

The pitfall-captures carried out in the two microhabitats are characterised by a great amount of species of which only some were caught in great numbers.

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SYNECOLOGICAL STUDY OF SURFACE-ACTIVE ARANEAE FROM WOOD- AND MEADOWHABITATS*

by H. VAN PRAET**

Abstract

Araneae were collected by pitfall trapping in wood- and meadowhabitats. A qualitative synecological comparison was made between Araneae captured in the studied habitats.

Introduction

Between 1971 and 1974 a number of biotopes around Ghent were sampled with pitfall-traps.

This paper offers a synecological approach of the surface-active Araneae-fauna using pitfall-data.

Habitats

Data were obtained for 5 habitats :

1. An oak-beech wood (the « Breedgrashouw », a part of the Aelmoeseneibos at Gontrode) was sampled between 1971 and 1974 (HOET, 1972 ; MAELFAIT, 1973 ; LAMPO, 1975). For a detailed description, see MAELFAIT & BAERT (1975).

2. A beech wood or « *Fagetum nudum* » biotope (the « Hutsepot » at Zwijnaarde) was sampled between 1972 and 1973 (BOSMANS, 1973). Detailed description, see MAELFAIT & BAERT (1975).

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3. The outskirts of an oak-beech wood (the « Breedgrasbouw », see 1°) was sampled between 1973 and 1974 (LAMPO, 1975).

The shrublayer is composed of *Corylus avellana* and a little oak. The herblayer consists of *Pteridium aquilinum* (most abundant), *Urtica sp.*, *Ranunculus repens*, *Rubus sp.*, *Lonicera periclymenum*, *Hedera helix*, *Dactylis glomerata* and *Lolium perenne*. The herblayer covers ca. 50 % of the surface.

4. A meadow, bordering on an oak-beech wood (the « Breedgrashouw », see 1°) was sampled between 1973 and 1974 (LAMPO, 1975).

Until 1969 this meadow was fertilised and grazed very intensively. In 1970 it was afforested with *Corylus avellana* and *Tilia platyphyllos*. In 1973 the planted trees reached 4-5 m. The herblayer is strongly developed. The most abundant species are : *Ranunculus repens*, *Galium aparine*, *Epilobium sp.*, *Rumex crispus*, *Urtica dioica*, *Heracleum sphondylium*, *Lolium perenne*, *Dactylis glomerata*. The covering by the herblayer is ca. 90 %.

5. A marshy meadow (situated in the « Bourgoyen » at Dron- gen) was sampled between 1973 and 1974.

The herblayer is very strongly developed. The abundant species are : *Ranunculus repens*, *Caltha palustris*, *Scirpus sylvaticus*, *Juncus effusus*, *Filipendula ulmaria*, *Lysimachia vulgaris*, *Mentha aquatica*, *Carex riparia*, *Carex acuta*, *Lythrum salicaria*, *Urtica dioica*, *Galeopsis tetrabit*, *Galeopsis bifida*, *Phragmites communis*. The herblayer is covering ca. 90 %. Sporadically some shrubs are present, *Salix cinerea* and *Salix aurita*.

Method

The used pitfall-traps have a diameter of 8 cm and are 10 cm deep. To increase the catching-efficiency, a zink plate of 25 cm is placed on 2 sides of the pitfall. The fixative used in the traps is a saturated aqueous solution of picric acid.

LIST OF SPECIES AND HABITAT PREFERENCE OF CAPTURED SPECIES

The nomenclature is based on LOCKET, MILLIDGE & MERRETT (1974) and DAHL & WIEHLE (1931).

Habitat	symbol	sampling period	number of pitfalls
Oak-beech wood	AI	1/III/71-24/11/72	12
Oak-beech wood	AII	30/IV/72-26/IV/73	12
Oak-beech wood	AIII	9/X/73-26/X/74	6
Beech wood	B	31/III/72-16/III/73	12
Outskirts	C	9/X/73-26/X/74	6
Afforested meadow	D	9/X/73-26/X/74	6
Marshy meadow	E	15/VI/73-21/VI/74	10

