

A FAUNISTIC STUDY ON AQUATIC COLEOPTERA OF THE EASTERN MEDITERRANEAN REGION OF TURKEY

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ABSTRACT: This study was conducted in 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 53 species which were determined to belong to the 3 families (Helophoridae: 25, Hydrochidae: 1 and Hydrophilidae: 27). Within these species; 24 taxa were first records for the research area. Furthermore, *Sternolophus solieri* Castelnau, 1840 was confirmed from Turkey in Hatay, Kahramanmaraş and Osmaniye provinces.

KEY WORDS: Coleoptera, aquatic beetles, new records, eastern mediterranean region, Turkey

Order Coleoptera has 176 families, 29500 genera and 386500 species (Slipinski et al., 2011). Four suborders of Coleoptera are Archostemata, Myxophaga, Adephegaga and Polyphaga (Lawrence, 2016; Archangelsky et al., 2016). The Polyphaga suborder is the largest group of coleopteran families (Glime, 2015).

Family Hydrophilidae has 2932 described species in worldwide. 103 species were known from Turkey (Darılmaz & İncekara, 2011; İncekara et al., 2011; Taşar, 2014; Polat et al., 2015; İncekara et al., 2016; Taşar, 2017, 2018). Helophoridae family has 192 species in worldwide (Archangelsky et al., 2016). 52 species were known from Turkey (Taşar, 2018). Hydrochidae family includes 182 species in worldwide. Eight species were known in Turkey (Taşar, 2017).

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

MATERIAL AND METHODS

Studied materials collected by means of sieves that having 3,15x1 mm pores in summer seasons between 2011 and 2013 from Gaziantep, Hatay, Kahramanmaraş, Kilis and Osmaniye provinces, Turkey. Map of the research area were shown in Figure 1. All the specimens are collected by Mehmet Bektaş, Gani Erhan Taşar and Ahmet Polat. 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. All the specimens deposited in the Zoological Museum, Atatürk University, Faculty of Science, Department of Biology, Erzurum, Turkey.

RESULTS

Detailed information about the locality data of studied material were shown in Table 1.

Family HELOPHORIDAE Leach, 1815***Helophorus grandis* Illiger, 1798**

Material examined: 1♂, 1♀, [2]; 1♂, 1♀, [63]; 49♂♂, 42♀♀, [188]; 3♂♂, [154]; 17♂♂, 15♀♀, [165]; 3♂♂, 2♀♀, [175]; 1♂, 1♀, [188]; 8♂♂, 5♀♀ [182]; 9♂♂, 3♀♀, [198]; 5♂♂, 4♀♀, [192]; 2♂♂, 5♀♀, [40]; 2♂♂, [161]; 1♂, [37]; 1♂, [201]; 4♂♂, 3♀♀, [189]; 1♂, 2♀♀, [190]; 7♂♂, 4♀♀, [176]; 1♂, 1♀, [158]; 35♂♂, 33♀♀; [164]; 2♂♂, 1♀, [166]; 1♂, [171]; 1♂, [145]; 1♂, 2♀♀, [4]; 1♂, 3♀♀, [42]; 3♂♂, 2♀♀, [43]; 1♂, 4♀♀, [80]; 1♂, [197]; 49♂♂, 82♀♀, [177]; 16♂♂, 10♀♀, [174]; 19♂♂, [170]; 1♂, [24]; 1♂, 1♀, [52]; 6♂♂, 14♀♀, [206]; 3♂♂, 3♀♀, [207]; 1♀, [204]; 4♂♂, 2♀♀, [205]; 1♂, [52]; 1♂, 3♀♀, [53]; 36♂♂, 20♀♀, [181]; 20♂♂, 12♀♀, [168]; 1♂, 1♀, [22]; 6♂♂, 7♀♀, [157]; 1♂, 2♀♀, [187]; 1♂, 1♀, [46]; 16♂♂, 10♀♀, [203]; 19♂♂, 10♀♀, [163]; 2♂♂, 2♀♀, [202]; 1♂, [183]; 1♂, 9♀♀, [155]; 3♂♂, 5♀♀, [184]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus arvernicus* Mulsant, 1846**

Material examined: 3♂♂, [210]; 8♂♂, 18♀♀, [190]; 1♂, [172]; 1♂, 3♀♀, [185]; 9♂♂, 18♀♀, [171]; 1♂, 3♀♀, [4]; 7♂♂, 9♀♀, [50]; 3♂♂, [169]; 1♂, [127]; 2♂♂, 5♀♀, [84]; 11♂♂, 8♀♀, [139]; 1♂, 9♀♀, [140]; 1♂, 3♀♀, [46]; 2♂♂, 5♀♀, [203]; 2♂♂, 2♀♀, [202]. **Remark:** First record for research area.

***Helophorus daedalus* d'Orchymont, 1932**

Material examined: 9♂♂, 8♀♀, [108]; 10♂♂, 20♀♀, [133]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus aquaticus* (Linnaeus, 1758)**

Material examined: 1♂, 1♀, [2]; 1♂, 1♀, [63]; 49♂♂, 42♀♀, [188]; 3♂♂, [154]; 17♂♂, 15♀♀, [165]; 3♂♂, 2♀♀, [175]; 1♂, 1♀, [188]; 8♂♂, 5♀♀ [182]; 9♂♂, 3♀♀, [198]; 5♂♂, 4♀♀, [192]; 2♂♂, 5♀♀, [40]; 2♂♂, [161]; 1♂, [37]; 1♂, [201]; 4♂♂, 3♀♀, [189]; 1♂, 2♀♀, [190]; 7♂♂, 4♀♀, [176]; 1♂, 1♀, [158]; 35♂♂, 33♀♀; [164]; 2♂♂, 1♀, [166]; 1♂, [171]; 1♂, [145]; 1♂, 2♀♀, [4]; 1♂, 3♀♀, [42]; 3♂♂, 2♀♀, [43]; 1♂, 4♀♀, [80]; 1♂, [197]; 49♂♂, 82♀♀, [177]; 16♂♂, 10♀♀, [174]; 19♂♂, [170]; 1♂, [24]; 1♂, 1♀, [52]; 6♂♂, 14♀♀, [206]; 3♂♂, 3♀♀, [207]; 1♀, [204]; 4♂♂, 2♀♀, [205]; 1♂, [52]; 1♂, 3♀♀, [53]; 36♂♂, 20♀♀, [181]; 20♂♂, 12♀♀, [168]; 1♂, 1♀, [22]; 6♂♂, 7♀♀, [157]; 1♂, 2♀♀, [187]; 1♂, 1♀, [46]; 16♂♂, 10♀♀, [203]; 19♂♂, 10♀♀, [163]; 2♂♂, 2♀♀, [202]; 1♂, [183]; 1♂, 9♀♀, [155]; 3♂♂, 5♀♀, [184]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus syriacus* Kuwert, 1885**

Material examined: 1♂, 1♀, [66]; 8♂♂, 5♀♀, [184]. **Remark:** First record for research area.

