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Gerrormorpha and Leptopodomorpha (Insecta; Heteroptera) Fauna of Southwest Anatolia

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Abstract: This study was based on 1627 specimens belonging to 12 species and 1 subspecies of 8 genera in 7 families of the infraorders Gerrormorpha and Leptopodomorpha of the order Heteroptera. The specimens were collected from Southwest Anatolia (provinces Antalya, Burdur, Isparta, Denizli, Aydın, and Muğla) during 2000-2002. Eleven species and 1 subspecies of these are the first records for this area. These species are *Mesovelina vittigera* (Mesovelidae), *Hebrus pusillus* (Hebridae), *Hydrometra stagnorum* (Hydrometridae), *Velia affinis filippii*, *V. caprai* (Veliidae), *Aquarius paludum*, *Gerris argentatus*, *G. costae*, *G. lacustris* (Gerridae), *Saldula pallipes*, *S. saltatoria* (Saldidae), and *Leptopus marmoratus* (Leptopodidae). Distributions of each species in Turkey are given.

Key Words: Heteroptera, Gerrormorpha, Leptopodomorpha, aquatic bugs, Southwest Anatolia, fauna, Turkey

Güneybatı Anadolu Gerrormorpha ve Leptopodomorpha (Insecta; Heteroptera) Faunası

Özet: Bu çalışma, 2000-2002 yılları arasında Güneybatı Anadolu (Antalya, Burdur, Isparta, Denizli, Aydın, Muğla illeri)'de yürütülmüş ve 1627 örnek toplanmıştır. Gerrormorpha ve Leptopodomorpha infraordo (Heteroptera)'larına ait 7 familya ve 8 cinse ait 12 tür ve 1 alttür belirlenmiştir. Bunlardan 11 tür ve 1 alttür çalışma alanı için yeni kayıttır. Bu türler: *Mesovelina vittigera* (Mesovelidae), *Hebrus pusillus* (Hebridae), *Hydrometra stagnorum* (Hydrometridae), *Velia affinis filippii*, *V. caprai* (Veliidae), familyasına ait *Aquarius paludum*, *Gerris argentatus*, *G. costae*, *G. lacustris* (Gerridae), *Saldula pallipes*, *S. saltatoria* (Saldidae) ve *Leptopus marmoratus* (Leptopodidae). Her bir türün Türkiye'deki yayılışı da verilmiştir.

Anahtar Sözcükler: Heteroptera, Gerrormorpha, Leptopodomorpha, sucul böcekler, Güneybatı Anadolu, fauna, Türkiye

Introduction

Aquatic insects are important and conspicuous members of freshwater habitats, mainly consisting of semi-aquatic and aquatic Heteroptera. Aquatic Hemiptera belong to the suborder Heteroptera (true bugs). They can be further divided into 3 infraorders (Nepomorpha, Gerrormorpha, and Leptopodomorpha) based on the niche they favor and the adaptations they exhibit.

The semi-aquatic Mesovelidae occur in well vegetated stagnant water, including permanent or temporary ponds with water lilies, billabongs, and pools in river beds with algal growth. A few Mesoveliidae species live on water soaked moss or seeping rock faces and there are a few

records from brackish water and mangrove swamps. Typically pondweed bugs walk or run across the water surface, dwelling on top of the vegetation; however, winged individuals are frequently attracted to light, indicating that they are also capable of flight (Andersen and Weir, 2004). Hebridae species tend to dwell not on the water surface, but on weeds, litter, and debris close to either stagnant or flowing freshwater bodies (Andersen and Weir, 2004).

The family Hydrometridae, commonly known as water measurers or marsh treaders, is a group of very distinctive bugs with elongated bodies and with eyes far behind the anterior margin of the peculiar head (Andersen, 1977).

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Gerridae, a group of semi-aquatic hemipters commonly known as pond skaters, are active predators living by skating on the water surface in both lotic and lentic habitats. Many species have both winged and wingless forms. The Veliidae, commonly called smaller water striders, are small but active predators that run on the surface of the water of small ponds, fens, marshes, or bogs. The Saldidae, commonly called shore bugs, are active predators, usually living on land in damp areas or near water, especially at the edge of rivers, streams, ponds, and lakes (Scudder, 1997).

Leptopodidae species are semi-aquatic bugs that generally occur on drier areas of rock walls and boulders near or in fast flowing streams found in warmer climates. They are strong fliers and so may also be collected in dry habitats away from water. Leptopodid bugs are diurnal predators upon other arthropods (Cassis and Gross, 1995).

Our knowledge of the infraorders Gerromorpha and Leptopodomorpha in Turkey is, at present, still in its infancy, and still relying heavily on the mid-20th century works by Hoberlandt (1948, 1955) and supplemented by the catalog published by Aukema and Rieder (1995). The recent compilation of a complete list of known taxa by Kiyak and Öz Saraç (2001) provides a foundation for future work. They report 15 species and 7 subspecies of gerromorphans in 8 genera in the families Gerridae, Hebridae, Hydrometridae, Mesoveliidae, and Veliidae, as well as 19 species and 4 subspecies of

leptopodomorphans in 8 genera belonging to the families Saldidae and Leptopodidae.

The study area chosen for this particular study concerning the aquatic and semi-aquatic Heteroptera fauna is located in Southwest Turkey, and only 2 studies were reported previously in this area, by Hoberlandt (1948), which recorded *Gerris thoracicus*, and by Kiyak et al. (2007), which recorded *Aquarius najas*, *Gerris gibbifer*, *Saldula fucicola*, and *Salda morio*. This study aimed to determine the aquatic and semi-aquatic Heteroptera fauna of Southwest Anatolia (provinces Antalya, Burdur, Isparta, Denizli, Aydın, and Muğla).

Materials and Methods

The adult and nymph specimens were collected from 294 locations (Figure 1 and Table 1). A total of 1627 specimens of 12 species and 1 subspecies were collected from April to September in 2000 and 2001 and between April and June in 2002.

All samples were collected by aquatic net, dip net, and kitchen sieve with mesh size about 2 × 2 mm. Having been killed in the jars filled in 70% alcohol, the samples were prepared and labeled according to the standards of museum material. The samples were diagnosed using identification keys (Poisson, 1949; 1951; 1957; Stichel, 1955-1956, 1958-1960; Bei-Bienko, 1964; Savage, 1989; Pericart, 1990; Dolling, 1991). Former general distribution records from Turkey were also given for

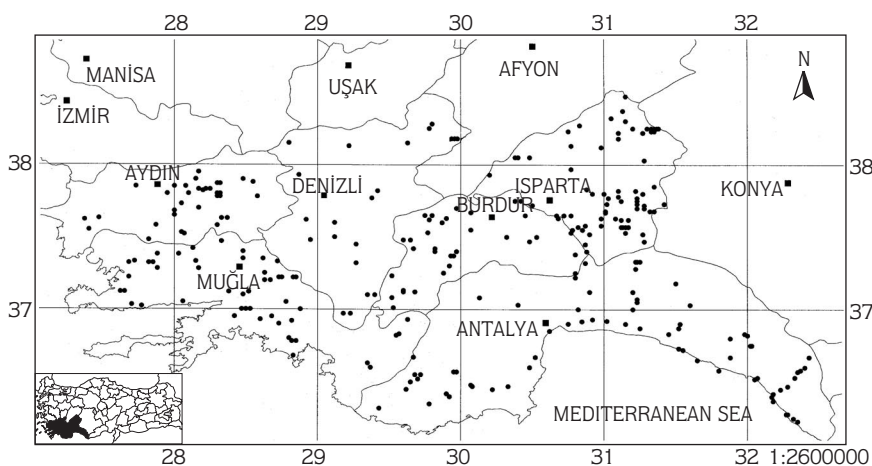


Figure 1. Localities studied in Southwest Anatolia.

Table 1. The 271 localities studied in Southwest Anatolia (numbers for the map refer to sampling sites listed in Figure 1).

