

# A First Contribution to the Arachnofauna (Arachnida: Araneae) of the Nestos Delta (NE Greece)

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**Abstract:** This paper presents the first compilation of spiders of the western part of the Nestos Delta. In 2002 and 2004 spiders were caught on 33 sites using pitfall trapping and hand sampling. Altogether 213 species from 28 families were found. 61 spider species are new records to Greece, 126 species were found in Macedonia for the first time. Interesting faunistic records are *Monaeses israelensis*, new to Europe, *Dolomedes plantarius*, *Pelecopsis parallelia* and *Pellenes arciger*.

All species were classified into 17 zoogeographical categories, grouped into 4 complexes. Most of the species are widely distributed. The European complex comprises 21 species, while the Mediterranean complex is presented by 17 species. *Brachythele denieri*, *Aelurillus guecki*, *Chalcoscirtus helverseni* and *Xysticus thessalicoides* are considered to be Balkan endemics.

**Key words:** Araneae, Greece, East Macedonia, Nestos Delta, faunistic survey, zoogeography

## Introduction

The importance of the Balkan Peninsula as an arachnofauna-specification hotspot in Europe has already been discussed (DELTSEV 1979, 1999, THALER *et al.* 2000). Greece covers the southern part of the Balkan Peninsula. In the north-eastern part of this country, the East-Macedonian-Thracian belt of wetlands contains a large number of different habitats. This, and the influence of three biogeographical regions (central-European, Mediterranean, Pontic), entail a great variety of species (JERRENTROP *et al.* 1989).

The information about the spider fauna of Greece and especially of Macedonia and Thracia is poor (THALER pers. comm.). The first contributions to the Greek arachnofauna were presented by BRULLÉ (1832), LUCAS (1853), PAVESI (1877, 1878), SIMON (1880, 1884) and KULCZYN'SKI (1903). BRISTOWE

(1934) and HADJISSARANTOS (1936, 1940) were the first to compile extensive catalogues of Greek spiders. The first data on the spiders of the Macedonian and the Thracian areas of Greece were published by SIMON (1916), FAGE (1921) and ROEWER (1959). Later works treated only a limited number of families, genera or species (e. g. BRIGNOLI 1968, 1971a, b, 1972a, b, 1974a-c, 1976, 1977, 1979, 1984, THALER 1985, 1996, 1997, KNOFLACH 1996a, b, 1997, 1998, METZNER 1999, THALER *et al.* 2000, CHATZAKI *et al.* 2002a-b, 2003, THALER, KNOFLACH 2004). BOSMANS, CHATZAKI (2005) summarized all previous works dealing with the arachnofauna of Greece in a new catalogue of Greek spiders.

The arachnofauna of the Nestos Delta had never been previously investigated, by other than WOLF (2003), who worked mainly on the spider and beetle

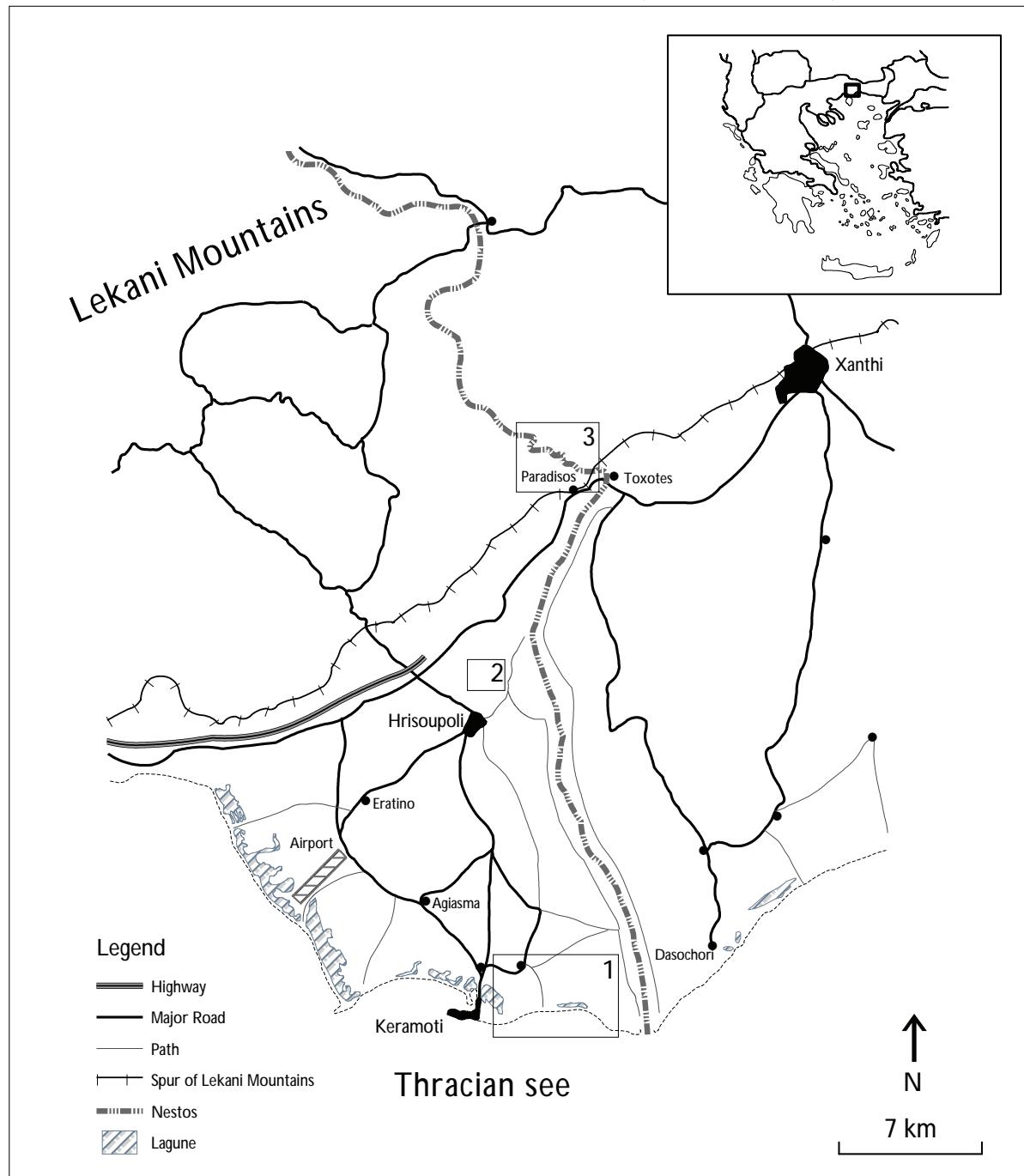
fauna of the Falakron Mountains, but carried out a few hand samplings in the northern part of the Delta. Thus, the present paper presents the first extensive compilation of spiders from the western part of the area.

