Fauna and seasonal activity of spiders (Araneae) in coastal dune habitats at Akmensrags, Ziemupe Nature restricted territory, Latvia

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Abstract: Coastal dunes are shaped and maintained by natural disturbance and usually anthropogenic pressure is also high on coastal sites, especially in Europe. Invertebrates including spiders show immediate response to both natural processes and human induced changes. Here we report on spider fauna and phenology of dune living spiders during one season at one locality at the Baltic Sea coast in Latvia. The spiders were collected by use of modified pitfall traps from April 2 until November 12, 2006. In total, 2085 adult spiders (18 families) and 1218 juvenile spiders were collected. We analyze seasonal activity of all spider families, except Lycosidae, which have been analysed separately. We identified 106 species (4 taxa remained as morphospecies). Based on number of collected individuals we identified the spring-active, summer-active and autumn-active species groups. Our results showed that *Tapinocyboides pygmaeus* represented spring-active spiders, *Alopecosa pulverulenta* – summer-active and *Ozyptila atomaria* – autumn-active spiders. Adult spiders are tolerant to cold temperatures in opposite to juveniles, therefore adults do not show significant correlation with the soil temperature at the study site.

Key words: Araneae, fauna, coastal habitats, seasonal dynamics, Latvia.

Introduction

Coastal ecosystems are fragile and vulnerable to anthropogenic disturbance (Laime 2010). Due to these constraints many organisms living at coastal ecosystems are threatened, especially in areas with high numbers of human populations e.g. Central Europe (Provoost et al. 2002). Therefore coastal habitats have high conservation status in European Union (ES 92/43/EEK, Anonymous 1992).

Dunes especially grey dunes and boreal coastal meadows are endangered habitats due to fragmentation caused by human activities. Grey dunes have unique species composition, determined by coastal erosion, forest proximity and grazing. All these habitats are influenced by humans in both positive and negative way – as trampling in dunes (Bonte, Maes 2008) and as cattle grazing in coastal meadows or the opposite – overgrowing by shrubs and reeds in coastal meadows. Also vegetation itself has impact on specific invertebrate fauna in dune habitats (Duffey 1968). Spiders are influenced by sand dynamics and distance to the seashore (Bell et al. 1998, Bonte et al.

2002, 2003) as well as habitat (vegetation) structure (Almquist 1973a, 1973b). Various spider species are specialized and inhabit particular dune habitat or habitat group (Bell et all. 1998, Schultz, Finch 1996).

Local and regional differences in species occurrence and activity periods might be observed in dune spider communities. Previously spider phenology was described in Western Europe by various authors (Bonte et al. 2000, Merret 1967, 1968). In Latvia we already analyzed the phenology of single family – Lycosidae of the same data set (Cera, Spuņģis 2011). The recent studies of spider seasonality in Mediterranean region showed regional differences in spider activity – the northern Mediterranean region differs from southern and central regions by phenological shift in about two weeks (Cardoso et al. 2007). Some phenological differences of spider species among south and north regions were observed also in Germany (Braun, Rabeler 1969).

It is well know that the highest spider activity in the whole season in Europe is observed from the middle of May until the middle of June. In general, most species in any habitat could be found in the warmest period of the season (Green 1999) – spring and summer, also in autumn. For particular families and species, the highest activity could be observed during the different period of the season, e.g. for some species of Linyphiidae the highest activity is observed in the coldest part of season (Foelix 1996). This study describes phenology of some dune living species, highlighting dominating ones, as well as showing species distribution in specific dune habitats.

Materials and methods

The sample site, spider sampling and data analysis have been described previously by Cera & Spuņģis (2011). Additionally, the adult spiders were identified to species by use of the identification keys by Almquist (2005, 2006) and Nentwig et al. (2011). Taxonomy follows Platnick (2011).

Spider species were divided into three groups according to average soil surface temperature in two week period: spring-, summer- and autumn-active species. This division was based on average day and night soil surface temperature in each of two week period (spring - below 20°C, summer - above 20°C, autumn - below 20°C) and domination of species in the particular period. Thus in our study spring period lasted 57 days (02.04-28.05), summer -96 days (28.05-03.09), and autumn - 70 days (03.09-12.11.2006). Activity periods were described for dominant, subdominant and recedent species (dominance scale after Engelmann 1978).

