctic Region (Jäch & Balke, 2008; Darılmaz & Kiyak, 2009a; Taşar *et al.* 2012; Nilsson & Hájek, 2018; Aykut & Taşar, 2018).

The family Gyrinidae, known 877 species in 12 genera in the world (Van Vondel *et al.* 2017),

represented 10 species and two subspecies from Turkey in 100 species from Palearctic Region (Darılmaz & Kiyak, 2009a).

The family Haliplidae, known 238 species in five genera in the world (Van Vondel *et al.* 2017), represented 16 species from Turkey in 70 species from Palearctic Region (Darılmaz & Kiyak, 2010).

The family Noteridae, known 3 species from Turkey, represented 262 species in the world which include about 30 species from Palearctic Region (Darılmaz & Kiyak, 2009a; Van Vondel *et al.* 2017).

The Spercheidae has 18 species, most of them from the Ethiopian and Oriental zoogeographic regions. Only two African species, *S. emarginatus* (Schaller, 1783) and *S. senegalensis* Laporte, 1832, are recorded from Turkey so far (Darılmaz & Kiyak 2011).

This faunistic study concerns the aquatic beetles of the Adana, Gaziantep, Hatay, Kahramanmaraş, Kilis

and Osmaniye provinces of Turkey. Three main rivers, the Seyhan, the Ceyhan and the Berdan, rise in the mountains and flow into the Mediterranean Sea. Together, they form the wide, alluvial plain called the Çukurova. Between the mountains and the sea, the terrestrial, limnic and marine ecosystems create a diverse structure (Yılmaz, 1998).

Adana, Gaziantep, Hatay, Kahramanmaraş, Kilis and Osmaniye provinces (Figure 1) are located in the south of Turkey. The aquatic Coleoptera fauna of these provinces are scarcely known. Thirty six species of aquatic beetles have been recorded from the studied region previously, shown in Table 1.

These provinces have similar properties with neighbors countries geographically. There is no recent knowledge deal with these families from Syria and Iraq. But in the year of 2017, Van Vondel *et al.* gave checklist Gyrinidae, Haliplidae and Noteridae of Iran. Some species in our study are (*Gyrinus substriatus* Stephens, 1828; *Haliplus heydeni* Wehncke, 1875; *Haliplus obliquus* Fabricius, 1787; *Haliplus variegatus* Sturm, 1834; *Haliplus lineatocollis* (Marsham, 1802); *Pelodytes caesus* (Duftschmid, 1805); *Canthydrus diopthalmus* (Reiche and Saulcy, 1855); *Noterus clavicornis* (De Geer, 1774)) also recorded from Iran.

The aim of this study is to determine the aquatic beetles in Adana, Gaziantep, Hatay, Kahramanmaraş, Kilis and Osmaniye provinces, make a contribution to

the Turkish aquatic Coleoptera fauna.

Materials and Methods

For this article studied materials collected by means of sieves that having 3,15x1 mm pores in summer seasons between 2011 and 2013 from Adana, Gaziantep, Hatay, Kahramanmaraş, Kilis and Osmaniye provinces. These specimens had firstly killed with ethyl acetate and had stored in small bottles in the research area. The specimens were cleaned with a brush before identification, and then aedeagus of the beetles was dissected under a stereo microscope in the laboratory. Identification of all samples was made by the first author. All the specimens are deposited in the Zoological Museum, Atatürk University, Faculty of Science, Department of Biology, Erzurum, Turkey.

Species List

Family GYRINIDAE

Gyrinus substriatus Stephens, 1828

Material examined: Kahramanmaraş: Göksun, Değirmenedere; 37°54'55"N 36°27'48"E, 1433m, 26.IV.2012, 1ex.; Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 1ex.

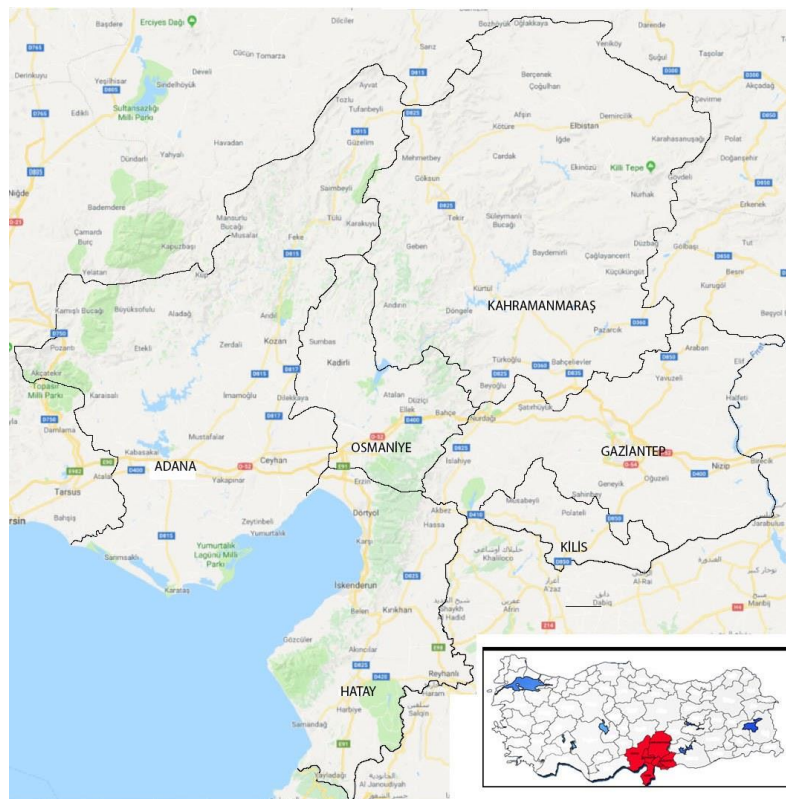


Figure 1. Map of research area in Turkey.

Table 1. Literature records of the research area

| Family List | Adana | Gaziantep | Hatay | Kahramanmaraş | Kilis | Osmaniye | Literature |
|-------------|-------|-----------|-------|---------------|-------|----------|-------------------------|
| Gyrinidae | 7 | - | 2 | - | - | - | Darılmaz & Kiyak, 2009a |
| Haliplidae | 2 | - | - | - | - | - | Darılmaz & Kiyak, 2009a |
| Noteridae | 1 | - | - | - | - | - | Darılmaz & Kiyak, 2009a |
| Dytiscidae | 17 | 4 | 4 | 2 | 2 | - | Darılmaz & Kiyak, 2009a |
| Spercheidae | - | - | - | - | - | - | Darılmaz & Kiyak, 2011 |
| Total | 27 | 4 | 6 | 2 | 2 | - | |

Remark: New for Kahramanmaraş.

Family HALIPLIDAE

Haliphus obliquus (Fabricius, 1787)

Material examined: Kahramanmaraş: Göksun, on Andırın road; 38°00'55"N 36°29'15"E, 1046m, 26.VI.2012, 5ex.; Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 1ex.

Remark: According to F.A. Zaitsev (1972) and V.B. Guéorguiev (1981), *Haliphus obliquus* were recorded from "Başköy", but there are about 10 villages in various part of Turkey named as "Başköy". Considering literatures mentioned above, the old record most probably from Eastern Anatolia, and therefore, first exact locality is presented with this study.

Haliphus fulvus (Fabricius, 1801)

Material examined: Osmaniye: Erzin, on Ceyhan road; 37°03'36"N 36°13'09"E, 118m, 28.V.2012, 6ex.

Remark: Only recorded from Balıkesir province previously (Guéorguiev, 1981). Secondly recorded from Turkey with this study.

Haliphus heydeni Wehncke, 1875

Material examined: Kahramanmaraş: Göksun, on Andırın road; 37°59'02"N 36°30'00"E, 1355m, 04.IX.2013, 2ex.

Remark: New for Eastern Mediterranean region.

Haliphus variegatus Sturm, 1834

Material examined: Adana: Yumurtalık, Yumurtalık Lagoon; 36°45'12"N 35°37'43"E, 8m, 25.IV.2012, 1ex.; 36°39'43"N 35°33'49"E, 4m, 25.IV.2012, 1ex.; 36°40'09"N 35°30'22"E, 8m, 29.VI.2012, 1ex. Osmaniye: Toprakkale, Büyük Tüysüz; 37°01'48"N 36°08'21"E, 70m, 28.V.2012, 4ex.; Mustafabeyli; 37°07'03"N 36°09'21"E, 87m, 28.V.2012, 5ex.