### Study Area

The Nestos Delta is situated in East Macedonia in the North-East of Greece, at an elevation of 1 to 18 m a.s.l. and covering about 250 km<sup>2</sup>. The northern border follows the spur of the Lekani Mountains,

the eastern part of the Delta reaches the Nestos river. The western and the southern borders follow the coastline of the Thracian Sea (Fig. 1).

The climate of the Nestos Delta is continental Mediterranean. The annual temperature is an average of 11 °C. Summer maxima of 40 °C and winter minima of –20 °C point to huge fluctuations in yearly temperature (PHILIPPSON 1947, LIENAU 1989). The potential natural vegetation is the *Ostryo-Carpinion orientalis* (HORVAT *et al.* 1974).



**Fig. 1.** Study area Nestos Delta in North East Greece (inlay). 1, 2 and 3 = surveyed area.

## Material and Methods

### Sampling

Spiders were collected by pitfall trapping and hand sampling within two sampling periods. The first covered the summer season from July to October 2002. The second investigation took place in the period from April to June 2004. Altogether, the investigations were conducted on 33 sites and focused on typical Delta habitat types (e.g. coastal and inland dunes, salt meadows, pastures, meadows and floodplain forests). In each patch four pitfall traps (diameter 9 cm, filled with a 4% formalin-detergent solution) were installed. The position of each trap was randomly determined. The traps were emptied fortnightly. In addition to pitfall trapping four hand sampling sessions (August and September 2002, May and June 2004) were carried out in each patch and additionally on rocks and in buildings all over the study area.

### Analysis

In order to represent the distribution of species according to DELTSHEV (1999, 2001), 17 zoogeographical categories were summarized to 4 zoogeographical complexes (the abbreviations are given in Table 1).

All data concerning the zoogeographical distribution are taken from PLATNICK (2006). The distribution status of the species in Greece and Macedonia refers to BOSMANS, CHATZAKI (2005). Species, which are marked with a minus sign, have not been recorded yet and are first records for Greece and/or Macedonia. The frequency of species is specified by using five categories (the abbreviations are given in Table 1).

## Results and Discussion

### Species Composition

Totally, 8.982 spiders from 213 species and 28 families were caught by pitfall trapping and hand sampling (Table 1).

The Linyphiidae, Salticidae, Gnaphosidae, Thomisidae and Lycosidae (21, 10%) were the

most frequent families. Dominant species were *Pardosa luctinosa*, *Aulonia kratochvili* and *Arctosa leopardus*, which counted for over 50% of all individual spiders trapped. *Pirata latitans*, *Trochosa ruricola*, *Diplocephalus picinus*, *Pardosa proxima* and *Alopecosa albofasciata* were also numerous. Altogether, 61 spider species are new records to Greece and 126 species have been found in Macedonia for the first time. Considering the low number of faunistic studies concerning Greek and especially Macedonian arachnofauna, these high numbers are not surprising. The Linyphiidae show the highest number of new records. One of the reasons is that the linyphiid spiders are very species-rich. Furthermore, most of the works treated only a limited number of families, genera or species (e.g. METZNER 1999, THALER *et al.* 2000, CHATZAKI *et al.* 2002a-b, 2003). Other than a few contributions a taxonomic and faunistic survey of the Linyphiidae are missing (DELTSEV 1979, THALER 1985, 1996, 1997, WUNDERLICH 1980, 1995a, b, BOSSELAERS, HENDERICKX 2002).

Some interesting faunistic records in the Nestos Delta are *Monaeses israeliensis*, *Dolomedes plantarius*, *Pelecopsis parallelia* and *Pellenes arciger*. *Monaeses israeliensis* has been found only in Israel, Lebanon and Central Asia (PLATNICK 2006) up to now. Three specimens could be sampled by hand in a coastal dune and a salt meadow within the Delta. This is the first record for Greece and Europe. According to BOSMANS, CHATZAKI (2005), the occurrence of *Dolomedes plantarius*, *Pelecopsis parallelia* and *Pellenes arciger* in Greece is possible, but should be confirmed. The latter is distributed in South Europe, but has not been recorded in Greece by METZNER (1999). One specimen was caught in a salt meadow. *Pelecopsis parallelia* is distributed in the temperate part of the Palaearctic region, but it is also present in Turkey (TOPCU *et al.* 2005). There is one old record of this species for Macedonia (SIMON 1916), which can be clarified in this study. There are only two old records of *Dolomedes plantarius* in Greece. HADJISSARANTOS (1940) mentioned a male from the southern part of the Greek mainland; PAVESI

**Table 1.** List of spiders caught in the Nestos Delta in 2002 and 2004.

**Abbreviations:** *distribution*: com = zoogeographical complex (wd = Widely distributed, e = European, m = Mediterranean, bk = Balkan endemics), cat = zoogeographical category (balk = Balkan endemic, cos = Cosmopolitan, eca = Euro Central Asian, eeu = East European, eme = East Mediterranean, etu = Europea-Turanian, eur = European, eus = Euro-Siberian, gr = Greece, hol = Holarctic, mca = Mediterraneo-Central Asiatic, med = Mediterranean, nem = North-East-Mediterranean, nme = North Mediterranean, olw = Old World, pal = Palaearctic, wpa = West Palaearctic), Gr = Greece, Mc = Macedonia; *habitat*: A = coastal dunes, B = inland dunes, C = meadows, D = pastures, E = salt meadows, F = floodplain, G = forests, H = rocks, rock steppe, I = banks of ponds and lakes, J = buildings; *n\_I* = total number of specimen, meth = method: pt = pitfall trapping, hs = hand sampling; *I* = 1–5 ind., II = 6–25 ind., III = 26–75 ind., IV = 76–150 ind., V = more than 150 ind.

