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Spider communities (Arachnida: Araneae) of different xerothermic biotopes

Introduction. As a part of a research project of Free University of Berlin in Hesse, the spider fauna is studied since 1984 with main emphasis on structure and dynamics of the spider communities of xerothermic biotopes.

Study sites, material, methods

Study sites. Studies were performed at the Eisenberg near Friedrichsbrück (Werra-Meißner-district / Northern Hesse). The three sites are characterized by biotic and abiotic factors (Table 1).

Table 1: Topographic, edaphical, lighting, structural conditions, temperature figure and plant communities at the study sites.

sites	E1	E2	E3
altitude (m a.NN)	450	452	460
exposition	SE	NE	SE
inclination (°)	30	2	11
soil type	Syrosemrendzina	Rendzina	Syrosemrendzina
soil moisture (weight%)	6.56	10.58	8.44
soil acidity	6.0	6.0	6.5
lighting (lux/h)			
15.6.-16.6.85	5740.0	3329.2	6929.8
14.9.-15.9.85	3054.25	1174.34	3287.75
temperature figure	5.44	5.27	5.21
degree of coverage (%)	30	90	30
plant community	mesobromion← ruderal community	mesobromion → Arrhenatheretum	mesobromion

Collecting method. From May 1985 to May 1986 the spiders were collected by ptifalls. At each site ten transparent beakers (8 cm high, 7.5 cm in opening diameter, filled up with 3% formaldehyde to one third) were placed and emptied every two weeks except November 1985 to April 1986.

Spiders. A total of 4330 adult individuals out of 125 spider species was caught. Identification of species was made on the basis of the following papers: DAHL (1926, 1927, 1931), LOCKET & MILLIDGE (1951, 1053), LOCKET, MILLIDGE & MERRETT (1974), WIEHLE (1923, 1937, 1956, 1960).

Results

Families and species. At the study sites 125 species out of 17 spider families were collected. The relative abundance of every species at each site is listed in Table 2. In addition, each species is characterized by ecological requirement, time of maturity and preferred stratum. In addition to my own results, data of other authors were taken into consideration (e.g. BECKER 1977, CASEMIR 1975, HARMS 1966, MERRETT 1967, 1968, 1969, PLATEN 1984, THALER 1985, TRETZEL 1952, 1954).

Table 2: List of the species collected. Relative abundance of species. Ecological type (et)(h hygrobiontic/-philic, (h) mainly hygrobiontic, eu euryhygric, x xerobiontic/-philic, (x) mainly xerophilic, w woodland species in general, (w) mainly in woods, hw in moist forests, h(w) mainly in moist forests, (h)w in moderately moist forests, (x)w in moderately dry forests, (x)(w) mainly in moderately dry forests, arb arboricol, R on/under barks, sko skotobiontic, th thermophilic, ph photophilic, myrm myrmekophilic). Time of maturity (m) (I eurychronic, II summer-eurychronic, III winter eurychronic, IV spring-autumn-diplochronic, V summer-winter-diplochronic, VI males stenochronic, females eurychronic, VIIa spring-stenochronic, VII summer-stenochronic, VIIb autumn-stenochronic, VIII winter-stenochronic). Stratum (s) (0 terrestrial, under stones, in burrows, 1 ground zone, 2 field zone, 3 scrub zone, 4 tree zone, 5 tree top zone).