***Helophorus nubilis* Fabricius, 1776**

Material examined: 1♂, 2♀♀, [167]; 1♂, [45]; 1♂, 3♀♀, [75]; 3♂♂, [180]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus micans* Falderman, 1835**

Material examined: 2♂♂, 4♀♀, [2]; 1♂, 2♀♀, [58]; 1♂, [165]; 2♂♂, 1♀, [175]; 2♂♂, [154]; 1♂, [188]; 6♂♂, 6♀♀, [156]; 2♂♂, [182]; 1♂, 1♀, [161]; 1♂, 4♀♀, [186]; 4♂♂, 3♀♀, [47]; 3♂♂, 5♀♀, [194]; 14♂♂, 19♀♀, [201]; 81♂♂, 50♀♀, [214]; 9♂♂, 11♀♀, [38]; 4♂♂, 8♀♀, [48]; 1♂, 2♀♀, [9]; 23♂♂, 18♀♀, [170]; 3♂♂, 2♀♀, [171]; 1♂, [118]; 1♂, 1♀, [97]; 7♂♂, 6♀♀, [197]; 1♂, [208]; 1♀, [205]; 11♂♂, 14♀♀, [86]; 3♂♂, 3♀♀, [95]; 3♂♂, 6♀♀, [78]; 1♂, 3♀♀, [69]; 43♂♂, 29♀♀, [180]; 3♂♂, [160]; 1♂, [209]; 1♂, [8]; 1♂, [65]; 4♂♂, [202]; 1♂, 3♀♀, [6]; 1♂, [183]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus abeillei* Guillebeau, 1896**

Material examined: 1♂, [53]; 1♂, 1♀ [54]; 1♂, [55]; 1♂, [73]; 3♂♂, [80]; 1♂, 1♀, [85]; 1♂, [145]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus brevipalpis* Bedel, 1881**

Material examined: 11♂♂, 13♀♀, [2]; 6♂♂, 14♀♀, [210]; 1♂, 1♀, [47]; 4♂♂, 1♀, [38]; 5♂♂, 7♀♀, [59]; 1♂, [166]; 1♂, 3♀♀, [68]; 1♂, 2♀♀, [75]; 1♂, [171]; 11♂♂, 8♀, [10]; 3♂♂, 8♀♀, [4]; 5♂♂, 9♀♀, [94]; 1♂, 3♀♀, [85]; 1♂, 4♀♀, [84]; 1♂, 1♀, [80]; 10♂♂, 14♀♀, [127]; 2♂♂, [139]; 3♂♂, 9♀♀, [169]; 1♂, 2♀♀, [90]; 2♂♂, 4♀♀, [53]; 1♂, 1♀, [5]; 5♂♂, 7♀♀, [89]; 1♂, 3♀♀, [78]; 1♂, 4♀♀, [69]; 4♂♂, 9♀♀, [202]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus arvernicus* Mulsant, 1846**

Material examined: 3♂♂, [210]; 8♂♂, 18♀♀, [190]; 1♂, [172]; 1♂, 3♀♀, [185]; 9♂♂, 18♀♀, [171]; 1♂, 3♀♀, [4]; 7♂♂, 9♀♀, [50]; 3♂♂, [169]; 1♂, [127]; 2♂♂, 5♀♀, [84]; 11♂♂, 8♀♀, [139]; 1♂, 9♀♀, [140]; 1♂, 3♀♀, [46]; 2♂♂, 5♀♀, [203]; 2♂♂, 2♀♀, [202]. **Remark:** First record for research area.

***Helophorus daedalus* d'Orchymont, 1932**

Material examined: 9♂♂, 8♀♀, [108]; 10♂♂, 20♀♀, [133]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus montenegrinus* Kuwert, 1885**

Material examined: 1♂, 3♀, [63]; 5♂♂, 7♀♀, [58]; 9♂♂, 8♀♀, [47]; 4♂♂, 2♀♀, [59]; 1♂, 3♀♀, [71]; 3♂♂, 5♀♀, [4]; 3♂♂, 2♀♀, [50]; 1♂, 3♀♀, [85]; 2♂♂, 3♀♀, [7]; 2♂♂, 1♀, [56]; 1♂, 2♀♀, [207]; 1♂, 3♀♀, [54]; 2♂♂, 3♀♀, [90]; 1♂, 3♀♀, [78]; 1♂, 1♀, [6]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus lewisi* Angus, 1985**

Material examined: 5♂♂, 4♀♀, [58]; 4♂♂, [200]; 35♂♂, 55♀♀, [154]; 2♂♂, 2♀♀, [2]; 5♂♂, 8♀♀, [63]; 36♂♂, 55♀♀, [175]; 3♂♂, 6♀♀, [188]; 27♂♂, 27♀♀, [156]; 8♂♂, 18♀♀, [198]; 9♂♂, 15♀♀, [195]; 9♂♂, 8♀♀, [167]; 7♂♂, 5♀♀, [143]; 20♂♂, 33♀♀, [40]; 11♂♂, 6♀♀, [161]; 2♂♂, [210]; 6♂♂, 7♀♀, [194]; 24♂♂, 19♀♀, [47]; 2♂♂, 1♀, [49]; 26♂♂, 21♀♀, [194]; 22♂♂, 27♀♀, [186]; 1♂, 1♀, [48]; 3♂♂, 4♀♀, [172]; 7♂♂, 6♀♀, [100]; 52♂♂, 53♀♀, [164]; 4♂♂, 5♀♀, [59]; 8♂♂, 3♀♀, [44]; 9♂♂, 13♀♀, [158]; 9♂♂, 11♀, [1]; 7♂♂, 20♀♀, [190]; 1♂, [189]; 23♂♂, 22♀♀, [166]; 45♂♂, 62♀♀, [185]; 5♂♂, 8♀♀, [9]; 8♂♂, 5♀♀, [94]; 8♂♂, 13♀♀, [97]; 28♂♂, 40♀♀, [169]; 6♂♂, 7♀♀, [140]; 4♂♂, 3♀♀, [177]; 2♂♂, 4♀, [10]; 35♂♂, 43♀♀, [4]; 3♂♂, 7♀♀, [43]; 26♂♂, 24♀♀, [127]; 28♂♂, 8♀♀, [139]; 3♂♂, 4♀♀, [7]; 8♂♂, 4♀♀, [208]; 33♂♂, 34♀♀, [204]; 74♂♂, 87♀♀, [207]; 19♂♂, 20♀♀, [205]; 30♂♂, 53♀♀, [206]; 27♂♂, 44♀♀, [208]; 8♂♂, 20♀♀, [92]; 1♂, [180]; 10♂♂, 20♀♀, [133]; 2♂♂, 4♀♀, [138]; 5♂♂, [209]; 8♂♂, 14♀♀, [103]; 51♂♂, 60♀♀, [187]; 5♂♂, 4♀♀, [41]; 8♂♂, 6♀♀, [157]; 8♂♂, 17♀♀, [8]; 6♂♂, 8♀♀, [46]; 2♂♂, 3♀, [39]; 52♂♂, 51♀♀, [163]; 17♂♂, 25♀♀, [203]; 36♂♂, 40♀♀, [202]; 1♂, 1♀, [6]; 3♂♂, 2♀♀, [3]; 3♂♂, 1♀, [12]; 8♂♂, 6♀♀, [184]. **Remark:** First record for Gaziantep, Kilis and Osmaniye provinces.

***Helophorus pallidipennis* Mulsant and Wachanru, 1852**

Material examined: 1♂, [85]; 1♂, [180]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus minutus* Fabricius, 1775**

Material examined: 3♂♂, [85]; 1♂, [95]. **Remark:** First record for research area.

***Helophorus nanus* Sturm, 1836**

Material examined: 1♂, 4♀♀, [171]. **Remark:** First record for research area.

***Helophorus frater* d'Orchymont, 1926**

Material examined: 3♀♀, [4]; 3♂♂, 3♀♀, [9]; 2♂♂, 3♀♀, [90]; 1♂, 1♀, [94]. **Remark:** First record for research area.