Family/ Species	Distribution										Habitat							Meth		
	com	cat	Gr	Mc	A	B	C	D	E	F	G	H	I	J	<i>n_I</i>	pt	hs			
Atypidae [1]																				
<i>Atypus piceus</i> (SULZER, 1776)	wd	wpa	+	-	.	.	.	.	.	I	.	.	.	.	2	x	.			
Nemesiidae [1]																				
<i>Brachythele denieri</i> (SIMON, 1916)	bk	balk	+	+	.	.	.	.	.	II	.	.	.	.	12	x	.			
Scytodidae [1]																				
<i>Scytodes thoracica</i> (LATREILLE, 1802)	wd	hol	+	+	I	.	.	.	.	.	.	.	.	.	2	x	.			
Pholcidae [1]																				
<i>Holocnemus pluchei</i> (SCOPOLI, 1763)	m	med	+	+	.	.	.	.	.	I	.	.	.	.	2	.	x			
Dysderidae [2]																				
<i>Dysdera crocota</i> C. L. KOCH, 1838	wd	cos	+	+	I	.	I	.	I	I	I	.	.	.	13	x	.			
<i>Dysdera longirostris</i> DOBLIKA, 1853	e	eeu	+	-	.	I	.	.	I	.	I	.	.	.	6	x	.			
Mimetidae [1]																				
<i>Ero cambridgei</i> KULCZYN'SKI, 1911	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	1	x	.			
Eresidae [1]																				
<i>Eresus cinnaberinus</i> (OLIVIER, 1789)	wd	pal	+	-	.	I	.	.	.	.	.	.	.	.	1	x	.			
Theridiidae [8]																				
<i>Crustulina sticta</i> (O. P.-CAMBRIDGE, 1861)	wd	hol	+	-	.	.	I	.	I	I	I	.	.	.	5	x	.			
<i>Kochiura aulica</i> (C. L. KOCH, 1838)	wd	wpa	-	-	I	.	.	.	I	.	.	.	.	.	3	.	x			
<i>Robertus arundineti</i> (O. P.-CAMBRIDGE, 1871)	wd	pal	+	-	.	.	.	.	I	I	.	.	.	.	3	x	.			
<i>Robertus mediterraneus</i> ESKOV, 1987	wd	med	+	+	.	.	I	.	.	I	.	.	.	.	2	x	.			
<i>Steatoda albomaculata</i> (DE GEER, 1778)	wd	hol	+	+	II	I	.	.	.	.	.	.	.	.	28	x	.			
<i>Steatoda phalerata</i> (PANZER, 1801)	wd	pal	+	+	.	I	I	I	.	II	II	.	.	.	19	x	x			
<i>Theridion nigropunctatum</i> LUCAS, 1846	m	med	+	-	I	.	.	.	.	.	.	.	.	.	4	.	x			
<i>Theridion varians</i> HAHN, 1833	wd	hol	+	-	.	.	.	.	I	.	.	.	.	.	1	.	x			
Linyphiidae [42]																				
<i>Acartauchenius scurrilis</i> (O. P.-CAMBRIDGE, 1872)	wd	pal	-	-	I	I	I	I	.	.	.	.	.	.	12	x	.			
<i>Agyneta subtilis</i> (O. P.-CAMBRIDGE, 1863)	wd	pal	-	-	.	.	.	I	.	.	.	.	.	.	1	x	.			
<i>Araeoncus humilis</i> (BLACKWALL, 1841)	wd	pal	+	-	.	.	.	.	.	.	.	I	.	.	1	x	.			
<i>Bathyphantes parvulus</i> (WESTRING, 1851)	wd	pal	-	-	.	.	.	.	.	I	.	.	.	.	2	x	.			
<i>Centromerus sylvaticus</i> (BLACKWALL, 1841)	wd	hol	-	-	.	.	.	.	I	.	.	.	.	.	1	x	.			
<i>Ceratinella brevis</i> (WIDER, 1834)	wd	pal	-	-	.	.	.	.	I	I	.	.	.	.	5	x	.			
<i>Ceratinella scabrosa</i> (O. P.-CAMBRIDGE, 1871)	wd	pal	-	-	.	.	I	I	.	.	.	.	.	.	2	x	.			
<i>Dicymbium tibiale</i> (BLACKWALL, 1836)	wd	pal	-	-	.	.	.	.	.	II	.	.	.	.	18	x	.			
<i>Diplocephalus cristatus</i> (BLACKWALL, 1833)	wd	hol	-	-	I	.	I	.	I	.	I	.	.	.	6	x	.			
<i>Diplocephalus permixtus</i> (O. P.-CAMBRIDGE, 1871)	wd	pal	-	-	.	.	.	.	I	.	.	.	.	.	1	x	.			
<i>Diplocephalus picinus</i> (BLACKWALL, 1841)	wd	pal	-	-	.	.	.	.	III	V	.	.	.	.	303	x	.			
<i>Diplostyla concolor</i> (WIDER, 1834)	wd	hol	-	-	.	II	.	I	I	III	.	I	.	.	56	x	.			