Families and species	AI	AII	AIII	B	C	D	E
CLUBIONIDAE							
<i>Agroeca brunnea</i> (BLACKWALL)	x	x	x	-	x	-	-
<i>Clubiona brevipes</i> BLACKWALL	-	-	x	-	-	-	-
<i>Clubiona compta</i> C.L. KOCH	-	-	x	-	x	-	-
<i>Clubiona lutescens</i> WESTRING	-	-	-	-	x	-	-
<i>Clubiona pallidula</i> (CLERCK)	-	-	x	-	-	-	-
<i>Clubiona reclusa</i> O.P. CAMBRIDGE	-	-	x	-	x	-	-
<i>Clubiona terrestris</i> WESTRING	x	x	x	x	x	-	-
<i>Zora nemoralis</i> (BLACKWALL)	-	-	-	-	x	-	-
THOMISIDAE							
<i>Xysticus latio</i> C.L. KOCH	x	x	-	-	-	-	-
SALTICIDAE							
<i>Neon reticulatus</i> (BLACKWALL)	-	-	-	-	x	-	-
LYCOSIDAE							
<i>Pardosa amentata</i> (CLERCK)	x	x	x	x	x	x	x
<i>Pardosa lugubris</i> (WALCKENAER)	x	x	-	-	-	-	-
<i>Pardosa nigriceps</i> (THORELL)	-	-	-	-	-	-	x
<i>Pardosa palustris</i> (LINNAEUS)	-	-	-	-	-	-	x
<i>Pardosa pullata</i> (CLERCK)	-	-	-	-	-	-	x
<i>Pirata hygrophilus</i> THORELL	x	x	x	x	x	x	x
<i>Pirata latitans</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Pirata piraticus</i> (CLERCK)	-	-	-	-	-	-	x
<i>Trochosa spinipalpis</i> (F.O.P. CAMBRIDGE)	-	-	-	-	-	-	x
AGELENIDAE							
<i>Antistea elegans</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Cicurina cicur</i> (FABRICIUS)	x	x	x	x	x	-	-
<i>Coelotes terrestris</i> (WIDER)	x	x	x	-	x	-	-
<i>Habnia belveola</i> SIMON	x	x	x	-	-	-	-
<i>Habnia montana</i> (BLACKWALL)	-	x	x	-	x	-	-
<i>Histopona torpida</i> (C.L. KOCH)	-	-	x	-	x	-	-
THERIDIIDAE							
<i>Robertus lividus</i> (BLACKWALL)	x	x	-	x	-	-	-
TETRAGNATHIDAE							
<i>Pachygnatha clercki</i> SUNDEVALL	x	x	x	x	x	x	x
<i>Pachygnatha degeeri</i> SUNDEVALL	x	x	-	-	-	-	x
<i>Pachygnatha listeri</i> SUNDEVALL	-	-	-	-	-	-	x
ERIGONINAE							
<i>Ceratinella brevipes</i> (WESTRING)	-	-	-	-	-	-	x
<i>Dicymbium nigrum</i> (BLACKWALL)	-	-	-	-	-	-	x

