

New Records of Spiders (*Arachnida: Araneae*) from Sinop Province, Turkey, Including an Annotated List of Species

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Abstract

Aim of study: This study was conducted to determine the biological richness of spiders from Sinop province, Turkey.

Area of study: The studies were carried out on between 41° 12' and 42° 6' northern latitudes and 34° 14' and 35° 26' east longitudes within the Sinop province borders.

Material and Methods: Spiders were collected from 2009 to 2015 using four collection methods: using sweep netting, tree beating, active searching and pitfall trapping.

Main results: A total of 1766 specimens were collected that represented by 31 families, 133 genera and 200 species. The most diverse families collected are the Salticidae (29 spp.), Theridiidae (29 spp.) and Gnaphosidae (21 spp.). According to previous studies and this work, 31 families, 139 genera, 212 species of spiders are present in Sinop province, of which 192 species are recorded for the first time.

Research highlights: Furthermore, one genus (*Theridula* Emerton 1882) and three species, namely *Asagena meridionalis* Kulczyński 1894, *Theridion boesenbergi* Strand 1904 and *Theridula gonygaster* (Simon 1873), are new records for Turkey, and are provided with illustrations. Here, we provide the first annotated checklist of the spider species of Sinop province.

Keywords: Species richness, Sinop, *Araneae*, Fauna, new records, checklist

Detaylı Tür Listesini İçeren, Sinop İli Yeni Örümcek (*Arachnida: Araneae*) Kayıtları

Öz

Çalışmanın amacı: Bu çalışma, Sinop örümceklerinin biyolojik zenginliğini belirlemek amacıyla yapılmıştır.

Çalışma alanı: Çalışmalar, Sinop İl sınırları içinde, 41° 12' ve 42° 6' kuzey enlemleri ve 34° 14' ve 35° 26' doğu boylamlarında gerçekleştirilmiştir.

Materyal ve Yöntem: 2009-2015 yılları arasında yapılan arazi çalışmalarında örümcek örnekleri dört yöntem; atrap, dallara vurma, çevrede arama ve çukur tuzak kullanarak toplanmıştır.

Temel Sonuçlar: İncelenen toplam 1766 örneğin, 31 familya bağlı 133 cins ve 200 türe ait olduğu tespit edilmiştir. En çok dağılım gösteren familyalar sırasıyla; Salticidae (29 tür), Theridiidae (29 tür) ve Gnaphosidae (21 tür)'dir. Daha önce yapılmış olan çalışmalar ve bu çalışma birlikte değerlendirildiğinde, 31 familya, 139 cins ve 212 türün Sinop'ta dağılım gösterdiği tespit edilmiştir. Bahsedilen bu türlerden 192 tür Sinop İl'i için yeni kayıttır.

Araştırma vurguları: Araştırma alanından bir cins (*Theridula* Emerton 1882) ve üç tür, *Asagena meridionalis* Kulczyński 1894, *Theridion boesenbergi* Strand 1904 and *Theridula gonygaster* (Simon 1873), Türkiye için yeni kayıttır. Ayrıca, bu çalışma ile Sinop'un örümcek türlerinin kontrol listesi ilk kez verilmektedir.

Anahtar Kelimeler: Tür zenginliği, Sinop, *Araneae*, fauna, yeni kayıt, kontrol listesi

Introduction

Currently, 4076 genera and 47297 spider species are classified in 116 families (World Spider Catalog, 2018). A large variety of spiders, are found in quite different terrestrial and fresh water habitats; from the peaks of

Everest to caves and houses (Bayram, 1987). Spiders are also hunted by other predators hunting for insects. They can reach 1000 individuals per square meter under suitable conditions. Spiders that are so dense in nature are thought to be able to stabilize



insect populations. Therefore, their role in protecting the natural balance, biocontrol availability, and their nutritional ecology in agricultural ecosystems are being investigated thoroughly (Nyffeler and Benz, 1987).

Compared with the number of spiders known in the world, studies on spider systematics and fauna in Turkey are limited. Turkey's spider fauna was studied for the first time by Karol in 1967. Karol (1967) has published a Preliminary List of Spiders of Turkey I. According to this list, 302 species belonging to 119 genera, 30 families, are found in Turkey. In later years, Bayram (2002) and Demirsoy (2002) have contributed to the subject with the book "Zoogeography of Turkey". Accordingly, there are 162 genera and 520 species belonging to 44 families, and six subspecies in Turkey. Topçu, Demir & Seyyar (2005) published a checklist of spiders of Turkey. They state that there are 613 species belonging to 43 families, and two subspecies. Later, 332 genera belonging to 53 families, 1022 species, were listed (Bayram, Kunt & Danişman, 2017). The new list provided by Demir and Seyyar (2017) raises the total number of species known for Turkey to 1117 plus two subspecies, grouped in 339 genera and 52 families. However, there are no studies on the diversity of spiders in Sinop and the few previous records are due to sporadic collections. Brignoli (1978) reported 3 families, 5 genera and 5 species for Sinop. After that, Buchar and Dolanský (2011), Danişman, Erdek & Coşar (2012a), Danişman, Erdek, M., Sancak, Z., Coşar (2012b,c) Danişman and Coşar (2016), Danişman (2014), Özkütük, Kunt, Karakaş & Danişman, (2015), Coşar (2015), Coşar and Varol (2016), Coşar, Danişman & Tarlabölen (2016), Coşar, Danişman & Kartaler (2017) and Logunov and Demir (2006) found new records for 14 species of 12 genera of 8 families. Until 2018, 11 families, 17 genera and 19 species have been reported from Sinop province, which is consistent with the above information.

The aim of this study is to contribute to the spider fauna of the Central Black Sea Region and Turkey, which is not very well

investigated. Moreover, a preliminary checklist for Sinop province is provided.

Material and Methods

Study Area

Sinop is located between 41° 12' and 42° 6' northern latitudes and 34° 14' and 35° 26' east longitudes, in the region where the Eastern and Western Black Sea climates are intertwined. In the Black Sea Region, the sea increases the humidity of the region and does not allow the increase of temperature differences in the coastal regions. However, because of their highness, the climatic characteristics of the mountains facing north and south are different. Due to the mountains running parallel to the coast in the province of Sinop, there is no maritime climate. The climate in the coastal zone is moderate. The climate changes in distant districts, such as Boyabat, Durağan and Saraydüzü. In these districts, a transition climate zone is observed between the Black Sea climate and the continental climate of Central Anatolia (Anonymous, 2012).

According to the 14-year observations obtained from the Sinop Meteorology Station Directorate, average annual temperature is 14.8°C and average annual precipitation is 64.1 mm.

The natural vegetation is rich and diverse because the Black Sea climate is rainy throughout the year. The soil structure is very suitable for the growth of woody herbs since it has a stony, clayey and calcareous sandy character. There are forest, maquis frigana, sand dune, stream, marsh and lake vegetation types. The natural vegetation covers the forests. Climate transition is also evident in the floristic structure. Mediterranean vegetation is also found along the coastline of the province; the climate starts to become dry towards the south. For this reason, the lush vegetation cover in the north replaces steppe plants. The main tree species on the coastline of the province are pine, beech, hornbeam, oak, linden, plane-tree, poplar and chestnut. As the altitude increases, yellow pine, fir, ash, and elm trees are found. Due to higher in the forest understory, plant density on the forest floor is higher (Baysal, 2008; Öztürk, 2010).

Material

Spiders were collected from 67 different localities. A total of 1766 adult specimens were collected from Sinop and its vicinity (Fig. 1) and 31 families were found. The

study localities, with their coordinates, elevation and sampling dates, are numbered and given in Table 1.