**Table 1.** Continued.

Family/ Species	Distribution										Habitat					Meth		
	com	cat	Gr	Mc	A	B	C	D	E	F	G	H	I	J	n_I	pt	hs	
<i>Entelecara acuminata</i> (WIDER, 1834)	wd	hol	-	-	.	.	.	.	.	.	II	.	.	.	9	x	x	
<i>Erigone dentipalpis</i> (WIDER, 1834)	wd	hol	+	+	I	.	II	I	I	II	.	I	I	.	28	x	.	
<i>Gnathonarium dentatum</i> (WIDER, 1834)	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	1	x	.	
<i>Gonatium rubellum</i> (BLACKWALL, 1841)	wd	pal	-	-	.	.	.	.	.	I	.	.	.	.	1	x	.	
<i>Gongylidiellum murcidum</i> SIMON, 1884	wd	pal	-	-	.	I	I	.	.	.	I	.	.	.	6	x	.	
<i>Gongylidium rufipes</i> (LINNAEUS, 1758)	wd	pal	-	-	.	.	.	.	.	II	.	.	.	.	8	x	.	
<i>Maso gallicus</i> SIMON, 1894	wd	eca	-	-	.	.	.	.	.	.	I	.	.	.	2	.	x	
<i>Mecopisthes silus</i> (O. P.-CAMBRIDGE, 1872)	e	eur	-	-	I	.	I	I	.	.	.	.	.	.	8	x	.	
<i>Meioneta simplicitarsis</i> (SIMON, 1884)	wd	eca	-	-	.	.	.	I	.	.	.	.	.	.	2	x	.	
<i>Metopobactrus prominulus</i> (O. P.-CAMBRIDGE, 1872)	wd	hol	-	-	.	.	I	.	.	III	.	.	.	.	29	x	x	
<i>Microlinyphia pusilla</i> (SUNDEVALL, 1830)	wd	hol	+	+	I	.	.	.	I	.	.	.	.	.	2	x	x	
<i>Neriene furtiva</i> (O. P.-CAMBRIDGE, 1871)	wd	wpa	+	-	I	.	.	.	.	.	.	.	.	.	1	x	.	
<i>Oedothorax apicatus</i> (BLACKWALL, 1850)	wd	pal	+	+	.	III	I	IV	I	.	.	III	.	.	161	x	.	
<i>Palliduphantes byzantinus</i> (FAGE, 1931)	m	eme	+	+	I	.	I	.	.	.	I	.	.	.	4	x	.	
<i>Pelecopsis krausi</i> WUNDERLICH, 1980	m	eeu	-	-	.	III	.	.	.	.	.	.	.	.	35	x	x	
<i>Pelecopsis parallela</i> (WIDER, 1834)	wd	pal	+	+	I	.	.	.	I	I	.	.	.	.	7	x	.	
<i>Pocadicnemis juncea</i> LOCKET & MILLIDGE, 1953	wd	pal	-	-	.	I	I	II	I	I	.	.	.	.	21	x	.	
<i>Prinerigone vagans</i> (AUDOUIN, 1826)	wd	olw	+	+	II	.	III	II	II	III	II	.	II	.	159	x	x	
<i>Sauron rayi</i> (SIMON, 1881)	e	eur	-	-	.	.	.	.	I	II	.	.	.	.	7	x	.	
<i>Silometopus reussi</i> (THORELL, 1871)	wd	pal	-	-	I	.	.	.	.	III	.	.	.	.	66	x	.	
<i>Styloctetor romanus</i> (O. P.-CAMBRIDGE, 1872)	wd	pal	-	-	IV	.	I	.	.	I	.	.	.	.	112	x	x	
<i>Styloctetor stativus</i> (SIMON, 1881)	wd	hol	-	-	.	.	.	I	.	.	.	.	.	.	2	x	.	
<i>Tenuiphantes tenuis</i> (BLACKWALL, 1852)	wd	wpa	+	+	.	.	.	.	.	II	.	.	.	.	24	x	.	
<i>Tiso vagans</i> (BLACKWALL, 1834)	e	eur	-	-	I	I	.	.	.	.	.	.	.	.	2	x	x	
<i>Tmeticus affinis</i> (BLACKWALL, 1855)	wd	pal	-	-	.	.	.	.	II	.	.	.	.	.	6	x	.	
<i>Trichoncus affinis</i> KULCZYN'SKI, 1894	wd	pal	-	-	.	.	.	I	.	.	.	.	.	.	2	x	.	
<i>Trichoncus hackmanni</i> MILLIDGE, 1955	e	eur	-	-	I	I	.	II	.	.	.	.	.	.	18	x	.	
<i>Trichoncus vasconicus</i> DENIS, 1944	wd	pal	-	-	.	I	.	.	.	.	.	.	.	.	1	x	.	
<i>Troxochrus scabriculus</i> (WESTRING, 1851)	wd	pal	-	-	.	.	.	.	.	II	.	.	.	.	6	x	.	
<i>Walckenaeria alticeps</i> (DENIS, 1952)	e	eur	-	-	.	.	.	.	I	.	.	.	.	.	1	x	.	
Tetragnathidae [6]																		
<i>Pachygnatha degeeri</i> SUNDEVALL, 1830	wd	pal	+	+	.	I	III	I	.	III	I	.	I	.	102	x	.	
<i>Tetragnatha dearmata</i> THORELL, 1873	wd	hol	+	+	.	.	.	.	I	.	.	.	.	.	1	.	x	
<i>Tetragnatha extensa</i> (LINNAEUS, 1758)	wd	hol	+	+	.	.	.	I	.	.	I	.	.	.	6	.	x	
<i>Tetragnatha montana</i> SIMON, 1874	wd	pal	+	+	.	.	.	.	.	I	.	.	.	.	4	x	x	
<i>Tetragnatha nigrita</i> LENDL, 1886	wd	pal	-	-	I	II	.	.	I	.	I	.	I	I	31	.	x	
<i>Tetragnatha obtusa</i> C. L. KOCH, 1837	wd	pal	+	+	.	.	.	.	.	I	.	.	.	.	1	.	x	
Araneidae [12]																		
<i>Araneus angulatus</i> CLERCK, 1757	wd	pal	+	+	.	.	.	.	I	.	.	.	.	.	1	.	x	
<i>Araneus diadematus</i> CLERCK, 1757	wd	hol	+	-	.	.	.	.	.	.	.	I	1	.	x	.		
<i>Araniella opistographa</i> (KULCZYNSKI, 1905)	wd	eca	+	-	.	.	.	.	I	.	.	.	.	.	1	.	x	
<i>Argiope bruennichi</i> (SCOPOLI, 1772)	wd	pal	+	+	.	.	.	I	I	.	.	.	.	.	3	.	x	
<i>Argiope lobata</i> (PALLAS, 1772)	wd	olw	+	+	I	.	.	I	.	I	.	.	.	.	2	.	x	
<i>Cercidia prominens</i> (WESTRING, 1851)	wd	hol	-	-	.	I	.	II	.	.	.	.	.	.	9	x	.	
<i>Cyrtophora citricola</i> (FORSKAL, 1775)	wd	cos	+	-	.	.	.	.	I	.	.	I	.	.	1	.	x	