Remark: New for Osmaniye.

Haliphus lineatocollis (Marsham, 1802)

Material examined: Osmaniye: Center, Karataş; 37°06'16"N 36°37'45"E, 667m, 27.VII.2011, 1ex.

Remark: New for Eastern Mediterranean region.

Peltodytes caesus (Duftschmid, 1805)

Material examined: Kahramanmaraş: Afşin, Tarlacık; 38°23'04"N 36°58'44"E, 1270m, 30.V.2012, 1ex.; Ekinözü, Akpınar; 38°06'05"N 37°13'08"E, 1411m, 23.VI.2013, 2ex.; Göksun, on Andırın road; 38°00'03"N 36°27'27"E, 1341m, 24.VI.2013, 3ex.; 37°59'02"N 36°30'00"E, 1355m, 04.IX.2013, 1ex.

Remark: New for Kahramanmaraş.

Family NOTERIDAE

Noterus clavicornis (De Geer, 1774)

Material examined: Adana: Feke, Kaleyüzü; 37°49'54"N 35°43'32"E, 1072m, 24.VII.2011, 3ex.; Kozan, Camili; 37°20'46"N 35°35'14"E, 164m, 25.VII.2011, 1ex.; Yumurtalık, Yumurtalık Lagoon; 36°39'43"N 35°33'49"E, 4m, 25.IV.2012, 1ex.; 36°46'36"N 35°44'56"E, 11m, 18.IV.2013, 1ex.; Yüreğir, Doğan kent; 36°51'42"N 35°20'36"E, 12m, 24.IV.2012, 6ex.; 36°52'02"N 35°20'59"E, 20m, 29.VIII.2013, 3ex. Gaziantep: İslahiye, Yolbaşı; 36°50'42"N 36°38'28"E, 382m, 12.V.2013, 25ex.; 36°50'43"N 36°39'28"E, 381m, 12.V.2013, 13ex.; 36°50'42"N 36°39'26"E, 385m, 15.IV.2013, 12ex. Hatay: Erzin, Dört yol; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 14ex.; Hassa, Çınarbaşı; 36°50'43"N 36°38'16"E, 380m, 15.IV.2013, 1ex.; Kırıkhan, Alaybey; 36°51'24"N 36°37'44"E, 382m, 01.IX.2013, 1ex.; Samandağ, Sutaşı; 36°06'54"N 35°55'33"E, 0m, 28.VI.2012, 1ex. Kahramanmaraş: Andırın, Gökçeli; 37°54'15"N 36°37'35"E, 507m, 15.IV.2013, 2ex.; Çağlayanerit, Değirmen pond; 37°43'32"N 37°29'13"E, 874m, 06.IX.2013, 2ex.; Ekinözü, Ortaören; 38°12'06"N 37°05'26"E, 1131m, 25.VI.2012, 8ex.; Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m,

25.VI.2012, 23ex.; Pazarcık, Bağlama pond; 37°17'35"N 37°07'53"E, 535m, 05.IX.2013, 5ex.; Göksun, on Andırın road; 38°00'03"N 36°27'27"E, 1341m, 24.VI.2013, 12ex.; Gölpinarı; 37°58'05"N 38°30'35"E, 1371m, 24.VI.2013, 8ex. Kilis: Musabeyli, Üçpınar; 36°52'29"N 36°57'43"E, 618m, 22.IV.2012, 1ex. Osmaniye: Center, Cevdediye; 37°07'27"N 36°13'33"E, 99m, 30.VIII.2013, 17 ex.; Erzin, on Ceyhan road; 37°03'36"N 36°13'09"E, 118m, 28.V.2012, 14ex.; Toprakkale, Büyük Tüysüz; 37°01'48"N 36°08'21"E, 70m, 28.V.2012, 12ex.; Mustafabeyli; 37°07'03"N 36°09'21"E, 87m, 28.V.2012, 30ex.

Remark: New for Eastern Mediterranean region.

***Canthydrus diophthalmus* (Reiche & Saulcy 1855)**

Material examined: Hatay: Antakya, on Belen road; 36°22'01"N 36°13'41"E, 106m, 27.VI.2013, 1ex.; Hassa, Çınarbaşı; 36°50'51"N 36°37'24"E, 400m, 28.VII.2011, 6ex.; Kırıkhan, on Kilis road; 36°40'10"N 36°25'19"E, 233m, 28.VI.2013, 2ex.; Yayladağ, on Kırıkhan road; 34°54'55"N 36°03'09"E, 409m, 01.IX.2013, 6ex. Kahramanmaraş: Nurhak, Ayçoşar; 38°02'38"N 37°18'19"E, 1523m, 27.IV.2012, 12ex. Osmaniye: Center, Tecirli; 37°09'47"N 36°07'19"E, 54m, 16.V.2013, 7ex.; Kaypak; 37°06'37"N 35°48'13"E, 805m, 27.VI.2013, 1ex.; Hasanbeyli, 37°07'23"N 36°34'52"E, 866m, 30.VIII.2013, 8ex.

Remark: New for Eastern Mediterranean region.

Family DYTISCIDAE

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

Material examined: Adana: Tufanebeyli, Taşpınar; 38°13'55"N 36°15'24"E, 1377m, 17.V.2013, 1ex. Gaziantep: Nurdağı, Kuzuluk; 37°04'46"N 36°53'03"E, 963m, 15.IV.2013, 2ex. Hatay: Antakya, on Reyhanlı road; 36°15'19"N 36°21'15"E, 121m, 28.VI.2013, 2ex. Kahramanmaraş: Afşin, Altinelma; 38°21'41"N 36°54'37"E, 1216m, 27.IV.2012, 2ex.; Andırın, Kesik; 37°38'47"N 36°21'59"E, 1076m, 24.VI.2013, 1ex.; Ekinözü, Taşburun; 38°09'34"N 37°12'20"E, 1238m, 23.VI.2013, 12ex.; Göksun, Püren passage; 37°57'34"N 36°33'31"E, 1426m, 24.VI.2013, 1ex.; Nurhak, Ayçoşar; 38°02'38"N 37°18'19"E, 1523m, 27.IV.2012, 4ex. Osmaniye: Hasanbeyli, Kayalı; 37°10'13"N 36°27'34"E, 624m, 27.VII.2011, 2ex.

Remark: New for Gaziantep, Hatay, Kahramanmaraş, Osmaniye.

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

Material examined: Adana: Tufanebeyli, Taşpınar; 38°13'55"N 36°15'24"E, 1377m, 17.V.2013, 3ex.;

Yumurtalık, Deveciuşağı; 36°45'50"N 35°38'04"E, 10m, 07.IX.2011, 1ex. Gaziantep: Araban, on Adıyaman road; 37°24'04"N 37°38'00"E, 529m, 02.IX.2013, 2ex.; Islahiye, Türkbağçe; 37°04'51"N 36°37'43"E, 514m, 15.IV.2013, 3ex. Hatay: Erzin, on Dörtöl road; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 2ex.; Hassa, Çınarbaşı; 36°50'43"N 36°39'28"E, 373m, 26.IV.2012, 2ex.; 36°50'51"N 36°37'24"E, 400m, 28.VII.2011, 1ex.; Dörtöl mountain road; 36°59'42"N 36°24'03"E, 1332m, 27.VI.2012, 8ex.; Safanözü; 36°50'42"N 36°38'21"E, 379m, 25.IV.2012, 2ex.; Reyhanlı, on Antakya road; 36°15'33"N 36°18'19"E, 94m, 01.IX.2013, 1ex.; Samandağ, Sebenova; 36°03'57"N 36°01'07"E, 332m, 28.VI.2013, 1ex.; Yayladağ, on Antakya road; 36°54'56"N 36°03'09"E, 410m, 24.IV.2012, 2ex.; Eğerci; 35°57'50"N 36°02'51"E, 519m, 24.IV.2012, 1ex.; Leylekli; 35°58'21"N 36°03'25"E, 517m, 01.IX.2013, 1ex.; Yeniköy; 35°57'49"N 36°02'52"E, 532m, 28.VI.2012, 8ex. Kahramanmaraş: Center, Sarımollalı; 37°37'40"N 36°38'49"E, 471m, 30.VII.2011, 5ex.; Afşin, Altinelma; 38°21'41"N 36°54'37"E, 1216m, 27.IV.2012, 3ex.; Tarlacık; 38°23'04"N 36°58'44"E, 1270m, 30.V.2012, 1ex.; 38°23'04"N 36°58'55"E, 1255m, 25.VI.2012, 5ex.; Andırın, Akifiye; 37°40'37"N 36°20'46"E, 1143m, 18.V.2013, 1ex.; Çiçekli; 37°51'43"N 36°25'00"E, 1637m, 26.VI.2012, 1ex.; Emirler; 37°39'43"N 36°26'49"E, 1453m, 26.IV.2012, 1ex.; Gökçeli; 37°36'09"N 36°22'28"E, 1123m, 26.VI.2012, 4ex.; near TEDAŞ; 37°35'48"N 36°02'35"E, 1120m, 18.V.2013, 1ex.; Yaylaüstü; 37°34'45"N 36°35'12"E, 1196m, 29.VII.2011, 1ex.; Göksun, on Andırın road; 38°00'55"N 36°29'15"E, 1046m, 26.VI.2012, 1ex.; Nurhak, Ayçoşar; 38°02'38"N 37°18'19"E, 1523m, 27.IV.2012, 1ex.; on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 8ex.; on Gölbaşı road; 37°50'58"N 37°43'07"E, 817m, 25.VI.2012, 1ex.; Kapıdere; 37°58'36"N 37°39'29"E, 1028m, 25.VI.2012, 1ex. Kilis: Center, Hisarköy; 35°50'13"N 36°46'14"E, 700m, 12.V.2013, 1ex.; Musabeyli, Üçpınar; 36°52'29"N 36°57'43"E, 618m, 22.IV.2012, 1ex.; Haydarlar; 36°50'38"N 36°58'01"E, 521m, 22.IV.2012, 2ex.; Polateli, on Kilis road; 36°48'48"N 37°05'59"E, 581m, 02.IX.2013, 1ex. Osmaniye: Center, Çardak; 37°06'10"N 36°18'00"E, 131m, 14.V.2013, 1ex.