***Helophorus fulgidicollis* Motschulsky, 1860**

Material examined: 4♂♂, 5♀♀, [73]. **Remark:** First record for research area.

***Helophorus hilaris* Sharp, 1916**

Material examined: 5♂♂, [91]; 1♂, 1♀, [63]; 25♂♂, 28♀♀, [154]; 1♂, 4♀♀, [9]; 1♂, 2♀♀, [68]; 1♂, 3♀♀, [75]; 2♂♂, 3♀♀, [171]; 4♂♂, 6♀♀, [11]; 11♂♂, 9♀♀, [93]; 14♂♂, 17♀, [94]; 99♂♂, 103♀♀, [85]; 3♂♂, 6♀♀, [73]; 2♂♂, 8♀♀, [80]; 1♂, 2♀, [77]; 1♂, [127]; 1♂, 3♀♀, [56]; 1♂, 1♀, [108]; 4♂♂, 7♀♀, [90]; 8♂♂, 8♀♀, [5]; 24♂♂, 31♀♀, [95]; 32♂♂, 28♀♀, [78]; 13♂♂, 11♀♀, [92]; 3♂♂, 7♀♀, [89]; 60♂♂, 74♀♀, [96]; 20♂♂, 70♀♀, [137]; 8♂♂, 12♀♀, [148]; 10♂♂, 22♀♀, [133]; 29♂♂, 42♀♀, [136]; 1♂, [87]; 2♂♂, 5♀♀, [187]; 5♂♂, 11♀♀, [202]; 8♂♂, 8♀♀, [183]; 1♂, 2♀, [57]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus lapponicus* Thomson, 1854**

Material examined: 2♂♂, 1♀, [73]. **Remark:** First record for research area.

***Helophorus discrepans* Rey, 1885**

Material examined: 1♂, [37]; 1♂, 3♀♀, [75]; 5♂♂, 19♀♀, [145]; 1♂, [73]; 1♂, 4♀♀, [85]; 1♂, 1♀, [73]; 1♂, 2♀♀, [78]; 1♂, 2♀♀, [88]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Helophorus obscurus* Mulsant, 1844**

Material examined: 3♂♂, 2♀♀, [7]; 3♂♂, [35]; 2♂♂, 3♀♀, [41]; 1♂, 1♀, [56]. **Remark:** First record for research area.

***Helophorus paraminutus* Angus, 1986**

Material examined: 2♂♂, [73]; 3♂♂, [77]. **Remark:** First record for research area.

***Helophorus subarcuatus* Rey, 1885**

Material examined: 3♂♂, 3♀♀, [196]. **Remark:** First record for research area.

***Helophorus dorsalis* Marsham, 1802**

Material examined: 5♂♂, 8♀♀, [134]. **Remark:** First record for research area.

Family HYDROPHILIDAE***Sternolophus solieri* Castelnau, 1840**

Material examined: 3♂♂, [101]; 1♂, [105]; 1♂, [113]; 1♂, [122]; 1♂, [126]. **Remark:** Confirmed from Turkey. And first detailed locality data were presented with this study.

***Hydrochara caraboides* (Linnaeus, 1758)**

Material examined: 1♂, [25]; 1♂, [6]. **Remark:** First record for research area.

***Hydrochara dichroma* (Fairmaire, 1892)**

Material examined: 1♂, 2♀♀, [25]; 5♂♂, 2♀♀, [165]. **Remark:** First record for Gaziantep, Kahramanmaraş, Kilis and Osmaniye provinces.

***Berosus spinosus* (Steven, 1808)**

Material examined: 6♂♂, 10♀♀, [154]; 6♂♂, 10♀♀, [161]; 1♂, [5]; 2♂♂, 1♀, [174]; 1♂, 1♀, [125]. **Remark:** First record for research area.

***Berosus signaticollis* (Charpentier, 1825)**

Material examined: 1♀, [171]. **Remark:** First record for research area.

***Chaetarthria seminulum* (Herbst, 1797)**

Material examined: 1♂, 1♀, [211]. **Remark:** First record for research area.

***Laccobius alternus* Motschulsky, 1855**

Material examined: 4♂♂, 3♀♀, [91]. 3♂♂, [104]; 2♂♂, 1♀, [105]; 1♂, [106] 9♂♂, 9♀♀, [113]; 1♂, 1♀, [121]; 21♂♂, 20♀♀, [147]; 2♂♂, [150]. **Remark:** First record for research area.

***Laccobius gracilis gracilis* Motschulsky, 1855**

Material examined: 1♂, [58]; 1♂, [175]; 1♂, [212]; 11♂♂, 23♀♀, [154]; 4♂♂, 11♀♀, [37]; 3♂♂, 4♀♀, [61]; 2♂♂, 2♀♀, [146]; 2♂♂, 5♀♀, [143]; 1♂, [34]; 2♂♂, [30]; 1♂, [194]; 1♂, 1♀, [191]; 4♂♂, 12♀♀, [135]; 3♂♂, 2♀♀, [72]; 1♂, [142]; 3♂♂, 12♀♀, [29]; 1♂, 3♀♀, [141]; 2♂♂, 1♀, [166]; 2♂♂, [71]; 2♂♂, 2♀♀, [144]; 45♂♂, 62♀♀, [185]; 2♂♂, [27]; 1♂, [171]; 2♂♂, 2♀♀, [50]; 1♂, 3♀♀, [131]; 1♂, 1♀, [112]; 1♂, 1♀, [109]; 2♂♂, 2♀♀, [54]; 10♂♂, 9♀♀, [66]; 1♂, 4♀♀, [136]; 2♂♂, 1♀, [67]; 3♂♂, [61]. **Remark:** First record for Osmaniye province.

***Laccobius syriacus* Guillebeau, 1896**

Material examined: 8♂♂, 8♀♀, [121]; 1♂, [58]; 2♂♂, 1♀, [156]; 1♂, 2♀♀, [63]; 6♂♂, 6♀♀, [165]; 2♂♂, 5♀♀, [175]; 4♂♂, 5♀♀, [129]; 6♂♂, 8♀♀, [152]; 19♂♂, 23♀♀, [102]; 11♂♂, 19♀♀, [149]; 6♂♂, 8♀♀, [198]; 3♂♂, 5♀♀, [143]; 9♂♂, 15♀♀, [192]; 3♂♂, 2♀♀, [129]; 2♂♂, 5♀♀, [21]; 9♂♂, 6♀♀, [135]; 5♂♂, 7♀♀, [123]; 8♂♂, 15♀♀, [107]; 5♂♂, 6♀♀, [132]; 3♂♂, 3♀♀, [191]; 5♂♂, 5♀♀, [172]; 5♂♂, 3♀♀, [100]; 5♂♂, 3♀♀, [91]; 5♂♂, 9♀♀, [111]; 5♂♂, 5♀♀, [81]; 1♂, 3♀♀, [176]; 1♂, [16]; 1♂, 1♀, [71]; 2♂♂, 3♀♀, [144]; 7♂♂, 6♀♀, [118]; 1♂, 1♀, [75]; 4♂♂, 2♀♀, [45]; 9♂♂, 9♀♀, [171]; 23♂♂, 25♀♀, [116]; 1♂, 5♀♀, [20]; 1♂, [31]; 1♂, 2♀♀, [11]; 1♂, 3♀♀, [84]; 1♂, [92]; 7♂♂, 7♀♀, [50]; 5♂♂, 4♀♀, [131]; 40♂♂, 28♀♀, [112]; 18♂♂, 10♀♀, [104]; 15♂♂, 20♀♀, [109]; 10♂♂, 17♀♀, [14]; 1♂, 1♀, [140]; 7♂♂, 2♀♀, [90]; 9♂♂, 15♀♀, [18]; 7♂♂, 2♀♀, [67]; 1♂, 2♀♀, [137]; 1♂, 1♀, [89]; 4♂♂, 11♀♀, [15]; 1♂, 1♀, [136]; 3♂♂, 1♀, [114]; 6♂♂, 4♀♀, [99]; 4♂♂, [108]; 9♂♂, 9♀♀, [55]; 1♂, [74]; 15♂♂, 8♀♀, [115]; 2♂♂, 5♀♀, [36]; 4♂, 5♀, [87]; 7♂♂, 15♀♀, [103]; 14♂♂, 7♀♀, [110]; 5♂♂, 2♀♀, [187]; 1♂, [26]; 1♂, 1♀, [65]; 4♂♂, [151]; 4♂♂, 5♀♀, [13]; 1♂, 4♀♀, [39]; 1♂, 1♀, [32]; 14♂♂, 6♀♀, [153]; 8♂♂, 8♀♀, [150]; 8♂♂, 5♀♀, [120]; 6♂♂, 10♀♀, [17]; 1♂, [57]. **Remark:** First record for Kilis provinces.