**Table 1.** Continued.

Family/ Species	Distribution										Habitat						Meth		
	com	cat	Gr	Mc	A	B	C	D	E	F	G	H	I	J	n_I	pt	hs		
<i>Hypsosinga albovittata</i> (WESTRING, 1851)	wd	wpa	-	-	I	.	.	.	.	.	.	.	.	.	1	.	x		
<i>Hypsosinga sanguinea</i> (C. L. KOCH, 1844)	wd	pal	-	-	.	.	I	.	I	.	.	.	.	.	2	x	.		
<i>Larinoides cornutus</i> (CLERCK, 1757)	wd	hol	+	+	I	I	.	.	II	.	.	.	.	I	12	.	x		
<i>Mangora acalypha</i> (WALCKENAER, 1802)	wd	pal	+	+	.	.	.	.	I	I	.	.	.	2	.	x			
<i>Neoscona adianta</i> (WALCKENAER, 1802)	wd	pal	+	+	.	.	.	.	.	.	.	.	I	.	1	.	x		
Lycosidae [21]																			
<i>Alopecosa accentuata</i> (LATREILLE, 1817)	wd	pal	+	+	I	II	I	.	.	.	.	.	.	.	12	x	x		
<i>Alopecosa albofasciata</i> (BRULLÉ, 1832)	wd	mca	+	+	II	II	V	III	.	II	I	.	.	.	234	x	x		
<i>Arctosa cinerea</i> (FABRICIUS, 1777)	wd	pal	+	+	I	.	.	.	.	.	.	.	.	.	5	x	.		
<i>Arctosa leopardus</i> (SUNDEVALL, 1833)	wd	pal	+	+	I	I	III	.	V	.	.	.	II	.	810	x	.		
<i>Arctosa perita</i> (LATREILLE, 1799)	wd	hol	+	-	II	II	III	II	II	.	.	.	I	.	111	x	.		
<i>Arctosa tbilisiensis</i> MCHEIDZE, 1946	m	eme	+	+	.	.	IV	.	I	.	.	.	.	.	90	x	.		
<i>Arctosa variana</i> C. L. KOCH, 1847	wd	mca	+	+	I	.	.	.	.	.	.	.	.	.	1	x	x		
<i>Aulonia kratochvili</i> DUNIN, BUCHAR & ABSOLON, 1986	wd	mca	+	+	I	II	V	I	V	V	V	.	.	.	1091	x	.		
<i>Hogna radiata</i> (LATREILLE, 1817)	wd	mca	+	+	I	.	.	.	II	I	II	.	.	I	19	x	x		
<i>Pardosa agrestis</i> (WESTRING, 1861)	wd	pal	+	+	.	.	I	.	I	.	.	.	.	.	2	x	.		
<i>Pardosa cibrata</i> SIMON, 1876	e	med	-	-	.	I	IV	.	III	.	.	.	.	.	118	x	.		
<i>Pardosa hortensis</i> (THORELL, 1872)	wd	pal	+	+	II	I	III	II	I	I	I	.	.	.	81	x	x		
<i>Pardosa luctinosa</i> SIMON, 1876	wd	pal	+	-	I	.	.	I	V	.	.	.	.	.	2904	x	x		
<i>Pardosa prativaga</i> (L. KOCH, 1870)	e	eur	+	+	.	.	II	.	I	.	.	.	I	.	17	x	.		
<i>Pardosa proxima</i> (C. L. KOCH, 1847)	wd	pal	+	+	I	I	V	II	I	I	.	I	II	.	293	x	.		
<i>Pardosa tatarica</i> (THORELL, 1875)	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	1	x	.		
<i>Pardosa wagleri</i> (HAHN, 1822)	wd	pal	-	-	.	.	.	.	.	I	.	.	.	.	1	x	.		
<i>Pirata latitans</i> (BLACKWALL, 1841)	wd	eca	+	+	.	.	I	.	.	V	V	.	I	.	522	x	.		
<i>Pirata piraticus</i> (CLERCK, 1757)	wd	hol	+	+	.	.	.	.	II	.	.	.	.	.	10	x	.		
<i>Trochosa ruricola</i> (DE GEER, 1778)	wd	hol	+	+	I	I	III	I	IV	III	IV	.	I	I	395	x	x		
<i>Xerolycosa miniata</i> (C. L. KOCH, 1834)	wd	pal	-	-	.	.	II	.	.	.	.	.	.	.	9	x	.		
Pisauridae [2]																			
<i>Dolomedes plantarius</i> (CLERCK, 1757)	e	eur	+	-	.	.	.	.	I	.	.	.	.	.	1	x	.		
<i>Pisaura mirabilis</i> (CLERCK, 1757)	wd	pal	+	+	I	I	I	I	II	.	I	.	.	.	24	x	x		
Oxyopidae [3]																			
<i>Oxyopes heterophthalmus</i> (LATREILLE, 1804)	wd	pal	+	+	.	.	.	.	.	I	.	.	.	.	1	.	x		
<i>Oxyopes lineatus</i> LATREILLE, 1806	wd	pal	+	+	.	.	I	.	.	I	.	.	I	.	6	x	x		
<i>Oxyopes mediterraneus</i> LEVY, 1999	m	med	+	-	.	.	.	.	I	.	.	.	.	.	2	x	.		
Zoridae [1]																			
<i>Zora armillata</i> SIMON, 1878	e	eur	-	-	.	.	I	.	I	.	I	.	.	.	5	x	.		
Agelenidae [2]																			
<i>Agelena labyrinthica</i> (CLERCK, 1757)	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	3	.	x		
<i>Malthonica nemorosa</i> SIMON, 1916	e	nme	-	-	I	.	.	.	.	.	I	.	.	.	1	x	.		
Dictynidae [6]																			
<i>Argenna patula</i> (SIMON, 1874)	wd	pal	+	-	.	.	.	.	III	.	.	.	.	.	28	x	.		
<i>Argenna subnigra</i> (O. P.-CAMBRIDGE, 1861)	e	eur	-	-	.	.	.	.	I	I	.	.	.	.	6	x	.		
<i>Dictyna arundinacea</i> (LINNAEUS, 1758)	wd	hol	+	-	.	I	.	.	I	.	.	.	.	.	2	x	x		
<i>Dictyna latens</i> (FABRICIUS, 1775)	wd	eca	+	+	.	I	.	.	I	.	.	.	.	.	2	x	x		
<i>Dictyna pusilla</i> THORELL, 1856	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	5	x	.		