Spearman rank (r_s) correlation (Zar 1996) was used to analyze connection among spiders (juveniles and adults) and average soil surface temperature in two week period.

Results

Fauna and dominance structure

During 16 fortnights we collected 3303 spiders belonging to 18 families (Table 2), 1218 of them were juveniles and 2085 – adults. In total 112 species were identified, including three species determined only to the genus level (Linyphiidae). About one third of captured species (39 species) are represented by 1-2 captured individuals only (this comprises 1.86% of all captured specimens).

Five new spider species were recorded for the fauna of Latvia: *Agyneta olivacea, Macrargus carpenteri*, *Mecynargus foveatus*, *Ostearius melanopygius*, *Metopobactrus prominulus* (Linyphiidae). *Arctosa cinerea*

found at fore dunes (4 individuals) is included in a list of protected animal species of Latvia (Anonymous 2000).

Among families Lycosidae were eudominant (40.94% of the total number (2085) of individuals), Linyphiidae were dominant (20.04%), Gnaphosidae (12.60%) and Thomisidae (8.40%) were subdominants. Linyphiidae had the highest number of species (39 species). The most abundant species were *Alopecosa cuneata* (19.8% of total number of individuals), *Xerolycosa miniata* (7.58%), *Zelotes longipes* (7.39%) and *Pelecopsis parallea* (4.87%).

Seasonal activity of spiders in dune habitats

Activity of spiders altered during the observation period (Fig. 1). Activity is mostly dependent on general life cycle. After the spring maximum, activity of spiders decreased in the middle of summer. Since July until the beginning of October majority of species showed little activity. The overall spider activity increased again in autumn (15.10.–29.10.), mainly due to increase of captured Linyphiidae individuals. Linyphiidae dominated at the beginning and at the end of the season, while Lycosidae had higher abundance in the first part of the season and then peak of Gnaphosidae followed (Fig. 2).

The spring activity was observed for the majority of species (Table 1). Only four species had definite summer activity: *Agelena labirynthica*, *Alopecosa cuneata*, *Pardosa palustris* and *Xerolycosa miniata*, and one species had autumn activity – *Leptothrix hardyi*. *Hahnia nava*, *Ozyptila scabricula*, *Pelecopsis elongata*, *Tapinocyboides pygmaeus* and *Trochosa terricola* reached more than 50% of total amount of individuals in spring, *Alopecosa pulverulenta*, *Argenna subnigra*, *Sitticus saltator* and *Xysticus erraticus* – in summer, and *Ozyptila atomaria* and *Alopecosa fabrilis* – in autumn.

The activity of juveniles positively correlated with mean soil surface temperature during the observation period (Spearman rank correlation, r_s=0.8029; p<0.0005; n=16), while adults did not show this dependence

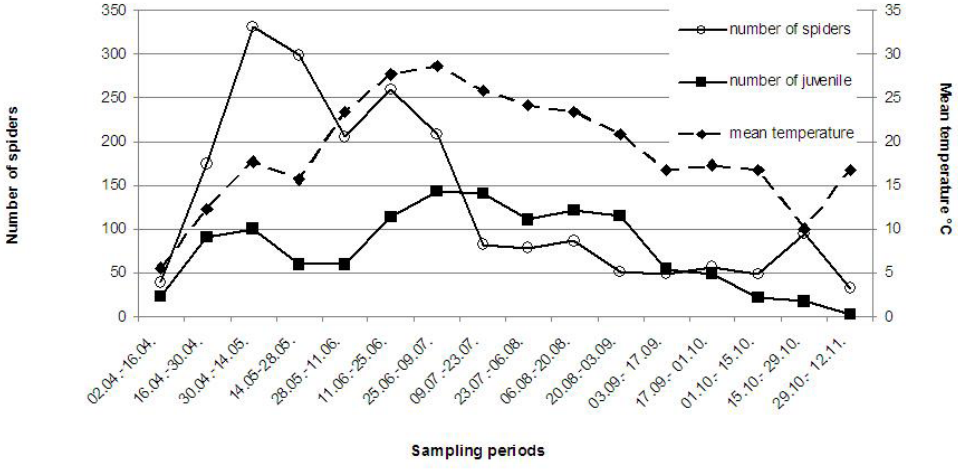

Figure 1. Seasonal dynamics of adult spiders and soil surface temperature in the coastal dune habitats at Akmensrags in Ziemupe Nature restricted territory, Latvia in 2006.