species	E1	E2	E3	et	m	s
AGELENIDAE						
Agelena labyrinthica (CLERCK)			0.17	eu,th	VII	1-2
Cicurina cicur (FABRICIUS)	0.74	0.61	0.17	(x)(w)	VIII	0-1
Coelotes terrestris (WIDER)			0.09	(h)w	IV	1
ARANEIDAE						
Araneus diadematus CLERCK	0.25		0.17	(x)(w)	VII	2-3
Araneus quadratus CLERCK			0.17	eu	VII	2-3
Hypsosinga albovittata (WESTRING)			0.35	x,th	VII	2
Hypsosinga sanguinea (C.L.KOCH)	0.08	0.05	0.17	x,th	VIIa	2
Meta segmentata (CLERCK)	0.08			?(h)w	VIIb	2-4
CLUBIONIDAE						
Cheiracanthium erraticum (WALCKENAER)	0.08		0.61	(x)	VII	1-3
Clubiona compta C.L.KOCH	0.08			(x)w	VIIa	1-3
Clubiona diversa O.P.-CAMBRIDGE	1.07	2.38	2.36	eu	V	0-3
Clubiona neglecta O.P.-CAMBRIDGE	0.08	0.30	0.26	x,th	VII	3-4
CTENIDAE						
Zora nemoralis (BLACKWALL)	0.25	0.35		x(w)	VII	1
Zora spinimana (SUNDEVALL)	0.33	0.81		eu,th	II	1
DICTYNIDAE						
Argenna subnigra (O.P.-CAMBRIDGE)		0.05	1.40	x,th	VIIa	0-3
ERIGONIDAE						
Araeoncus humilis (BLACKWALL)		0.10	0.17	(h),th	V	1-3
Ceratinella brevipes (WESTRING)	0.25	0.05		(h)	VII	1
Ceratinella brevis (WIDER)	2.23	0.35		(h)w	IV	1
Cnephalocotes obscurus (BLACKWALL)	0.17	0.61	0.09	eu	VII	1-2
Dicymbium brevisetosum LOCKET	0.41	0.91	0.09	eu	IV	1
Diplocephalus latifrons (O.P.-CAMBRIDGE)	0.33			(h)w	IV	1
Erigone atra BLACKWALL	0.50	0.46	0.35	eu	II	1
Erigonella hiemalis (BLACKWALL)	0.08	0.46		eu	VIIa?	1
Gonatium corallipes (O.P.-CAMBRIDGE)	0.08			(x)(w)	VIIb	1-5
Gongylidiellum latebricola (O.P.-CAMBRIDGE)	0.08	0.51		(x)(w)	II	1
Gongylidiellum rufipes (SUNDEVALL)		0.10		h(w)	VI	1-4
Lophocarenum parallelum (WIDER)			0.09	eu	VIIa	1
Micrargus herbigradus (BLACKWALL)	0.25	0.15	0.17	(x)w	V	1
Micrargus subaequalis (WESTRING)	0.66		0.26	eu,th	II	1
Minyriolus pusillus (WIDER)		0.05		(x)(w)	VI	1