Locality	Provinces	Exact locality, types of water sources	coordinates	altitude
1	Antalya	Alanya, Avsallar, Kargı stream	36°35'N 31°48'E	14 m
2	Antalya	Alanya, between Beldibi and Fakırcalı, small stream	36°28'N 32°17'E	520 m
3	Antalya	Alanya, Çayarası bridge	36°40'N 32°26'E	1200 m
4	Antalya	Alanya, Demirtaş, Sedre stream	36°25'N 32°11'E	30 m
5	Antalya	Alanya, Demirtaş, Serde stream	36°24'N 32°10'E	10 m
6	Antalya	Alanya, 5 km from Demirtaş to Gazipaşa, stream	36°27'N 32°14'E	60 m
7	Antalya	Alanya, Dim stream	36°31'N 32°03'E	14 m
8	Antalya	Alanya, Okçular stream	36°39'N 31°39'E	16 m
9	Antalya	Alanya, Yeşilöz stream	36°22'N 32°11'E	20 m
10	Antalya	Alanya, Karapınar V.	36°35'N 32°22'E	1280 m
11	Antalya	Belen, Kaş-Elmalı road	36°24'N 29°55'E	745 m
12	Antalya	Beşkonak, between Çaltepe and Değirmenözü, Kanlı stream	37°20'N 31°13'E	492 m
13	Antalya	Beşkonak, between Değirmenözü and Yeşilbağ	37°20'N 31°14'E	517 m
14	Antalya	Beşkonak, between Kırkkavak and Tazi V.	37°17'N 31°13'E	510 m
15	Antalya	Beşkonak, branches of Köprü river	37°07'N 31°12'E	112 m
16	Antalya	Elmalı, Akçay, exit of Avşar V.	36°33'N 29°43'E	1116 m
17	Antalya	Elmalı, Avlan Lake	36°34'N 29°58'E	1033 m
18	Antalya	Elmalı, south of Avşar V.	36°33'N 29°43'E	1116 m
19	Antalya	Elmalı, Gömbe, stream	36°33'N 29°41'E	1160 m
20	Antalya	Finike, Akyaka V., Akçay Stream	36°28'N 30°05'E	345m
21	Antalya	Finike, Alakır Dam and Alakır stream	36°27'N 30°13'E	144 m
22	Antalya	Finike, between Arıfköy and Kilittepe, branches of Akçay	36°29'N 30°04'E	380 m
23	Antalya	Finike, near Dağbağ	36°25'N 29°54'E	365 m
24	Antalya	Finike, between Yazır and Kilittepe, south branches of Akçay	36°34'N 29°57'E	1050 m
25	Antalya	Gazipaşa, Bıçkıcı bridge	36°17'N 32°17'E	30 m
26	Antalya	Gazipaşa, Kahyalı, Delice bridge	36°17'N 32°16'E	27 m
27	Antalya	Gazipaşa, Macar V., Beyrebucak I.	36°14'N 32°21'E	44 m
28	Antalya	Gazipaşa, Kocadere	36°15'N 32°19'E	30 m
29	Antalya	between Gömbe and Sütleğen, Kıbrıs stream	36°27'N 29°37'E	1295 m
30	Antalya	Gündoğmuş, Alara stream	36°49'N 32°00'E	800 m
31	Antalya	İbradı, Derebucak-İbradı road, small stream	37°11'N 31°30'E	1545 m
32	Antalya	İbradı, Ürünü V., Altınbeşik cave	37°02'N 31°36'E	800 m
33	Antalya	Kaş, Girdev Lake	36°40'N 29°40'E	1815 m
34	Antalya	Kaş, between Gömbe and Sütleğen	36°30'N 29°39'E	1275 m
35	Antalya	Kaş, between İslamlar and İkizce	36°19'N 29°26'E	723 m
36	Antalya	Kaş, between Karadağ and Dağbağ	36°31'N 29°42'E	752 m
37	Antalya	Kaş, Kasaba, near Ortabağ	36°21'N 29°47'E	175 m
38	Antalya	between Kayadibi and Döğer V.	36°15'N 29°35'E	590 m
39	Antalya	Kemer, Göynük stream	36°40'N 30°31'E	67 m
40	Antalya	Kemer, Kozluca, stream	36°36'N 30°29'E	165 m
41	Antalya	Konyaaltı, Boğaz stream	36°51'N 30°37'E	15 m

Table 1. Continued.

42	Antalya	Korkuteli, Dereköy, flow stream of Korkuteli Dam	37°05'N 30°08'E	1088 m
43	Antalya	Kumluca, between Güzören and Karaağaç V.	36°28'N 30°20'E	535 m
44	Antalya	25 km from Manavgat to Beşkonak, Köprü river	37°04'N 31°14'E	54 m
45	Antalya	Manavgat, between Değirmenözü and Yeşilbağ, Köprü river	37°20'N 31°15'E	570 m
46	Antalya	Manavgat, Hocalar V., Sarısu	36°52'N 31°15'E	22 m
47	Antalya	Manavgat, Kızılağaç, Nifrit stream	36°44'N 31°31'E	13 m
48	Antalya	Manavgat, Kızılot, Karpuz stream	36°43'N 31°33'E	10 m
49	Antalya	Manavgat, Manavgat Dam	36°52'N 31°31'E	40 m
50	Antalya	Manavgat, Manavgat stream	36°50'N 31°27'E	20 m
51	Antalya	Manavgat, Oymapınar Dam	36°54'N 31°32'E	210 m
52	Antalya	Manavgat, Sağırini, Beşkonak	37°03'N 31°14'E	200 m
53	Antalya	Merkez, between Bağllağaç V. and Kayadibi V.	36°32'N 29°25'E	599
54	Antalya	Merkez, Düden Stream	36°54'N 30°45'E	75 m
55	Antalya	Merkez, Kayadibi, Aksu stream	37°13'N 30°48'E	77 m
56	Antalya	Merkez, Kurşunlu waterfall	37°00'N 30°49'E	85 m
57	Antalya	Merkez, Tekke stream	36°56'N 30°55'E	30 m
58	Antalya	Serik, Çalış V., Köprü river	36°54'N 31°09'E	24 m
59	Antalya	Serik, near Durumlar V., Aksu stream	37°07'N 30°54'E	55 m
60	Antalya	Serik, Kayaburnu bridge	36°55'N 31°01'E	21 m
61	Antalya	Serik, east of Kayadibi, stream	37°19'N 30°52'E	450 m
62	Antalya	Serik, Sağırini V., Köprü river	37°00'N 31°12'E	57 m
63	Antalya	Alanya, Elmalı, stream	36°34'N 32°21'E	1333 m
64	Antalya	Alanya, Erikli stream	36°32'N 32°20'E	1335 m
65	Antalya	Alanya, Güney V., Zeytinbükü stream	36°40'N 31°53'E	125 m
66	Antalya	Alanya, Kaplanhanı	36°36'N 32°24'E	1250 m
67	Antalya	Alanya, Oba stream	36°32'N 32°04'E	6 m
68	Antalya	Gündoğmuş, Alara stream	36°45'N 32°02'E	314 m
69	Antalya	Gündoğmuş, near Ortakonuş V.	36°45'N 32°01'E	295 m
70	Antalya	Gündoğmuş, exit of Senir V., Taşavur resort	36°48'N 31°53'E	930 m
71	Antalya	exit of Gündoğmuş, stream	36°50'N 31°59'E	920 m
72	Antalya	Antalya-Korkuteli road, near Söğütcük	37°02'N 30°24'E	904 m
73	Aydın	Bozdoğan, near Amasya V., branches of Akçay	37°09'N 30°27'E	1085 m
74	Aydın	Bozdoğan, near Kazandere V.	37°38'N 28°22'E	140 m
75	Aydın	Bozdoğan, Kemer Dam	37°27'N 28°33'E	1050 m
76	Aydın	Bozdoğan, branches of Kemer Dam	37°24'N 28°29'E	645 m
77	Aydın	Bozdoğan, between Örmepınar V. and Kakalan, branches of Akçay	37°35'N 28°18'E	827 m
78	Aydın	Çine, Eskiçine, Çine II bridge, Çine stream	37°31'N 28°04'E	95 m
79	Aydın	Çine, between Subaşı and Dalama, branches of Topçam Dam	37°44'N 28°03'E	150 m
80	Aydın	Çine, Tepeköy, Topçam Dam	37°41'N 28°00'E	130 m
81	Aydın	Çine, Yağcılar, Çine II stream	37°32'N 28°03'E	88 m
82	Aydın	Çine, Yörükler, Çine stream	37°39'N 28°00'E	68 m
83	Aydın	north of Güvenlik V.	37°54'N 28°09'E	247 m
84	Aydın	İncirliova, İkiz stream	37°51'N 27°44'E	58 m

Table 1. Continued.