(r_s=0.3264, n.s., n=16). When we analyse juvenile activity separately, juveniles have two activity maxima per season – in beginning of May and from the middle of June until beginning of September.

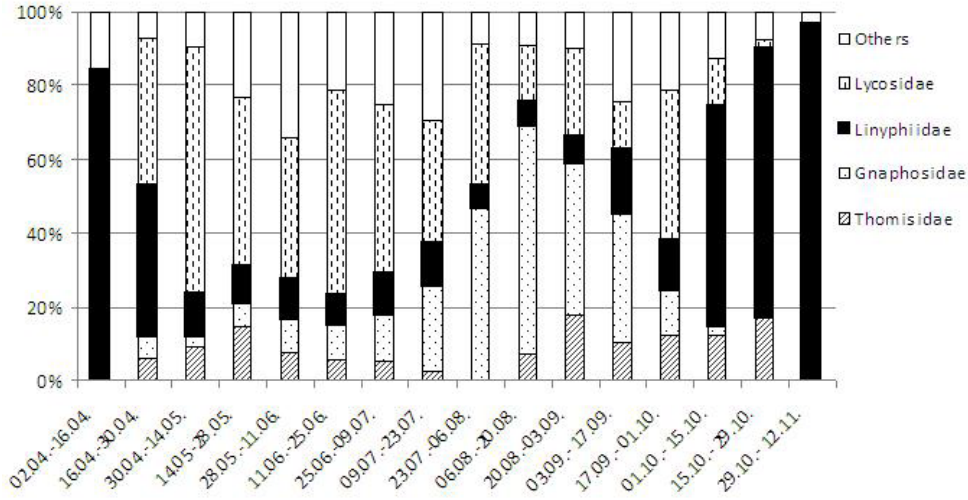

Figure 2. Changes in the dominance structure of adult spiders of dominating and other families during the study period in the coastal dune habitats at Akmensrags in Ziemupe Nature restricted territory, Latvia in 2006.

Table 1. Relative abundance (% of all collected specimens) of adult spiders during the annual periods in the coastal dune habitats at Akmensrags in Ziemupe Nature restricted territory, Latvia in 2006 (only dominant, subdominant and recedent species are included).

Species	Spring activity species	Summer activity species	Autumn activity species
*Agelena labirynthic*a	0.00	100.00	0.00
Alopecosa cuneata	0.00	100.00	0.00
Alopecosa fabrilis	6.52	32.61	60.87
Alopecosa pulverulenta	2.38	97.62	0.00
Argenna subnigra	19.72	77.46	2.82
Hahnia nava	79.41	20.59	0.00
Leptothryx hardyi	0.00	0.00	100.00
Ozyptila atomaria	6.67	10.00	83.33
Ozyptila scabricula	58.54	30.49	10.98
Pardosa palustris	0.00	100.00	0.00
Pelecopsis parallela	63.83	30.85	5.32
Sitticus saltator	31.91	63.83	4.26
Steatoda albomaculata	48.94	51.06	0.00
Tapinocyboides pygmaeum	76.32	18.42	5.26
Trochosa terricola	85.33	12.00	2.67
Walckenaeria antica	50.00	30.00	30.00
Xerolycosa miniata	0.00	100.00	0.00
Xysticus erraticus	40.74	59.26	0.00
Zelotes electus	41.27	50.79	7.94
Zelotes longipes	7.10	80.00	12.90

Discussion

Fauna and dominance structure

More than half of the collected spider species (66) belong to families of web builders, namely Agelenidae, Araneidae, Dictynidae, Linyphiidae, Theridiidae and some species of Tetragnathidae (Šternbergs 1995b, 1995c, 1997, 1998a, 1998b, 1998d). However, non-web builders, namely Clubionidae, Corinidae, Gnaphosidae, Liocranidae, Lycosidae, Miturgidae, Philodromidae, Pisauridae, Thomisidae, Salticidae and Zoridae (Almquist 2006; Šternbergs 1994, 1995a, 1995d, 1995e, 1995f, 998c, 1998e) definitely dominated in numbers of the collected individuals. Usually dunes are mostly inhabited by ground-dwelling spiders because of suitable conditions for hunting, but grass-layer spider fauna in dunes is poor (Bell et al. 1998) because of scarce grass layer.