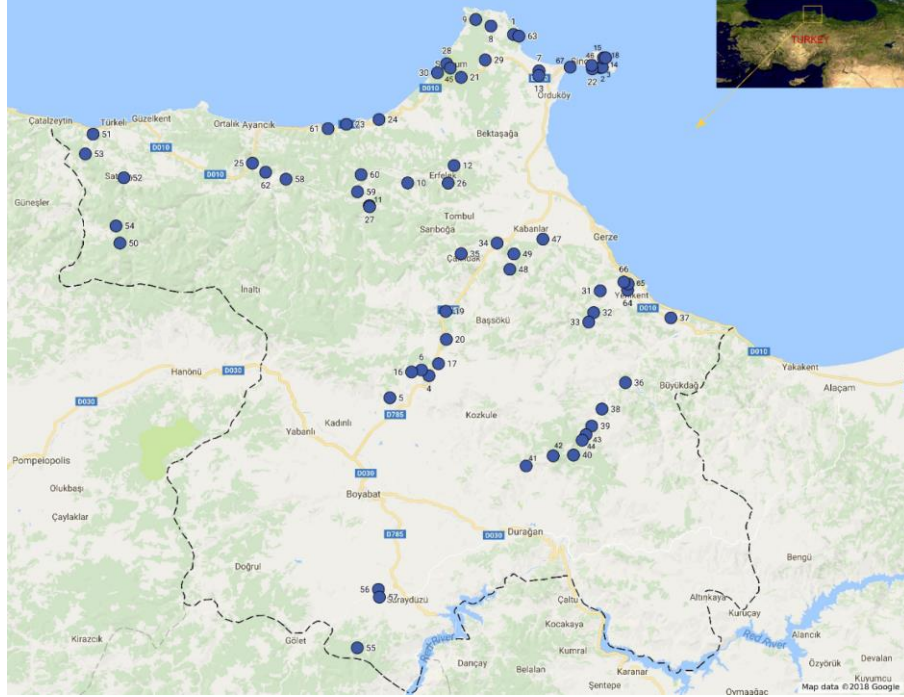


Figure 1. Map of Sinop Province and its environs; numbered localities are presented in Table 1.

Table 1. List of localities where the spider were collected

Number	Date	Coordinate (N)	Coordinate (E)	Altitude	Location	Number	Date	Coordinates (N)	Coordinate (E)	Altitude	Location
1.1	07.11.2010	43°03'44.01"N	35°01'55.95"E	50m	Center	18	23.04.2014	42°01'56.2"N	35°11'31.7"E	172m	Center
1.2	28.11.2010	43°03'44.01"N	35°01'55.95"E	50m	Center	19	23.04.2014	41°42'13.4"N	34°54'51.7"E	731m	Gerze
1.3	19.12.2010	43°03'44.01"N	35°01'55.95"E	50m	Center	20	23.04.2014	41°40'02.1"N	34°54'55.9"E	942m	Boyabat
1.4	08.01.2011	43°03'44.01"N	35°01'55.95"E	50m	Center	21	01.05.2014	42°00'25.4"N	34°56'27.7"E	19m	Center
1.5	22.01.2011	43°03'44.01"N	35°01'55.95"E	50m	Center	22	01.05.2014	42°01'14.89"N	35°10'7.73"E	5m	Center
1.6	26.02.2011	43°03'44.01"N	35°01'55.95"E	50m	Center	23	01.05.2014	41°56'46.2"N	34°44'29.3"E	63m	Ayancık
1.7	13.03.2011	43°03'44.01"N	35°01'55.95"E	50m	Center	24	01.05.2014	41°57'08.3"N	34°47'54.8"E	90m	Erfelek
1.8	26.08.2014	43°03'44.01"N	35°01'55.95"E	50m	Center	25	01.05.2014	41°53'45.20"N	34°34'41.84"E	94m	Ayancık
2.1	02.04.2011	42°01'10.4"N	35°11'0.1"E	17m	Center	26	03.05.2014	41°52'12.0"N	34°55'26.1"E	477m	Erfelek
2.2	14.03.2009	42°01'10.4"N	35°11'0.1"E	17m	Center	27	03.05.2014	41°50'22.18"N	34°46'54.8"E	560m	Erfelek
3	17.04.2011	42°01'11"N	35°11'1"E	40m	Center	28	04.05.2014	42°01'28.7"N	34°54'57.9"E	10m	Center
4	27.05.2012	41°37'12.1"N	34°53'06.1"E	1090m	Boyabat	29	04.05.2014	42°01'46.0"N	34°58'58.5"E	54 m	Center
5	27.05.2012	41°34'3.89"N	34°49'1.2"E	1100m	Boyabat	30	04.05.2014	42°00'46.8"N	34°53'59.1"E	80 m	Center
6	27.05.2012	41°37'39.3"N	34°52'19.4"E	1250m	Boyabat	31	17.05.2014	41°43'49.2"N	35°10'58.7"E	545m	Gerze
7	12.10.2012	42°00'55.92"N	35°04'35.036"E	20m	Center	32	17.05.2014	41°42'07.6"N	35°10'16.9"E	745m	Gerze
8	11.05.2013	42°04'24.3"N	34°59'34.3"E	61m	Center	33	17.05.2014	41°41'23.8"N	35°09'46.6"E	850m	Gerze
9	11.05.2013	42°04'54.4"N	34°57'59.2"E	93m	Center	34	19.05.2014	41°47'32.6"N	35°00'12.1"E	420m	Merkez
10	10.11.2013	41°52'13.4"N	34°50'53"E	361m	Erfelek	35	19.05.2014	41°46'42.2"N	34°56'28.1"E	790m	Gerze
11	10.11.2013	41°50'27.5"N	34°46'52.5"E	500m	Erfelek	36	24.05.2014	41°36'39.6"N	35°13'35.4"E	350m	Dikmen
12	21.11.2013	41°53'34.0"N	34°55'43.2"E	200m	Erfelek	37	24.05.2014	41°41'43.6"N	35°18'20.0"E	362m	Gerze
13.1	04.12.2013	42°00'33.75"N	35°04'33.51"E	35m	Center	38	24.05.2014	41°34'36.6"N	35°11'09.0"E	477m	Dikmen
13.2	15.10.2010	42°00'33.75"N	35°04'33.51"E	35m	Center	39	24.05.2014	41°33'16.6"N	35°10'04.5"E	650m	Dikmen
13.3	15.08.2012	42°00'33.75"N	35°04'33.51"E	35m	Center	40	31.05.2014	41°31'00.1"N	35°08'11.3"E	1105m	Dikmen
13.4	20.01.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	41	31.05.2014	41°30'10.9"N	35°03'14.4"E	1115m	Durağan
13.5	10.03.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	42	31.05.2014	41°30'56.9"N	35°06'03.9"E	1243m	Durağan
13.6	09.04.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	43	31.05.2014	41°32'36.7"N	35°09'29.7"E	780m	Dikmen
13.7	31.05.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	44	31.05.2014	41°32'10.6"N	35°09'05.1"E	882m	Dikmen
13.8	23.06.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	45	30.06.2014	42°01'18.1"N	34°55'19.69"E	7m	Center
13.9	17.07.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	46	03.08.2014	42°01'21.35"N	35°10'4.24"E	100m	Center
13.10	03.08.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	47	11.08.2014	41°47'51.2"N	35°04'59.4"E	400m	Gerze
13.11	22.09.2014	42°00'33.75"N	35°04'33.51"E	35m	Center	48	11.08.2014	41°45'30"N	35°01'31.4"E	600m	Gerze
14	05.04.2014	42°01'56.2"N	35°11'31.9"E	185m	Center	49	11.08.2014	41°46'42.7"N	35°01'57.5"E	651m	Gerze
15	05.04.2014	42°02'03.0"N	35°11'17.1"E	227m	Center	50	12.08.2014	41°47'32.6"N	34°20'52.8"E	1105m	Türkeli
16	23.04.2014	41°37'30.6"N	34°51'17.5"E	1245m	Boyabat	51	12.08.2014	41°56'00.6"N	34°18'04.0"E	200m	Türkeli