85	Aydın	Karacasu, Esençay V., Esen stream	37°47'N 28°35'E	250 m
86	aydın	Karpuzlar, Arapkırı, stream	37°29'N 27°49'E	380 m
87	Aydın	Karpuzlu, Ektirli, small stream	37°35'N 27°52'E	104 m
88	Aydın	Köşk, Beyköy, Koçak stream	37°51'N 28°00'E	86 m
89	Aydın	Kuyucak, Azizabat, Büyükmenderes river	37°53'N 28°33'E	100 m
90	Aydın	Kuyucak, Büyükmenderes river	37°54'N 28°29'E	90 m
91	Aydın	Merkez, near Umurlu, Büyükmenderes river	37°48'N 27°57'E	56 m
92	Aydın	Nazilli, Büyükmenderes river	37°52'N 28°19'E	85 m
93	Aydın	Nazilli, Esenköy, Akçay	37°47'N 28°18'E	75 m
94	Aydın	Nazilli, Esenköy, Akçay	37°47'N 28°19'E	75 m
95	Aydın	Nazilli, Esenköy, Akçay	37°52'N 28°18'E	76 m
96	Aydın	Nazilli, Esenköyü V., Akçay	37°48'N 28°19'E	81 m
97	Aydın	Nazilli, between Yenipazar and Akçay, Akçay	37°48'N 28°18'E	77 m
98	Aydın	Söke, Karacahayıt stream	37°38'N 27°28'E	26 m
99	Aydın	Söke, Serçin Lake side, canal	37°33'N 27°24'E	28 m
100	Aydın	Söke-Yenidoğan road	37°37'N 27°22'E	m
101	Aydın	Sultanhisar, Akçay, DSİ irrigation canal	37°51'N 28°05'E	62 m
102	Aydın	Sultanhisar, north of Eskihsar	37°57'N 28°10'E	247 m
103	Aydın	Sultanhisar, Malkoç stream	37°50'N 28°10'E	110 m
104	Aydın	between Yenipazar and Donduran, irrigation canal	37°49'N 28°12'E	73 m
105	Aydın	Yenipazar, Donduran V., irrigation canal	37°50'N 28°15'E	70 m
106	Aydın	Yenipazar, Donduran V., branches of Akçay	37°50'N 28°13'E	75 m
107	Aydın	Yenipazar, Paşaköy, stream	37°42'N 28°10'E	635 m
108	Aydın	between Yenipazar and Alanlı, Akçay, irrigation canal	37°48'N 28°06'E	65 m
109	Burdur	Ağlasun-Yeşilbaş road, stream	37°39'N 30°27'E	1400 m
110	Burdur	Altınaylaya, small lake	37°01'N 29°32'E	1300 m
111	Burdur	Bucak, entrance of Çobanlar V.	37°15'N 30°48'E	135 m
112	Burdur	Bucak, İncidere, stream	37°28'N 30°29'E	880 m
113	Burdur	between Büyükyaka and Harmanlı	37°36'N 29°52'E	1485 m
114	Burdur	Çavdır-Kozağacı road	37°07'N 29°41'E	1035 m
115	Burdur	Çeltikçi, Akyayla V., stream	37°30'N 30°19'E	1400 m
116	Burdur	Çeltikçi-Dağarcık, branches of Onaç Dam	37°30'N 30°32'E	840 m
117	Burdur	Göhlisar, Çamköy stream	37°14'N 29°31'E	1930m
118	Burdur	Göhlisar, Göhlisar Lake side	37°07'N 29°36'E	956 m
119	Burdur	Göhlisar, between Göhlisar and Çavdır, Yamadıburnu	37°08'N 29°36'E	966 m
120	Burdur	Göhlisar, Karapınar V.	37°05'N 29°31'E	1005m
121	Burdur	Karamanlı, 1st branches of Karamanlı Dam	37°24'N 29°49'E	1206 m
122	Burdur	Karamanlı, 2nd branches of Karamanlı Dam	37°25'N 29°49'E	1200 m
123	Burdur	Karamanlı, Karataş Lake	37°24'N 29°58'E	1050 m
124	Burdur	Karamanlı, Karataş Lake	37°22'N 29°57'E	1050 m
125	Burdur	Karamanlı, branches of Karataş Lake	37°22'N 29°56'E	1070 m
126	Burdur	Karamanlı, Kayalı V.	37°18'N 29°55'E	1083 m
127	Burdur	Merkez, 2 km from Askeriye and Gelincikü, stream	37°45'N 30°23'E	1140 m

Table 1. Continued.

128	Burdur	Merkez, Boğaziçi V., Eren stream	37°40'N 30°04'E	1000 m
129	Burdur	Merkez, Karaçal Dam	37°33'N 30°04'E	920 m
130	Burdur	Merkez, Kovacık, small stream	37°42'N 29°58'E	1206 m
131	Burdur	Tefenni, Hasanpaşa town, branches of Eren stream, small lake	37°15'N 29°53'E	1217 m
132	Burdur	Yeşilova, near Saldabeli	37°29'N 29°36'E	1180 m
133	Burdur	Yeşilova, flow stream of Salda Lake	37°29'N 29°39'E	1380 m
134	Burdur	Yeşilova, Bayındır V., marsh	37°39'N 29°45'E	1040 m
135	Burdur	Yeşilova, Büyükyaka V., fountain pond	37°38'N 29°54'E	1180 m
136	Burdur	Yeşilova, Dereköy, small stream	37°39'N 29°48'E	1080 m
137	Burdur	Yeşilova, Orhanlı, pond	37°37'N 29°47'E	1140 m
138	Burdur	between Yeşilova and Işıklar, small stream	37°32'N 29°46'E	1177 m
139	Burdur	between Yeşilova and Karamanlı, flow stream of Karamanlı Dam	37°25'N 29°40'E	1217 m
140	Denizli	Acıpayam, near Alaattin V.	37°27'N 29°16'E	1020 m
141	Denizli	Beyağaç, Akçay	37°13'N 28°51'E	655 m
142	Denizli	Buldan, Beyler V.	38°09'N 28°48'E	530 m
143	Denizli	Çal, east of Adıgüzel Dam, small lake	38°08'N 29°13'E	686 m
144	Denizli	Çameli, İmamlar V.	37°06'N 29°21'E	1330 m
145	Denizli	Çameli, east of İmamlar V.	37°06'N 29°24'E	1335 m
146	Denizli	Çivril, Düzbel	38°10'N 30°01'E	845 m
147	Denizli	Çivril, Emirhisar, irrigation canal	38°17'N 29°48'E	840 m
148	Denizli	Çivril, Gökgöl V.	38°11'N 30°02'E	835 m
149	Denizli	Çivril, Gökgöl V., Ahır stream	38°11'N 30°03'E	930 m
150	Denizli	Çivril, between İnceköy and Seraserli, branches of Işıklı Lake	38°15'N 29°47'E	845m
151	Denizli	Çivril, near İshaklı V., flow stream Işıklı Lake	38°11'N 30°04'E	850 m
152	Denizli	Çivril, Sarıbeyli V., Büyükmenderes	38°09'N 29°38'E	827 m
153	Denizli	Sarayköy, near Karakıran, Büyükmenderes	37°56'N 28°52'E	165 m
154	Denizli	Tavas, Güzelköy, Dünberek stream	37°37'N 28°55'E	910 m
155	Denizli	Tavas, between Kızılca and Pınarbaşı, pond	37°30'N 29°07'E	1200 m
156	Denizli	Tavas, Solmaz V., irrigation canal	37°29'N 28°57'E	920 m
157	Denizli	Tavas, Tavas irrigation canal	37°36'N 29°07'E	1080 m
158	Denizli	Çameli, Kirazlıyaylı V., Karabayır stream	36°58'N 29°11'E	840 m
159	Denizli	Çardak, Acıgöl side, fresh water	37°49'N 29°25'E	780 m
160	Denizli	between Denizli and Acıpayam, Bozdağ, stream	37°19'N 29°16'E	1175 m
161	Denizli	between Denizli and Çameli, Elmalı V., stream	36°58'N 29°14'E	885 m
162	Denizli	Honaz, Yukarıdağdere, Saklı Lake	37°46'N 29°23'E	990 m
163	Denizli	Kale, Değirmenalanı, Akçay stream	37°20'N 28°43'E	440 m
164	Isparta	Aksu, Aksu stream	37°49'N 31°06'E	1340 m
165	Isparta	Aksu, between Aksu and Yakaköy	37°43'N 31°17'E	1820 m
166	Isparta	Aksu, between Aksu and Yılanlı, stream	37°48'N 31°00'E	1215 m
167	Isparta	Aksu, 2 km Anamas plateau road, stream	37°45'N 31°14'E	1585 m
168	Isparta	Aksu, 7 km Anamas plateau road, stream	37°46'N 31°14'E	1765 m
169	Isparta	Aksu, Anamas plateau, stream	37°49'N 31°13'E	1896 m
170	Isparta	Aksu, Dedegöl Mountains, stream	37°42'N 31°17'E	1610 m

Table 1. Continued.