The frequent occurrence of Lycosidae (number of individuals) and Linyphiidae (number of species) in dunes is mentioned before (Bell et al. 1998) as they are mostly free-living hunters (Lycosidae) or good ballooners (Linyphiidae) and can be found in various habitats with low vegetation. Some species of Gnaphosidae and Thomisidae have showed preference to dune habitats or some species even indicate specific dune habitats (Bonte et al. 2002), as example, *Zelotes longipes* (Gnaphosidae) indicate "moss dominated dunes and Marram dunes near the innear dune front" or *Xysticus erraticus* (Thomisidae) – "high dwarf shrubs".

Occurrence of singletones in dune habitats can be explained by various reasons, e.g. *Erigone* spp. and *Odeothorax apicatus* (Linyphiidae) have well developed ballooning ability (Bonte et al. 2002), the same may be referred to other small linyphiids. In this way species may immigrate into dune habitats. Other species may immigrate from the neighbouring habitats. Few individuals of *Tibellus oblongus*, *Philodromus fallax*, *Thanatus striatus*, 1845 (Philodromidae) and *Dolomedes fimbriatus* (Pisauridae) were captured in the fore dunes. *Thanatus* and *Tibellus* spiders occur in high grass and shrubs, but *Philodromus* – on leaves of trees and shrubs – they are "sit and wait" predators (Šternbergs 1995g). Pisauridae spiders are living in wet, shrubby meadows and at waterside (Šternbergs 1994). *Hypsosinga pygmaea*, *Neoscona adianta* and *Zygiella atrica* (Araneidae) occurr in dry meadows, in habitats with *Carex arenaria*, in heathers (Almquist 2005) and all these species make webs (Šternbergs 1998a). The web building spiders are usually caught by using entomological sweep net, but in this study they are captured accidentally by pitfall traps.

High number of new spider species for Latvian fauna can be explained by the fact that spiders have not been studied in coastal habitats before (Cera, Spuņģis 2011) and no studies have been done on spiders from 1998 until 2005. For *Ostearius melanopygius* fast range expansion to the East was recorded before (Růžička 1995), but this species is still not found in Lithuania (Biteniekyte, Relys 2011).

Seasonal activity of spiders in dune habitats

We traced seasonal dynamics of all spider species pooled together and also for particular species separately. Seasonal dynamics of number of individuals and species was following similar pattern as in other habitats described before (Merrett 1967, 1968; Braun, Rabeler 1969) and may be explained by life history of spiders. We also evaluated hibernation strategy of species by appearance of adults in the spring: early spring species hibernate as adults, but late spring, summer and autumn species – as

juveniles or eggs. The adults of majority of species dominate in the spring and summer (Foelix 1996), while some species had highest population density in the autumn. Decrease of number of adult spiders in the middle of summer was explained by essential die-out of adults; decrease of spider activity or by change of habitat to better habitat – where more feeding possibilities are available at the moment.

We defined groups of species with activity at the particular period of the season based on changes in numbers of individuals captured (Table 1). Nentwig et al. (2011) showed that most of dominating species are present in warm part of the season – end of spring and summer (*Pardosa palustris*, *Xerolycosa miniata*, *Xysticus erraticus* and *Zelotes electus*), but some species has activity peak in autumn (e.g. *Leptothrix hardyi*) or two activity peaks – *Sitticus saltator* (spring and autumn). The species occurrence in this study can be explained by use of pitfall traps – this indicated only activity of species, but not real number of individuals in the dunes due to species migration among dune habitats (Bonte et al. 2000).