species	E1	E2	E3	et	m	s
ERIGONIDAE (cont.)						
Oedothorax fuscus (BLACKWALL)		0.05		eu	VII	1
Panamomops sulcifrons (WIDER)		0.35		(w)	III	1
Peponocranium ludicrum (O.P.-CAMBRIDGE)		1.47	0.26	eu	IV	1
Peponocranium orbiculatum (O.P.-CAMBRIDGE)	0.50	0.30		x(w)	VII	1
Pocadicnemis pumila (BLACKWALL)	0.50	5.67	0.17	eu	VII	1
Tapinocyba pallens (O.P.-CAMBRIDGE)	0.08	0.35	0.09	w	II	1
Tapinocyba praecox (O.P.-CAMBRIDGE)		1.72	0.35	x	III	1
Tiso vagans (BLACKWALL)	0.08			(h),th	V	1-2
Typhochrestus simoni LESSERT			0.52	x	VIIa	?
Walckenaeria acuminata BLACKWALL	0.08	0.41	0.09	(x)w	VIII	1
Walckenaeria antica (WIDER)	0.33	1.93	0.17	(x)	IV	1
Walckenaeria dysderoides (WIDER)	0.91	0.51		(x)w	V	1-2
Walckenaeria melanocephala O.P.-CAMBRIDGE	0.66	0.76	0.09	hw,th	VII	1-5
Walckenaeria nudipalpis (WESTRING)	0.08			h	III	1
GNAPHOSIDAE						
Callilepis nocturna (LINNAEUS)	7.19	0.05		x,myrm,th	VIIa	1
Drassodes lapidosus (WALCKENAER)	5.87	1.06	1.84	x,th	VII	0-1
Drassodes pubescens (THORELL)	0.08	0.05	0.17	x,th	VII	0-1
Haplodrassus signifer (C.L.KOCH)	3.97	0.56	3.23	x,th	VII	1
Haplodrassus umbratilis (L.KOCH)	4.38	0.15	0.26	(x)(w)	VII	1
Micaria pulicaria (SUNDEVALL)		0.10	0.09	eu	VII	0-1
Phrurolithus festivus (C.L.KOCH)	1.24	0.10	0.26	eu,th	VII	1
Phrurolithus minimus C.L.KOCH	0.17	0.05		(x),th	VII	1
Zelotes latreillei (SIMON)		0.30	0.26	(x)	IV	1
Zelotes petrensis (C.L.KOCH)	1.74	0.05	0.70	x,th	IV	0-1
Zelotes praeficus (L.KOCH)		0.05	0.17	x,th	VII	0-1
Zelotes pusillus (C.L.KOCH)	1.16	0.46	1.14	x	VII	1
Zelotes subterraneus (C.L.KOCH)	0.08			(x)(w)	IV	0-1
HAHNIIDAE						
Hahnia nava (BLACKWALL)	4.63	3.75	2.27	x,th	VII	1
Hahnia pusilla C.L.KOCH	0.25	0.30		(h)w	II	1
LINYPHIIDAE						
Agyneta affinis (KULCZYNSKI)	0.08			x	VII	1
Agyneta cauta (O.P.-CAMBRIDGE)	0.08	0.20		(h)	VII	1
Agyneta innotabilis (O.P.-CAMBRIDGE)		0.05		arb.R	VII	3-4
Agyneta rurestris (C.L.KOCH)	4.96	0.91	5.50	(x)	II	1
Bathyphantes concolor (WIDER)	0.08	0.05		(h)w	II	1
Bathyphantes gracilis (BLACKWALL)	0.08	0.25	0.09	eu,th	V	1-2
Bathyphantes parvulus (WESTRING)		0.05		eu	VII	1-2
Bolyphantes alticeps (SUNDEVALL)	0.33	1.52		(w)	VII	1-3
Centromerita bicolor (BLACKWALL)	0.25	0.35		(x)	VIII	1-2
Centromerita concinna (THORELL)	0.74	14.29	11.98	(x)	VIII	1-2
Centromerus incilius (L.KOCH)		0.25		(x)w,th	VIII	1
Centromerus pabulator (O.P.-CAMBRIDGE)	0.17	4.41		(x)w	VIII	1
Centromerus sylvaticus (BLACKWALL)	0.25	2.13	0.09	(h)w	VIII	1
Lepthyphantes alacris (BLACKWALL)		0.10		(h)w	VIIb	1
Lepthyphantes cristatus (MENGE)		0.05	0.09	(h)w	III	1
Lepthyphantes ericaeus (BLACKWALL)	0.08	0.86	0.09	eu,th	I	1-4
Lepthyphantes insignis O.P.-CAMBRIDGE		0.10		sko	?	1
Lepthyphantes mengei KULCZYNSKI	0.17	0.56		h(w)	V	1
Lepthyphantes pallidus (O.P.-CAMBRIDGE)	0.08			eu(w)	V	1
Lepthyphantes tenuis (BLACKWALL)	0.74	1.42		(x),th	VII	1-2
Lepthyphantes zimmermanni BERTKAU		0.10		(x)w	IV?	1-2