171	Isparta	Aksu, Dedegöl Mountains, İnişdibi stream	37°42'N 31°14'E	1290 m
172	Isparta	Aksu, between Karağı and Yakaafşar, stream	37°45'N 31°07'E	1215 m
173	Isparta	Aksu, Yakaafşar, near Elecik V., stream	37°44'N 31°14'E	1402 m
174	Isparta	Aksu, between Yakaköy and Yenişarbademli, stream	37°43'N 31°16'E	1753 m
175	Isparta	between Aksu and Karağı, Aksu stream and Dam Lake	37°47'N 31°06'E	1305 m
176	Isparta	between Belence and Ayvalı	37°38'N 31°05'E	1075 m
177	Isparta	Cankurtaran, fountain pond	38°17'N 31°26'E	1349 m
178	Isparta	2 km from Cankurtaran to Bağkonak, stream	38°15'N 31°22'E	1575 m
179	Isparta	Çamlıköy, stream	37°38'N 30°41'E	950 m
180	Isparta	Eğirdir-Aşağıgökdere road, stream	37°33'N 30°47'E	365 m
181	Isparta	Eğirdir, between Ayvalı and Pazarköy	37°44'N 31°01'E	1180 m
182	Isparta	Eğirdir, Göktaş, Koysazi stream	37°50'N 30°53'E	3116 ft
183	Isparta	Eğirdir, between Güneyce and Çukurköy, south of Davras Mountain, stream	37°39'N 30°46'E	1190 m
184	Isparta	Eğirdir, near Kızılkaya V., stream	37°34'N 30°49'E	432 m
185	Isparta	Eğirdir-Isparta road, railway side	37°58'N 30°46'E	3284 ft
186	Isparta	Eğirdir, Aşağıgöktepe, stream	37°32'N 30°46'E	340 m
187	Isparta	Eğirdir, between Ağılıköy and Yılanlı, fountain pond	37°48'N 30°55'E	1190 m
188	Isparta	Eğirdir, near HES I., stream	36°37'N 30°51'E	975 m
189	Isparta	between Gelendost and Afşar, flow stream of Eğirdir	38°07'N 30°59'E	965 m
190	Isparta	Gölcük Lake	37°43'N 30°30'E	1430 m
191	Isparta	Isparta-Antalya road, stream	37°23'N 30°48'E	310 m
192	Isparta	Keçiborlu, near Kaplanlı V.	37°56'N 30°12'E	1100 m
193	Isparta	Merkez, 5 km from Askeriye to Gelincik, stream	37°45'N 30°25'E	1200 m
194	Isparta	Merkez, near Güneyce, stream	37°39'N 30°43'E	666 m
195	Isparta	Merkez, Isparta-Ağlasun road, stream	37°39'N 30°40'E	770 m
196	Isparta	Pazarköy bridge, stream	37°46'N 31°02'E	1212 m
197	Isparta	northwest of Sarıkök, stream	37°31'N 31°16'E	870 m
198	Isparta	Senirkent, Eğirdir Lake side	38°08'N 30°46'E	935 m
199	Isparta	Senirkent, near Gençeli V., Eğirdir Lake side	38°14'N 30°45'E	950 m
200	Isparta	entrance of Sütçüler, Kovada stream	37°35'N 30°52'E	890 m
201	Isparta	Sütçüler, Kovada stream	37°33'N 30°51'E	630 m
202	Isparta	Sütçüler, Ayvalıpınar, stream	37°40'N 31°01'E	1120 m
203	Isparta	Sütçüler, north of Ayvalıpınar, Aksu stream	37°41'N 31°01'E	1132 m
204	Isparta	between Sütçüler and Belence, Köprü river	37°36'N 31°10'E	920 m
205	Isparta	between Sütçüler and Belence, Köprü river	37°37'N 31°07'E	1074 m
206	Isparta	Sütçüler, 14 km to Çandır	37°31'N 30°54'E	715 m
207	Isparta	Sütçüler, between İncidere and Belenci, Köprü river	37°34'N 31°09'E	1075 m
208	Isparta	Sütçüler, between İncidere and Belence, Köprü river	37°34'N 31°10'E	730 m
209	Isparta	Sütçüler, between İncidere and Kasımlar, spring water	37°34'N 31°07'E	1450 m
210	Isparta	Sütçüler, between Kasımlar and İncidere, Köprü river	37°32'N 31°09'E	1325 m
211	Isparta	Sütçüler, north of Kesme, small stream	37°28'N 31°17'E	1005 m
212	Isparta	Sütçüler, Kızılsu, stream	37°24'N 30°53'E	290 m
213	Isparta	Sütçüler, between İncidere and Belence, source of Köprü river	37°34'N 31°08'E	1110 m

Table 1. Continued.

214	Isparta	Sütçüler, Melihler-Çandır road	37°27'N 30°52'E	310 m
215	Isparta	Sütçüler, between Sağrak and Sipahiler	37°35'N 30°59'E	1118 m
216	Isparta	Sütçüler, Taşlıkkır stream	37°38'N 30°59'E	1185 m
217	Isparta	Şarkikaraağaç, north of Salur V., stream	38°02'N 31°17'E	1157 m
218	Isparta	Uluborlu, İleydağı V., Pupa Stream	38°03'N 30°29'E	1160 m
219	Isparta	Uluborlu, Süleyman Demirel Dam	38°03'N 30°24'E	1116 m
220	Isparta	Uluborlu, Uluborlu Dam, Üğüllü stream	38°03'N 30°23'E	1110 m
221	Isparta	Yalvaç, Celeptaş V., stream	38°19'N 31°03'E	1180 m
222	Isparta	Yalvaç, Aşağıkaşıkara, north of Eğirdir Lake	38°16'N 30°50'E	840 m
223	Isparta	Yalvaç, north of Bağkonak Dam, small stream	38°13'N 31°16'E	1203 m
224	Isparta	Yalvaç, Bağkonak, Sultan Mountains, small stream	38°15'N 31°20'E	1660 m
225	Isparta	Yalvaç, between Bağkonak and Cankurtaran, small stream	38°14'865"N 31°21'597"E	1615 m
226	Isparta	Yalvaç, between Bağkonak and Cankurtaran, Sultan Mountains, flow stream of Akşehir Lake	38°14'N 31°21'E	1657 m
227	Isparta	Yalvaç, between Bağkonak and Cankurtaran, Sultan Mountains, fountain pond	38°14'N 31°20'E	1663 m
228	Isparta	Yalvaç, Eğirler V.	38°11'N 31°06'E	1035 m
229	Isparta	Yalvaç, Kuyucak V.	38°15'N 31°12'E	1125 m
230	Isparta	Yalvaç, Sultan Mountains, small stream	38°15'N 31°20'E	1680 m
231	Isparta	Yalvaç, northwest of Sultan Mountains, small stream	38°15'093"N 31°18'513"E	1438 m
232	Isparta	Yalvaç, Sultan Mountains hill	38°28'N 31°09'E	1965 m
233	Isparta	Yalvaç, Sultan Mountains, spring water	38°15'N 31°21'E	1730 m
234	Isparta	Yalvaç, Sultan Mountains, spring water	38°15'N 31°22'E	1556 m
235	Isparta	Yalvaç, Sultan Mountains, stream	38°15'N 31°23'E	1570 m
236	Isparta	Yalvaç, Sultan Mountains	38°15'N 31°20'E	1745 m
237	Isparta	Yalvaç, Sücüllü, Yalvaç Dam	38°22'N 31°08'E	1200 m
238	Isparta	Yalvaç, near Eleği V., stream	38°13'N 31°06'E	1120 m
239	Isparta	Yenişarbademli, near forest depot	37°41'N 31°21'E	1280 m
240	Isparta	Yenişarbademli, near Gökyaka V., stream	37°44'N 31°25'E	1167 m
241	Isparta	between Yenişarbademli and Şarkikaraağaç, opposite side of Uzun Island, marsh	37°51'N 31°21'E	1137 m
242	Isparta	exit of Yenişarbademli, small stream	37°41'N 31°19'E	1230 m
243	Isparta	Yalvaç, Eleği V., Akköprü stream	38°18'N 31°09'E	1100 m
244	Muğla	Bodrum, Mumcular Dam	37°07'N 27°39'E	110 m
245	Muğla	Bodrum, Mumcular, small lake	37°07'N 27°37'E	80 m
246	Muğla	Bozdoğan, Çayboyu, stream	37°38'N 28°20'E	670 m
247	Muğla	Dalaman, near Kapıgargın V., Tersakan stream	36°47'N 28°51'E	35 m
248	Muğla	Dalaman, Kapıgargın V., Koca Lake	36°41'N 28°50'E	85 m
249	Muğla	Dalaman, Tersakan II stream	36°47'N 28°49'E	23 m
250	Muğla	Dalaman, branches of Yuvarlak stream	36°54'N 28°44'E	30
251	Muğla	Fethiye, near Seki, branches of Esen stream	36°49'N 29°33'E	1130 m
252	Muğla	Fethiye, Uğurlu V., Esen stream	36°38'N 29°21'E	140 m
253	Muğla	Kale-Köyceğiz road	37°06'N 28°29'E	590 m