Majority of juveniles do hatch in the period when temperatures are sufficiently high – in the summer. Activity of juveniles therefore follows temperature changes. Juveniles of Lycosidae also showed positive correlation with soil surface temperature (Cera, Spuņģis 2011).

It is well known that particular spider species has regional differences in range distribution as previously described for dune habitats in Western Europe (Bonte et al. 2003). It would be necessary to study such differences of dune habitat spider fauna across Northern Europe.

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Table 2. Spider species (arranged taxonomically) and number of individuals collected during the study period in the coastal dune habitats at Akmensrags in Ziemupe Nature restricted territory, Latvia in 2006.

Family / Species	02.04.-16.04.	16.04.-30.04.	30.04.-14.05.	14.05.-28.05.	28.05. -11.06.	11.06.-25.06.	25.06.-09.07.	09.07.-23.07.	23.07.-06.08.	06.08.-20.08.	20.08.-03.09.	03.09.- 17.09.	17.09.- 01.10.	01.10.- 15.10.	15.10.- 29.10.	29.10.- 12.11.	Sum	Dominance, %
Theridiidae																		
Asagena phalerata (Panzer, 1801)					1	1											2	0.10
Euryopis flavomaculata (C. L.Koch, 1836)								1									1	0.05
Steatoda albomaculata (DeGeer, 1778)			1	22	12	9	3										47	2.25
Linyphiidae																		
Agyneta olivacea (Emerton, 1882)					1												1	0.05
Agyneta subtilis (O.P.-Cambridge, 1863)															4		4	0.19
Araeoncus humilis (Blackwall, 1841)															2	1	3	0.14
Bathyphantes gracilis (Blackwall, 1841)			1									1					2	0.10
Bathyphantes nigrinus (Westring, 1851)															5		5	0.24
Bolyphantes luteolus (Blackwall, 1833)													1	7	12	1	21	1.01
Centromerita bicolor (Blackwall, 1833)														2	6	6	14	0.67
Centromerus brevivulvatus Dahl, 1912															1		1	0.05
Centromerus incilium (L.Koch, 1881)	2																2	0.10
Cetromerus sellarius (Simon, 1884)		2	1														3	0.14
Centromerus sylvaticus (Blackwall, 1841)															3	2	5	0.24
Centromerus sp.															1		1	0.05
Erigone dentipalpis (Wider, 1834)										1							1	0.05
Leptothrix hardyi (Blackwall, 1850)													2	13	22	19	56	2.69
Linyphiidae indet,	1		1	1		1	3	2									9	0.43
Macrargus carpenteri (O.P.-Cambridge, 1894)	3																3	0.14
Macrargus rufus (Wider, 1834)	3	5	1														9	0.43
Mecynargus foveatus (Dahl, 1912)	2					1	10										13	0.62
Meioneta rurestris (C.L.Koch, 1836)										2	2	5	1				10	0.48
Metopobactrus prominulus (O.P.-Cambridge. 1872)				1		2											3	0.14
Micrargus subaequalis (Westring, 1851)						1	4										5	0.24
Microlinyphia pusilla (Sundevall, 1830)									1								1	0.05
Oedothorax gibbosus (Blackwall, 1841)	1	1															2	0.10
Oedothorax retusus (Westring, 1851)									1		1						2	0.10
Ostearius melanopygius (O.P.-Cambridge, 1879)								4	2								6	0.29
Pelecopsis mengei (Simon, 1884)	11																11	0.53
Pelecopsis parallela (Wider, 1834)		44	5	19	15	11		2			1			2	3		102	4.87