***Laccobius hindukuschi* Chiesa, 1966**

Material examined: 7♂♂, 5♀♀, [165]; 3♂♂, 1♀, [212]; 1♂, 1♀, [143]; 3♂♂, [59]; 2♂♂, 3♀♀, [72]; 4♂♂, [166]; 1♂, 1♀, [71]; 7♂♂, 6♀♀, [144]; 2♂♂, 3♀♀, [20]; 10♂♂, 9♀♀, [112]; 1♂, 4♀♀, [127]; 1♂, 1♀, [140]; 1♂, [79]; 1♂, [74]; 1♂, 3♀♀, [41]; 1♂, [151]; 1♂, [153]; 2♂♂, 5♀♀, [13]; 1♂, 1♀, [150]. **Remark:** First record for Osmaniye and Kilis provinces.

***Laccobius simulatrix* D'orchymont, 1932**

Material examined: 1♂, [108]. **Remark:** First record for Gaziantep and Kilis provinces.

***Laccobius sculptus* D'orchymont, 1935**

Material examined: 2♂♂, 3♀♀, [58]. **Remark:** First record for research area.

***Laccobius sulcatulus* Reitter, 1909**

Material examined: 1♂, [75]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Laccobius sipylus* D'orchymont, 1939**

Material examined: 1♂, 1♀, [121]; 2♂♂, 2♀♀, [152]. 11♂♂, [34]; 3♂♂, 3♀♀, [30]; 18♂♂, 7♀♀, [33]; 3♂♂, 3♀♀, [132]; 1♂, [107]; 1♂, 1♀, [144]; 7♂♂, 14♀♀, [27]; 3♂♂, 1♀, [116]; 1♂, [145]; 1♂, 2♀♀, [20]; 1♂, [108]; 2♂, [87]; 1♂, [79]; 2♂♂, 4♀♀, [87]; 1♂, [26]; 3♂♂, [151]; 1♂, 3♀♀, [13]; 7♂♂, 9♀♀, [32]; 1♂, 1♀, [173]. **Remark:** First record for Gaziantep, Kilis and Osmaniye provinces.

***Laccobius obscuratus aegaeus* Gentili, 1974**

Material examined: 1♂, 1♀, [121]; 11♂♂, 1♀, [146]; 6♂♂, 4♀♀, [1]; 9♂♂, 11♀♀, [105]; 9♂♂, [111]; 2♂♂, 4♀♀, [31]; 1♂, 4♀♀, [127]; 1♂, 1♀, [104]; 1♂, 1♀, [109]; 1♂, [108]; 1♂, 3♀♀, [66]; 2♂♂, 4♀♀, [80]; 1♂, [209]; 4♂♂, 4♀♀, [87]; 5♂♂, 5♀♀, [79]; 1♂, 1♀, [41]; 1♂, 3♀♀, [120]; 1♂, 2♀♀, [62]. **Remark:** First record for Gaziantep, Kahramanmaraş and Kilis provinces.

***Laccobius obscuratus obscuratus* Rottenberg, 1874**

Material examined: 4♂♂, 11♀♀, [15]; 10♂♂, 7♀♀, [81]; 3♂♂, [113]; 1♂, [116]; 3♂♂, [129]; 12♂♂, 15♀♀, [136]; 12♂♂, 14♀♀, [141]; 17♂♂, 16♀♀, [142]; 6♂♂, 4♀♀, [143]. **Remark:** First record for Hatay province.

***Laccobius striatulus* (Fabricius, 1801)**

Material examined: 3♂♂, [26]; 7♂♂, 15♀♀, [27]; 3♂♂, 4♀♀, [30]; 6♂♂, 10♀♀, [32]; 10♂♂, [34]; 6♂♂, 4♀♀, [37]; 5♂♂, [54]; 2♂♂, [59]; 12♂♂, 10♀♀, [61]; 1♂, [100]; 2♂♂, [108]; 1♂, 2♀♀, [154]. 1♂, 4♀♀, [147]; 1♂, 2♀♀, [123]. **Remark:** First record for Gaziantep and Kilis provinces.

***Hydrobius fuscipes* (Linnaeus, 1758)**

Material examined: 1♂, [176]; 8♂♂, 2♀♀, [165]; 1♂, [87]. **Remark:** First record for Gaziantep, Kahramanmaraş, Kilis and Osmaniye provinces.

***Paracymus aeneus* (Germar, 1824)**

Material examined: 9♂♂, 10♀♀, [72]; 15♂♂, 22♀♀, [106]. **Remark:** First record for Hatay and Osmaniye provinces.

***Anacaena rufipes* (Guillebeau, 1896)**

Material examined: 11♂♂, 16♀♀, [57]; 8♂♂, 6♀♀, [61]; 7♂♂, 8♀♀, [81]; 9♂♂, 11♀♀, [92]; 5♂♂, [140]; 7♂♂, 18♀♀, [141]; 4♂♂, 5♀♀, [143]; 7♂♂, 12♀♀, [146]. **Remark:** First record for Gaziantep, Kilis and Osmaniye provinces.

***Anacaena limbata* (Fabricius, 1792)**

Material examined: 10♂♂, 9♀♀, [108]; 2♂♂, 2♀♀, [127]. **Remark:** First record for research area.

***Anacaena lutescens* (Stephens, 1829)**

Material examined: 2♂♂, [119]. **Remark:** First record for research area.

***Helochares lividus* (Forster, 1771)**

Material examined: 2♂♂, [36]; 5♂, [49]; 3♂♂, [87]; 1♂, [104]; 7♂♂, 17♀♀, [123]; 2♂♂, 2♀♀, [159]. **Remark:** First record for Gaziantep, Kilis and Osmaniye provinces.

***Helochares lividoides* Hansen and Hebauer, 1988**

Material examined: 1♂, [34]; 8♂♂, 2♀♀, [52]; 1♂, 2♀♀, [109]. **Remark:** First record for Hatay, Gaziantep, Kilis and Osmaniye provinces.