Remark: New for Gaziantep, Hatay, Kahramanmaraş, Kilis, Osmaniye.

***Agabus caraboides* Sharp, 1882**

Material examined: Kahramanmaraş: Andırın, on Yeşilova road; 37°53'21"N 36°26'58"E, 1553m, 26.VI.2012, 1ex.

Remark: New for Eastern Mediterranean region.

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

Material examined: Adana: Ceyhan, Çatalhöyük; 37°12'35"N 35°19'11"E, 34m, 25.VI.2013, 1ex.; on Yumurtalık road; 36°54'12"N 36°52'06"E, 89m, 25.IV.2012, 3ex.; Karataş, Ağyatan Lake; 36°59'26"N 35°49'44"E, 25m, 25.IV.2012, 1ex.; Yumurtalık, Center; 36°43'01"N 35°33'54"E, 1m, 25.IV.2012, 2ex.; on Ceyhan road; 36°46'11"N 35°44'07"E, 6m, 25.IV.2012, 4ex.; Yumurtalık Lagoon; 36°45'21"N 35°37'40"E, 8m, 18.IV.2013, 5ex. Gaziantep: Islahiye, Türkbahçe; 37°04'51"N 36°37'43"E, 514m, 15.IV.2013, 5ex. Hatay: Erzin, on Dört Yol road; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 8ex.; Hassa, Çınarbaşı; 36°50'43"N 36°39'28"E, 373m, 26.IV.2012, 1ex.; Safanözü; 36°50'42"N 36°38'21"E, 379m, 25.IV.2012, 5ex. Kahramanmaraş: Andırın, Akifiye; 37°40'37"N 36°20'46"E, 1143m, 18.V.2013, 1ex.; Ekinözü, Akpınar; 38°06'05"N 37°13'07"E, 1410m, 31.V.2012, 2ex.; Göksun, Bozgüney; 38°15'00"N 36°21'54"E, 1608m, 17.V.2013, 2ex.; Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 1ex.; on Geben road; 37°44'40"N 36°27'24"E, 1260m, 18.V.2013, 1ex. Kilis: Musabeyli, Üçpınar; 36°52'29"N 36°57'43"E, 618m, 22.IV.2012, 4ex.

Remark: New for Eastern Mediterranean region.

***Agabus guttatus guttatus* (Paykull, 1798)**

Material examined: Hatay: Yayladağ, on Antakya road; 36°54'56"N 36°03'09"E, 410m, 24.IV.2012, 2ex.; Eğerci; 35°57'50"N 36°02'51"E, 519m, 24.IV.2012, 2ex.; Yeniköy; 35°57'49"N 36°02'52"E, 532m, 28.VI.2012, 1ex. Kahramanmaraş: Ekinözü, Ortaören; 38°12'06"N 37°05'26"E, 1131m, 25.VI.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Agabus labiatus* (Brahm, 1790)**

Material examined: Gaziantep: Islahiye, Türkbahçe; 37°04'51"N 36°37'43"E, 514m, 15.IV.2013, 1ex. Hatay: Hassa, Dört Yol mountain road; 36°59'42"N 36°24'03"E, 1332m, 27.VI.2012, 4ex. Kahramanmaraş: Andırın, Çiçekli; 37°51'43"N 36°25'00"E, 1637m, 26.VI.2012, 1ex.; Geben; 37°45'15"N 36°27'18"E, 1258m, 26.IV.2012, 3ex.; Gökçeli; 37°36'09"N 36°22'28"E, 1123m, 26.VI.2012, 2ex.; Afşin, Tarlacık; 38°23'04"N 36°58'44"E, 1270m, 30.V.2012, 4ex.; Elbistan, Akbayır; 38°10'56"N 37°15'53"E, 1210m, 31.V.2012, 9ex.; Göksun, Bozgüney; 38°15'00"N 36°21'54"E, 1608m, 17.V.2013, 9ex.; on Geben road; 37°44'40"N 36°27'24"E, 1260m, 18.V.2013, 2ex. Kilis: Center, Gözkaya; 36°50'15"N 36°49'08"E, 612m, 23.IV.2013, 1ex.

Remark: New for Eastern Mediterranean region.

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

Material examined: Adana: Tufanebeyli, Taşpınar; 38°13'55"N 36°15'24"E, 1377m, 17.V.2013, 1ex.; Yumurtalık, Narlık; 36°54'11"N 35°52'06"E, 78m, 15.V.2013, 5ex.; Turunçlu; 36°56'11"N 36°01'25"E, 9m, 17.IV.2013, 1ex.; Yumurtalık Lagoon; 36°39'43"N 35°33'49"E, 4m, 25.IV.2012, 3ex.; 36°45'12"N 35°37'43"E, 8m, 25.IV.2012, 3ex. Gaziantep: Islahiye, Türkbahçe; 37°04'51"N 36°37'43"E, 514m, 15.IV.2013, 2ex.; Nurdağı, Kuzuluk; 37°04'46"N 36°53'03"E, 963m, 15.IV.2013, 2ex. Hatay: Altınözü, Boynuyoğun; 36°11'23"N 36°21'43"E, 96m, 16.IV.2013, 1ex.; Hassa, Çınarbaşı; 36°50'51"N 36°37'24"E, 400m, 28.VII.2011, 2ex.; Kumlu, Karaçalılık; 36°22'25"N 36°24'55"E, 81m, 16.IV.2013, 7ex.; Terzihüyük; 36°18'01"N 36°24'38"E, 82m, 15.IV.2013, 2ex.; Reyhanlı, Tayfun Sökmen; 36°15'19"N 36°26'26"E, 90m, 23.IV.2012, 2ex. Kahramanmaraş: Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 1ex. Kilis: Center, Gözkaya; 36°50'21"N 36°50'38"E, 551m, 23.IV.2012, 1ex.; Hisarköy; 35°50'13"N 36°46'14"E, 700m, 12.V.2013, 3ex.; Musabeyli, Gülbaba; 36°49'54"N 36°47'22"E, 666m, 23.IV.2012, 1ex. Osmaniye: Kadirli, Karatepe Dam; 37°18'32"N 36°13'30"E, 165m, 19.IV.2013, 2ex.

Remark: New for Eastern Mediterranean region.