**Table 1.** Continued.

Family/ Species	Distribution										Habitat							Meth		
	com	cat	Gr	Mc	A	B	C	D	E	F	G	H	I	J	n_I	pt	hs			
<i>Dictyna uncinata</i> THORELL, 1856	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	3	x	x			
Titanocidae [1]																				
<i>Nurscia albomaculata</i> (LUCAS, 1846)	wd	eca	+	-	.	.	.	.	I	.	.	.	.	.	1	x	.			
Miturgidae [1]																				
<i>Cheiracanthium virescens</i> (SUNDEVALL, 1833)	wd	pal	+	-	I	.	.	.	.	.	.	.	.	I	3	.	x			
Liocranidae [2]																				
<i>Agroeca cuprea</i> MENGE, 1873	wd	eca	+	+	.	I	I	.	I	.	I	.	.	8	x	.				
<i>Liocranea striata</i> (KULCZYN'SKI, 1882)	e	eur	-	-	.	I	.	III	II	II	.	.	.	65	x	.				
Clubionidae [6]																				
<i>Clubiona comta</i> C. L. KOCH, 1839	wd	wpa	-	-	.	.	.	.	I	.	.	.	.	1	x	.				
<i>Clubiona diversa</i> O. P.-CAMBRIDGE, 1862	wd	pal	+	-	.	.	.	.	I	.	.	.	.	1	x	.				
<i>Clubiona genevensis</i> L. KOCH, 1866	wd	pal	-	-	I	.	.	.	.	.	.	.	.	1	x	.				
<i>Clubiona lutescens</i> WESTRING, 1851	wd	hol	-	-	.	.	.	.	I	.	.	.	.	4	x	x				
<i>Clubiona pallidula</i> (CLERCK, 1757)	wd	hol	+	-	.	.	.	.	I	I	.	.	.	3	x	.				
<i>Clubiona terrestris</i> WESTRING, 1851	e	eur	-	-	.	.	.	.	I	.	.	.	.	1	x	.				
Corinnidae [1]																				
<i>Phrurolithus festivus</i> (C. L. KOCH, 1835)	wd	pal	+	-	.	I	.	.	II	.	I	.	.	10	x	.				
Zodariidae [1]																				
<i>Zodarion cyprium</i> KULCZYN'SKI, 1908	m	eme	+	-	I	I	I	.	I	I	.	.	.	13	x	.				
Gnaphosidae [25]																				
<i>Aphantaulax cincta</i> (L. KOCH, 1866)	m	wpa	+	-	.	.	.	.	.	.	I	.	.	1	.	x				
<i>Aphantaulax trifasciata</i> O. P.-CAMBRIDGE, 1872)	wd	pal	+	-	.	.	.	.	.	I	.	.	.	1	x	.				
<i>Berlandina plumalis</i> (O. P.-CAMBRIDGE, 1872)	wd	wpa	+	-	III	II	.	I	.	.	.	.	.	87	x	.				
<i>Callilepis cretica</i> (ROEWER, 1928)	wd	eme	+	-	.	.	.	.	I	.	.	.	.	1	x	.				
<i>Drassodes lapidosus</i> (WALCKENAER, 1802)	wd	pal	+	+	II	.	I	.	I	I	.	.	.	14	x	.				
<i>Drassodes pubescens</i> (THORELL, 1856)	wd	pal	+	+	I	I	II	.	II	.	.	.	.	16	x	.				
<i>Drassylus lutetianus</i> (L. KOCH, 1866)	wd	eus	-	-	.	.	.	.	I	.	.	.	.	5	x	.				
<i>Drassylus praeficus</i> (L. KOCH, 1866)	wd	eca	+	-	I	.	II	.	II	.	.	.	.	29	x	.				
<i>Gnaphosa lucifuga</i> (WALCKENAER, 1802)	wd	pal	+	+	.	.	.	.	.	I	.	.	.	1	x	.				
<i>Haplodrassus dalmatinus</i> (L. KOCH, 1866)	wd	pal	+	-	.	I	.	.	.	.	.	.	.	1	x	.				
<i>Haplodrassus kulczynskii</i> LOHMANDER, 1942	wd	pal	+	-	.	I	.	I	.	.	.	.	.	2	x	.				
<i>Haplodrassus minor</i> (O. P.-CAMBRIDGE, 1879)	e	eur	+	-	.	I	.	.	I	.	.	.	.	3	x	.				
<i>Haplodrassus signifer</i> (C. L. KOCH, 1839)	wd	hol	+	+	I	I	II	I	I	.	.	.	.	17	x	.				
<i>Haplodrassus umbratilis</i> (L. KOCH, 1866)	wd	eus	+	+	I	.	I	.	.	.	.	.	.	2	x	.				
<i>Micaria albovittata</i> (LUCAS, 1846)	wd	pal	+	+	I	.	I	II	.	.	.	.	.	10	x	.				
<i>Micaria guttulata</i> (C. L. KOCH, 1839)	wd	eur	-	-	.	I	I	.	.	.	.	.	.	3	x	.				
<i>Micaria pulicaria</i> (SUNDEVALL, 1831)	wd	hol	+	+	.	.	.	I	.	.	.	.	.	1	x	.				
<i>Nomisia aussereri</i> (L. KOCH, 1872)	wd	pal	+	-	II	I	.	I	.	.	.	.	.	24	x	.				
<i>Trachyzelotes adriaticus</i> (CAPORIACCO, 1951)	wd	wpa	+	-	.	.	.	I	.	.	.	.	.	1	x	.				
<i>Trachyzelotes barbatus</i> (L. KOCH, 1866)	wd	mca	+	-	.	.	.	I	.	I	.	.	.	3	x	.				
<i>Trachyzelotes pedestris</i> (C. L. KOCH, 1837)	wd	eur	+	+	.	I	.	II	I	II	.	I	.	39	x	.				
<i>Zelotes electus</i> (C. L. KOCH, 1839)	wd	eca	-	-	.	II	I	.	.	.	.	.	.	8	x	.				
<i>Zelotes longipes</i> (L. KOCH, 1866)	wd	pal	+	-	.	I	II	I	I	.	I	.	.	22	x	.				
<i>Zelotes similis</i> (KULCZYN'SKI, 1887)	e	eur	+	+	.	.	.	.	I	.	.	.	.	1	x	.				
<i>Zelotes subterraneus</i> (C. L. KOCH, 1833)	wd	pal	+	-	I	.	I	.	II	.	.	.	.	9	x	x				