Table 1. Continued.

254	Muğla	Kavaklıdere, Çayboyu, small stream	37°28'N 28°20'E	665 m
255	Muğla	Kemer, Esen stream	36°36'N 29°22'E	127 m
256	Muğla	Kemer, Seki, Seki stream	36°50'N 29°34'E	1150 m
257	Muğla	between Kemer and Karahasantaşı, branches of Esen stream	36°56'N 29°38'E	1390 m
258	Muğla	between Kemer and Kaynazlı V., Kaynazlı stream	36°50'N 29°30'E	1390 m
259	Muğla	Kemer-Kıncılar V., Kıncılar stream	36°35'N 29°19'E	1265 m
260	Muğla	Köyceğiz Lake side	36°57'N 28°41'E	4 m
261	Muğla	Köyceğiz, Örnek V. near, Balıklı Lake	37°00'N 28°53'E	100 m
262	Muğla	Marmaris, near Aksaz beach	36°57'N 28°25'E	370 m
263	Muğla	Merkez, Avcılar V.	37°21'N 28°29'E	545 m
264	Muğla	Merkez, near Avcılar V., Esen stream	37°21'N 28°37'E	400 m
265	Muğla	Merkez, between Beyağaç and Karacaören, branches of Akçay	37°13'N 28°50'E	625 m
266	Muğla	Merkez, Karacaören V., branches of Akçay	37°13'N 28°44'E	625 m
267	Muğla	Merkez, Karacaören V., branches of Akçay	37°13'N 28°45'E	580 m
268	Muğla	Merkez, Murat V., small stream	37°15'N 28°38'E	590 m
269	Muğla	Milas, Akgedik Dam	37°19'N 27°49'E	90 m
270	Muğla	Milas, Geyik Dam side	37°23'N 27°53'E	486 m
271	Muğla	Milas, exit of Gökbel	37°01'N 27°46'E	350 m
272	Muğla	Milas, Akyol bridge, stream	37°13'N 27°41'E	30 m
273	Muğla	Milas, between Kayabaşı and Yusufça, stream	37°19'N 27°51'E	225 m
274	Muğla	Milas, between Kultak and Zeytin, small stream	37°03'N 28°04'E	200 m
275	Muğla	Milas, Tuzabat, small lake	37°17'N 27°53'E	520 m
276	Muğla	Milas, north of Yusufca V., small stream	37°19'N 27°41'E	225 m
277	Muğla	Milas-Söke road, Sarı stream	37°20'N 27°43'E	41 m
278	Muğla	Ortaca, Dalaman stream	36°48'N 28°48'E	30 m
279	Muğla	Ula-Beyağaç road, small stream	37°12'N 28°38'E	337 m
280	Muğla	Ula, Marmaris-Köyceğiz road, Çiftlik V., small stream	37°00'N 28°28'E	70 m
281	Muğla	Ula, Ula Dam lake	37°07'N 28°23'E	670 m
282	Muğla	Yatağan, near Bozarmut, Alişar stream	37°17'N 28°10'E	400 m
283	Muğla	Yatağan, Memişler V., Kayırlı bridge	37°25'N 28°08'E	340 m
284	Muğla	Yatağan, Madenler stream	37°20'N 28°09'E	394 m
285	Muğla	Yatağan, between Turgut and Zeytin, small stream	37°23'N 28°01'E	447 m
286	Muğla	between Yeniköy and Makıköy, small stream	37°02'N 27°42'E	350 m
287	Muğla	Dalaman, Tersakan III stream	36°47'N 28°49'E	23 m
288	Muğla	Köyceğiz, Beyobası-Sayhisar road, Yuvarlak stream	36°55'N 28°49'E	150 m
289	Muğla	Köyceğiz, Hamitköy, Lake side	36°56'N 28°36'E	13 m
290	Muğla	Köyceğiz, near Karaböğürtlen V., Balıklı stream	37°00'N 28°32'E	70 m
291	Muğla	Köyceğiz, near Karaböğürtlen V., Fethiye stream	37°00'N 28°30'E	90 m
292	Muğla	Köyceğiz, Yayla V., Gölge Mountains, spring water	37°03'N 28°47'E	1730 m
293	Muğla	Ula, Gölçük, small stream	37°07'N 28°31'E	690 m
294	Muğla	Ula, near Yaylasöğüt V., small stream	37°12'N 28°40'E	925 m

1) The localities number; 2) the name of the province; 3) a short description of the exact locality, types of water sources; 4) the GPS coordinates; 5) altitudes above sea level (Abbreviation: V: village).

every species (Hoberlandt, 1948, 1955; Seidenstücker, 1957, 1960; Özesmi and Önder, 1988; Kıyak and Özserağ, 2001). The distribution of the species is marked on the map (Figure 1). All samples are deposited in the collection of the Zoological Museum of Gazi University (ZMGU), Ankara, Turkey.

Results

Twelve species and 1 subspecies of 8 genera belonging to the 7 families of the infraorders Gerromorpha and Leptopodomorpha were recorded (Table 2).

Discussion

In the present study 12 species and 1 subspecies of 8 genera in 7 families of the infraorders Gerromorpha and Leptopodomorpha of aquatic Heteroptera from Southwest Anatolia (provinces Antalya, Burdur, Isparta, Denizli, Aydın, Muğla) were recorded. Families and the number of species are as follows: Mesovelidae 1, Hebridae 1, Hydrometridae 1, Veliidae 2, Gerridae 5, Saldidae 2, and Leptopodidae 1. Of these, 14 species are new records for Antalya, 12 for Aydın, 11 for Burdur, 11 for Denizli, 12 for Isparta, and 12 for Muğla. Twelve species are new records for Southwest Turkey.

Previously, Hoberlandt (1948) recorded *Gerris thoracicus* from Denizli province. We recorded this species in all provinces in Southwest Anatolia. It can be concluded that a total of 16 species and 1 subspecies belonging to 7 families of the infraorders Gerromorpha and Leptopodomorpha occur in Southwest Turkey (Table 3).

In this study, a total of 1627 specimens, belonging to 7 families of the infraorders Gerromorpha and Leptopodomorpha were collected. The most abundant species were *Hydrometra stagnorum* (24.52% of the catches), *Gerris costae* (15.67%), *G. thoracicus* (14.25%), and *Velia affinis filippii* (13.82%). Sample numbers of these species accounted all together for 68.28% of the catches (Figure 2).