Table 1 (continued)

17	23.04.2014	41°38'09.2"N	34°54'06.8"E	1287m	Boyabat	51	12.08.2014	41°56'00.6"N	34°18'04.0"E	200m	Türkeli
52	12.08.2014	41°52'37.7"N	34°21'16.9"E	277m	Türkeli	61	14.08.2014	41°56'26.3"N	34°42'35.4"E	71m	Ayancık
53	12.08.2014	41°54'28.2"N	34°17'16.1"E	642m	Türkeli	62	14.08.2014	41°53'03.2"N	34°36'04.4"E	95m	Ayancık
54	12.08.2014	41°48'52.1"N	34°20'27.4"E	705m	Türkeli	63	26.08.2014	42°03'37.5"N	35°02'29.7"E	5m	Center
55	13.08.2014	41°15'55.1"N	34°45'37.7"E	1178m	Saraydüzü	64	16.11.2014	41°43'53.2"N	35°13'49.1"E	212m	Gerze
56	13.08.2014	41°20'29.5"N	34°47'50.9"E	510m	Saraydüzü	65.1	16.11.2014	41°44'21.9"N	35°13'53.1"E	240m	Gerze
57	13.08.2014	41°19'53.2"N	34°47'56.8"E	540m	Saraydüzü	65.2	17.05.2014	41°44'21.9"N	35°13'53.1"E	240m	Gerze
58	14.08.2014	41°52'31"N	34°38'11.3"E	194m	Ayancık	65.3	12.10.2014	41°44'21.9"N	35°13'53.1"E	240m	Gerze
59	14.08.2014	41°51'32.4"N	34°45'39.7"E	657m	Ayancık	66	16.11.2014	41°44'31.1"N	35°13'26.4"E	352m	Gerze
60	14.08.2014	41°52'52.0"N	34°46'01.0"E	697m	Ayancık	67	01.01.2015	42°01'12.9"N	35°07'50.3"E	100m	Center

We used hand collecting, soil and litter sampling, beating and/or sweeping vegetation, and pitfall trapping to collect spiders from rocks (underneath), crevices, logs and debris; under loose bark of dead trees, stumps and the forest understory.

Captured spiders were transferred by aspirator to small jars or vials containing 70% ethyl alcohol. In the laboratory, all spiders were sorted, counted and identified using appropriate literature. All collected spiders were taken to the laboratory, placed in small dishes, submerged in alcohol, and examined using stereo-zoom microscopes.

We used the identification keys of Nentwig, Blick, Gloor, Hänggi & Kropf (2017), and followed the World Spider Catalog (2018) for the nomenclature and taxonomy of spiders. Voucher specimens were stored in 70% ethanol and deposited in the Department of Biology, Faculty of Science and Art, Sinop University, Sinop. Specimens were photographed using a Canon

EOS 70D camera attached to a Zeiss Stemi 2000-C stereomicroscope.

For consistency purposes, we follow the currently accepted names, as listed in the World Spider Catalog (2018). Family order is based on the database prepared by Bayram, Kunt & Danışman (2017). The species name and genus are sorted in alphabetical order.

Results and discussion

Spider families, species and locality numbers are listed in order for convenience. After each listed species, the distribution by realm (Palaeartic, Holarctic, Cosmopolitan etc.) is given, based chiefly on the designations (Table 2). In addition, the number of male and female individuals collected for each species and the total number of individuals caught by family members are also included in Table 2. Subadult individuals are not included in this list.

Table 2. Families and species, distribution, localities and number of male and female spiders collected in Sinop

Family: SCYTODIDAE					
Taxon	Distribution	Locality	♂	♀	
<i>Scytodes thoracica</i> (Latreille 1802)	Holarctic, Pasific	[1.1] [5] [30] [39] [38] [37] [47]	3	9	
Total			12		
Family: PHOLCIDAE					
Taxon	Distribution	Locality	♂	♀	
<i>Holocnemus pluchei</i> (Scopoli 1763)	Europe, Northern Africa	[1.2] [51]	2	2	
<i>Pholcus phalangioides</i> (Fuesslin 1775)	Cosmopolitan	[13.7] [67]	1	1	
Total			6		
Family: SEGESTRIIDAE					
Taxon	Distribution	Locality	♂	♀	
<i>Segestria florentina</i> (Rossi 1790)	European to Georgia, Brazil, Uruguay, Argentina	[46]	0	1	
<i>Segestria senoculata</i> (Linnaeus 1758)	Palaearctic	[42] [53] [55] [62]	0	4	
Total			5		

Table 2 (continued)

Family: DYSDERIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Dysdera crocota</i> C.L. Koch 1838	Cosmopolitan	[2.1] [2.2] [14] [15] [16] [65.1]	7	4
<i>Harpactea korgei</i> Brignoli 1979	Turkey	[17] [20] [34] [35] [43]	4	4
Total			19	
Family: MIMETIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Ero aphana</i> (Walckenaer 1802)	Palaearctic	[13.8]	0	1
<i>Mimetus laevigatus</i> (Keyserling 1863)	Mediterranean-Asian	[37]	0	3
Total			4	
Family: OECOBIIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Oecobius maculatus</i> Simon 1870	Mediterranean to Azerbaijan	[37]	1	1
Total			2	
Family: ULOBORIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Hyptiotes paradoxus</i> (C.L. Koch 1834)	European, Turkey, Caucasia	[61] [11] [41] [59] [60] [65.3]	8	3
<i>Uloborus walckenaerius</i> Latreille 1806	Palaearctic	[57] [58]	1	2
Total			14	
Family: THERIDIIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Anelosimus vittatus</i> (C.L. Koch 1836)	Palaearctic	[23] [25] [28] [30] [33] [36] [37] [38] [43] [39] [44] [47] [59] [60] [65.2]	13	43
* <i>Asagena meridionalis</i> Kulczyński 1894	East European to Georgia	[4]	1	0
<i>Asagena phalerata</i> (Panzer 1801)	Palaearctic	[16] [23]	1	1
<i>Crustulina guttata</i> (Wider 1834)	Palaearctic	[10] [15] [30] [38]	1	3
<i>Dipoena melanogaster</i> (C.L. Koch 1837)	European, North Africa to Azerbaijan, Iran	[36] [65.2]	2	1
<i>Enoplognatha ovata</i> (Clerck 1757)	Holarctic	[62] [53]	0	2
<i>Enoplognatha thoracica</i> (Hahn 1833)	Holarctic	[4]	1	0
<i>Episinus maculipes</i> Cavanna 1876	Southern Europe, Algeria, Turkey	[53]	1	0

Table 2 (continued)