species	E1	E2	E3	et	m	s
LINYPHIIDAE (cont.)						
Linyphia pusilla SUNDEVALL	0.08	0.10		eu	VII	2-3
Macrargus rufus (WIDER)	0.08	0.05	0.17	(x)w	VIII	1-2
Microneta viaria (BLACKWALL)	0.08			(h)w	V	1
Stemonyphantes lineatus (LINNAEUS)	0.08	0.10	0.26	eu	III	1-2
LIOCRANIDAE						
Agroeca cuprea MENGE			0.09	x,th	IV	1
Agroeca proxima (O.P.-CAMBRIDGE)	1.32	5.17	0.35	(x)	VI	1
Agroecina striata (KULCZYNSKI)	0.33	0.05		hw	VIIa	1
Scotina celans (BLACKWALL)	1.40	0.96	4.02	x,th	VIIb	1
LYCOSIDAE						
Alopecosa accentuata (LATREILLE)	4.30	1.32	5.50	x,th	IV	1
Alopecosa cuneata (CLERCK)	0.17	0.10	7.43	x,th	VIIa	1
Alopecosa pulverulenta (CLERCK)	1.32	4.15	1.75	eu,th	VII	1
Alopecosa striatipes (C.L.KOCH)			0.70	x,th	IV	1
Alopecosa trabalis (CLERCK)			0.26	x,th	VII	1
Aulonia albimana (WALCKENAER)	16.94	0.86	0.87	x,th	VII	1
Pardosa agrestis (WESTRING)	0.08		2.19	(x)	VII	1
Pardosa lugubris (WALCKENAER)		0.05	0.09	(h)w	VII	1
Pardosa nigriceps (THORELL)			0.17	x	VII	1-4
Pardosa palustris (LINNAEUS)	0.25	0.25	7.52	eu	VII	1
Pardosa pullata (CLERCK)	1.32	10.64	5.94	eu,th	VII	1
Trochosa robusta (SIMON)	7.36	0.10	0.09	h,th	VII	1
Trochosa terricola THORELL	9.26	17.42	17.13	(x)w	IV	1
MIMETIDAE						
Ero furcata (VILLERS)		0.05		(x)(w)	IV?	1-4
PHILODROMIDAE						
Philodromus aureolus (CLERCK)			0.44	arb,R,th	VII	2-4
Tibellus oblongus (WALCKENAER)	0.08			x,th	VII	1-2
SALTICIDAE						
Aelurillus festivus (C.L.KOCH)	0.08		0.17	x,th	VII	1
Aelurillus v-insignitus (CLERCK)	0.17			x	VI	1-2
Bianor aenescens (SIMON)		0.20		h	VII	1-4
Euophrys aequipes (O.P.-CAMBRIDGE)	0.17	0.15	0.79	x,th	VII	1
Euophrys frontalis (WALCKENAER)	2.15	0.35	0.44	(x)(w)	VII	1-2
Euophrys petrensis C.L.KOCH	0.41	0.10	0.09	x	VII	1-2
Pellenes tripunctatus (WALCKENAER)	0.08		0.09	x,th	VII	1
Phlegra fasciata (HAHN)			0.70	x,th	VII	1
TETRAGNATHIDAE						
Pachygnatha clercki SUNDEVALL		0.05	0.09	h	II	1
Pachygnatha degeeri SUNDEVALL		0.10	0.09	eu	II	1
Pachygnatha listeri SUNDEVALL		0.20	0.09	hw	II	1
THERIDIIDAE						
Enoplognatha thoracica (HAHN)		0.05	0.09	x,th	VII	1
Euryopis flavomaculata (C.L.KOCH)	0.17	0.20		(x)(w)	VII	1-2
Robertus lividus (BLACKWALL)	0.17	0.05		(x)w	IV	1
Robertus neglectus (O.P.-CAMBRIDGE)			0.09	(h)w	I	1-2
THOMISIDAE						
Ozyptila atomaria (PANZER)			0.09	(x),th	IV	1
Ozyptila kotulai KULCZYNSKI	0.08		0.52	x,th	II	1?
Ozyptila scabricola (WESTRING)	1.16		1.40	x,myrm,th	IV	1
Xysticus bifasciatus C.L.KOCH	0.33	0.56	0.52	x	VII	1-3
Xysticus cristatus (CLERCK)	0.25		2.45	x	VI	1-3
Xysticus erraticus (BLACKWALL)	0.17	0.05	0.09	x,th	VII	1

Dominance structure. At the sites E2 and E3 the spider communities are dominated by Lycosidae (34.89%/49.64%) and Linyphiidae (27.9%/18.27%), at site E1 Lycosidae (41%) and Gnaphosidae (25.8%) dominate. For the portions of species belonging to each family maxima exist for the Erigonidae and the Linyphiidae at the sites E1 (23.2%/20.88) and E2 (24.42%/ 24.42%), at site E3 the families Erigonidae (18.9%) and Lycosidae (16.38%) are richest in species.
At all sites only few species are eudominant (TISCHLER 1949), most species occur with less than 1% dominance. The eudominant species are *Aulonia albimana* (E1), *Pardosa pullata* (E2), *Trochosa terricola* (E2, E3), *Centromerita concinna* (E2, E3).

Species diversity. According to the measures of diversity (D SIMPSON 1949,Hs SHANNON -WEAVER 1949) species diversity is high at all sites, the distribution of individuals among species (evenness E)(PIELOU 1969) is very even (Table 3).