Table 2 continued

	02.04.-16.04.	16.04.-30.04.	30.04.-14.05.	14.05.-28.05.	28.05. -11.06.	11.06.-25.06.	25.06.-09.07.	09.07.-23.07.	23.07.-06.08.	06.08.-20.08.	20.08.-03.09.	03.09.- 17.09.	17.09.- 01.10.	01.10.- 15.10.	15.10.- 29.10.	29.10.- 12.11.	Sum	Dominance, %
Pocadicnemis pumila (Blackwall, 1841)			1														1	0.05
Porrhomma pygmaeum (Blackwall, 1834)			6														6	0.29
Porrhomma sp.							5			2							7	0.34
Stemonyphantes lineatus (Linnaeus, 1758)				1													1	0.05
Tallusia experta (O.P.-Cambridge, 1871)		1															1	0.05
Tapinocyba pallens (O.P.-Cambridge, 1872)		1	1							1							3	0.14
Tapinocyboides pygmaeus (Menge, 1869)	1	6	18	4	5	2									2		38	1.82
Tenuiphantes cristatus (Menge, 1866)																1	1	0.05
Tenuiphantes flavipes (Blackwall, 1854)														1	3		4	0.19
Tenuiphantes sp.													2	2			4	0.19
Trichopterna cito (O.P.-Cambridge,1872)														1	2		3	0.14
Troxochrus scabriculus (Westring, 1851)													2				2	0.10
Typhochrestus digitatus(O.P.-Cambridge, 1872)	1																1	0.05
Walckenaeria alticeps (Denis, 1952)		4			1		1					2					8	0.38
Walckenaeria antica (Wider, 1834)		6	3	6	1	5		2	1			1		1	2	2	30	1.44
Walckenaeria cucullata (C.L.Koch, 1836)		2															2	0.10
Tetragnathidae																		
Metellina segmentata (Clerck, 1757)												1					1	0.05
Pachygnatha clercki Sundevall, 1823			3														3	0.14
Pachygnatha degeeri Sundevall, 1830	2	6	1											1			10	0.48
Pachygnatha listeri Sundevall, 1830		3													1		4	0.19
Araneidae																		
Agalenatea redii (Scopoli, 1763)						1											1	0.05
Araneus diadematus Clerck, 1757													2	1			3	0.14
Neoscona adianta (Walckenaer, 1802)									1								1	0.05
Zygiella atrica (C.L.Koch, 1845)													1				1	0.05
Lycosidae																		
Alopecosa cuneata (Clerck, 1757)		35	184	112	20	21	25	5	7	6							415	19.90
Alopecosa fabrilis (Clerck, 1757)		2		1	2	4	1				8	4	21	3			46	2.21
Alopecosa pulverulenta (Clerck, 1757)						21	20										41	1.97
Arctosa cinerea (Fabricius, 1777)													1				1	0.05
Arctosa perita (Latreille, 1799)		2	1			1		1		1			1	3	2		12	0.58
Pardosa agrestis (Westring, 1861)				3													3	0.14
Pardosa amentata (Clerck, 1757)			1														1	0.05
Pardosa nigriceps (Thorell, 1856)						1											1	0.05

Table 2 continued

	02.04.-16.04.	16.04.-30.04.	30.04.-14.05.	14.05.-28.05.	28.05. -11.06.	11.06.-25.06.	25.06.-09.07.	09.07.-23.07.	23.07.-06.08.	06.08.-20.08.	20.08.-03.09.	03.09.- 17.09.	17.09.- 01.10.	01.10.- 15.10.	15.10.- 29.10.	29.10.- 12.11.	Sum	Dominance, %
Pardosa palustris (Linnaeus, 1758)					29	27	7	1									64	3.07
Pardosa pullata (Clerck, 1757)				5	7	3	1	1			1						18	0.86
Trochosa ruricola (DeGeer, 1778)		1	7	2	4	1	1										16	0.77
Trochosa spinipalpis (F.O.P.-Cambridge, 1859)			3		1	1											5	0.24
Trochosa terricola Thorell, 1856		29	26	9	3	2	2		2			2					75	3.60
Xerolycosa miniata (C.L.Koch, 1834)					11	61	38	19	21	6	3						159	7.63
Pisauridae																		
Dolomedes fimbriatus (Clerck, 1757)								1									1	0.05
Agelenidae																		
Agelena labyrinthica (Clerck, 1757)							29	16	3								48	2.30
Hahniidae																		
Antistea elegans(Blackwall, 1841)					1												1	0.05
Hahnia nava (Blackwall, 1841)		1	1	9	16	5	2										34	1.63
Dictynidae																		
Argenna subnigra (O.P.-Cambridge, 1861)	3	2		9	31	19	2	1		2		1		1			71	3.41
Corinnidae																		
Phrurolithus festivus (C.L.Koch, 1835)					1	2	1	1		1	1						7	0.34
Liocranidae																		
Agroeca proxima (O.P.-Cambridge, 1871)										1	2	4	8	1	4	1	21	1.01
Scotina gracilipes (Blackwall, 1859)										2	1	1		1	2		7	0.34
Miturgidae																		
Cheiracanthium elegans Thorell, 1875							2										2	0.10
Cheiracanthium erraticum (Walckenaer, 1802)			1	13	6			1									21	1.01
Cheiracanthium virescens (Sundevall, 1833)			1		2												3	0.14
Clubionidae																		
Clubiona diversa O.P.-Cambridge, 1862				1	1		2					2					6	0.29
Clubiona frisia Wudnerlich et Schütt, 1995													1				1	0.05
Gnaphosidae																		
Drassodes pubescens (Thorell, 1856)				2	1	3	6		2	6	1						21	0.82