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Table 2. Species of the infraorders Gerromorpha and Leptopodomorpha from Southwest Anatolia (numbers for the localities (L) refer to sampling sites listed in Table 1; * = first record from southern Anatolia). L= localities; Ny= Nymphs; Sp = Specimens

L	♂	♀	Ny	date
INFRAORDER: GERROMORPHA				
MESOVELIDAE				
<i>Mesovelina vittigera</i> Horvath, 1895				
2	4	3	-	18.08.2001
141	2	-	-	21.08.2001
HEBRIDAE				
<i>Hebrus pusillus</i> (Fallen, 1807)				
79	-	1	-	25.06.2001
HYDROMETRIDAE				
<i>Hydrometra stagnorum</i> (Linnaeus, 1758)				
6	1	-	-	18.08.2001
7	1	1	-	29.06.2001
14	3	-	-	25.06.2000
16	5	5	-	21.05.2000
18	1	1	-	24.06.2000
19	4	4	6	05.08.2000
20	-	1	-	05.08.2000
24	5	10	-	21.05.2000
27	2	2	-	27.06.2002
32	3	2	-	03.08.2000
39	1	1	-	26.05.2001
40	-	2	-	14.07.2001
41	3	-	-	26.05.2001
42	4	-	-	22.04.2001
43	4	8	1	25.06.2000
44	-	-	2	25.06.2000
50	1	-	-	26.06.2002
53	5	2	-	22.05.2000
54	1	1	-	26.05.2001
55	-	1	-	19.08.2001
57	-	-	1	14.09.2001
65	10	3	-	11.07.2000
66	-	8	1	10.07.2000
67	1	-	-	11.07.2000
69	1	4	-	11.07.2000

Table 2. Continued.

73	1	-	-	23.05.2000	228	-	6	-	20.06.2001
76	2	1	-	23.05.2000	229	3	1	-	20.07.2000
77	1	-	1	22.08.2001	238	3	1	-	15.09.2000
78	1	4	-	25.06.2001	239	-	2	-	14.09.2000
78	1	-	-	27.05.2002	247	-	1	-	22.05.2000
82	-	1	1	20.05.2001	250	1	1	1	22.05.2000
88	1	-	-	19.05.2001	251	5	6	-	06.08.2000
100	1	-	-	15.04.2000	256	1	-	-	13.09.2001
102	1	3	-	15.04.2000	257	-	2	-	06.08.2000
107	1	1	-	21.05.2001	258	1	1	1	22.05.2000
111	2	1	-	19.05.2000	259	3	3	-	22.05.2000
116	2	1	-	28.05.2001	260	-	1	-	20.08.2001
119	5	2	-	27.06.2001	263	1	-	-	16.07.2001
120	9	11	1	06.08.2000	269	-	1	-	23.06.2001
125	1	1	-	14.09.2001	277	1	7	1	20.05.2001
128	-	1	-	21.06.2001	280	-	4	-	18.04.2000
134	-	1	-	22.08.2001	288	1	-	-	22.04.2002
158	8	4	2	16.07.2000	291	-	1	-	18.07.2000
164	-	2	-	14.07.2000	294	6	6	-	18.07.2000
166	2	3	-	28.06.2001					
175	-	1	-	28.06.2001					
176	1	-	2	26.06.2000					
179	3	6	-	28.05.2001	13	1	4	-	26.06.2000
181	2	-	-	23.08.2001	21	3	4	-	20.05.2000
184	2	1	1	15.07.2000	23	1	3	-	26.05.2002
185	2	1	-	25.05.2002	24	13	9	-	21.05.2000
189	3	3	-	20.06.2001	29	1	-	-	21.05.2000
191	1	1	-	19.05.2000	30	-	1	-	29.06.2001
196	1	2	-	27.06.2000	33	-	7	-	24.06.2000
198	-	-	1	21.06.2000	34	1	-	-	23.06.2000
200	2	7	-	19.05.2000	36	5	7	-	21.05.2000
201	6	5	2	10.08.2000	37	-	4	-	26.05.2002
202	1	1	1	14.07.2000	63	-	1	-	10.07.2000
203	5	1	4	27.06.2000	76	-	1	-	23.05.2000
204	-	-	3	26.06.2000	88	1	-	-	19.05.2001
205	6	8	1	23.08.2001	120	1	8	-	06.08.2000
212	1	-	-	21.06.2001	144	4	9	-	22.06.2002
216	1	4	-	15.07.2000	167	8	2	-	14.07.2000
217	1	-	-	02.08.2000	170	2	-	-	13.07.2000
218	12	3	-	15.09.2000	172	-	2	-	10.08.2000
219	1	1	-	21.06.2000	193	-	2	-	28.06.2001
22	2	-	-	26.05.2002	200	1	-	-	19.05.2000

VELIIDAE

Velia affinis filippii Tamanini, 1947

Table 2. Continued.

209	1	-	-	23.08.2001	GERRIDAE				
212	-	4	-	21.06.2001	<i>Aquarius paludum</i> (Fabricius, 1794)				
213	4	2	-	26.06.2000	1	-	2	-	27.06.2002
215	4	9	-	26.06.2000	5	2	1	-	27.06.2002
223	2	-	-	29.05.2001	8	-	1	-	13.07.2001
224	9	4	-	20.07.2000	25	2	-	-	18.08.2001
225	6	16	-	19.07.2001	26	1	-	-	29.06.2001
226	-	2	-	27.06.2000	26	3	-	-	18.08.2001
227	3	4	-	27.06.2000	44	1	-	-	25.06.2000
229	-	1	-	20.07.2000	46	1	3	-	14.09.2001
229	1	4	-	19.06.2002	46	1	-	-	26.06.2002
233	6	14	-	02.08.2000	47	2	-	-	13.07.2001
236	1	3	-	15.09.2000	47	1	-	-	27.06.2002
239	-	1	-	14.09.2000	49	1	-	-	04.08.2000
248	-	2	-	22.05.2000	56	-	1	-	13.07.2001
268	1	4	-	22.06.2001	58	-	1	-	19.08.2001
279	-	1	-	22.06.2001	59	-	1	-	19.08.2001
282	6	4	-	27.05.2002	60	2	-	-	19.08.2001
					60	1	-	-	26.06.2002
					62	2	-	-	26.06.2002
					78	1	1	-	25.06.2001
					80	1	-	-	27.05.2002
					81	-	1	-	27.05.2002
					82	-	2	-	20.05.2001
					82	7	9	-	23.06.2002
					83	-	1	-	15.04.2000
					84	2	1	-	19.05.2001
					89	1	-	-	22.08.2001
					90	1	-	-	07.08.2000
					92	6	-	-	25.06.2001
					92	5	-	-	12.09.2001
					93	-	4	-	12.09.2001
					94	-	1	-	22.08.2001
					95	1	1	-	22.08.2001
					97	1	1	-	25.06.2001
					100	1	-	-	15.04.2000
					101	2	1	-	19.05.2001
					103	1	-	-	19.05.2001
					104	2	13	-	25.06.2001
					105	1	4	-	25.06.2001
					106	5	1	-	21.05.2001
					108	-	2	-	25.06.2001
<i>Velia caprai</i> Tamanini, 1947									
21	-	1	-	20.05.2000					
23	1	-	-	26.05.2002					
24	1	-	-	21.05.2000					
30	3	3	-	29.06.2001					
35	4	5	-	27.05.2001					
37	-	2	-	26.05.2002					
43	1	-	-	25.06.2000					
51	8	4	-	21.04.2001					
61	4	6	-	21.06.2001					
64	-	1	-	11.07.2000					
71	7	6	-	12.07.2000					
76	1	3	-	23.05.2000					
111	2	5	-	19.05.2000					
112	2	2	-	21.06.2001					
132	3	2	-	16.07.2000					
176	1	-	-	26.06.2000					
191	7	7	-	19.05.2000					
200	1	-	-	19.05.2000					
212	3	7	-	21.06.2001					
214	1	1	-	21.06.2001					
268	1	1	-	22.06.2001					
273	1	1	-	12.09.2001					
276	2	3	-	23.06.2001					
279	-	1	-	22.06.2001					

Table 2. Continued.