***Enochrus quadripunctatus* (Herbst, 1797)**

Material examined: 1♂, [124]; 2♂♂, 2♀♀, [175]; 1♂, [143]; 1♂, 1♀, [34]; 4♂♂, 8♀♀, [82]; 1♀, [199]; 1♂, 1♀, [91]; 1♂, 1♀, [72]; 8♂♂, 13♀♀, [29]; 1♂, 1♀, [176]; 8♂♂, 3♀♀, [43]; 1♂, [42]; 2♂♂, 4♀♀, [94]; 1♂, [24]; 1♂, [51]; 1♂, 1♀, [205]; 1♂, 1♀, [86]; 7♂♂, 3♀♀, [5]; 1♂, [96]; 2♂♂, 3♀♀, [92]; 1♂, 2♀♀, [95]; 1♂, [136]; 1♂, [74]; 2♂♂, 2♀♀, [22]; 8♂♂, 13♀♀, [76]; 1♂, [106]; 1♂, 1♀ [178]; 1♂, [128]; 16♂♂, 10♀♀, [23]. **Remark:** First record for research area.

***Enochrus fuscipennis* (Thomson, 1884)**

Material examined: 1♂, 1♀, [63]; 1♂, 2♀♀, [58]; 2♂♂, 2♀♀, [64]; 3♂♂, 4♀♀, [124]; 1♂, [102]; 1♂, 1♀, [82]; 1♂, [30]; 1♀, [49]; 2♂♂, [37]; 1♂, 1♀, [123]; 1♂, [100]; 2♂♂, [72]; 2♂♂, [9]; 1♂, [68]; 1♂, [16]; 1♂, 2♀♀, [118]; 12♂♂, 11♀♀, [45]; 2♂♂, [31]; 1♂, [97]; 2♂♂, [11]; 5♂♂, 3♀♀, [112]; 2♂♂, 7♀♀, [108]; 1♂, [98]; 1♂, 1♀, [53]; 1♀, [66]; 2♂♂, [54]; 1♂♂, 2♀♀, [78]; 1♂, [69]; 1♂, [95]; 1♂, [180]; 10♂♂, 20♀♀, [133]; 6♂♂, 3♀♀, [88]; 2♀♀, [115]; 1♂, [103]; 2♂♂, [26]; 1♂, 1♀, [187]; 8♂♂, 7♀♀, [60]; 2♂♂, 2♀♀, [65]; 2♂♂, 5♀♀, [32]; 2♂♂, [26]; 1♂, [120]; 3♂♂, 2♀♀, [6]; 1♂, [203]; 1♂, [3]. **Remark:** First record for Gaziantep, Kahramanmaraş, Kilis and Osmaniye provinces.

***Enochrus halophilus* (Bedel, 1878)**

Material examined: 1♂, [53]; 4♂♂, 1♀, [60]; 1♂, [70]; 2♂♂, [165]; 3♂♂, [179]. **Remark:** First record for research area.

***Coelostoma orbiculare* (Fabricius, 1775)**

Material examined: 1♂, 3♀♀, [121]. 1♂, [143]; 1♂, [129]; 3♂♂, 1♀, [37]; 1♂, [119]; 2♂♂, 1♀, [31]; 1♂, [84]; 2♂♂, 2♀♀, [52]; 2♂♂, [56]; 1♂, [52]; 1♂, 1♀, [90]; 1♂, [26]; 1♂, [120]; 1♂, 2♀♀, [150]. **Remark:** First record for research area.

Family HYDROCHIDAE***Hydrochus nodulifer* Reitter, 1897**

Material examined: 1♀, [108]; 2♂♂, [209]. **Remark:** First record for research area.

DISCUSSION

In this study, the aquatic Coleoptera species that were collected from Gaziantep, Hatay, Kahramanmaraş, Kilis and Osmaniye provinces of the eastern mediterranean region (Turkey) in 2011-2013 years, were evaluated. It has totally been collected 8670 specimens. 53 species belong to 3 families (Helophoridae: 25, Hydrochidae: 1 and Hydrophilidae: 27) were detected in the research area. Within

these species; 24 taxa were first records for the research area. Furthermore, *Sternolophus solieri* Castelnau, 1840 was confirmed from Turkey in Hatay, Kahramanmaraş and Osmaniye provinces with this study.

The aquatic beetle fauna of Turkey has not fully been presented; therefore, many studies are needed such as this study.

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Table 1. Detailed information about the locality data of the research area.

No	Province	County	Location	Coordinate	Elevation	Date of Collect
1	Hatay	Kırkhan	Karaçağıl	36°34'18N 36°23'57E	105 m	27.VII.2011
2	Gaziantep	İslahiye	Yolbaşı	36°50'42N 36°38'22E	377 m	28.VII.2011
3	Osmaniye	Hasanbeyli	Kayalı	37°10'13N 36°27'34E	624 m	27.VII.2011
4	K.Maraş	Andırın	Yaylaüstü	37°34'45N 36°35'12E	1196 m	29.VII.2011
5	K.Maraş	Göksun	Göksun Plateau	37°46'34N 36°21'36E	1393 m	29.VII.2011
6	Osmaniye	Merkez	Karataş	37°06'16N 36°37'45E	667 m	27.VII.2011
7	K.Maraş	Elbistan	Aktepe	38°06'05N 37°13'08E	1411 m	30.VII.2011
8	Kilis	Musabeyli	Haydarlı	36°50'38N 36°58'01E	510 m	28.VII.2011
9	K.Maraş	Onikişubat	Sarımollalı	37°37'40N 36°38'49E	471 m	30.VII.2011
10	K.Maraş	Andırın	Çokak	37°42'04N 36°20'41E	1153 m	29.VII.2011
11	K.Maraş	Andırın	Çokak	37°35'46N 36°21'35E	1099 m	29.VII.2011
12	Osmaniye	Kadirli	Sofular	37°36'08N 36°22'26E	1152 m	29.VII.2011
13	Kilis	Musabeyli	Haydarlı	36°50'37N 36°58'05E	515 m	04.IX.2011
14	K.Maraş	Andırın	Çokak	37°42'04N 36°20'40E	1160 m	08.IX.2011
15	K.Maraş	Göksun	Kireçköy	37°58'43N 36°29'58E	1346 m	08.IX.2011
16	K.Maraş	Onikişubat	Suçatı Dam	37°45'41N 36°44'10E	579 m	08.IX.2011
17	Osmaniye	Toprakkale	Büyük Tüysüz	37°01'48N 36°08'21E	70 m	07.IX.2011
18	K.Maraş	Ekinözü	Taşburun	38°09'35N 37°12'21E	1238 m	09.IX.2011
19	K.Maraş	Göksun	Yantepe	38°01'50N 36°33'38E	1456 m	08.IX.2011
20	K.Maraş	Afşin	Tanır	38°21'41N 36°54'37E	1220 m	09.IX.2011
21	Hatay	Hassa	Çınarbaşı	36°50'51N 36°37'24E	104 m	05.IX.2011