<i>Episinus truncatus</i> Latreille 1809	Europe, Turkey, Caucasus	[53]	0	1
<i>Euryopsis flavomaculata</i> (C.L. Koch 1836)	Palaearctic	[42]	1	0
<i>Heterotheridion nigrovariegatum</i> (Simon, 1873)	Palaearctic	[49] [53] [55]	0	3
<i>Kochiura aulica</i> (C.L. Koch 1838)	Canarian Islands, Cape Verde Islands to Azerbaijan	[28] [37] [65.1] [65.2] [65.3]	10	9
<i>Lasaeola tristis</i> (Hahn 1833)	European to Middle Asia	[44]	2	0
<i>Neottiura bimaculata</i> Linnaeus 1767	Holarctic	[44]	1	0
<i>Parasteatoda lunata</i> (Clerck 1757)	Palaearctic	[45] [63]	0	4
<i>Parasteatoda tepidariorum</i> (C.L. Koch 1841)	Cosmopolitan	[7] [13.5] [13.7] [13.8]	14	24
<i>Phycosoma inornatum</i> (O.P.-Cambridge 1861)	European to Middle Asia	[27]	1	0
<i>Platnickina tincta</i> (Walckenaer 1802)	Holarctic	[27] [36] [38] [39] [42] [43] [44] [47] [63]	7	14
<i>Robertus arundineti</i> (O.P.-Cambridge 1871)	Palaearctic	[24] [42] [50]	1	4
<i>Simitidion simile</i> (C.L. Koch 1836)	Holarctic	[34] [44] [51] [65.2]	1	6
<i>Steatoda albomaculata</i> (De Geer 1778)	Cosmopolitan	[37]	0	1
<i>Steatoda bipunctata</i> (Linnaeus 1758)	Holarctic	[35]	0	1
<i>Steatoda grossa</i> (C.L. Koch 1838)	Cosmopolitan	[13.2]	1	0
<i>Steatoda paykulliana</i> (Walckenaer 1805)	European, Mediterranean to Middle Asia	[2.1] [2.2] [4] [13.4] [15] [19] [34] [65.3]	3	6
<i>Steatoda triangulosa</i> (Walckenaer 1802)	Cosmopolitan	[7] [13.1] [13.8]	3	6
* <i>Theridion boesenbergi</i> Strand 1904	European, Caucasia	[43]	0	1
<i>Theridion melanurum</i> Hahn 1831	Holarctic, Azor	[65.2]	1	0
<i>Theridion varians</i> Hahn 1833	Holarctic	[26] [27] [29] [30] [50] [53] [63]	2	5
* <i>Theridula gonygaster</i> (Simon 1873)	Cosmopolitan	[10]	0	1
Total			204	

Table 2 (continued)

Family:

LINYPHIIDAE

Taxon	Distribution	Locality	♂	♀
<i>Agyneta rurestris</i> (C.L. Koch 1836)	Palaearctic	[65.3]	1	0
<i>Centromerus albidus</i> Simon 1929	European, Turkey	[17] [26] [30] [43]	0	9
<i>Centromerus sylvaticus</i> (Blackwall 1841)	Holarctic	[1.6] [1.7]	4	0
<i>Cresmatoneta mutinensis</i> (Canestrini 1868)	Palaearctic	[13.4]	0	1
<i>Erigone dentipalpis</i> (Wider 1834)	Holarctic	[25]	1	0
<i>Erigonoplus spinifemoralis</i> Dimitrov 2003	Greece, Crete, Macedonia, Bulgaria, Turkey, Ukraine	[16]	1	0
<i>Frontinellina frutetorum</i> (C.L. Koch 1834)	Palaearctic	[5] [23] [24] [32] [34] [35] [36] [37] [39] [42] [44] [47] [48] [52] [57] [59] [65.2]	22	62
<i>Gnathonarium dentatum</i> (Wider 1834)	Palaearctic	[45]	1	0
<i>Lepthyphantes leprosus</i> (Ohlert 1865)	Holarctic, Chile	[59]	0	1
<i>Linyphia hortensis</i> Sundevall 1830	Palaearctic	[42]	1	7
<i>Linyphia triangularis</i> (Clerck 1757)	Palaearctic, USA	[47] [49] [53] [54] [59]	15	0
<i>Neriene furtiva</i> (O. P.-Cambridge 1871)	European, North Africa, Russia, Ukraine	[1.2]	1	0
<i>Neriene peltata</i> (Wider 1834)	Palaearctic, Greenland	[20] [27] [37] [36] [43]	0	6
<i>Neriene radiata</i> (Walckenaer 1841)	Holarctic	[8] [21] [27] [40] [61]	8	29
<i>Oedothorax gibbosus</i> (Blackwall 1841)	Palaearctic	[45]	0	1
<i>Palliduphantes khobarum</i> (Charitonov 1947)	Greece, Turkey, Ukraine, Russia, Middle Asia	[1.2.] [1.4] [1.5] [1.6] [1.7] [33] [40] [42]	8	11
<i>Prinerigone vagans</i> (Audouin 1826)	Old World	[28] [44]	2	0
<i>Stemonyphantes montanus</i> Wunderlich 1978	Turkey	[1.1] [1.2] [1.3] [1.5] [2.2] [10] [20] [50]	4	5
<i>Tenuiphantes flavipes</i> (Blackwall, 1854)	European	[1.5] [1.2] [11] [24] [26] [27] [31] [39] [43] [50] [65.1]	2	31

Table 2 (continued)

<i>Trematocephalus cristatus</i> (Wider 1834)	Palaearctic	[21] [27]	2	1
Total			237	
Family: TETRAGNATHIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Metellina mengei</i> (Blackwall 1869)	European to Caucasia, Altay, Iran	[10] [21] [27] [35]	7	11
<i>Metellina segmentata</i> (Clerck 1757)	Palaearctic	[10] [11] [12] [26] [28] [42] [43] [47] [60] [65.1] [66]	16	17
<i>Tetragnatha extensa</i> (Linnaeus 1758)	Holarctic, Madeira	[65.2]	1	0
<i>Tetragnatha montana</i> Simon 1874	Palaearctic	[8] [24] [39]	2	1
<i>Tetragnatha obtusa</i> C.L. Koch 1837	Palaearctic	[11] [24] [30] [36] [43] [52] [54] [55]	1	9
Total			65	
Family: ARANEIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Agalenatea redii</i> (Scopoli 1763)	Palaearctic	[18] [65.2]	1	2
<i>Araneus angulatus</i> Clerck 1757	Palaearctic	[1.8] [13.9] [13.10] [59]	0	4
<i>Araneus diadematus</i> Clerck 1757	Holarctic	[10] [11]	0	5
<i>Araneus sturmi</i> (Hahn 1831)	Palaearctic	[43]	0	1
<i>Araniella cucurbitina</i> (Clerck 1757)	Palaearctic	[23] [34] [37] [38] [39] [42] [44]	7	14
<i>Argiope bruennichi</i> (Scopoli 1772)	Palaearctic	[13.10] [48] [57] [65.3]	2	12
<i>Argiope lobata</i> (Pallas 1772)	Old World	[56] [57]	2	4
<i>Cyclosa conica</i> (Pallas 1772)	Holarctic	[5] [8] [23] [27] [34]	2	4
<i>Cyrtarachne ixoides</i> (Simon 1870)	Mediterranean to Georgia, Madagascar	[45]	0	1
<i>Gibbaranea bituberculata</i> (Walckenaer 1802)	Palaearctic	[21]	0	1
<i>Hypsosinga albobittata</i> (Westring 1851)	Palaearctic	[4] [6]	2	0
<i>Hypsosinga pygmaea</i> (Sundevall 1831)	Holarctic	[13.11] [47]	1	1
<i>Hypsosinga sanguinea</i> (C.L. Koch 1844)	Palaearctic	[32]	1	1

Table 2 (continued)