Families and species	AI	AII	AIII	B	C	D	E
<i>Diplocephalus permixtus</i> (O.P. CAMBRIDGE)	-	-	-	-	-	-	x
<i>Diplocephalus picipis</i> (BLACKWALL)	x	x	x	x	x	-	-
<i>Dismodicus bifrons</i> (BLACKWALL)	-	-	x	-	x	x	-
<i>Erigone atra</i> (BLACKWALL)	-	-	-	x	-	-	x
<i>Erigonidium graminicola</i> (SUNDEVALL)	x	-	-	-	-	-	-
<i>Gnathonarium dentatum</i> (WIDER)	-	-	-	-	-	-	x
<i>Gonatium rubellum</i> (BLACKWALL)	x	x	x	-	x	-	-
<i>Gorgyldiellum vivum</i> (O.P. CAMBRIDGE)	-	-	-	-	-	x	x
<i>Gongylidium rufipes</i> (SUNDEVALL)	x	x	-	-	x	-	-
<i>Hypomma bituberculatum</i> (WIDER)	-	-	-	-	-	-	x
<i>Lophomma punctatum</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Maso sundevalli</i> (WESTRING)	x	x	-	-	x	-	x
<i>Micrargus herbigradus</i> (BLACKWALL)	x	x	x	x	x	x	-
<i>Micrargus subaequalis</i> (WESTRING)	-	-	-	-	-	-	x
<i>Oedothorax fuscus</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Oedothorax gibbosus</i> (BLACKWALL)	-	-	-	-	x	-	-
<i>Oedothorax retusus</i> (WESTRING)	-	-	-	-	-	-	x
<i>Pocadicnemis pumila</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Walckenaera acuminata</i> BLACKWALL	x	x	x	x	x	x	-
<i>Walckenaera cucullata</i> (C.L. KOCH)	-	x	-	-	-	-	-
<i>Walckenaera furcillata</i> (MENGE)	-	-	x	-	x	-	-
<i>Walckenaera nudipalpis</i> (WESTRING)	-	-	-	-	-	x	x
<i>Walckenaera obtusa</i> BLACKWALL	x	-	-	x	-	x	x
LINYPHIINAE							
<i>Agyreta ramosa</i> JACKSON	-	x	-	-	-	-	-
<i>Allomengea warburtoni</i> (O.P. CAMBRIDGE)	-	-	-	-	-	-	x
<i>Bathyphantes approximatus</i> (O.P. CAMBRIDGE)	-	-	-	-	-	x	x
<i>Bathyphantes gracilis</i> (BLACKWALL)	x	x	x	x	x	x	x
<i>Centromerita bicolor</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Centromerus aequalis</i> (WESTRING)	x	x	-	x	-	-	-
<i>Centromerus expertus</i> (O.P. CAMBRIDGE)	-	-	-	-	-	-	x
<i>Centromerus sylvaticus</i> (BLACKWALL)	x	x	x	x	x	x	x
<i>Drepanotylus uncatu</i> (O.P. CAMBRIDGE)	-	-	-	-	-	-	x
<i>Diplostyla concolor</i> (WIDER)	-	-	-	-	-	x	-
<i>Leptyphantes cristatus</i> (MENGE)	x	x	x	-	x	x	-
<i>Leptyphantes ericaeus</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Leptyphantes flavipes</i> (BLACKWALL)	-	x	x	x	-	-	-
<i>Leptyphantes insignis</i> O.P. CAMBRIDGE	-	-	-	-	-	x	-
<i>Leptyphantes pallidus</i> (O.P. CAMBRIDGE)	-	x	x	x	x	x	-
<i>Leptyphantes tenuis</i> (BLACKWALL)	-	x	x	x	x	x	x
<i>Leptyphantes zimmermanni</i> BERTRAU	x	x	x	x	x	x	-
<i>Linyphia claribrata</i> (SUNDEVALL)	x	x	x	-	x	x	x
<i>Macrargus rufus</i> (WIDER)	x	x	x	x	x	x	-
<i>Meioneta saxatilis</i> (BLACKWALL)	-	-	-	-	-	-	x
<i>Microneta viaria</i> (BLACKWALL)	x	x	x	x	x	x	-
<i>Oreonetides abnormis</i> (BLACKWALL)	x	x	x	x	x	x	-
<i>Porrhomma egeria</i> SIMON	x	x	-	-	-	-	-

Synecological interpretations

The synecological approach is based on the composition of the Araneae-fauna in each separate habitat. Since the Araneae-fauna is characterized by the composition of the species in the community, the synecological conclusions will only be qualitative.

a) Composition of species in each habitat

Families	AI	AII	AIII	B	C	D	E
CLUBIONIDAE	2	2	6	1	6	0	0
THOMISIDAE	1	1	0	0	0	0	0
SALTICIDAE	0	0	0	0	1	0	0
LYCOSIDAE	3	3	1	1	2	2	8
AGELENIDAE	3	4	5	1	4	0	1
THERIDIIDAE	1	1	0	1	0	0	0
TETRAGNATHIDAE	2	2	1	1	1	1	3
ERIGONINAE	8	7	6	5	9	5	14
LINYPHIINAE	10	14	11	10	11	13	11
Total	30	34	30	20	34	21	37

The meadow (E) has a high number of species, especially in the family of the Erigoninae and in the family of the Lycosidae. Few species are found in the beech wood (B) and the afforested meadow (D).

b) Number of species common between the habitats

	A	AII	AIII	B	C	D	E
AI	—	28	20	17	21	14	9
AII	—	—	24	19	25	15	8
AIII	—	—	—	17	28	16	6
B	—	—	—	—	17	14	8
C	—	—	—	—	—	16	7
D	—	—	—	—	—	—	10
E	—	—	—	—	—	—	—

Only very few species are common between the marshy meadow (E) and the other habitats.

c) Qualitative similarity between the habitats

The relationship between the considered habitats is given by the similarity-index $j' = j + j''$ (MAELFAIT & BAERT, 1975)

with j the number of species in common and j'' the number of species failing in both habitats.

This similarity-index gives the following results :

	A	AII	AIII	B	C	D	E
AI	—	69	56	58	55	54	26
AII		—	60	60	59	51	21
AIII			—	60	68	58	22
B				—	56	63	32
C					—	54	20
D						—	39
E							—

A very low similarity is found between the marshy meadow (E) and the other habitats. The high similarity between the afforested meadow (D) and the wood-habitats is striking.

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Résumé

Pendant la période 1971-1974, l'entomo- et l'arachnofaune d'un certain nombre de forêts et de prairie ont été étudiées au moyen de « pitfalls ».

L'auteur fait une comparaison synécologique et qualitative des Araneae capturées dans les biotopes étudiés.

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