Table 2 continued

	02.04.-16.04.	16.04.-30.04.	30.04.-14.05.	14.05.-28.05.	28.05. -11.06.	11.06.-25.06.	25.06.-09.07.	09.07.-23.07.	23.07.-06.08.	06.08.-20.08.	20.08.-03.09.	03.09.- 17.09.	17.09.- 01.10.	01.10.- 15.10.	15.10.- 29.10.	29.10.- 12.11.	Sum	Dominance, %
Drassyllus lutetianus (L.Koch, 1866)					1		1	1									3	0.14
Drassyllus praeficus (L.Koch, 1866)						1	1	1	1								4	0.19
Drassyllus pusillus(C.L.Koch, 1833)			1					2	2	1							6	0.29
Gnaphosa bicolour (Hahn, 1833)						1	1										2	0.10
Haplodrasus moderatus (Kulzyński, 1897)						2											2	0.10
Haplodrassus singifer (C.L.Koch, 1839)						1	2	1									4	0.19
Micaria fulgens (Walckenaer, 1802)							1										1	0.05
Micaria lenzi Bösenberg, 1899					3												3	0.14
Zelotes electus (C.L.Koch, 1939)		2	7	17	11	12	4	2	1	2		2	3				63	3.02
Zelotes longipes (L.Koch, 1866)		8	2	1	3	3	10	12	31	45	20	15	4	1			155	7.43
Zoridae																		
Zora silvestris Kulzyński, 1897						1	3										4	0.19
Philodromidae																		
Philodromus fallax Sundevall, 1833					2	1											3	0.14
Thanatus formicinus (Clerck, 1757)			1														1	0.05
Thanatus striatus C.L.Koch, 1845			2											1			3	0.14
Tibellus oblongus (Walckenaer, 1802)								1									1	0.05
Thomisidae																		
Ozyptila atomaria (Panzer, 1801)		1	1				1				2	2	3	5			15	0.72
Ozyptila scabricula (Westring, 1851)		10	16	22	6	2	4			6	7	3	4	1			81	3.88
Xysticus cristatus (Clerck, 1757)			2	3	4	4	3										16	0.77
Xysticus erraticus (Blackwall, 1834)				11	2	9	3	1									26	1.25
Xysticus kochi Thorell, 1872			11	7	2			1									21	1.01
Salticidae																		
Aelurillus v-insignatus (Clerck, 1757)			2														2	0.10
Euophrys frontalis (Walckenaer, 1802)						1	1										2	0.10
Heliophanus flavipes (Hahn, 1832)						1											1	0.05
Neon reticulatus (Blackwall, 1853)							1										1	0.05
Phlegra fasciata (Hahn, 1826)			1	1		2	1		21	2							28	1.34
Sitticus floricola (C.L.Koch, 1837)							1					1					2	0.10
Sitticus saltator (O.P.-Cambridge, 1868)			9	6	9	13	5	1	1		1	2					47	2.25
Talavera aequipes (O.P.-Cambridge, 1871)						3	1										4	0.19
Total	**39**	**174**	**331**	**298**	**206**	**259**	**208**	**82**	**79**	**87**	**51**	**49**	**57**	**48**	**95**	**33**	**2085**	**100**