<i>Larinioides cornutus</i> (Clerck 1757)	Holarctic	[13.4] [13.6] [13.9]	2	4
<i>Larinioides suspicax</i> (O. P.-Cambridge, 1876)	European, North Africa to Middle Asia	[7] [13.5]	0	4
<i>Mangora acalypha</i> (Walckenaer 1802)	Palaearctic	[8] [23] [24] [28] [32] [34] [35] [36] [37] [38] [39] [44] [42] [51] [54] [59] [62] [65.2]	53	61
<i>Neoscona adianta</i> (Walckenaer 1802)	Palaearctic	[7] [13.10] [47]	0	7
<i>Neoscona subfusca</i> (C.L. Koch 1837)	Old World	[45] [56] [58] [62]	0	4
<i>Nuctenea umbratica</i> (Clerck 1757)	European to Azerbaijan	[13.7] [42]	1	1
<i>Zilla diodia</i> (Walckenaer 1802)	European to Azerbaijan	[8] [9] [23] [24] [25] [26] [27] [28] [30] [31] [37] [51] [65.2]	16	35
Total			256	
Family: LYCOSIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Alopecosa farinosa</i> (Herman 1879)	Palaearctic	[13.5] [16] [17] [65.2]	3	11
<i>Alopecosa albofasciata</i> (Brullé 1832)	Mediterranean to Middle Asia	[8] [9] [13.5] [18] [22] [23] [28] [34] [36] [37] [38] [45] [65.2]	9	30
<i>Alopecosa cursor</i> (Hahn 1831)	Palaearctic	[17]	0	2
<i>Alopecosa pulverulenta</i> (Clerck 1757)	Palaearctic	[16] [19] [23] [26] [28] [32] [42]	6	6
<i>Aulonia albimana</i> (Walckenaer 1805)	Palaearctic	[23] [32] [34] [36] [38] [41] [42]	4	7
<i>Hogna radiata</i> (Latreille 1817)	Middle European to Middle Asia, Iran, Middle Africa	[13.11] [48]	1	2
<i>Pardosa hortensis</i> (Thorell 1872)	Palaearctic	[8] [9] [13.5] [16] [17] [23] [24] [26] [42] [43]	6	19
<i>Pardosa lugubris</i> (Walckenaer 1802)	Western and Central Palaearctic	[8] [17] [20] [26] [55] [42]	23	11
<i>Trochosa hispanica</i> Simon 1870	Mediterranean to Middle Asia, Iran	[8] [13.4] [28] [39]	0	5
<i>Trochosa terricola</i> Thorell 1856	Holarctic	[2.1] [13.5]	2	1
Total			148	

Table 2 (continued)

Family: PISAURIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Pisaura mirabilis</i> (Clerck 1757)	Palaearctic	[8] [23] [24] [27] [29] [32] [34] [36] [38] [39]	2	16
Total			18	
Family: OXYOPIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Oxyopes heterophthalmus</i> (Latreille 1804)	Palaearctic	[56]	0	1
<i>Oxyopes lineatus</i> Latreille 1806	Palaearctic	[56] [57] [62] [65.3]	0	9
Total			10	
Family: AGELENIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Agelena orientalis</i> C.L. Koch 1837	Italy to Middle Asia, Iran	[48] [51] [56] [57] [58] [59] [61] [62] [65.3]	0	13
<i>Allagelena gracilens</i> (C.L. Koch 1841)	Middle European, Mediterranean to Middle Asia	[59]	0	1
<i>Maimuna vestita</i> (C.L. Koch 1841)	East Mediterranean	[2.2] [14] [15]	1	5
<i>Tegenaria argaeca</i> Nosek 1905	Bulgaria, Turkey	[1.1] [1.2] [1.3]	21	0
<i>Tegenaria dalmatica</i> Kulczyński 1906	Mediterranean to Ukraine	[2.2]	0	2
<i>Tegenaria domestica</i> (Clerck 1757)	Cosmopolitan	[39] [43]	0	3
<i>Tegenaria hasperi</i> Chyzer 1897	France to Turkey	[28] [45] [51]	1	2
<i>Textrix denticulata</i> (Olivier 1789)	European, Turkey	[31] [32] [35] [42] [48] [50] [55] [60]	1	12
Total			62	
Family: HAHNIIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Hahnina nava</i> (Blackwall 1841)	Palaearctic	[38]	0	1
<i>Iberina montana</i> (Blackwall 1841)	European, Turkey, Russia	[1.2] [1.3] [1.6] [34] [35] [48] [55]	3	5
Total			9	
Family: DICTYNIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Brigittea latens</i> (Fabricius 1775)	European to Middle Asia	[16] [23] [32] [34] [35] [44]	8	4
<i>Dictyna arundinacea</i> (Linnaeus 1758)	Holarctic	[30] [42] [44]	1	2

Table 2 (continued)

<i>Dictyna uncinata</i> Thorell 1856	Palaearctic	[21] [23] [25] [26] [30] [31] [33] [35]	6	9
<i>Lathys humilis</i> (Blackwall 1855)	Palaearctic	[21] [23] [28] [30] [38] [40] [42] [43] [44]	6	26
<i>Lathys lehtineni</i> Kovblyuk, Kastrygina and Omelko 2014	Ukraine, Turkey	[16] [37]	0	12
<i>Nigma flavescens</i> (Walckenaer 1830)	European	[20] [21] [26] [30] [33] [35] [39] [42] [44]	25	25
Total			124	
Family: AMAUROBIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Amaurobius erberi</i> (Keyserling 1863)	European, Canarian Island	[1.4] [1.1] [1.2] [2.1] [2.2] [10] [16] [17] [21] [26] [27] [30] [34] [36] [38] [43] [44] [55] [65.3] [65.2]	14	36
Total			50	
Family: TITANOECIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Nurscia albomaculata</i> (Lucas 1846)	European, Turkey, Egypt to Middle Asia	[13.8]	2	0
Total			2	
Family: EUTICHURIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Cheiracanthium elegans</i> Thorell 1875	European to Middle Asia	[13.3]	1	0
<i>Cheiracanthium erraticum</i> (Walckenaer 1802)	Palaearctic	[38]	0	1
<i>Cheiracanthium mildei</i> L. Koch 1864	Holarctic, Argentina	[23] [29] [34] [37] [39]	4	4
Total			10	
Family: MITURGIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Zora spinimana</i> (Sundevall 1833)	Palaearctic	[20] [21] [25] [35] [39] [44]	3	8
Total			11	

Table 2 (continued)

Family:				
ANYPHAENIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Anyphaena accentuata</i> (Walckenaer 1802)	European to Middle Asia, Iran	[24] [36] [38]	2	3
<i>Anyphaena sabina</i> L. Koch 1866	European, Turkey, Russia, Georgia, Azerbaijan	[24] [34] [36]	0	5
Total			10	
Family:				
LIOCRANIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Agroeca proxima</i> (O. P.-Cambridge 1871)	European, Russia, Turkey	[1.1] [1.3] [1.2] [1.7] [10] [25] [26] [28]	5	7
Total			12	
Family:				
PHRULITHIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Phrurolithus festivus</i> (C.L. Koch 1835)	Palaearctic	[24] [32] [50] [65.2]	7	1
Total			8	
Family:				
CLUBIONIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Clubiona comta</i> C.L. Koch 1839	European, Russia, North Africa	[21] [23] [24] [27] [28] [30] [33] [35] [39] [43]	2	19
<i>Clubiona neglecta</i> O. P.-Cambridge 1862	Palaearctic	[43]	0	1
Total			22	
Family: ZODARIIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Zodarion abantense</i> Wunderlich 1980	Turkey, Russia, Georgia	[27] [30] [60]	2	4
Total			6	
Family:				
GNAPHOSIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Aphantaulax cincta</i> (L. Koch 1866)	European, Turkey, North Africa, Israel	[29] [23]	4	0
<i>Callilepis cretica</i> (Roewer 1928)	Macedonia, Greece, Crete, Turkey, Azerbaijan	[56]	0	1
<i>Callilepis nocturna</i> (Linnaeus 1758)	Palaearctic	[4] [6]	0	3
<i>Drassodes lapidosus</i> (Walckenaer 1802)	Palaearctic	[4] [16] [24] [32] [34] [36] [37] [38] [39] [41] [42] [43]	21	20

Table 2 (continued)