***Ilybius chalconatus* (Panzer, 1796)**

Material examined: Adana: Tufanbeyli, Güzelim; 38°07'21"N 36°10'01"E, 1474m, 17.V.2013, 1ex. Kahramanmaraş: Center, Kurucaova; 37°57'18"N 36°33'35"E, 1441m, 30.V.2012, 1ex.; Andırın, Akifiye; 37°40'37"N 36°20'46"E, 1143m, 18.V.2013, 2ex.; Çiçekli; 37°51'43"N 36°25'00"E, 1637m, 26.VI.2012, 3ex.; near TEDAŞ; 37°35'48"N 36°02'35"E, 1120m, 18.V.2013, 2ex.; Afşin, Altinelma; 38°21'41"N 36°54'37"E, 1216m, 27.IV.2012, 1ex.; Tarlacık; 38°23'04"N 36°58'54"E, 1269m, 27.IV.2012, 1ex.; Göksun, Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 3ex.; Kireçköy; 37°59'09"N 36°29'50"E, 1339m, 17.V.2013, 2ex.; Nurhak, Ağcasar; 38°02'38"N 37°18'19"E, 1370m, 23.VI.2013, 5ex.; on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 2ex.

Remark: New for Eastern Mediterranean region.

***Ilybius fuliginosus fuliginosus* (Fabricius, 1792)**

Material examined: Kahramanmaraş: Andırın, Geben; 37°48'29"N 36°25'08"E, 1318m, 26.VI.2012, 1ex.; Afşin, on Göksun road; 38°12'12"N 36°51'03"E, 1235m, 04.IX.2013, 1ex.; Tarlacık; 38°23'04"N 36°58'44"E, 1270m, 30.V.2012, 3ex.; Ekinözü, Ortaören; 38°06'44"N 37°05'41"E, 1153m, 25.VI.2012, 2ex.; Göksun, on Andırın road; 38°00'55"N 36°29'15"E, 1046m, 26.VI.2012, 2ex.; 38°00'03"N 36°27'27"E, 1341m, 24.VI.2013, 1ex.; 38°00'15"N 36°29'08"E,

1343m, 26.VI.2012, 1ex.; Soğukpınar; 38°03'15"N 36°34'37"E, 1361m, 26.VI.2012, 1ex.; Nurhak, Ayçoşar; 38°02'38"N 37°18'19"E, 1523m, 27.IV.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Ilybius quadriguttatus* (Lacordaire, 1835)**

Material examined: Kahramanmaraş: Afşin, Tarlacık; 38°23'04"N 36°58'55"E, 1255m, 25.VI.2012, 6ex.

Remark: Only recorded from Bolu province previously (Guéorguiev, 1981). Secondly recorded from Turkey with this study.

***Colymbetes fuscus* (Linnaeus, 1758)**

Material examined: Kahramanmaraş: Center, Sarımollalı; 37°37'40"N 36°38'49"E, 471m, 30.VII.2011, 1ex.; Andırın, Bektaşlı; 37°43'10"N 36°27'38"E, 1277m, 26.VI.2012, 1ex.; Çokak; 37°42'04"N 36°20'41"E, 1153m, 29.VII.2011, 1ex.; Geben; 37°48'29"N 36°25'08"E, 1318m, 26.VI.2012, 2ex.; Afşin, Tarlacık; 38°23'04"N 36°58'55"E, 1255m, 25.VI.2012, 3ex.; Göksun, Soğukpınar; 38°03'15"N 36°34'37"E, 1361m, 26.VI.2012, 2ex.

Remark: New for Eastern Mediterranean region.

***Rhantus suturalis* (W.S. MacLeay, 1825)**

Material examined: Kahramanmaraş: Göksun, on Andırın road; 38°00'15"N 36°29'08"E, 1343m, 26.VI.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Graptodytes bilineatus* (Sturm, 1835)**

Material examined: Kahramanmaraş: Afşin, Altınelma; 38°21'41"N 36°54'37"E, 1216m, 27.IV.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Dytiscus marginalis marginalis* Linnaeus, 1758**

Material examined: Kahramanmaraş: Elbistan, Sevdilli stream; 38°15'30"N 37°22'00"E, 1350m, 03.IX.2013, 1ex.

Remark: New for Eastern Mediterranean region.

***Hydaticus ponticus* Sharp, 1882**

Material examined: Adana: Yumurtalık, Yumurtalık Lagoon; 36°45'21"N 35°37'40"E, 8m,

18.IV.2013, 1ex. Hatay: Antakya, Maraşboğazi; 36°24'39"N 36°16'04"E, 104m, 12.V.2013, 1ex. Kahramanmaraş: Andırın, Aşdırın; 37°32'15"N 36°22'38"E, 619m, 05.IX.2013, 1ex.

Remark: New for Eastern Mediterranean region.

***Bidessus nasutus* Sharp, 1887**

Material examined: Hatay: İskenderun, on Serinyol road; 36°22'03"N 36°13'29"E, 115m, 24.IV.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Bidessus unistriatus* (Goeze, 1777)**

Material examined: Adana: Ceyhan, on Yumurtalık road; 36°54'12"N 36°52'06"E, 89m, 25.IV.2012, 2ex.

Remark: New for Eastern Mediterranean region.

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

Material examined: Adana: Ceyhan, Ayaş; 36°46'23"N 35°46'21"E, 6m, 29.V.2012, 1ex.; Çatalhöyük; 37°12'35"N 35°19'11"E, 34m, 25.VI.2013, 3ex.; on Kadırlı road; 37°06'27"N 35°48'13"E, 15m, 25.VI.2013, 9ex.; on Yumurtalık road; 36°54'12"N 36°52'06"E, 89m, 25.IV.2012, 3ex.; 36°46'04"N 35°39'09"E, 15m, 29.VI.2012, 10ex.; 36°46'25"N 35°39'30"E, 17m, 29.VI.2012, 1ex.; Karataş, Ağyatan Lake; 36°59'26"N 35°49'44"E, 25m, 25.IV.2012, 3ex.; on Yumurtalık road; 36°08'20"N 35°22'15"E, 76m, 16.V.2013, 5ex.; Tufanebeyli, Taşpınar; 38°13'55"N 36°15'24"E, 1377m, 17.V.2013, 1ex.; Yumurtalık, Center, 36°39'56"N 35°30'17"E, 33m, 15.V.2013, 8ex.; Deveciüşağı; 36°45'28"N 35°37'33"E, 0m, 26.VI.2013, 11ex.; Haylazlı; 36°46'32"N 35°39'13"E, 27m, 26.VII.2011, 16ex.; Kuzupınar (Göbekbiren); 36°43'30"N 35°34'29"E, 6m, 29.V.2012, 4ex.; 36°45'58"N 36°08'06"E, 272m, 18.IV.2013, 2ex.; on Karataş road; 36°51'14"N 35°49'27"E, 49m, 25.IV.2012, 2ex.; Narlık; 36°54'11"N 35°52'06"E, 78m, 15.V.2013, 4ex.; Turunçlu; 36°56'11"N 36°01'25"E, 9m, 17.IV.2013, 12ex.; Yumurtalık Lagoon; 36°41'18"N 35°32'35"E, 0m, 29.VI.2012, 3ex.; 36°40'09"N 35°30'22"E, 8m, 29.VI.2012, 4ex.; 36°46'36"N 35°44'56"E, 11m, 18.IV.2013, 2ex.; 36°45'21"N 35°37'40"E, 8m, 18.IV.2013, 2ex.; 36°40'31"N 35°33'17"E, 0m, 15.V.2013, 4ex.; 36°45'24"N 35°38'05"E, 0m, 26.VI.2013, 3ex.; 35°45'34"N 35°38'06"E, 0m, 26.VI.2013, 22ex.; Yüreğir, Doğankent; 36°51'47"N 35°20'37"E, 14m, 16.V.2013, 2ex.; 36°52'02"N 35°20'59"E, 20m, 29.VIII.2013, 5ex.; on Karataş road; 36°52'13"N 35°20'59"E, 19m, 25.VI.2013, 11ex.; Solaklı; 36°48'05"N 35°20'37"E, 9m, 30.VIII.2013, 4ex. Gaziantep: İslahiye, Çınarbaşı; 36°50'42"N 36°39'25"E,