Table 3: D,Hs,E of the communities

site	D	Hs	E
E1	0.93563	3.30168	0.74122
E2	0.92341	3.22474	0.71316
E3	0.92894	3.19160	0.72834

Ecological composition. The distribution of the spider species to the ecological types (Table 4) reveals differences between the communities of the study sites. Especially at the sites E1 and E3 the abundande of xerobiontic/-philic species is hogh, also their portion at site E3. Thermophilic spiders are very dominant at site E1. At site E2 euryhygric species and species of moderately dry forests are more abundant than at the other sites.

Table 4: Distribution of spider species to the ecological types (abbreviations at Table 2)(ps portion of species, d relative abundance).

site	E1		E2		E3	
	ps	d	ps	d	ps	d
h/(h)	5.80	7.85	6.66	0.70	3.87	0.35
eu	18.56	8.17	22.20	29.52	23.94	20.10
x/(x)	39.44	59.34	32.19	36.71	50.40	59.67
th	35.96	62.31	32.19	28.95	41.58	42.02
w/(w)	3.48	0.49	3.33	2.22		
(x)w/(x)(w)	18.56	18.93	17.76	25.27	10.08	18.60
(h)w/h(w)	8.12	3.398	9.99	3.69	6.30	0.45
hw	2.32	0.99	3.33	1.01	2.52	0.18
arb/R			1.11	0.05	1.26	0.44
sko			1.11	0.10		
?	1.16	0.08				

Stratigraphy. The distribution of species to the preferred stratum (Table 5) reveals that most of the collected spiders belong to the ground living species. Species settling in higher strata, too, are little more abundant only at site E2. Species belonging to the upper layers were only found as single individuals.

Table 5: Distribution of spider species to the preferred stratum (ps portion of species, d relative abundance).

site	E1		E2		E3	
	ps	d	ps	d	ps	d
terrestrial	6.96	9.58	8.88	4.35	10.08	6.90
ground zone	60.32	83.98	63.27	72.55	59.22	72.90
ground zone, too	25.52	8.00	23.31	22.53	20.16	17.48
upper layers only	5.80	0.57	4.44	0.50	7.56	1.56
?	1.16	0.08			2.52	1.04

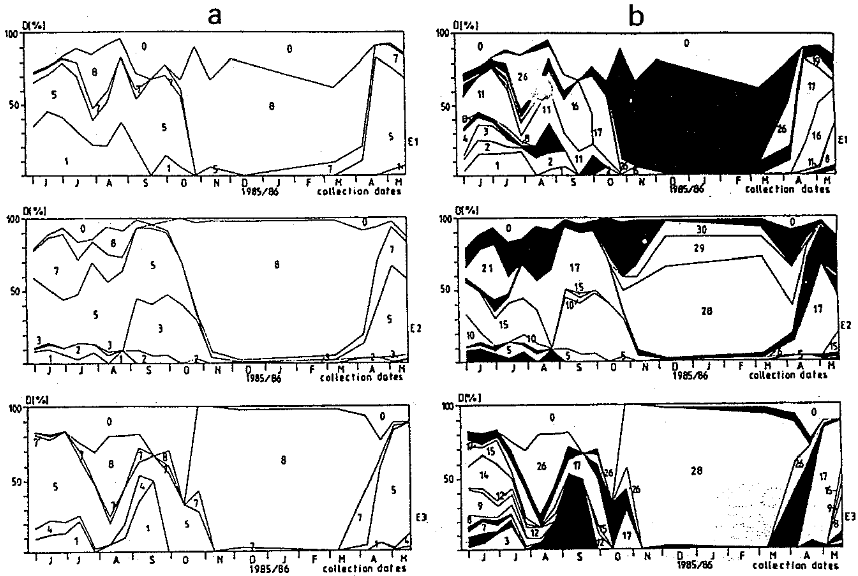
Dynamics. The distribution of species to the activity periods (Table 6) reveals that at all study sites the summer-stenochronic species dominate. The summer-eurychronic and the summer-winter-diplochronic species also reach high portions of species and abundance. The patterns of family abundances (Fig. 1a) show the seasonal associations and changes in dominance of the spider families. In summer, the families Lycosidae and Gnaphosidae dominate. In addition, the family Liocranidae is an important faunal element at site E2. The dominating element during winter is the family Linyphiidae. The dynamics of families are caused by the phenology of the eu- to subdominant species (Fig. 1b), except Gnaphosidae at the sites E2 and E3 and Linyphiidae at site E1.