<i>Drassodes pubescens</i> (Thorell 1856)	Palaearctic	[32]	1	0
<i>Drassyllus praeficus</i> (L. Koch 1866)	European to Middle Asia	[34] [38]	2	3
<i>Gnaphosa lucifuga</i> (Walckenaer 1802)	Palaearctic	[4] [6] [16] [32]	2	11
<i>Gnaphosa opaca</i> Herman 1879	European to Middle Asia	[3]	0	1
<i>Haplodrassus dalmatensis</i> (L. Koch 1866)	Palaearctic, Ethiopia	[4]	0	1
<i>Haplodrassus minor</i> (O. P.-Cambridge 1879)	European, Ukraine, Russia	[39] [41]	0	2
<i>Haplodrassus signifer</i> (C.L. Koch 1839)	Holarctic	[3] [4] [16] [41]	1	6
<i>Micaria albovittata</i> (Lucas 1846)	Palaearctic	[4]	1	2
<i>Micaria dives</i> (Lucas 1846)	Palaearctic	[4]	2	0
<i>Nomisia aussereri</i> (L. Koch 1872)	Palaearctic	[64] [65.3]	0	3
<i>Nomisia exornata</i> (C.L. Koch 1839)	European to Middle Asia	[34]	0	2
<i>Poecilochroa variana</i> (C.L. Koch 1839)	European to Middle Asia	[32]	0	1
<i>Scotophaeus scutulatus</i> (L. Koch 1866)	European to Middle Asia, Algeria	[35]	0	1
<i>Trachyzelotes pedestris</i> (C.L. Koch 1837)	European to Iran	[39] [41]	0	2
<i>Zelotes apricorum</i> (L. Koch 1876)	European to Kazakhstan	[26] [55]	0	2
<i>Zelotes strandi</i> (Nosek 1905)	Bulgaria, Turkey	[1.1] [16] [32] [34] [36] [37] [42] [65.3]	4	20
<i>Zelotes tenuis</i> (L. Koch 1866)	Mediterranean to Russia, Iran, USA	[45]	0	1
Total			120	
Family:				
SPARASSIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Micrommata virescens</i> (Clerck 1757)	Palaearctic	[23] [25]	0	2
Total			2	
Family:				
PHILODROMIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Philodromus aureoles</i> (Clerck 1757)	European	[48] [55] [62]	0	3

Table 2 (continued)

<i>Philodromus dispar</i> Walckenaer 1826	European to Middle Asia	[21] [27] [38] [41] [44]	0	8
<i>Philodromus krausi</i> Muster and Thaler 2004	Greece, Turkey	[40]	0	1
<i>Philodromus rufus</i> Walckenaer 1826	Holarctic	[25] [27] [29] [33] [36] [37] [38] [44] [65.2]	2	8
<i>Pulchellodromus pulchellus</i> (Lucas 1846)	Mediterranean	[34]	1	0
Total			23	
Family: THOMISIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Cozyptila thaleri</i> Marusik and Kovblyuk 2005	Greece, Turkey, Ukraine	[42]	0	1
<i>Diaea dorsata</i> (Fabricius 1777)	Palaearctic	[27] [37]	1	1
<i>Misumena vatia</i> (Clerck 1757)	Holarctic	[9] [23] [24] [25] [26] [29] [37] [42] [44] [45] [65.2]	10	8
<i>Ozyptila praticola</i> (C.L. Koch 1837)	Holarctic	[42]	0	1
<i>Ozyptila sanctuaria</i> (O. P.-Cambridge 1871)	European	[1.1] [65.3]	6	0
<i>Pistius truncatus</i> (Pallas 1772)	Palaearctic	[29]	1	0
<i>Runcinia grammica</i> (C.L. Koch 1837)	Palaearctic, St. Helena, South Africa, Lesotho	[45]	2	0
<i>Synema globosum</i> (Fabricius 1775)	Palaearctic	[9] [65.2]	1	7
<i>Thomisus onustus</i> Walckenaer 1805	Palaearctic	[23] [28] [34] [65.2]	4	3
<i>Tmarus piger</i> (Walckenaer 1802)	Palaearctic	[8]	1	1
<i>Xysticus acerbus</i> Thorell 1872	European to Middle Asia	[44]	0	1
<i>Xysticus audax</i> (Schrank 1803)	Palaearctic	[44]	0	2
<i>Xysticus cristatus</i> (Clerck 1757)	Palaearctic	[28] [32] [33] [37] [44]	0	6
<i>Xysticus kochi</i> Thorell 1872	European, Mediterranean to Middle Asia	[4] [23] [27] [28] [32] [37]	4	4
<i>Xysticus lanio</i> C.L. Koch 1835	Palaearctic	[21] [23] [29] [38] [39] [44]	6	5
<i>Xysticus striatipes</i> L. Koch 1870	Palaearctic	[32]	0	1
Total			77	

Table 2 (continued)

Family: SALTICIDAE				
Taxon	Distribution	Locality	♂	♀
<i>Aelurillus v-insignitus</i> (Clerck 1757)	Palaearctic	[37] [15] [14] [28]	5	1
<i>Ballus chalybeius</i> (Walckenaer 1802)	European, North Africa to Middle Asia	[26] [27] [28] [29] [33] [35] [38] [65.2]	3	9
<i>Carrhotus xanthogramma</i> (Latreille 1819)	Palaearctic	[23] [26] [29] [65.2]	5	6
<i>Chalcoscirtus infimus</i> (Simon 1868)	South, Middle European to Middle Asia	[37]	2	1
<i>Euophrys frontalis</i> (Walckenaer 1802)	Palaearctic	[6] [16] [32] [38] [37] [43]	6	1
<i>Euophrys herbigrada</i> (Simon 1871)	Europe	[26] [30] [38]	5	7
<i>Evarcha arcuata</i> (Clerck 1757)	Palaearctic	[13.8] [25] [29] [34] [37] [38] [47] [65.2] [65.3]	1	15
<i>Evarcha falcata</i> (Clerck 1757)	Palaearctic	[20] [21] [23] [29] [30] [38] [39] [61]	11	1
<i>Heliophanus auratus</i> C.L. Koch 1835	Palaearctic	[16] [42] [47]	1	2
<i>Heliophanus cupreus</i> (Walckenaer 1802)	Palaearctic	[26] [28] [29] [33] [34] [35] [36] [37] [38] [39] [42] [62] [65.2]	16	13
<i>Heliophanus flavipes</i> (Hahn 1832)	Palaearctic	[4] [36] [65.2]	3	2
<i>Heliophanus kochii</i> Simon 1868	Palaearctic, USA	[28] [32] [34] [37] [57]	5	4
<i>Heliophanus tribulosus</i> Simon 1868	European to Middle Asia	[28] [37] [38] [56] [61]	4	3
<i>Macaroeris nidicolens</i> (Walckenaer 1802)	Portugal to Cyprus, Turkey, Sri Lanka	[23] [25] [37] [38] [48] [56] [58] [62] [65.2]	3	9
<i>Marpissa muscosa</i> (Clerck 1757)	Palaearctic	[21]	0	1
<i>Neon levis</i> (Simon 1871)	Palaearctic	[26]	1	0
<i>Neon reticulatus</i> (Blackwall 1853)	Holarctic	[40] [51]	0	3
<i>Pellenes nigrociliatus</i> (Simon 1875)	Palaearctic	[65.2]	0	1
<i>Philaeus chrysops</i> (Poda 1761)	Palaearctic	[6] [34] [37] [39]	6	3
<i>Phintella castrisiana</i> (Grube 1861)	Palaearctic	[23] [24] [25] [29]	2	3
<i>Phlegra fasciata</i> (Hahn 1826)	Palaearctic	[28] [32] [34] [37] [39] [41] [47] [65.2]	6	9
<i>Pseudeuophrys erratica</i> (Walckenaer 1826)	Palaearctic	[21] [25] [26] [31] [49]	4	1