375m, 27.V.2012, 5ex.; Esenler; 36°54'07"N 36°34'12"E, 446m, 14.V.2013, 2ex.; Fevzipaşa; 37°03'46"N 36°37'30"E, 516m, 31.VIII.2013, 6ex.; Yolbaşı; 36°50'42"N 36°39'26"E, 385m, 15.IV.2013, 2ex.; 36°50'42"N 36°38'28"E, 382m, 12.V.2013, 3ex.; 36°50'43"N 36°39'28"E, 381m, 12.V.2013, 1ex.; Yavuzeli, on Araban road; 37°27'44"N 36°37'36"E, 568m, 02.IX.2013, 3ex. Hatay: Antakya, on Belen road; 36°22'01"N 36°13'41"E, 106m, 27.VI.2013, 1ex.; 36°22'01"N 36°13'41"E, 106m, 27.VI.2013, 2ex.; Maraşboğazı; 36°24'39"N 36°16'04"E, 104m, 12.V.2013, 1ex.; Dört Yol, 36°48'06"N 36°11'31"E, 0m, 27.VI.2012, 12ex.; Erzin, on Yumurtalık road; 36°56'14"N 36°03'47"E, 10m, 15.V.2013, 3ex.; Hassa, Akbez; 36°49'42"N 36°32'16"E, 398m, 27.VI.2012, 5ex.; 36°49'42"N 36°32'16"E, 398m, 01.IX.2013, 14ex.; Çınarbaşı; 36°50'51"N 36°37'24"E, 400m, 28.VII.2011, 1ex.; Kırıkhan, Alaybey; 36°51'24"N 36°37'44"E, 382m, 01.IX.2013, 1ex.; Sucu; 36°28'54"N 36°30'23"E, 90m, 01.IX.2013, 1ex.; Topboğazı; 36°41'38"N 36°28'37"E, 269m, 01.IX.2013, 6ex.; Reyhanlı, Varışlı; 36°14'46"N 36°23'13"E, 92m, 14.V.2013, 3ex.; Yayladağ, on Antakya road; 35°54'30"N 36°09'10"E, 401m, 28.VI.2012, 3ex.; on Kırıkhan road; 34°54'55"N 36°03'09"E, 409m, 01.IX.2013, 2ex.; Yeditepe; 35°57'49"N 36°02'52"E, 521m, 13.V.2013, 4ex. Kahramanmaraş: Center, Avcılar Dam; 37°49'38"N 36°48'05"E, 668m, 24.VI.2013, 5ex.; Andırın, Akifiye; 37°42'04"N 36°21'08"E, 1138m, 05.IX.2013, 1ex.; Aşdırın; 37°32'15"N 36°22'38"E, 619m, 05.IX.2013, 1ex.; 37°32'15"N 36°22'38"E, 619m, 05.IX.2013, 1ex.; Bektaşlı; 37°25'20"N 36°15'26"E, 1510m, 26.IV.2012, 10ex.; Çokak; 37°42'04"N 36°20'40"E, 1160m, 08.IX.2011, 3ex.; Yeşilova; 37°27'05"N 36°19'34"E, 186m, 25.VI.2013, 3ex.; Afşin, Altinelma; 38°21'41"N 36°54'37"E, 1216m, 27.IV.2012, 1ex.; on Göksun road; 38°12'12"N 36°51'03"E, 1235m, 04.IX.2013, 2ex.; Tanır; 38°23'57"N 36°54'26"E, 1226m, 25.VI.2012, 2ex.; Tarlacık; 38°23'04"N 36°58'54"E, 1269m, 27.IV.2012, 2ex.; Yazıbelen; 38°19'38"N 36°57'55"E, 1173m, 18.V.2013, 1ex.; Çağlayançerit, Değirmen pond; 37°43'32"N 37°29'13"E, 874m, 06.IX.2013, 1ex.; Ekinözü, Akpınar; 38°06'05"N 37°13'07"E, 1410m, 31.V.2012, 2ex.; Elbistan, Söğütlü stream; 38°13'47"N 37°13'01"E, 1146m, 03.IX.2013, 1ex.; Göksun, on Andırın road; 38°00'03"N 36°27'27"E, 1341m, 24.VI.2013, 2ex.; Değirmenedere; 37°54'55"N 36°27'48"E, 1433m, 26.IV.2012, 1ex.; Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 1ex.; Gölpinarı; 37°58'05"N 38°30'35"E, 1371m, 24.VI.2013, 1ex.; Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 1ex.; Pazarcık, Bağlama pond; 37°17'35"N 37°07'53"E, 535m, 05.IX.2013, 19ex. Kilis: Center, on Musabeyli road; 36°50'30"N 36°58'02"E, 525m, 02.IX.2013, 1ex.; Polateli, Kızılgöl; 36°49'14"N 37°08'15"E, 780m, 29.VI.2013, 3ex. Osmaniye: Center, 37°01'48"N 36°08'21"E, 70m, 30.VIII.2013, 2ex.; Çardak; 37°06'10"N 36°18'00"E, 131m, 14.V.2013, 3ex.;

37°06'10"N 36°18'00"E, 131m, 14.V.2013, 1ex.; Kaypak; 37°06'37"N 35°48'13"E, 805m, 27.VI.2013, 12ex.; Tecirli; 37°09'47"N 36°07'19"E, 54m, 16.V.2013, 10ex.; Bahçe, on Cevdediye road; 37°12'28"N 36°11'30"E, 143m, 19.IV.2013, 1ex.; Erzin, on Ceyhan road; 37°03'36"N 36°13'09"E, 118m, 28.V.2012, 2ex.; Hasanbeyli, 37°07'23"N 36°34'52"E, 866m, 30.VIII.2013, 1ex.; Kayalı; 37°10'13"N 36°27'34"E, 624m, 27.VII.2011, 1ex.; Kadirli, Çiğdemli; 37°21'34"N 36°08'06"E, 272m, 27.VI.2013, 4ex.; Karatepe Dam; 37°18'32"N 36°13'30"E, 165m, 19.IV.2013, 14ex.

Remark: New for Gaziantep, Hatay, Kahramanmaraş, Osmaniye.

***Hydroporus angustatus* Sturm, 1835**

Material examined: Hatay: Yayladağ, Eğerci; 35°57'50"N 36°02'51"E, 519m, 24.IV.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Hydroporus discretus* Fairmaire and Brisout, 1859**

Material examined: Kahramanmaraş: Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Hydroporus marginatus* (Duftschmid, 1805)**

Material examined: Adana: Yumurtalık, Yumurtalık Lagoon; 36°44'49"N 35°38'04"E, 2m, 25.IV.2012, 2ex.; Yüreğir, Solaklı; 36°48'05"N 35°20'37"E, 9m, 30.VIII.2013, 1ex. Gaziantep: İslahiye, Karaburçlu; 37°08'13"N 36°42'11"E, 481m, 14.V.2013, 1ex. Hatay: Yayladağ, Yeditepe; 35°57'49"N 36°02'52"E, 521m, 13.V.2013, 1ex. Kahramanmaraş: Andırın, Akifiye; 37°40'37"N 36°20'46"E, 1143m, 18.V.2013, 2ex.; Afşin, Tanır; 38°23'57"N 36°54'26"E, 1226m, 25.VI.2012, 1ex.; Göksun, Püren passage; 37°57'34"N 36°33'31"E, 1426m, 24.VI.2013, 1ex. Kilis: Center, Hisarköy; 35°50'13"N 36°46'14"E, 700m, 12.V.2013, 1ex.; Karaçavuş; 36°44'51"N 36°49'21"E, 521m, 23.IV.2012, 1ex. Osmaniye: Bahçe, on Cevdediye road; 37°12'28"N 36°11'30"E, 143m, 19.IV.2013, 1ex.

Remark: New for Eastern Mediterranean region.

***Hydroporus nigellus* Mannerheim, 1853**

Material examined: Kahramanmaraş: Afşin, Tanır; 38°23'57"N 36°54'26"E, 1226m, 25.VI.2012, 5ex.

Remark: New for Eastern Mediterranean region.

***Hydroporus palustris* (Linnaeus, 1761)**

Material examined: Hatay: Kırıkhan, Alaybey; 36°51'24"N 36°37'44"E, 382m, 01.IX.2013, 1ex. Kahramanmaraş: Center, Kurucaova; 37°57'18"N 36°33'35"E, 1441m, 30.V.2012, 1ex.; Afşin, Tanır; 38°23'57"N 36°54'26"E, 1226m, 25.VI.2012, 3ex.; Göksun, on Andırın road; 38°00'55"N 36°29'15"E, 1046m, 26.VI.2012, 1ex.; 37°59'02"N 36°30'00"E, 1355m, 04.IX.2013, 3ex.; Gölpınarı; 37°58'05"N 38°30'35"E, 1371m, 24.VI.2013, 12ex.; Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 9ex.

Remark: New for Eastern Mediterranean region.

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

Material examined: Adana: Yumurtalık, on Ceyhan road; 36°46'11"N 35°44'07"E, 6m, 25.IV.2012, 4ex.

Remark: New for Eastern Mediterranean region.