22	K.Maraş	Nurhak	Barış	38°02'38N 37°18'20E	1516 m	09.IX.2011
23	Osmaniye	Hasanbeyli	Kayalı	37°10'13N 36°27'34E	625 m	07.IX.2011
24	K.Maraş	Elbistan	Kuşkayası	38°18'22N 37°05'48E	1155 m	09.IX.2011
25	Kilis	Musabeyli	Üçpınar	36°52'29N 36°57'43E	618 m	22.IV.2012
26	Kilis	Merkez	Karaçavuş	36°44'51N 36°49'21E	521 m	23.IV.2012
27	K.Maraş	Afşin	Tarlacık	38°23'04N 36°58'54E	1269 m	27.IV.2012
28	Hatay	Erzin	Dörtöl Road	37°01'56N 36°08'19E	74 m	24.IV.2012
29	Hatay	Yayladağ	Samandağ Road	36°54'56N 36°03'09E	410 m	24.IV.2012
30	Hatay	Hassa	Çınarbaşı	36°50'43N 36°39'28E	373 m	23.IV.2012
31	K.Maraş	Andırın	Emirler	37°39'43N 36°26'49E	1453 m	26.IV.2012
32	Kilis	Musabeyli	Haydarlar	36°50'38N 36°58'01E	521 m	25.IV.2012
33	Hatay	Yayladağ	Narhitopper	36°39'21N 36°27'30E	220 m	23.IV.2012
34	Hatay	Dörtöl	Beşikgözü	36°50'38N 36°17'18E	332 m	24.IV.2012
35	K.Maraş	Andırın	Gökçeli	37°35'58N 36°22'20E	1115 m	26.IV.2012
36	K.Maraş	Nurhak	Ayçoşar	38°02'38N 37°18'19E	1523 m	27.IV.2012
37	Hatay	İskenderun	Serinyol	36°22'03N 36°13'29E	115 m	24.IV.2012
38	Hatay	Samandağ	Göktepe	36°14'58N 36°30'06E	100 m	23.IV.2012
39	Kilis	Musabeyli	Deliosman	36°50'15N 36°44'39E	532 m	23.IV.2012
40	Hatay	Hassa	Maraşboğazı	36°24'09N 36°14'58E	91 m	24.IV.2012
41	Kilis	Merkez	Gözkaya	36°50'21N 36°50'38E	551 m	23.IV.2012
42	K.Maraş	Andırın	Geben	37°45'15N 36°27'18E	1258 m	26.IV.2012
43	K.Maraş	Andırın	Yeniköy	37°36'35N 36°23'34E	1124 m	26.IV.2012
44	Hatay	Yayladağ	Eğerci	35°57'50N 36°02'51E	519 m	24.IV.2012
45	K.Maraş	Afşin	Altınelma	38°21'41N 36°54'37E	1216 m	27.IV.2012
46	Kilis	Musabeyli	Gülbaba	36°49'54N 36°47'22E	666 m	23.IV.2012
47	Hatay	Hassa	Akbez	36°50'58N 36°37'21E	381 m	23.IV.2012
48	Hatay	Reyhanlı	Tayfun Sökmen	36°15'19N 36°26'26E	90 m	23.IV.2012
49	Hatay	Hassa	Safanözü	36°50'42N 36°38'21E	379 m	23.IV.2012
50	K.Maraş	Andırın	Bektaşlı	37°25'20N 36°15'26E	151 m	26.IV.2012
51	K.Maraş	Elbistan	Akbayır	38°10'56N 37°15'53E	1210 m	31.V.2012
52	K.Maraş	Ekinözü	Akpınar	38°10'56N 37°15'53E	1410 m	31.V.2012
53	K.Maraş	Ekinözü	Güplüce	38°07'45N 37°12'35E	1438 m	31.V.2012
54	K.Maraş	Ekinözü	Elbistan Road	38°04'26N 37°12'47E	1310 m	31.V.2012
55	K.Maraş	Nurhak	Ağcasar	38°02'19N 37°18'31E	1520 m	31.V.2012
56	K.Maraş	Elbistan	Kuşkayası	38°18'22N 37°05'48E	1158 m	31.V.2012
57	Osmaniye	Toprakkale	Büyük Tüysüz	37°01'48N 36°08'21E	70 m	28.V.2012
58	Gaziantep	İslahiye	Kaşargil	36°50'44N 36°40'16E	383 m	27.V.2012
59	Hatay	Yayladağ	Eğerci	35°57'49N 36°02'51E	527 m	28.V.2012
60	Kilis	Elbeyi	Alahan	36°40'22N 37°27'00E	520 m	27.V.2012
61	Hatay	Antakya	Serinyol Road	36°22'03N 36°13'28E	107 m	28.V.2012
62	Osmaniye	Toprakkale	Mustafabeyli	37°07'03N 36°09'21E	87 m	28.V.2012
63	Gaziantep	İslahiye	Çınarbaşı	36°50'42N 36°39'25E	375 m	27.V.2012
64	Gaziantep	İslahiye	Koruhüyükü	36°50'45N 36°38'13E	381 m	27.V.2012
65	Kilis	Elbeyi	Yağzıköy	36°39'58N 37°22'00E	500 m	27.V.2012
66	K.Maraş	Ekinözü	Taşburun	38°09'35N 37°12'21E	1238 m	31.V.2012
67	K.Maraş	Göksun	Gölpınar	37°57'25N 36°31'20E	1380 m	30.V.2012
68	K.Maraş	Onikişubat	Kurucaova	37°57'18N 36°33'35E	1441 m	30.V.2012
69	K.Maraş	Göksun	Yantepe	38°01'55N 36°33'18E	1363 m	30.V.2012
70	K.Maraş	Göksun	Kireçköy	37°58'46N 36°29'58E	1345 m	30.V.2012
71	K.Maraş	Onikişubat	Suçatı Dam	37°45'42N 36°44'09E	655 m	30.V.2012
72	Hatay	Samandağ	Yeşilyazı	36°08'49N 36°03'58E	75 m	28.VI.2012
73	K.Maraş	Andırın	Boztopraklı	37°52'40N 36°26'32E	1672 m	26.VI.2012
74	K.Maraş	Nurhak	Kapidere	37°58'36N 37°39'29E	1028 m	25.VI.2012
75	K.Maraş	Afşin	Tanır Road	38°23'57N 36°54'26E	1226 m	25.VI.2012
76	K.Maraş	Türkoglu	Gavur Lake	37°19'05N 36°50'58E	482 m	27.VI.2012
77	K.Maraş	Andırın	Çiçekli	37°51'43N 36°25'00E	1637 m	26.VI.2012
78	K.Maraş	Göksun	Değirmendere	37°55'06N 36°27'44E	1430 m	26.VI.2012
79	K.Maraş	Nurhak	Gölbasi Road	37°50'58N 37°43'07E	817 m	25.VI.2012
80	K.Maraş	Andırın	Yeşilova Road	37°53'21N 36°26'58E	1553 m	26.VI.2012
81	Hatay	Yayladağ	Yeniköy	35°57'49N 36°02'52E	532 m	28.VI.2012
82	Hatay	Dörtöl	Near of Beach	36°48'06N 36°11'31E	0 m	27.VI.2012
83	Hatay	Hassa	Dörtöl Pathway	36°59'42N 36°24'03E	1332 m	27.VI.2012
84	K.Maraş	Andırın	Gökçeli	37°36'09N 36°22'28E	1123 m	26.VI.2012