Table 2 (continued)

<i>Pseudeuophrys obsoleta</i> (Simon 1868)	Palaearctic	[3] [4] [16] [19] [34] [37] [38] [41]	3	17
<i>Pseudicius picaceus</i> (Simon 1868)	Mediterranean to Azerbaijan	[37]	1	0
<i>Salticus noordami</i> Metzner 1999	Greece, Turkey, Israel, Iran	[62]	0	1
<i>Sittipub pubescens</i> (Fabricius, 1775)	European, Morocco, Turkey, Russia	[42]	1	0
<i>Synageles dalmaticus</i> (Keyserling 1863)	Mediterranean	[45]	0	1
<i>Synageles hilarulus</i> (C.L. Koch 1846)	Palaearctic	[59]	0	1
<i>Talavera aequipes</i> (O. P.-Cambridge, 1871)	Palaearctic	[34] [38] [43] [47]	0	9
Total			218	

*New record for Turkey

A total of 1766 adult (627 male and 1139 female) spiders were collected, representing 200 species belonging to 133 genera in 31 families; 35.50% of the spiders collected were male and 64.50% female. Most of the species in the study area are Palaearctic in terms of their distribution. During the field trips, only some male or female individuals were found for some of the species obtained from the research area. The most species-rich spider families are the Theridiidae (29 spp.) and the Salticidae (29 spp.) followed by the Gnaphosidae (21 spp.), Araneidae (20 spp.), Linyphiidae (20 spp.), and Thomisidae (16 spp.) (Table 2). The most abundant family in the field was the Araneidae (14%), followed by the Linyphiidae (13%), Theridiidae (12%), Salticidae (12%), Lycosidae (8%), Gnaphosidae (7%), and Dictynidae (7%) (Figure 2). Sancak (2007) reported that the most abundant family was the Lycosidae, followed by the Araneidae, Theridiidae, Linyphiidae and Salticidae from the Eastern Black Sea Region. All the genera of the families Amaurobiidae, Liocranidae, Miturgidae, Oecobiidae, Phrurolithidae, Scytodidae, Sparassidae, Titanocidae and

Zodariidae found were represented by one species each (Table 2).

The prevalence of the Araneidae, Linyphiidae and Theridiidae in the samples is probably due to the sampling method used. Many of our collected grass-dwelling and ground-dwelling spiders (Araneidae, Linyphiidae and Theridiidae) are usually associated with low vegetation. The grass-dwelling and ground-dwelling spider species were mostly obtained using both methods (sweep-netting and beating sheet). Besides, since the sweep-netting in our study was carried out only during the daytime, it was restricted to diurnal spider species (e.g. families Pisauridae, Salticidae and Oxyopidae), while the pitfall traps collected both diurnally active spiders (Lycosidae and Zoridae) and nocturnally active ones (Clubionidae, Gnaphosidae and Liocranidae). The ground-dwelling spiders were collected using pitfall traps; trapping was continuous, with traps being kept open from 2009 to 2012. For this reason, this study is poor in terms of nocturnal species and ground-dwelling spiders.

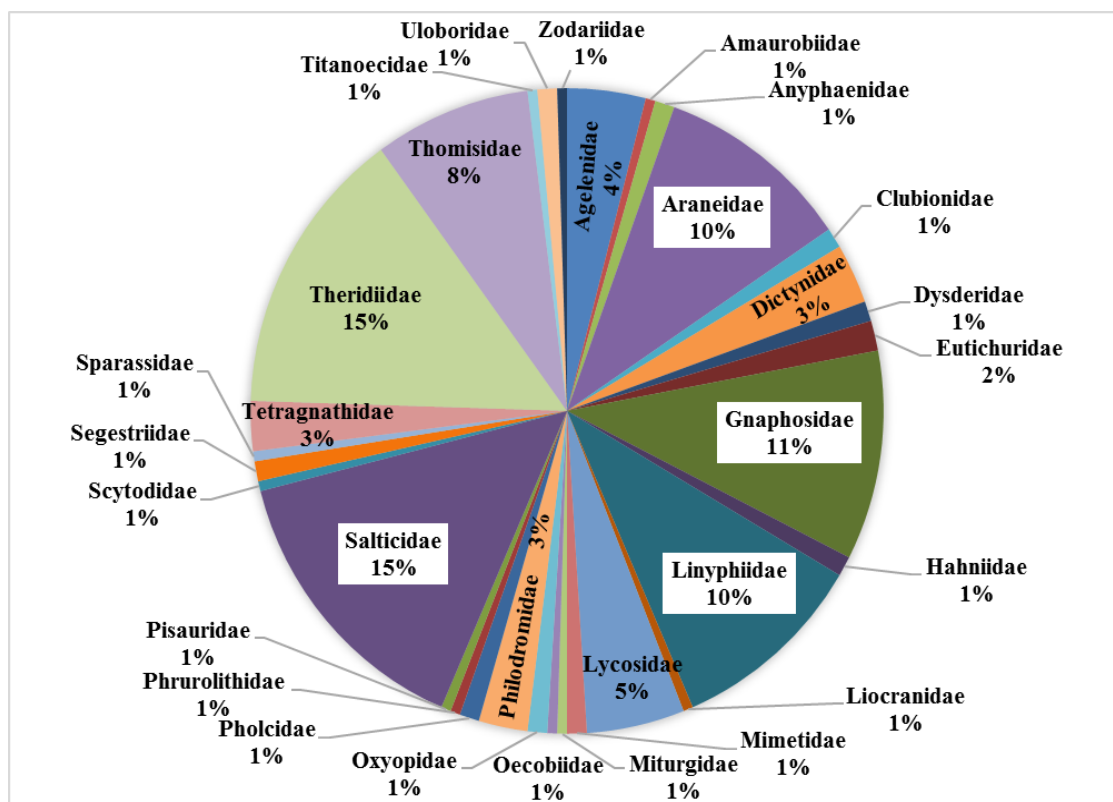


Figure 2. Percentage of species richness per family of spiders recorded in Sinop

Frontinellina frutetorum (C.L. Koch 1834), *Anelosimus vittatus* (C. L. Koch 1836), *Mangora acaylpha* (Walckenaer 1802) and *Amaurobius erberi* (Keyserling 1863) are the most common species in different localities, while the following species were found in a few localities, but they were sampled in higher numbers in the same localities: *Zilla diodia* (Walckenaer 1802) and *Nigma flavescens* (Walckenaer 1830).

In a faunistic study on the Linyphiidae family in the Black Sea Region, 14 genera and 17 species were recorded (Karabulut, 2011; Karabulut and Türkeş, 2011). In our study, 18 genera and 22 species belonging to the Linyphiidae family were found. The following species are common to both studies: *Linyphia hortensis* Sundevall 1830, *Linyphia triangularis* (Clerck 1757), *Centromerus sylvaticus* (Blackwall 1841), *Neriene peltata* (Wider 1834), *Neriene radiata* (Walckenaer, 1841), *Frontinellina frutetorum* (C.L. Koch 1834) and *Lepthyphantes leprosus* (Ohlert 1865).