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

Material examined: Adana: Karataş, Akyatağan Lake; 36°38'29"N 35°30'13"E, 17m, 25.IV.2012, 1ex.; Tufanbeyli, Güzelim; 38°07'21"N 36°10'01"E, 1474m, 17.V.2013, 2ex.; Yumurtalık, Yumurtalık Lagoon; 36°45'21"N 35°37'40"E, 8m, 18.IV.2013, 1ex. Gaziantep: Islahiye, Esenler; 36°54'07"N 36°34'12"E, 446m, 14.V.2013, 6ex. Hatay: Erzin, on Dört Yol road; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 6ex.; Hassa, Akbez; 36°50'58"N 36°37'21"E, 381m, 23.IV.2012, 1ex.; Çınarbaşı; 36°50'43"N 36°39'28"E, 373m, 26.IV.2012, 3ex.; 36°50'43"N 36°38'16"E, 380m, 15.IV.2013, 3ex.; on Dört Yol road; 36°59'42"N 36°24'03"E, 1332m, 27.VI.2012, 2ex. Kahramanmaraş: Andırın, Çiçekli; 37°51'43"N 36°25'00"E, 1637m, 26.VI.2012, 3ex.; Gökçeli; 37°35'58"N 36°22'20"E, 1115m, 26.IV.2012,

1ex.; Afşin, Tanır; 38°23'57"N 36°54'26"E, 1226m, 25.VI.2012, 1ex.; Yazıbelen; 38°19'38"N 36°57'55"E, 1173m, 18.V.2013, 14ex.; Ekinözü, Taşburun; 38°09'34"N 37°12'20"E, 1238m, 23.VI.2013, 2ex.; Göksun, Bozgüney; 38°15'00"N 36°21'54"E, 1608m, 17.V.2013, 12ex.; on Geben road; 37°44'40"N 36°27'24"E, 1260m, 18.V.2013, 1ex.; Püren passage; 37°57'34"N 36°33'31"E, 1426m, 24.VI.2013, 2ex.; Nurhak, Ayçoşar; 38°02'38"N 37°18'19"E, 1523m, 27.IV.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Hydroporus scalesianus* Stephens, 1828**

Material examined: Adana: Karataş, on Yumurtalık road; 36°08'20"N 35°22'15"E, 76m, 16.V.2013, 1ex. Hatay: Dört Yol, 36°48'06"N 36°11'31"E, 0m, 27.VI.2012, 3ex. (Figure 2).

Remark: First record for Turkey. A northern and central European species, ranging from France and Great Britain to northern Italy, former Czechoslovakia, and Russia (Nilsson & Holmen, 1995).

***Hydroporus tessellatus* (Drapiez, 1819)**

Material examined: Gaziantep: Nurdağı, Kuzuluk; 37°04'46"N 36°53'03"E, 963m, 15.IV.2013, 16ex. Hatay: Hassa, Çınarbaşı; 36°50'43"N 36°39'28"E, 373m, 26.IV.2012, 1ex. Kahramanmaraş: Andırın, Aşdın; 37°32'15"N 36°22'38"E, 619m, 05.IX.2013, 1ex. Kilis: Center, Gözkaya; 36°50'15"N 36°49'08"E, 612m, 23.IV.2013, 1ex.

Remark: New for Gaziantep, Hatay, Kahramanmaraş, Kilis.

***Hydroporus thracicus* Guéorguiev, 1966**



Figure 2. *Hydroporus scalesianus*.

Material examined: Kahramanmaraş: Andırın, Bektaşlı; 37°45'16"N 36°27'17"E, 1270m, 26.VI.2012, 3ex.

Remark: New for Eastern Mediterranean region.

***Nebrioporus stearinus stearinus* (Kolenati, 1845)**

Material examined: Adana: Feke, Kaleyüzü; 37°49'54"N 35°43'32"E, 1072m, 24.VII.2011, 6ex. Hatay: Antakya, on Belen road; 36°22'01"N 36°13'41"E, 106m, 27.VI.2013, 1ex. Kahramanmaraş: Afşin, Yazıkoyu; 38°10'57"N 36°46'18"E, 1312m, 04.IX.2013, 17ex.

***Scarodytes halensis halensis* (Fabricius, 1787)**

Material examined: Hatay: Samandağ, Sebenova; 36°03'57"N 36°01'07"E, 332m, 28.VI.2013, 1ex.; Yayladağ, Eğerci; 35°57'49"N 36°02'51"E, 527m, 28.V.2012, 2ex.; Yeniköy; 35°57'49"N 36°02'52"E, 532m, 28.VI.2012, 20ex. Kahramanmaraş: Andırın, Çiçekli; 37°51'43"N 36°25'00"E, 1637m, 26.VI.2012, 2ex.; Çökak; 37°42'04"N 36°20'41"E, 1153m, 29.VII.2011, 4ex.; Göksun, Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 1ex. Osmaniye: Center, Karataş; 37°06'16"N 36°37'45"E, 667m, 27.VII.2011, 1ex.

Remark: New for Eastern Mediterranean region.

***Boreonectes griseostriatus* species group**

Material examined: Gaziantep: Nurdağı, Kuzuluk; 37°04'46"N 36°53'03"E, 963m, 15.IV.2013, 2ex. Hatay: Kumlu, Terzihüyük; 36°18'01"N 36°24'38"E, 82m, 15.IV.2013, 2ex.; Yayladağ, Leylekli; 35°58'21"N

36°03'25"E, 517m, 01.IX.2013, 6ex. Kahramanmaraş: Göksun, Püren passage; 37°57'34"N 36°33'31"E, 1426m, 24.VI.2013, 3ex. Kilis: Center, Hisarköy; 35°50'13"N 36°46'14"E, 700m, 12.V.2013, 1ex.

Remark: "They are indeed *Boreonectes* and cannot be identified on morphology. The only species known from Turkey is *B. riberae* (Dutton & Angus, 2007), from Duzce in northern Anatolia. There is the intriguing possibility that your material might be *B. piochardi* (Regimbart), described from Mt Hermon in Lebanon/Israel. This would require living material for chromosome work (Dr. Robert Angus, Personal Communication)".

***Hydrovatus acuminatus* Motschulsky, 1859**

Material examined: Adana: Karataş, on Yumurtalık road; 36°08'20"N 35°22'15"E, 76m, 16.V.2013, 1ex.; Yüreğir, on Karataş road; 36°52'13"N 35°20'59"E, 19m, 25.VI.2013, 10ex. Gaziantep: İslahiye, Yolbaşı; 36°50'42"N 36°38'22"E, 377m, 28.VII.2011, 3ex.; 36°50'43"N 36°39'28"E, 381m, 12.V.2013, 2ex. Hatay: Hassa, Çınarbaşı; 36°50'51"N 36°37'24"E, 400m, 28.VII.2011, 11ex.; Kırıkhan, on Kilis road; 36°40'10"N 36°25'19"E, 233m, 28.VI.2013, 5ex.; Yayladağ, on Kırıkhan road; 34°54'55"N 36°03'09"E, 409m, 01.IX.2013, 16ex. Osmaniye: Center, Kaypak; 37°06'37"N 35°48'13"E, 805m, 27.VI.2013, 1ex.; Tecirli; 37°10'36"N 36°08'42"E, 49m, 30.VIII.2013, 11ex.; Hasanbeyli, 37°07'23"N 36°34'52"E, 866m, 30.VIII.2013, 5ex. (Figure 3).

Remark: First record for Turkey. East Palaearctic species (Nilsson & Hájek, 2016). Nilsson & Hájek, (2016) listed *Hydrovatus acuminatus* as having distributions in Turkey. We have not been able to verify the literature



Figure 3. *Hydrovatus acuminatus*.

records of this species from Turkey.

***Hydrovatus cuspidatus* (Kunze, 1818)**

Material examined: Adana: Yumurtalık, Yumurtalık Lagoon; 36°40'09"N 35°30'22"E, 8m, 29.VI.2012, 7ex. Gaziantep: Islahiye, Yolbaşı; 36°50'42"N 36°39'26"E, 385m, 15.IV.2013, 2ex. Hatay: Dörtöyl, 36°48'06"N 36°11'31"E, 0m, 27.VI.2012, 1ex.; Erzin, on Ceyhan road; 37°03'36"N 36°13'09"E, 118m, 28.V.2012, 1ex.; on Dörtöyl road; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 1ex.; Hassa, Akbez; 36°49'42"N 36°32'16"E, 398m, 01.IX.2013, 3ex.; Reyhanlı, Varışlı; 36°14'46"N 36°23'13"E, 92m, 14.V.2013, 11ex. Kahramanmaraş: Afşin, Tarlacık; 38°23'04"N 36°58'54"E, 1269m, 27.IV.2012, 13ex.; 38°23'04"N 36°58'44"E, 1270m, 30.V.2012, 5ex.; Andırın, Çokak; 37°42'04"N 36°20'40"E, 1160m, 08.IX.2011, 2ex. Kilis: Musabeyli, Üçpınar; 36°52'29"N 36°57'43"E, 618m, 22.IV.2012, 2ex. Osmaniye: Kadırlı, Çiğdemli; 37°21'34"N 36°08'06"E, 272m, 27.VI.2013, 1ex.