116	1	-	-	28.05.2001	246	4	1	-	12.09.2001
118	1	-	-	23.06.2000	250	1	-	-	22.05.2000
119	3	-	-	20.08.2001	252	1	1	-	20.08.2001
129	8	-	-	21.06.2001	254	1	1	-	22.08.2001
135	2	-	-	08.08.2000	255	-	1	-	26.06.2002
143	-	1	-	20.04.2002	256	-	1	-	13.09.2001
178	1	-	-	20.06.2001	261	4	2	-	13.09.2001
199	8	8	-	19.07.2000	262	-	1	-	25.06.2002
204	1	-	-	23.08.2001	265	2	3	-	21.08.2001
208	1	-	-	23.08.2001	265	1	1	-	21.08.2001
209	-	1	-	23.08.2001	266	5	6	-	21.08.2001
220	-	1	-	28.05.2002	267	-	2	-	21.08.2001
245	-	2	-	23.06.2001	272	1	-	-	25.06.2001
248	1	-	-	22.05.2000	283	1	-	-	25.06.2001
249	1	-	-	15.07.2001	284	1	1	-	27.05.2002
260	1	-	-	13.09.2001	288	-	1	-	22.04.2002
178	1	2	-	25.06.2002	290	2	-	-	18.07.2000
283	-	1	-	25.06.2001	290	5	1	-	20.08.2001
285	1	-	-	23.06.2001	291	1	1	-	18.07.2000
287	-	1	-	17.07.2000	294	1	-	-	18.07.2000
289	-	1	-	25.06.2002					
291	1	-	-	18.07.2000					
<i>Gerris argenteatus</i> Schummel, 1832					<i>Gerris costae</i> (Herrich-Schaeffer, 1850)				
2	1	-	-	18.08.2001	3	-	1	-	21.04.2001
42	2	1	-	28.05.2001	10	3	3	-	21.04.2001
74	2	-	-	12.09.2001	12	1	5	-	26.06.2000
77	1	-	-	22.08.2001	13	5	-	-	26.06.2000
78	2	-	-	25.06.2001	15	1	-	-	25.06.2000
85	-	4	-	07.08.2000	19	-	1	-	05.08.2000
87	-	1	-	20.05.2001	20	2	-	-	05.08.2000
122	1	-	-	27.06.2001	31	5	5	-	03.08.2000
122	1	-	-	20.08.2001	38	1	-	-	22.05.2000
140	-	2	-	22.06.2001	42	-	1	-	22.04.2001
141	5	-	-	21.08.2001	42	-	1	-	21.06.2002
154	2	-	-	07.08.2000	45	2	2	-	26.06.2000
158	7	5	-	16.07.2000	52	1	3	-	19.08.2001
159	1	-	-	19.07.2000	70	-	1	-	12.07.2000
182	1	-	-	25.05.2002	72	-	1	-	26.05.2002
197	2	-	-	26.06.2000	82	-	1	-	20.05.2001
205	2	-	-	23.08.2001	88	1	2	-	19.05.2001
206	1	1	-	21.06.2001	95	-	1	-	22.08.2001
					98	-	1	-	21.04.2002
					100	2	1	-	15.04.2000
					102	-	1	-	15.04.2000

Table 2. Continued.

107	-	1	-	21.05.2001	183	-	1	-	23.08.2001
109	1	5	-	15.07.2000	186	1	3	-	15.07.2000
110	2	1	-	20.08.2001	187	-	1	-	28.06.2001
114	1	-	-	22.06.2002	188	1	1	-	21.06.2001
115	1	-	-	21.06.2001	191	1	-	-	19.05.2000
119	1	1	-	27.06.2001	192	-	1	-	12.07.2000
127	-	2	-	28.06.2001	193	2	-	-	28.06.2001
130	1	2	-	18.07.2001	195	-	1	-	23.08.2001
131	-	1	-	23.06.2000	200	2	-	-	19.05.2000
132	1	-	-	16.07.2000	207	5	3	-	26.06.2000
134	-	1	-	20.06.2002	209	1	1	-	23.08.2001
136	-	1	-	18.07.2001	210	6	3	-	26.06.2000
137	-	1	-	18.07.2001	211	3	1	-	26.06.2000
138	1	-	-	22.08.2001	211	2	7	-	26.06.2000
138	-	1	-	20.06.2002	215	1	-	-	10.08.2000
142	-	1	-	28.05.2002	216	-	2	-	15.07.2000
143	-	2	-	20.04.2002	219	-	2	-	21.06.2000
145	1	2	-	28.05.2002	220	-	1	-	28.05.2002
145	2	-	-	27.06.2001	224	2	2	-	20.07.2000
150	-	1	-	28.05.2002	229	-	1	-	20.07.2000
151	1	-	-	11.09.2001	230	2	-	-	11.08.2000
152	1	-	-	18.05.2001	231	2	-	-	19.07.2001
154	1	-	-	07.08.2000	232	1	1	-	24.08.2001
155	-	1	-	22.06.2001	234	5	4	-	02.08.2000
156	-	1	-	22.06.2001	234	1	3	-	15.09.2000
157	1	-	-	22.06.2002	235	3	2	-	11.08.2000
160	1	3	-	16.07.2000	236	1	3	-	23.04.2001
161	-	1	-	16.07.2000	240	-	1	-	27.06.2000
162	-	1	-	19.07.2000	242	-	2	-	13.07.2000
163	-	1	-	22.06.2001	243	2	-	-	19.06.2002
164	1	-	-	14.07.2000	247	4	2	-	22.05.2000
168	-	3	-	14.07.2000	249	-	1	-	15.07.2001
169	-	4	-	14.07.2000	253	1	-	-	21.08.2001
171	1	1	-	13.07.2000	263	-	1	-	16.07.2001
172	1	2	-	14.07.2000	263	1	-	-	16.07.2001
172	3	1	-	28.06.2001	271	1	2	-	17.04.2000
173	2	1	-	27.06.2000	274	-	1	-	17.04.2000
174	3	4	-	27.06.2000	275	1	1	-	21.04.2002
174	3	-	-	14.07.2000	284	1	1	-	27.05.2002
176	2	-	-	26.06.2000	286	-	1	-	17.04.2000
179	-	1	-	28.05.2001	291	-	1	-	18.07.2000
180	1	-	-	21.06.2002	292	1	3	-	17.07.2000

Table 2. Continued.

<i>Gerris lacustris</i> (Linnaeus, 1758)				237	1	-	-	20.06.2001
4	1	-	-	26.05.2001	240	2	-	27.06.2000
9	-	6	-	26.05.2001	243	1	-	19.06.2002
11	4	2	-	20.05.2000	244	1	-	17.04.2000
16	2	3	-	21.05.2000	251	-	2	20.08.2001
17	-	3	-	21.05.2000	257	-	1	06.08.2000
21	1	2	-	20.05.2000	277	1	1	20.05.2001
28	1	-	-	26.05.2001	280	1	-	18.04.2000
39	-	1	-	26.05.2001	282	2	1	27.05.2002
42	1	1	-	22.04.2001	284	-	1	27.05.2002
86	1	-	-	20.05.2001				
99	-	2	-	20.05.2001	<i>Gerris thoracicus</i> Schummel, 1832			
115	-	1	-	21.06.2001	5	-	1	27.06.2002
118	-	1	-	23.06.2000	11	-	1	20.05.2000
122	-	1	-	27.06.2001	12	1	2	26.06.2000
124	1	-	-	23.06.2000	13	3	1	26.06.2000
128	-	2	-	21.06.2001	16	-	1	21.05.2000
130	1	2	-	18.07.2001	18	-	1	24.06.2000
131	1	-	-	23.06.2000	30	-	1	29.06.2001
139	1	-	-	23.06.2000	33	2	-	24.06.2000
146	1	-	-	19.06.2002	37	1	-	26.05.2002
148	-	3	-	20.04.2002	42	1	1	21.06.2002
149	1	3	-	22.06.2000	42	1	-	22.04.2001
150	1	-	-	28.05.2002	42	2	-	28.05.2001
157	1	-	-	22.06.2002	45	1	-	26.06.2000
158	1	-	-	16.07.2000	47	1	-	27.06.2002
168	1	-	-	14.07.2000	68	-	1	11.07.2000
171	1	-	-	13.07.2000	75	1	-	23.05.2000
173	-	1	-	27.06.2000	78	3	1	25.06.2001
174	-	1	-	27.06.2000	78	1	-	27.05.2002
189	2	-	-	20.06.2001	81	2	-	27.05.2002
198	-	3	-	19.06.2002	82	2	-	20.05.2001
216	1	-	-	15.07.2000	87	2	-	20.05.2001
217	1	1	-	27.06.2000	88	3	-	19.05.2001
219	5	5	-	21.06.2000	88	2	-	27.05.2002
221	-	1	-	21.06.2000	90	1	-	07.08.2000
221	1	1	-	21.06.2000	91	2	-	27.05.2002
221	-	1	-	19.07.2000	96	-	2	21.05.2001
228	1	1	-	20.06.2001	100	-	2	15.04.2000

Table 2. Continued.