The following spider species collected from the study area are known venomous

spiders: *Argiope lobata* (Pallas 1772), *Larinioides cornutus* (Clerck 1757), *Araneus diadematus* Clerck 1757 belonging to family Araneidae; *Cheiracanthium mildei* (C.L. Koch 1864) to family Eutichuridae; *Segestria florentina* (Rossi 1790) to family Segestriidae; *Steatoda grossa* (C.L. Koch 1838) and *Steatoda paykulliana* (Walckenaer 1805) to family Theridiidae (Bayram et al., 2007). Some species, namely, *Alopecosa taeniopus* (Kulczyński 1895), *Myrmarachne formicaria* (De Geer 1778), *Orthobula charitonovi* (Mikhailov 1986), *Cyclosa oculata* (Walckenaer 1802), *Cicurina paphlagoniae* Brignoli 1978, *Walckenaeria furcillata* (Menge 1869) and *Clubiona terrestris* Westring 1851 *Coelotes sinopensis* (Danışman, Karanfil & Coşar 2016), *Pellenes seriatus* (Thorell 1875), *Saitis barbipes* (Simon 1868), *Walckenaeria cirriceps* Thaler 1996 that were previously reported for Sinop province (Topçu, Demir, & Seyyar, 2005; Buchar and Dolanský, 2011; Danışman et al., 2012a, 2012b, 2016; Danışman, 2014; Danışman and Coşar, 2016; Brignoli, 1978; Coşar and Varol, 2016) were not found during this study (Table 3). In

addition, Brignoli (1978), Coşar (2015), Danişman, Coşar, Erdek & Sancak (2012d), Logunov and Demir (2006), Özkütük et al., (2015) and Coşar et al., (2017) reported species such as *Neoscona adianta* (Walckenaer 1802) *Mangora acalypha*

(Walckenaer 1802), *Xysticus kochii* Thorell 1872, *Pseudicius picaceus* (Simon, 1868) *Harpactea korgei* Brignoli 1979 and *Haplodrassus minor* (O.P.-Cambridge 1879) that were also collected during the present study (Table 3).

Table 3. Spiders according to records published until 2018 and results of this study

Family species	Previously Reported	Present Study
Family: Dysderidae		
<i>Harpactea korgei</i> Brignoli, 1979	Özkütük et al., 2015	√
Family: Linyphiidae		
<i>Walckenaeria furcillata</i> (Menge, 1869)	Danişman 2014	
<i>Walckenaeria cirriceps</i> Thaler, 1996	Danişman and Coşar 2016	
Family: Araneidae		
<i>Neoscona adianta</i> (Walckenaer, 1802)	Brignoli 1978	√
<i>Cyclosa oculata</i> (Walckenaer 1802),	Brignoli 1978	
<i>Mangora acalypha</i> (Walckenaer, 1802)	Brignoli 1978	√
Family: Lycosidae		
<i>Alopecosa taeniopus</i> (Kulczyński, 1895)	Buchar and Dolanský 2011	
Family: Agelenidae		
<i>Pireneitega cottarellii</i> (Brignoli, 1978)	Brignoli 1978	
<i>Coelotes sinopensis</i> Danişman, Karanfil & Coşar, 2016	Danişman et al. 2016	
Family: Dictynidae		
<i>Cicurina paphlagoniae</i> Brignoli, 1978	Brignoli 1978	
Family: Phrurolithidae		
<i>Orthobula charitonovi</i> (Mikhailov, 1986)	Danişman et al. 2012c	
Family: Clubionidae		
<i>Clubiona terrestris</i> Westring, 1851	Danişman et al. 2012b	
Family: Gnaphosidae		
<i>Haplodrassus minor</i> (O. P.-Cambridge, 1879)	Coşar et al. 2017	√
Family: Thomisidae		
<i>Xysticus kochi</i> Thorell, 1872	Logunov and Demir 2006	√
<i>Xysticus tenebrosus</i> Silhavy, 1944	Coşar et al. 2016	
Family: Salticidae		
<i>Pellenes seriatus</i> (Thorell, 1875)	Coşar and Varol 2016	
<i>Saitis barbipes</i> (Simon, 1868)	Coşar and Varol 2016	
<i>Pseudicius picaceus</i> (Simon, 1868)	Danişman et al. 2012b, 2012a	√
<i>Neon levis</i> (Simon, 1871)	Coşar 2015	√

Regarding the new records for Turkey, one genus and three species have not been reported previously from the country. For Theridiidae, the genus *Theridula* Emerton

1882 and the species *Asagena meridionalis* Kulczyński 1894 (Figure 3), *Theridion boesenbergi* Strand 1904 (Figure 4) and

Theridula gonygaster (Simon, 1873) (Figure 5) are reported for the first time from Turkey.

The current study provides the first detailed report on the spider richness of Sinop province. With the ecology and diversity of the spider fauna of the Black Sea

Region being so poorly known, each research effort contributes to our understanding of the geographical distribution of spider species. This study presents new distribution records for 192 species and indicates that spider diversity in Sinop province may be greater.



Figure 3. *Asagena meridionalis* Kulczyński 1894, male, pedipalp, ventral view. Scale bar=1mm.

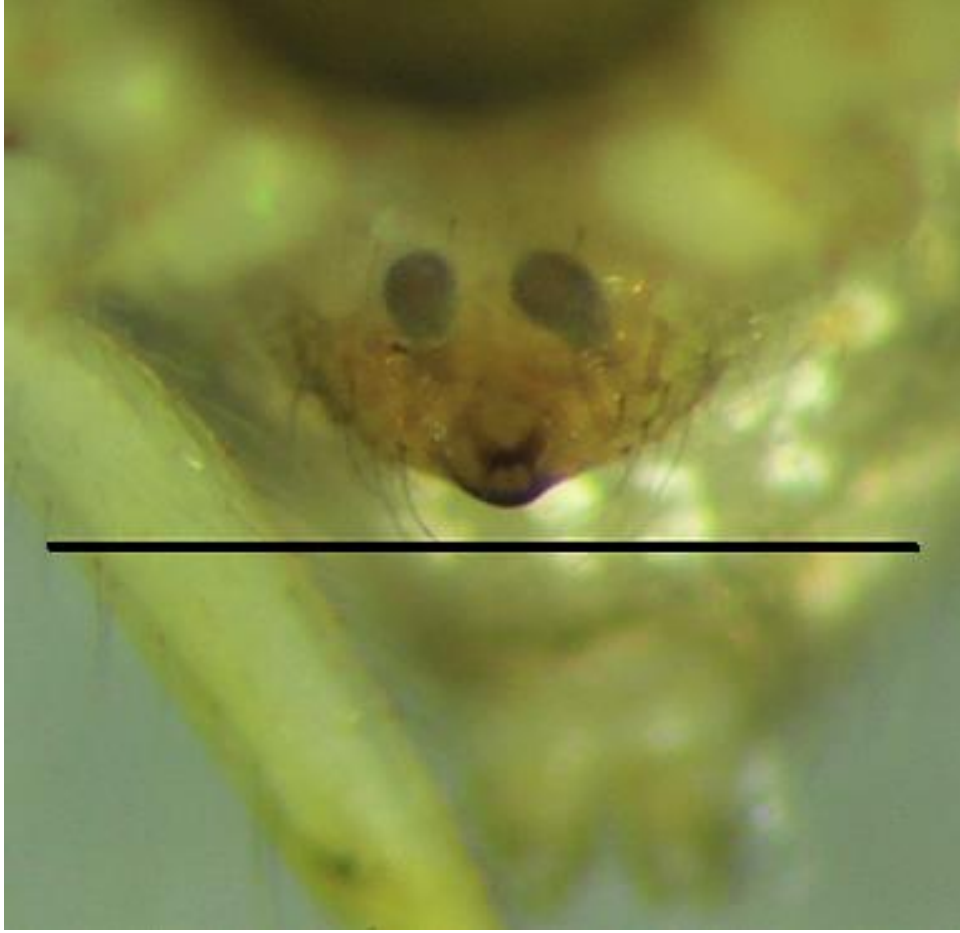


Figure 4. *Theridion boesenbergi* Strand 1904, female, ventral view of epigyne. Scale bar=1mm.



Figure 5. *Theridula gonygaster* (Simon 1873), female, ventral view of epigyne. Scale bar=1 mm.

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