Remark: New for Eastern Mediterranean region.

***Hygrotus lernaeus* (Schaum, 1857)**

Material examined: Adana: Karataş, Akyatağan Lake; 36°38'29"N 35°30'13"E, 17m, 25.IV.2012, 1ex.; on Yumurtalık road; 36°08'20"N 35°22'15"E, 76m, 16.V.2013, 6ex.; Yumurtalık, 36°43'01"N 35°33'54"E, 1m, 25.IV.2012, 2ex.; 36°39'56"N 35°30'17"E, 33m, 15.V.2013, 1ex.; Yumurtalık Lagoon; 36°39'43"N 35°33'49"E, 4m, 25.IV.2012, 2ex.

***Hygrotus parallelogrammus* (Ahrens, 1812)**

Material examined: Gaziantep: Nurdağı, Kuzuluk; 37°04'46"N 36°53'03"E, 963m, 15.IV.2013, 1ex. Hatay: Samandağ, Sutaşı; 36°06'54"N 35°55'33"E, 0m, 28.VI.2012, 1ex.

Remark: New for Eastern Mediterranean region.

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

Material examined: Kahramanmaraş: Göksun, Püren passage; 37°57'34"N 36°33'31"E, 1426m, 24.VI.2013, 1ex.

Remark: New for Kahramanmaraş.

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

Material examined: Kahramanmaraş: Center, Kurucaova; 37°57'18"N 36°33'35"E, 1441m, 30.V.2012, 2ex.; Afşin, Tarlacık; 38°23'04"N 36°58'44"E, 1270m, 30.V.2012, 3ex.; Göksun, Gölpinar; 37°57'25"N

36°31'20"E, 1380m, 30.V.2012, 2ex.; 37°58'05"N 38°30'35"E, 1371m, 24.VI.2013, 1ex.; Yantepe; 38°01'55"N 36°33'18"E, 1363m, 30.V.2012, 2ex.

Remark: New for Eastern Mediterranean region.

***Hyphydrus ovatus* (Linnaeus, 1761)**

Material examined: Adana: Ceyhan, on Yumurtalık road; 36°46'04"N 35°39'09"E, 15m, 29.VI.2012, 1ex. Kahramanmaraş: Afşin, Tarlacık; 38°23'04"N 36°58'55"E, 1255m, 25.VI.2012, 1ex.

Remark: New for Eastern Mediterranean region.

***Laccophilus hyalinus hyalinus* (De Geer, 1774)**

Material examined: Adana: Ceyhan, on Yumurtalık road; 36°54'12"N 36°52'06"E, 89m, 25.IV.2012, 5ex.; Kozan, Camili; 37°20'46"N 35°35'14"E, 164m, 25.VII.2011, 1ex. Gaziantep: Araban, on Adıyaman road; 37°24'04"N 37°38'00"E, 529m, 02.IX.2013, 6ex.; Islahiye, Yolbaşı; 36°50'42"N 36°39'26"E, 385m, 15.IV.2013, 2ex. Hatay: Antakya, Maraşboğazi; 36°24'39"N 36°16'04"E, 104m, 12.V.2013, 3ex.; Erzin, on Yumurtalık road; 36°56'14"N 36°03'47"E, 10m, 15.V.2013, 9ex.; Hassa, Çınarbaşı; 36°50'43"N 36°39'28"E, 373m, 26.IV.2012, 1ex.; Yolbaşı; 36°51'20"N 36°39'45"E, 385m, 29.VI.2013, 1ex.; Kırıkhan, Alaybey; 36°51'24"N 36°37'44"E, 382m, 01.IX.2013, 4ex.; on Kilis road; 36°40'10"N 36°25'19"E, 233m, 28.VI.2013, 46ex.; on Reyhanlı road; 36°50'04"N 36°48'07"E, 647m, 15.IV.2013, 7ex.; Sucu; 36°28'54"N 36°30'23"E, 90m, 01.IX.2013, 1ex.; Reyhanlı, on Antakya road; 36°15'33"N 36°18'19"E, 94m, 01.IX.2013, 2ex.; Varışlı; 36°15'25"N 36°23'07"E, 93m, 01.IX.2013, 24ex.; Samandağ, Sutaşı; 36°06'54"N 35°55'33"E, 0m, 28.VI.2012, 21ex. Yayladağ, on Kırıkhan road; 34°54'55"N 36°03'09"E, 409m, 01.IX.2013, 1ex. Kahramanmaraş: Center, Sarımollalı; 37°37'40"N 36°38'49"E, 471m, 30.VII.2011, 1ex.; Afşin, Tanır; 38°23'57"N 36°54'26"E, 1226m, 25.VI.2012, 1ex.; Tarlacık; 38°23'04"N 36°58'55"E, 1255m, 25.VI.2012, 30ex.; Yazıbelen; 38°19'38"N 36°57'55"E, 1173m, 18.V.2013, 12ex.; Andırın, Aşdırın; 37°32'15"N 36°22'38"E, 619m, 05.IX.2013, 25ex.; Fırınz stream; 37°45'52"N 36°42'28"E, 663m, 04.IX.2013, 1ex.; Gökçeli; 37°54'15"N 36°37'35"E, 507m, 15.IV.2013, 2ex.; Yaylaüstü; 37°34'45"N 36°35'12"E, 1196m, 29.VII.2011, 2ex.; Ekinözü, Akpınar; 38°06'05"N 37°13'08"E, 1411m, 23.VI.2013, 2ex.; Elbistan, Söğütlü stream; 38°13'47"N 37°13'01"E, 1146m, 03.IX.2013, 3ex.; Göksun, on Andırın road: 38°00'03"N 36°27'27"E, 1341m, 24.VI.2013, 3ex.; Nurhak, Barış; 38°00'24"N 37°19'38"E, 1388m, 02.IX.2013, 13ex. Osmaniye: Center, Karataş; 37°06'16"N 36°37'45"E, 667m, 27.VII.2011, 14ex.; Tecirli; 37°10'36"N 36°08'42"E, 49m, 30.VIII.2013, 2ex.; Hasanbeyli, 37°07'23"N

36°34'52"E, 866m, 30.VIII.2013, 5ex.

Remark: New for Gaziantep, Hatay, Kahramanmaraş, Osmaniye.

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

Material examined: Adana: Yumurtalık, Narlık; 36°54'11"N 35°52'06"E, 78m, 15.V.2013, 10ex.; Yumurtalık Lagoon; 36°46'36"N 35°44'56"E, 11m, 18.IV.2013, 4ex.; 36°45'24"N 35°38'05"E, 0m, 26.VI.2013, 1ex. Gaziantep: Islahiye, Çınarbaşı; 36°50'42"N 36°39'25"E, 375m, 27.V.2012, 3ex.; Hanağzı; 37°04'36"N 36°37'33"E, 516m, 14.V.2013, 1ex.; Koruhuyuğu; 36°50'45"N 36°38'13"E, 381m, 27.V.2012, 1ex.; Yolbaşı; 36°50'43"N 36°39'28"E, 381m, 12.V.2013, 2ex. Hatay: Erzin, on Ceyhan road; 37°03'36"N 36°13'09"E, 118m, 28.V.2012, 5ex.; on Dörtöyol road; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 4ex.; Hassa, Akbez; 36°49'42"N 36°32'16"E, 398m, 01.IX.2013, 1ex.; Çınarbaşı; 36°50'43"N 36°38'16"E, 380m, 15.IV.2013, 4ex.; İskenderun, Serinyol; 36°22'03"N 36°13'29"E, 115m, 24.IV.2012, 2ex.; Kumlu, Terzihüyük; 36°18'01"N 36°24'38"E, 82m, 15.IV.2013, 22ex.; Yayladağ, Yeniköy; 35°57'49"N 36°02'52"E, 532m, 28.VI.2012, 2ex. Kahramanmaraş: Afşin, Tarlacık; 38°23'04"N 36°58'54"E, 1269m, 27.IV.2012, 3ex.; Andırın, Ardışın; 37°12'17"N 36°22'18"E, 623m, 05.IX.2013, 1ex.; Bektaşlı; 37°25'20"N 36°15'26"E, 1510m, 26.IV.2012, 3ex.; Ekinözü, Akpınar; 38°06'05"N 37°13'07"E, 1410m, 31.V.2012, 2ex.; Göksun, Fındıklıkayak; 37°56'20"N 36°27'53"E, 1383m, 26.VI.2012, 2ex.; on Geben road; 37°44'40"N 36°27'24"E, 1260m, 18.V.2013, 4ex.; Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 1ex.; Pazarcık, Bağlama pond; 37°17'35"N 37°07'53"E, 535m, 05.IX.2013, 1ex.; Türkoğlu, Gavur Lake; 37°19'05"N 36°50'58"E, 482m, 27.VI.2012, 5ex. Kilis: Center, Hisarköy; 35°50'13"N 36°46'14"E, 700m, 12.V.2013, 4ex.; Polateli, Kızılgöl; 36°49'14"N 37°08'15"E, 780m, 29.VI.2013, 1ex. Osmaniye: Center, Tecirli; 37°09'47"N 36°07'19"E, 54m, 16.V.2013, 3ex.; Kadirli, Çiğdemli; 37°21'34"N 36°08'06"E, 272m, 27.VI.2013, 1ex.; Toprakkale, Büyük Tüysüz; 37°01'48"N 36°08'21"E, 70m, 28.V.2012, 11ex.