Table 6: Distribution of spider species to the activity periods (abbreviations at Table 2) (ps portion of species, d relative abundance).

site	E1		E2		E3	
	ps	d	ps	d	ps	d
I	1.16	0.08	1.11	0.86	2.52	0.18
II	10.44	7.02	11.11	3.74	10.08	6.99
III	2.32	0.16	4.44	2.22	3.78	0.70
IV	11.60	20.01	9.99	23.80	15.12	26.48
V	9.28	2.72	6.66	3.95	5.04	2.79
VI	3.48	1.74	3.33	5.32	2.52	2.80
VIIa	5.80	7.85	5.55	0.30	6.30	9.61
VII	42.92	56.46	42.18	35.47	46.62	33.81
VIIb	3.48	1.56	2.22	1.06	1.26	4.02
VIII	8.12	2.31	8.88	22.50	6.30	12.50
?	1.16	0.08	4.44	0.71		

Fig.1: a. Seasonal associations of families (1 Gnaphosidae, 2 Clubionidae, 3 Liocranidae, 4 Thomisidae, 5 Lycosidae, 7 Erigonidae, 8 Linyphiidae, 0 others).
b. Phenology of species determinating the family patterns (1 *Callilepis nocturna*, 2 *Drassodes lapidosus*, 3 *Haplodrassus signifer*, 4 *Haplodrassus umbratilis*, 5 *Clubiona diversa*, 6 *Agroeca proxima*, 7 *Xysticus cristatus*, 8 *Alopecosa accentuata*, 9 *Alopecosa cuneata*, 10 *Alopecosa pulverulenta*, 11 *Aulonia albimana*, 12 *Pardosa agrestis*, 14 *Pardosa palustris*, 15 *Pardosa pullata*, 16 *Trochosa robusta*, 17 *Trochosa terricola*, 19 *Ceratinella brevis*, 21 *Pocadicnemis pumila*, 26 *Agyneta*

rurestris, 28 *Centromerita concinna*, 29 *Centromerus pabulator*, 30 *Centromerus sylvaticus*, 0 others, black parts: other members of the family).



Faunal similarity. At the basis of species (species identity)(SORENSEN 1948), identity is highest between the sites E1 and E2 (Table 7). With regard to the relative abundance of species (dominance identity)(RENKONEN 1938) identity is highest between the sites E2 and E3 (Table 8).

Table 7: Species identity

	E2	E3
E1	73.03370	62.65062
E2		65.11628

Table 8: Dominance identity

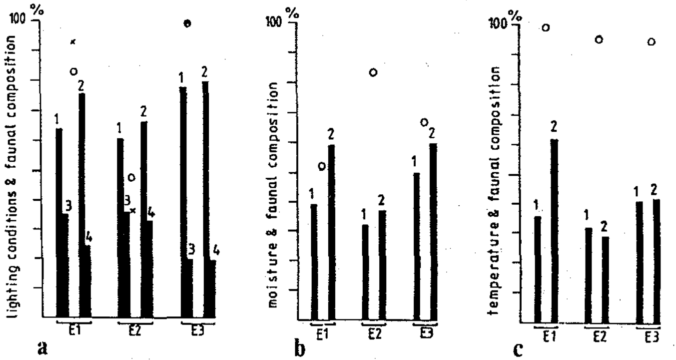
	E2	E3
E1	35.22679	41.40019
E2		53.52316

Discussion

Species composition. Previous studies of xerothermic sites (e.g. BAEHR & BAEHR 1984, BAUCHHENSS & SCHOLL 1985, CASEMIR 1975, THALER 1985) reveal the originality of the xerothermic fauna dominated by heliophilic and thermophilic species of South-eastern and Southern (mediterranean) origin and the high number of rare species. Faunistic pecularities found at the study sites are *Typhochrestus simoni*, *Micrargus subaequalis*, *Lepthyphantes insignis*, *Alopecosa striatipes* and *Ozyptila kotulai*.