85	K.Maraş	Andırın	Geben	37°48'29N 36°25'08E	1318 m	26.VI.2012
86	K.Maraş	Ekinözü	Ortaören	38°12'06N 37°05'26E	1131 m	25.VI.2012
87	K.Maraş	Nurhak	Gölbaşı Road	37°58'04N 37°37'18E	1109 m	25.VI.2012
88	K.Maraş	Nurhak	Elbistan Road	37°58'40N 37°22'50E	1528 m	25.VI.2012
89	K.Maraş	Göksun	Andırın Road	38°00'15N 36°29'08E	1343 m	26.VI.2012
90	K.Maraş	Ekinözü	Ortaören	38°06'44N 37°05'41E	1153 m	25.VI.2012
91	Hatay	Samandağ	Sutaşı	36°06'54N 35°55'33E	0 m	28.VI.2012
92	K.Maraş	Göksun	Andırın Road	38°00'55N 36°29'15E	1046 m	26.VI.2012
93	K.Maraş	Andırın	Bektaşlı	37°43'10N 36°27'38E	1277 m	26.VI.2012
94	K.Maraş	Andırın	Bektaşlı	37°45'16N 36°27'17E	1270 m	26.VI.2012
95	K.Maraş	Göksun	Fındıklıkayak	37°56'20N 36°27'53E	1383 m	26.VI.2012
96	K.Maraş	Göksun	Soğukpınar	38°03'15N 36°34'37E	1361 m	26.VI.2012
97	K.Maraş	Andırın	Bektaşlı Village	37°25'20N 36°15'26E	1510 m	26.IV.2012
98	K.Maraş	Elbistan	Söğütlü Brook	38°13'47N 37°03'01E	1146 m	03.IX.2013
99	K.Maraş	Elbistan	Ekinözü Road	38°10'09N 37°12'32E	1218 m	03.IX.2013
100	Hatay	Reyhanlı	Varışlı Village	36°15'25N 36°23'07E	93 m	01.IX.2013
101	Osmaniye	Merkez	Tecirli	37°10'36N 36°08'42E	49 m	30.VIII.2013
102	Gaziantep	Yavuzeli	Araban Road	37°27'44N 37°36'26E	568 m	02.IX.2013
103	K.Maraş	Pazarıcık	Bağlama Pond	37°17'35N 37°07'53E	535 m	05.IX.2013
104	K.Maraş	Andırın	Ardışın Plateau	37°32'15N 36°22'38E	619 m	05.IX.2013
105	Hatay	Reyhanlı	Antakya Road	36°15'33N 36°18'19E	94 m	01.IX.2013
106	Osmaniye	Merkez	Cevdediye	37°07'27N 36°13'33E	99 m	30.VIII.2013
107	Hatay	Kırıkhan	Alaybey	36°51'24N 36°37'44E	382 m	01.IX.2013
108	K.Maraş	Elbistan	Sevdilli Brook	38°15'30N 37°32'00E	1350 m	09.IX.2013
109	K.Maraş	Andırın	Ardışın Plateau	37°12'17N 36°22'18E	623 m	05.IX.2013
110	Kilis	Merkez	Musabeylli Road	36°50'30N 36°58'02E	525 m	02.IX.2013
111	Hatay	Yayladağ	Leylekli	35°58'20N 36°03'25E	517 m	01.IX.2013
112	K.Maraş	Andırın	Fırnız Brook	37°45'52N 36°42'28E	663 m	04.IX.2013
113	K.Maraş	Ekinözü	Taşburun	38°09'34N 37°12'20E	1238 m	04.IX.2013
114	K.Maraş	Çağlayancerit	Değirmen Pond	37°43'32N 37°29'13E	874 m	06.IX.2013
115	K.Maraş	Nurhak	Barış	38°00'24N 37°19'38E	1388 m	02.IX.2013
116	K.Maraş	Afşin	Yazıkoyu	38°10'57N 36°46'18E	1312 m	04.IX.2013
117	K.Maraş	Göksun	Andırın Road	37°59'02N 36°30'00E	1355 m	04.IX.2013
118	K.Maraş	Afşin	Göksun Road	38°12'12N 36°51'03E	1235 m	04.IX.2013
119	K.Maraş	Andırın	Akifiye	37°42'04N 36°21'08E	1138 m	05.IX.2013
120	Kilis	Polateli	Kilis Road	36°48'48N 37°05'59E	581 m	02.IX.2013
121	Gaziantep	Araban	Adıyaman Road	37°24'04N 37°38'00E	529 m	02.IX.2013
122	Hatay	Hassa	Akbez	36°49'42N 36°32'16E	398 m	01.IX.2013
123	Hatay	Kırıkhan	Topboğazı	36°41'38N 36°28'37E	269 m	01.IX.2013
124	Gaziantep	İlahiye	Fevzipaşa	37°03'46N 36°37'30E	516 m	31.VIII.2013
125	Osmaniye	Merkez	Zorkun Road	37°01'48N 36°08'21E	70 m	30.VIII.2013
126	Hatay	Yayladağ	Kırıkhan Road	34°54'55N 36°03'09E	409 m	01.IX.2013
127	K.Maraş	Andırın	Çokak Road	37°38'32N 36°21'26E	1116 m	25.VI.2013
128	Osmaniye	Merkez	Tecirli	37°10'36N 36°07'42E	47 m	27.VI.2013
129	Hatay	Hassa	Yolbaşı	36°51'20N 36°39'45E	385 m	29.VI.2013
130	Osmaniye	Merkez	Kaypak	37°06'37N 35°48'13E	805 m	27.VI.2013
131	K.Maraş	Andırın	Yeşilova	37°27'05N 36°19'34E	186 m	25.VI.2013
132	Hatay	Kırıkhan	Kilis Road	36°40'10N 36°25'19E	233 m	28.VI.2013
133	K.Maraş	Göksun	Çardak Pond	38°06'11N 36°48'26E	1353 m	24.VI.2013
134	K.Maraş	Nurhak	Ağcasar	38°02'38N 37°18'19E	1370 m	23.VI.2013
135	Hatay	Kırıkhan	İçada Village	36°30'29N 36°25'07E	90 m	28.VI.2013
136	K.Maraş	Göksun	Gölpınarı	37°58'05N 38°30'35E	1371 m	24.VI.2013
137	K.Maraş	Göksun	Yantepe	38°03'24N 36°34'01E	1362 m	24.VI.2013
138	K.Maraş	Göksun	Püren Alley	37°57'34N 36°33'31E	1426 m	24.VI.2013
139	K.Maraş	Andırın	Kadirli Road	37°32'37N 36°22'04E	653 m	25.VI.2013
140	K.Maraş	Andırın	Kesik	37°38'47N 36°21'59E	1076 m	24.VI.2013
141	Hatay	Yayladağ	Leylekli	35°58'21N 36°03'25E	518 m	28.VI.2013
142	Hatay	Samandağ	Sebenova	36°03'57N 36°01'07E	332 m	28.VI.2013
143	Hatay	Antakya	Belen Road	36°22'01N 36°13'41E	106 m	27.VI.2013
144	K.Maraş	Onikişubat	Avcılar Dam	37°49'38N 36°48'05E	668 m	24.VI.2013
145	K.Maraş	Afşin	Alempınarlı	38°04'23N 37°12'44E	1309 m	23.VI.2013
146	Hatay	Antakya	Reyhanlı Road	36°15'19N 36°21'15E	121 m	28.VI.2013
147	Hatay	Erzin	Osmaniye Road	37°02'08N 36°08'36E	76 m	27.VI.2013