**Table 1.** Continued.

Family/ Species	Distribution												Habitat						Meth		
	com	cat	Gr	Mc	A	B	C	D	E	F	G	H	I	J	n_I	pt	hs				
Sparassidae [1]																					
<i>Micrommata virescens</i> (CLERCK, 1757)	wd	pal	+	-	I	.	I	.	I	.	I	.	.	.	5	x	x				
Philodromidae [7]																					
<i>Philodromus cespitum</i> (WALCKENAER, 1802)	wd	hol	+	+	.	.	.	.	.	I	.	.	.	.	1	.	x				
<i>Philodromus fallax</i> SUNDEVALL, 1833	wd	pal	-	-	I	.	.	.	.	.	.	.	.	.	1	x	.				
<i>Philodromus longipalpis</i> SIMON, 1870	e	eur	+	-	.	.	.	.	.	.	.	.	.	I	1	.	x				
<i>Philodromus lunatus</i> MUSTER & THALER, 2004	m	eme	+	+	.	.	.	.	.	I	.	.	.	.	1	.	x				
<i>Thanatus striatus</i> C. L. KOCH, 1845	wd	hol	-	-	.	.	I	.	.	.	.	.	.	.	2	x	.				
<i>Thanatus vulgaris</i> SIMON, 1870	wd	hol	+	-	II	I	.	.	.	.	.	.	.	.	17	x	.				
<i>Tibellus oblongus</i> (WALCKENAER, 1802)	wd	hol	+	-	II	.	.	.	I	I	I	.	.	10	x	x					
Thomisidae [22]																					
<i>Heriaeus setiger</i> (O. P.-CAMBRIDGE, 1872)	wd	pal	+	-	.	.	.	.	.	I	.	.	.	.	1	.	x				
<i>Misumena vatia</i> (CLERCK, 1757)	wd	hol	+	+	.	.	I	.	.	.	.	.	.	.	1	.	x				
<i>Monaeses israeliensis</i> LEVY, 1973	wd	mca	-	-	I	.	.	.	I	.	.	.	.	.	3	x	x				
<i>Ozyptila confluens</i> (C. L. KOCH, 1845)	wd	nme	+	+	.	.	.	.	.	II	.	.	.	.	6	x	.				
<i>Ozyptila gertschi</i> KURATA, 1944	wd	hol	-	-	.	.	.	.	I	.	.	.	.	.	1	x	.				
<i>Ozyptila praticola</i> (C. L. KOCH, 1837)	wd	hol	+	+	.	.	.	.	.	II	II	.	.	.	24	x	.				
<i>Ozyptila sanctuaria</i> (O. P.-CAMBRIDGE, 1871)	e	eur	-	-	I	II	I	.	.	.	.	.	.	.	8	x	.				
<i>Ozyptila simplex</i> (O. P.-CAMBRIDGE, 1862)	wd	pal	-	-	.	.	I	.	I	.	.	.	.	.	6	x	.				
<i>Runcinia grammica</i> (C. L. KOCH, 1837)	wd	pal	+	+	I	.	.	.	.	.	.	.	.	.	2	.	x				
<i>Thomisus onustus</i> WALCKENAER, 1805	wd	pal	+	+	.	I	.	.	.	.	.	.	I	.	2	.	x				
<i>Tmarus piger</i> (WALCKENAER, 1802)	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	1	.	x				
<i>Xysticus bufo</i> (DUFOUR, 1820)	m	med	+	-	I	.	.	.	.	.	.	.	.	.	2	x	.				
<i>Xysticus caperatus</i> SIMON, 1875	wd	mca	-	-	.	.	I	.	.	.	.	.	.	.	1	x	.				
<i>Xysticus cristatus</i> (CLERCK, 1757)	wd	pal	+	-	I	.	.	.	I	.	.	.	.	.	2	x	.				
<i>Xysticus gymnocephalus</i> STRAND, 1915	m	eme	-	-	I	I	.	.	.	.	.	.	.	.	3	x	.				
<i>Xysticus kempelini</i> THORELL, 1872	wd	eca	+	-	I	I	I	.	I	.	.	.	.	.	10	x	x				
<i>Xysticus kochi</i> THORELL, 1872	wd	pal	+	+	II	II	III	II	I	I	I	.	.	.	94	x	x				
<i>Xysticus luctator</i> L. KOCH, 1870	wd	pal	-	-	.	.	.	.	.	II	.	.	.	.	9	x	.				
<i>Xysticus ninnii</i> THORELL, 1872	wd	pal	+	+	.	I	.	.	.	.	.	.	.	.	1	x	.				
<i>Xysticus sabulosus</i> (HAHN, 1832)	wd	pal	+	-	.	I	.	.	.	.	.	.	.	.	2	x	.				
<i>Xysticus thessalicoides</i> WUNDERLICH, 1995	bk	gr	+	-	I	.	.	.	.	.	.	.	.	.	1	x	.				
<i>Xysticus thessalicus</i> SIMON, 1916	m	eme	+	+	I	.	.	.	.	.	.	.	.	.	1	x	.				
Salticidae [35]																					
<i>Aelurillus queckii</i> METZNER, 1999	bk	gr	+	-	I	I	.	.	.	I	.	.	.	.	4	x	.				
<i>Aelurillus v-insignitus</i> (CLERCK, 1757)	wd	pal	+	+	I	I	.	.	.	.	.	.	.	.	2	.	x				
<i>Asianellus festivus</i> (C. L. KOCH, 1834)	wd	pal	+	-	I	.	.	.	.	.	.	.	.	.	5	x	.				
<i>Chalcoscirtus helverseni</i> METZNER, 1999	bk	gr	+	-	I	.	.	.	.	.	.	.	.	.	3	x	.				
<i>Chalcoscirtus infimus</i> (SIMON, 1868)	wd	eca	+	+	.	I	.	.	.	.	.	.	.	.	1	x	.				
<i>Chalcoscirtus nigritus</i> (THORELL, 1875)	wd	pal	+	-	.	I	.	.	.	.	.	.	.	.	1	x	.				
<i>Euophrys gambosa</i> (SIMON, 1868)	m	med	+	-	.	I	I	.	.	.	.	.	.	.	2	x	.				
<i>Euophrys herbigrada</i> (SIMON, 1871)	e	eur	+	-	I	.	.	.	I	.	.	.	.	.	2	x	.				
<i>Euophrys rufibarbis</i> (SIMON, 1868)	wd	pal	+	+	.	I	.	.	.	.	.	.	.	.	1	x	.				
<i>Evarcha arcuata</i> (CLERCK, 1757)	wd	pal	+	+	.	.	.	.	II	.	.	.	I	.	13	x	x				
<i>Evarcha jucunda</i> (LUCAS, 1846)	m	med	+	+	.	.	.	.	.	.	.	.	I	2	.	x					

**Table 1.** Continued.

Family/ Species	Distribution										Habitat							Meth		
	com	cat	Gr	Mc	A	B	C	D	E	F	G	H	I	J	n_I	pt	hs			
<i>Evarcha laetabunda</i> (C. L. KOCH, 1846)	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Heliophanus cupreus</i> (WALCKENAER, 1802)	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Heliophanus flavipes</i> (HAHN, 1832)	wd	pal	+	+	.	.	I	.	.	.	.	.	.	.	1	.	x			
<i>Heliophanus melinus</i> L. KOCH, 1867	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Macaroeris nidicolens</i> (Walckenaer, 1802)	wd	etu	+	+	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Menemerus semilimbatus</i> (HAHN, 1829)	wd	cos	+	+	I	.	.	.	.	.	I	.	.	.	2	.	x			
<i>Mogrus neglectus</i> (SIMON, 1868)	wd	mca	+	+	I	I	.	.	.	.	.	.	.	.	5	.	x			
<i>Myrmarachne formicaria</i> (DE GEER, 1778)	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	3	x	x			
<i>Neaetha membrosa</i> (SIMON, 1868)	m	med	+	-	I	.	I	.	I	I	.	.	.	.	5	x	.			
<i>Pellenes arciger</i> (WALCKENAER, 1837)	e	nme	+	-	.	.	.	.	.	I	.	.	.	.	1	x	.			
<i>Pellenes brevis</i> (SIMON, 1868)	e	eur	+	-	.	I	.	.	.	.	.	.	.	.	1	x	.			
<i>Pellenes diagonalis</i> (SIMON, 1868)	m	eme	+	-	.	I	.	.	.	I	.	.	.	.	3	x	.			
<i>Pellenes nigrociliatus</i> (SIMON, 1875)	wd	pal	+	+	II	.	.	.	.	I	.	.	.	.	9	x	x			
<i>Philaeus chrysops</i> (PODA, 1761)	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Phlegra fasciata</i> (HAHN, 1826)	wd	pal	+	+	.	I	I	I	.	I	.	I	I	.	10	x	.			
<i>Phlegra lineata</i> (C. L. KOCH, 1846)	m	nem	+	+	.	.	I	.	.	.	.	.	.	.	1	x	.			
<i>Pseudeuophrys obsoleta</i> (SIMON, 1868)	wd	pal	+	+	.	.	.	.	I	.	.	.	.	.	1	x	.			
<i>Pseudicius picaceus</i> (SIMON, 1868)	wd	mca	+	-	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Salticus mutabilis</i> LUCAS, 1846	wd	cos	+	+	.	.	.	.	.	.	.	.	.	I	1	.	x			
<i>Salticus zebraneus</i> (C. L. KOCH, 1837)	wd	pal	+	+	.	.	.	.	.	.	I	.	.	.	1	.	x			
<i>Sitticus distinguendus</i> (SIMON, 1868)	wd	pal	+	+	I	.	I	.	I	I	.	.	I	.	12	x	.			
<i>Synageles dalmaticus</i> (KEYSERLING, 1863)	wd	mca	+	+	I	.	.	.	.	.	.	.	.	I	2	x	x			
<i>Talavera aequipes</i> (O. P.-CAMBRIDGE, 1871)	wd	pal	+	-	.	.	.	.	I	.	.	.	.	.	1	x	.			
<i>Talavera petrensis</i> (C. L. KOCH, 1837)	wd	mca	-	-	.	.	.	.	II	I	.	.	.	.	11	x	.			