103	2	-	-	19.05.2001	174	-	1	-	14.07.2000
105	-	1	-	25.06.2001	182	-	1	-	18.07.2001
108	-	1	-	25.06.2001	182	1	-	-	25.05.2002
114	5	-	-	22.06.2002	186	4	-	-	15.07.2000
117	-	2	-	07.08.2000	189	2	-	-	20.06.2001
119	2	2	-	27.06.2001	190	-	1	-	09.08.2000
119	1	-	-	20.08.2001	194	1	-	-	23.08.2001
119	1	-	-	22.06.2002	198	4	-	-	19.06.2002
121	-	2	-	27.06.2001	202	1	-	-	27.06.2000
122	10	9	-	27.06.2001	216	2	-	-	15.07.2000
122	6	2	-	20.08.2001	219	2	3	-	21.06.2000
122	2	-	-	14.09.2001	220	2	-	-	28.05.2002
123	-	1	-	21.06.2001	221	2	3	-	19.07.2000
124	3	-	-	23.06.2000	222	2	-	-	11.09.2001
126	-	1	-	23.06.2000	226	1	-	-	27.06.2000
133	2	-	-	14.09.2000	234	3	1	-	02.08.2000
134	-	1	-	22.08.2001	240	2	1	-	27.06.2000
135	3	-	-	08.08.2000	247	-	2	-	22.05.2000
136	2	2	-	18.07.2001	251	1	-	-	26.06.2002
137	2	2	-	18.07.2001	262	1	-	-	25.06.2002
139	2	3	-	23.06.2000	270	-	1	-	23.06.2001
140	-	1	-	22.06.2001	277	1	-	-	23.06.2001
143	1	4	-	28.05.2002	281	1	-	-	21.08.2001
147	2	4	-	26.06.2001	293	2	-	-	18.07.2000
150	1	2	-	28.05.2002	294	1	-	-	18.07.2000
152	1	-	-	18.05.2001					
152	2	-	-	26.06.2001					
153	-	1	-	22.08.2001					
157	5	4	-	22.06.2002					
159	1	2	-	19.07.2000					
162	3	2	-	19.07.2000	42	-	5	-	
163	1	-	-	18.07.2000	241	7	-	-	
163	-	2	-	22.06.2001	270	9	3	-	
165	6	1	-	14.07.2000					
168	1	-	-	14.07.2000					
172	3	1	-	14.07.2000	113	-	1	-	22.06.2000
172	1	-	-	28.06.2001					
173	2	-	-	27.06.2000					
173	3	4	-	14.09.2000					
174	1	-	-	27.06.2000	177	1	-	-	27.06.2000

INFRAORDER: LEPTOPODOMORPHA

SALDIDAE

Saldula pallipes (Fabricius, 1794)

42	-	5	-	
241	7	-	-	
270	9	3	-	

Saldula saltatoria (Linnaeus, 1758)

113	-	1	-	22.06.2000
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LEPTOPODIDAE

Leptopus marmoratus (Goeze, 1778)

177	1	-	-	27.06.2000
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Table 3. Distribution of the species in the provinces of Southwest Anatolia (■ present records, ▲ previous records).

INFRAORDER	Provinces of Southwest Anatolia								Distribution in Turkey
	FAMILY	SPECIES	ANTALYA	AYDIN	BURDUR	DENİZLİ	ISPARTA	MUĞLA	
Gerrromorpha	Mesovelidae	<i>Mesovelia vittigera</i>	■			■			İçel (Erdemli) (Hoberlandt, 1948).
	Hebridae	<i>Hebrus pusillus</i>		■					Armutlu, Adana (Abacılar, Gavur Mountains, Çakıt nehri), Ankara (Kızılcahamam), Bulgar Mountain, Gaziantep (Afrin nehri, Musabeyli, Alacakilise), İzmir, Konya (Kızılviran), Marmara, İçel (Alahan, Orta toroslar), Turunçlu (Hoberlandt, 1948).
	Hydrometridae	<i>Hydrometra stagnorum</i>	■	■	■	■	■	■	Adana (Karataş, Bürücek; Orta toros, Suluhan; Doğu toros. Gavur Mountains; Fevzi paşa), Afyon (Işaklı), Ankara (Ayaş), Bitlis (Ahlut, Van Lake), Bolu (Gerede), Bulgar Mountain, Bursa (Uludağ), Ege, İzmir, Kırşehir, Turunçlu (Hoberlandt, 1948,1955).
	Veliidae	<i>Velia affinis filippii</i>	■	■	■	■	■	■	Adana (Bürücek, Orta Toros) (Hoberlandt, 1948).
		<i>Velia caprai</i>	■	■	■		■	■	Kırşehir, (Çiçekdağ; Kurtçu deresi) (Kiyak and Özsaraç, 2001).
	Gerridae	<i>Aquarius paludum</i>	■	■	■	■	■	■	Adana (Taşçı), Edirne, İçel, Niğde (Ulukışla) (Hoberlandt, 1948).
		<i>Aquarius najas</i>	▲	▲	▲	▲	▲	▲	Kiyak et al., 2007
		<i>Gerris argentatus</i>	■	■	■	■	■	■	Adana (Suluhan, Doğu Toros), Kayseri (Özesmi and Önder, 1988; Hoberlandt, 1948).
		<i>Gerris costae</i>	■	■	■	■	■	■	Ankara (Beynam, Baraj), Bursa, Çankırı (Ilgaz, Ilgaz Mountains), İzmir, Kırşehir, Kocaeli (Mollafeneri), Niğde (Ulukışla) (Hoberlandt, 1948).
		<i>Gerris lacustris</i>	■	■	■	■	■	■	Bolu (Gerede), Gaziantep (Kilis), İstanbul, Sakarya (Sapanca Lake) (Hoberlandt, 1948)
	<i>Gerris thoracicus</i>	■	■	■▲	■	■	■	Adana (Pozantı, Suluhan, Doğu Toros), Ankara (Baraj), Armutlu, Bursa (Uludağ), Denizli (Sarayköy), Edirne, İzmir (Ilica, Menemen), Kırşehir (Hoberlandt, 1948) (Seidenstücker, 1957)	
	<i>Gerris gibbifer</i>	▲	▲	▲	▲		▲	Kiyak et al., 2007	
Leptopodomorpha	Saldidae	<i>Saldula fucicola</i>	▲	▲		▲	▲	▲	Kiyak et al., 2007
		<i>Saldula pallipes</i>	■				■	■	Ege, Eskişehir (Sivrihisar), İzmir (Ilica, Menemen), Kayseri (Erciyes Mountain) (Hoberlandt, 1948)
		<i>Saldula saltatoria</i>			■				Adana (Alahan, Orta toroslar), Bursa, Çankırı (Ilgaz, Ilgaz Mountains), Konya (Kızılviran), Marmara (Hoberlandt, 1948)
		<i>Salda morio</i>	▲						Kiyak et al., 2007
	Leptopodidae	<i>Leptopus marmoratus</i>					■		Bursa (Çekirge) (Seidenstücker, 1960)
		Total species number	14	12	11	11	12	12	

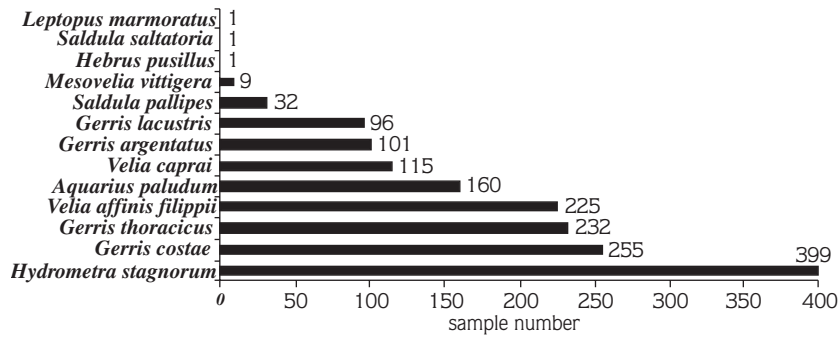


Figure 2. Number of samples of aquatic Heteroptera species sampled in 2000-2002.

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