148	K.Maraş	Göksun	Andırın Road	38°00'03N 36°29'27E	1341 m	24.VI.2013
149	Gaziantep	Nurdağı	Doruca	36°51'09N 36°53'36E	610 m	29.VI.2013
150	Kilis	Polateli	Kızılçöl	36°49'14N 37°08'15E	780 m	29.VI.2013
151	Kilis	Elbeyi	O. Sanayi Road	36°40'37N 37°22'03E	510 m	29.VI.2013
152	Gaziantep	Oğuzeli	Büyükkaracaören	36°46'37N 37°33'10E	562 m	29.VI.2013
153	Kilis	Musabeyli	Afrin Brook	36°49'01N 36°59'33E	423 m	29.VI.2013
154	Gaziantep	İslahiye	Yolbaşı	36°50'32N 36°38'38E	376 m	26.VI.2013
155	Osmaniye	Kadirli	Çiğdemli Village	37°21'34N 36°08'06E	272 m	27.VI.2013
156	Gaziantep	İslahiye	Kazıklı	36°51'06N 36°41'11E	368 m	12.V.2013
157	Kilis	Merkez	Hisarköy	36°50'13N 36°46'14E	700 m	12.V.2013
158	Hatay	Yayladağ	Yeditepe	35°57'49N 36°02'52E	521 m	13.V.2013
159	Gaziantep	İslahiye	Yolbaşı	36°50'42N 36°38'28E	382 m	12.V.2013
160	K.Maraş	Göksun	Mahmutbey	38°07'05N 36°28'16E	1438 m	17.V.2013
161	Hatay	Antakya	Maraşboğazı	36°24'39N 36°16'04E	104 m	12.V.2013
162	Gaziantep	İslahiye	Yolbaşı	36°50'43N 36°39'28E	381 m	12.V.2013
163	Osmaniye	Merkez	Çardak Village	37°06'10N 36°18'00E	131 m	14.V.2013
164	Hatay	Yayladağ	Yenicceköy	35°57'47N 36°07'03E	888 m	13.V.2013
165	Gaziantep	İslahiye	Esenler	36°54'07N 36°34'12E	446 m	14.V.2013
166	K.Maraş	Onikişubat	Çınarınar	37°38'16N 36°38'08E	468 m	18.V.2013
167	Hatay	Altınözü	Karbeyaz	35°59'59N 36°15'15E	717 m	13.V.2013
168	K.Maraş	Göksun	Geben Road	37°44'40N 36°27'24E	1260 m	18.V.2013
169	K.Maraş	Andırın	Akifiye	37°42'27N 36°20'36E	1160 m	18.V.2013
170	K.Maraş	Andırın	Near of Tedaş	37°35'48N 36°21'35E	1120 m	18.V.2013
171	K.Maraş	Afşin	Yazıbelen	38°19'38N 36°57'55E	1173 m	18.V.2013
172	Hatay	Reyhanlı	Varışlı	36°14'46N 36°23'13E	92 m	14.V.2013
173	Osmaniye	Kadirli	Kızıyusuflu	37°19'41N 36°12'01E	326 m	16.V.2013
174	K.Maraş	Andırın	Kargaçavırı	37°41'44N 36°27'13E	1315 m	18.V.2013
175	Gaziantep	İslahiye	Hanağzı	37°04'36N 36°37'33E	516 m	14.V.2013
176	Hatay	Yayladağ	Kışlak	35°58'43N 36°09'19E	651 m	13.V.2013
177	K.Maraş	Andırın	Akifiye	37°40'37N 36°20'40E	1143 m	18.V.2013
178	Osmaniye	Merkez	Tecirli	37°09'47N 36°07'19E	54 m	16.V.2013
179	Hatay	Erzin	Rafine Road	36°56'14N 36°03'47E	10 m	15.V.2013
180	K.Maraş	Göksun	Kireçköy	37°59'09N 36°29'50E	1339 m	17.V.2013
181	K.Maraş	Göksun	Bozgüney	38°15'00N 36°21'54E	1608 m	17.V.2013
182	Gaziantep	İslahiye	Karaburçlu	37°08'13N 36°42'11E	481 m	14.V.2013
183	Osmaniye	Kadirli	Karatepe Dam	37°18'32N 36°13'30E	165 m	19.IV.2013
184	Osmaniye	Kadirli	Yukarı Çıyanlı	37°21'26N 36°10'23E	417 m	19.IV.2013
185	K.Maraş	Onikişubat	Sarımollalı	37°38'14N 36°38'09E	471 m	19.IV.2013
186	Hatay	Hassa	Çınarbaşı	36°50'43N 36°38'16E	380 m	15.IV.2013
187	Kilis	Merkez	Hacıpoğlu	36°48'23N 36°57'44E	638 m	15.IV.2013
188	Gaziantep	İslahiye	Türkbağçe	37°04'51N 36°37'43E	514 m	15.IV.2013
189	Hatay	Kumlu	Karaçalılık	36°22'25N 36°24'55E	81 m	16.IV.2013
190	Hatay	Kumlu	Güventaşı	36°24'24N 36°24'17E	80 m	16.IV.2013
191	Hatay	Kırıkhan	Reyhanlı Road	36°50'04N 36°48'07E	647 m	15.IV.2013
192	Hatay	Altınözü	Boynuyuğun	36°11'23N 36°21'43E	96 m	16.IV.2013
193	Hatay	Kumlu	Terzihüyük	36°18'01N 36°24'38E	82 m	16.IV.2013
194	Hatay	Hassa	Antakya Road	36°48'30N 36°32'02E	390 m	15.IV.2013
195	Hatay	Altınözü	Kamberli	36°08'50N 36°12'18E	456 m	16.IV.2013
196	Hatay	Dörtöl	Yeniçyurt	36°55'52N 36°07'28E	27 m	17.IV.2013
197	K.Maraş	Andırın	Gökçeli	37°54'15N 36°37'35E	507 m	15.IV.2013
198	Gaziantep	Nurdağı	Kuzuluk	37°04'46N 36°53'03E	963 m	15.IV.2013
199	Hatay	Erzin	Rafine Road	36°56'14N 36°03'47E	10 m	15.V.2013
200	Gaziantep	İslahiye	Hamidiye	37°07'51N 36°53'07E	649 m	15.IV.2013
201	Hatay	Kumlu	Akkerpiç	36°23'00N 36°24'58E	80 m	16.IV.2013
202	Osmaniye	Bahçe	Cevdediye	37°12'28N 36°11'30E	143 m	19.IV.2013
203	Osmaniye	Merkez	Selimiye	37°14'23N 36°02'25E	40 m	19.IV.2013
204	K.Maraş	Elbistan	Bakis	38°12'28N 37°30'04E	1172 m	14.IV.2013
205	K.Maraş	Ekinözü	Cela	38°03'24N 37°11'46E	1217 m	14.IV.2013
206	K.Maraş	Elbistan	Doğan	38°16'41N 37°09'42E	1191 m	14.IV.2013
207	K.Maraş	Elbistan	Başburun	38°09'33N 37°12'23E	1203 m	14.IV.2013
208	K.Maraş	Elbistan	Söğütlü Brook	38°13'47N 37°13'01E	1146 m	03.IX.2013
209	K.Maraş	Nurhak	Ağcasar	38°02'38N 37°18'19E	1370 m	23.VI.2013
210	Hatay	Erzin	Yumurtalık Road	36°56'14N 36°03'48E	7 m	17.IV.2013

211	Hatay	Antakya	Serinyol	36°35'00N 36°21'01E	130 m	03.X.2012
212	Gaziantep	Islahiye	Hamidiye	37°07'51N 36°53'07E	649 m	15.IV.2013
213	K.Maraş	Andırın	Dereağzı	37°53'21N 36°26'58E	1553 m	26.VI.2012
214	Hatay	Kumlu	Karaçalılık	36°22'25N 36°24'55E	81 m	16.IV.2013



Figure 1. Research Area (at Turkey map).