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(1878) gave no precise locality for his record. In the Nestos Delta one male was found in a salt meadow.

### Zoogeographical Analysis

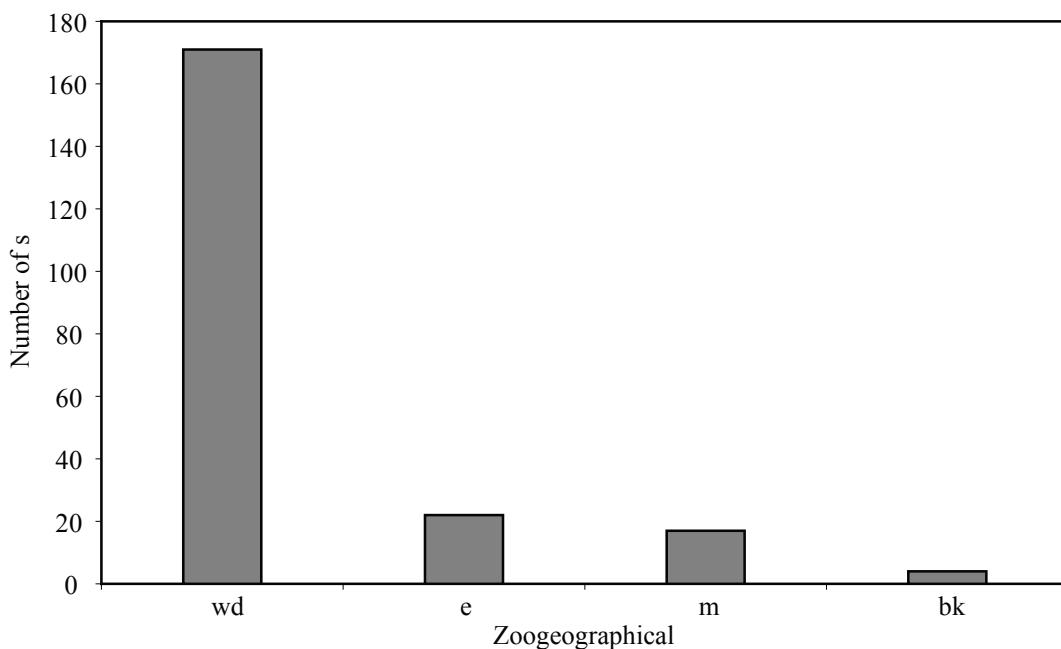
The observed species can be classified into 17 zoogeographical categories, grouped into 4 complexes (Fig. 2).

Most of the species are widely distributed ( $n = 171$ ). In this complex, Palaearctic and Holarctic species are dominant. The European complex includes 21 species, while the Mediterranean complex is represented by 17 species. *Aelurillus guecki*, *Brachythele denieri*, *Chalcoscirtus helverseni* and *Xysticus thesalicoides* are considered to be Balkan endemics. The latter was hitherto only known from Greece (WUNDERLICH 1995c), but LOGUNOV, DEMIR (2006) also found the species in Turkey. *Aelurillus guecki* and

*Chalcoscirtus helverseni* are exclusively distributed in Greece. Both species were recorded from localities in the southern part of Greece (METZNER 1999).

### Conclusions

This paper presents the first compilation from spiders of the western part of the Nestos Delta. In 2002 and 2004 spiders were caught on 33 sites using pitfall trapping and hand sampling. Altogether 213 species from 28 families were found: Atypidae-1, Nemesiidae-1, Scytodidae-1, Pholcidae-1, Dysderidae-2, Mimetidae-1, Eresidae-1, Theridiidae-8, Linyphiidae-42, Tetragnathidae-6, Araneidae-12, Lycosidae-21, Pisauridae-2, Oxyopidae-3, Zoridae-1, Agelenidae-2, Dictynidae-6, Titanoecidae-1, Miturgidae-1, Liocranidae-2, Clubionidae-6,



**Fig. 2.** Distribution of spiders in the Nestos Delta by zoogeographical complexes. Abbreviations see Table 1.

Corinnidae-1, Zodariidae-1, Gnaphosidae-25, Sparassidae-1, Philodromidae-7, Thomisidae-22, Salticidae-35.

61 spider species are new records to Greece, 126 species were found in Macedonia for the first time. Interesting faunistic records are *Monaeses israeliensis*, new to Europe, *Dolomedes plantarius*, *Pelecopsis parallela* and *Pellenes arciger*.

All species were classified into 17 zoogeographical categories, grouped into 4 complexes. Most of the species are widely distributed. The European complex comprises 21 species, while the Mediterranean complex is presented by 17 species. *Brachythele denieri*, *Aelurillus guecki*, *Chalcoscirtus helverseni* and *Xysticus thessalicoides* are considered to be Balkan endemics.

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# Първо съобщение за арахнофауна (Arachnida: Araneae) в делтата на Нестос (Североизточна Гърция)

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## (Резюме)

Статията представя първото събиране на паяци от западната част на делтата на Нестос. През 2002 и 2004 г. са хванати паяци на 33 места чрез капан и ръчно. Открити са общо 213 вида от 28 семейства. 61 вида паяци са нови за Гърция; 126 вида са намерени в Македония за първи път. Интересни са фаунистичните сведения за *Monaeses israelensis*, който е нов за Европа, за *Dolomedes plantarius*, *Pelecopsis parallelia* и *Pellenes arciger*.

Всички видове са класифицирани в 17 зоогеографски категории, групирани в 4 комплекса. Повечето от видовете са широко разпространени. Европейският комплекс се състои от 21 вида, докато Средиземноморският комплекс е представен от 17 вида. *Brachythele denieri*, *Aelurillus guecki*, *Chalcoscirtus helverseni* и *Xysticus thessalicoides* се смятат за ендемити на Балканите.