Faunal composition. The faunal composition is influenced by the microclimate as well as by the structural conditions of the sites. The influence of the microclimatic conditions on the faunal composition becomes obvious by relating the distribution of the ecological types of the spider species with lighting conditions (Fig. 2a), moisture (Fig. 2b) and temperature (Fig. 2c) at the sites. The ecological types are very good correlated to the microclimatic factors light and temperature. The non-correlation of portion and dominance of the xerobiontic-philic species and the measures of moisture at site E1, E3, may be the result of the changing moisture conditions at site E1, as indicated by plants.

Fig.2: a. Lighting conditions and faunal composition (relative lighting conditions: o (15.6.-16.6.85): 100% = 6929.8 lux/h, x (14.9.-15.9.85: 100% = 3287.75 lux/h, 1(2) portion (relative abundance) of open ground species, 3(4) portion (relative abundance) of woodland species).
b. Moisture and faunal composition (o relative moisture: 100% = 12.6 weight %, 1(2) portion (relative abundance) of xerobiontic/-philic (x/(x)) species.
c. Temperature and faunal composition (o relative temperature figure: 100% = 5.44, 1 portion of thermophilic (th) species, 2 relative abundance of thermophilic(th) species).



The influence of the spatial structure (structures of soil and vegetation) is revealed by the modes of life of the spider species. Species of the terrestrial association mainly were found at the stony sites E1 and E3. Species settling in the upper layers, too, get fewer due to the sparse vegetation. Hunting spiders (most Lycosids, Gnaphosids,Clubionids, Salticids, Ctenids, Liocranids, Philodromids,Thomisids) dominate at site E3 (more than 50%) or are nearly as rich in species (E1:about 46%) as web-weaving spiders. At site E2 charaterized by dense vegetation the hunting spiders don't reach 40%. The dense vegetation offers spatial structures favoured by web-weaving species. Species living in the upper layers, too, are more abundant, as well.

Dynamics. In accordance with previous results (TRETZEL 1954) the main activity period of spiders is the early summer.

The dynamics of families show characteristic seasonal associations for each habitat (THALER 1982). The associations at the sites E1 and E3 essentialy correspond with the associations at xerothermic sites in the Inn valley (THALER 1985) and other xerothermic sites in Hesse (HOFMANN in press). The association of site E2 differs from the others by the high portion of Liocranidae and Clubionidae and cannot be assigned to a defined type of habitat at this stage of study. The seasonal associations at the sites are mainly caused by the activity periods of only a few species replacing each other according to their ecological requirements.

Faunal similarity. The measures of faunal similarity are in contrast to the analysis of the faunal composition and the dynamics revealing higher similarity between the sites E1 and E3 than between these sites and site E2. But it has to be taken into consideration that the high species identity between the sites E2/E1 and E2/E3 is probably based on the location of site E2 between the other sites and resulting accidental catches from the ad- joining areas. The high dominance identity between E2/E3 has to be qualified because of the identity of the eudominant species (HUHTA 1979). Having regard to these points and to the also high species and dominance identity of E1 and E3 the contrast seems to be only feigned.

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Schmidt: Wie hoch ist der Prozentsatz der nicht oder kaum mit Fallen zu fangenden Arten (Araneidae, Theridiidae, viele Linyphiidae); gibt es Kontrolluntersuchungen durch Aufsammeln 'by hand'? Dominieren bei Fallenfängen generell die Männchen?
Hofmann: Selbst habe ich keine Handaufsammlungen durchgeführt. Es gibt aber Untersuchungen , z.B. von Merrett und Snazell (1983), zur Effektivität von Fangmethoden, wobei Barberfallen, D-vac-Sauggerät und Handaufsammlungen verglichen werden: Beim ausschließlichen Einsatz von Barberfallen konnten 14,7 % der Gesamtartenzahl nicht nachgewiesen werden, bei ausschließlichem Einsatz des mit Handfang gut vergleichbaren Sauggerätes 38,5 %.

Bei Fallenfängen dominieren nicht generell die Männchen, da der Sexualindex von einer Reihe von Faktoren beeinflußt wird, unter anderem von den gefangenen Arten, von der Arealgröße und vom Wetter.