Remark: New for Eastern Mediterranean region.

***Laccophilus poecilus* Klug, 1834**

Material examined: Adana: Ceyhan, on Yumurtalık road; 36°54'12"N 36°52'06"E, 89m, 25.IV.2012, 2ex.; Yumurtalık, Yumurtalık Lagoon; 36°46'36"N 35°44'56"E, 11m, 18.IV.2013, 1ex.; Yüreğir, Doğankent; 36°51'42"N 35°20'36"E, 12m, 24.IV.2012, 4ex.; 36°52'02"N 35°20'59"E, 20m, 29.VIII.2013, 1ex.; on Karataş road; 36°52'13"N 35°20'59"E, 19m, 25.VI.2013, 5ex. Gaziantep: Islahiye, Yolbaşı; 36°50'42"N

36°38'22"E, 377m, 28.VII.2011, 1ex.; 36°50'42"N 36°39'26"E, 385m, 15.IV.2013, 7ex.; 36°50'43"N 36°39'28"E, 381m, 12.V.2013, 2ex.; 36°50'42"N 36°38'28"E, 382m, 12.V.2013, 7ex. Hatay: Dörtöyol, 36°48'06"N 36°11'31"E, 0m, 27.VI.2012, 2ex.; Erzin, on Dörtöyol road; 37°01'56"N 36°08'19"E, 74m, 24.IV.2012, 4ex.; Hassa, Akbez; 36°49'42"N 36°32'16"E, 398m, 01.IX.2013, 5ex.; Çınarbaşı; 36°50'51"N 36°37'24"E, 400m, 28.VII.2011, 1ex.; 36°50'43"N 36°38'16"E, 380m, 15.IV.2013, 1ex.; Kırıkhan, Alaybey; 36°51'24"N 36°37'44"E, 382m, 01.IX.2013, 1ex.; Reyhanlı, Varışlı; 36°14'46"N 36°23'13"E, 92m, 14.V.2013, 2ex.; Yayladağ, on Kırıkhan road; 34°54'55"N 36°03'09"E, 409m, 01.IX.2013, 19ex. Kahramanmaraş: Elbistan, Söğütlü stream; 38°13'47"N 37°13'01"E, 1146m, 03.IX.2013, 1ex.; Nurhak, on Elbistan road; 37°58'40"N 37°22'50"E, 1528m, 25.VI.2012, 3ex.; Pazarcık, Bağlama pond; 37°17'35"N 37°07'53"E, 535m, 05.IX.2013, 1ex. Osmaniye: Center, 37°01'48"N 36°08'21"E, 70m, 30.VIII.2013, 2ex.; Cevdediye; 37°07'27"N 36°13'33"E, 99m, 30.VIII.2013, 4ex.; Çardak; 37°06'10"N 36°18'00"E, 131m, 14.V.2013, 1ex.; Kaypak; 37°06'37"N 35°48'13"E, 805m, 27.VI.2013, 5ex.; Tecirli; 37°09'47"N 36°07'19"E, 54m, 16.V.2013, 9ex.; 37°10'36"N 36°07'42"E, 47m, 27.VI.2013, 3ex.; 37°10'36"N 36°08'42"E, 49m, 30.VIII.2013, 5ex.; Hasanbeyli, 37°07'23"N 36°34'52"E, 866m, 30.VIII.2013, 9ex.; Kadirli, Çiğdemli; 37°21'34"N 36°08'06"E, 272m, 27.VI.2013, 3ex.; Karatepe Dam; 37°18'32"N 36°13'30"E, 165m, 19.IV.2013, 1ex.; Toprakkale, Büyük Tüysüz; 37°01'48"N 36°08'21"E, 70m, 28.V.2012, 1ex.

Remark: New for Gaziantep, Hatay, Kahramanmaraş, Osmaniye.

Family SPERCHEIDAE

***Spercheus senegalensis* Laporte, 1832**

Material examined: Adana: Yüreğir, on Karataş road; 36°52'13"N 35°20'59"E, 19m, 25.VI.2013, 3ex. Hatay: Antakya, Maraşboğazı; 36°24'39"N 36°16'04"E, 104m, 12.V.2013, 2ex. Osmaniye: Center, Tecirli; 37°10'36"N 36°07'42"E, 47m, 27.VI.2013, 1ex.

Remark: Distributed in Africa mainly. Also known from Asia (only from Turkey: Van and Mersin provinces so far (Darılmaz & Kıyak, 2011). It is determined that this species is more widely distributed in Turkey.

Discussion

167 species and subspecies have been recorded from Turkey previously by Darılmaz & Kıyak (2009a). It was the most comprehensive check-list and in that study 129 species and seven subspecies have been recorded from Dytiscidae, 10 species and two subspecies from

Gyrinidae, 16 species from Haliplidae, 3 species from Noteridae. And only two species have known from Specheidae in Turkey (Darılmaz & Kiyak, 2009a; Topkara & Ustaoglu, 2014). In the last eight years, 28 species from Dytiscidae and one from Haliplidae were recorded (Aykut & Fery, 2017; Bergsten, Weingartner, & Hájek, 2017; Darılmaz & Kiyak, 2009b, 2010; Fery, 2009; Fery & Erman, 2009; Fery & Hendrich, 2011a, 2011b; Fery & Przewozny, 2011; Hajek & Fikacek, 2010; Hájek, Stastny, Boukal & Fery, 2011; Hernando, Aguilera, Castro & Ribera, 2012; İncekara, Polat, Darılmaz, Mart & Taşar, 2010; Taşar *et al.*, 2012; Vorst & Fey, 2014) In the present study two new species were added for Dytiscidae in Turkish fauna.

For this study 1777 specimens (1473 specimens from Dytiscidae, 2 specimens from Gyrinidae, 34 specimens from Haliplidae, 262 specimens from Noteridae and 6 specimens from Spercheidae) were collected from the sampled areas. In total 51 species belonging to Coleoptera were determined which of these, 41 species were from Dytiscidae, one species from Gyrinidae, 6 species from Haliplidae, 2 species from Noteridae, and one species from Specheidae. Thirty two species are new record for Eastern Mediterranean region, 2 species are new records for Turkey (*Hydroporus scalesianus* and *Hydrovatus acuminatus*), two species are also second record for Turkey (*Haliplus fulvus* and *Ilybius quadriguttalus*). *Hydroporus scalesianus* is widely distributed in all Europe and reported from Mediterranean region (France). However, it is only known from west Siberia in Asia. Conversely *Hydrovatus acuminatus* is widely distributed in Asia, but only known from Egypt, Israel and Libya in Mediterranean region. There is no record from Europe so far.

On the other hand, it is find out that the species, *Spercheus senegalensis*, is more widely distributed in Turkey. First exact locality of *Haliplus obliquus* in Turkey is presented with this study.

Acknowledgements

We sincerely thank Gani Erhan Taşar (Adiyaman, Turkey) and Mehmet Bektaş (Erzurum, Turkey) for their helping to collecting materials.

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