

PRELIMINARY RESULTS ON THE ARACHNOFAUNA (ARANEAE) OF THE NATURE RESERVE “OASIS OF SIMETO”

FRANCESCA DI FRANCO, FRANCESCO LOVETERE

Dipartimento di Biologia Animale, Catania University - Via Androne 81, 95124 Catania, Italy. Fax: +3995327990. E-mail: francesca_dfr@hotmail.com.

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It is well-known that the study of natural environments is an important requirement for conserving biodiversity. In fact, a deep knowledge of the fauna, flora and ecological aspects of an area may help to prevent or to remove causes of its deterioration. This is particularly important for those areas that are more endangered, such as wetlands. In this context, research was carried out to obtain information on the invertebrate fauna of the Nature Reserve “Oasis of the Simeto” (BALLETO, TOSO, 1982; BARONI-URBANI, 1964; CALTABIANO et al., 1984; MAGISTRETTI, 1967; VANDEL, 1969.) as, in spite of the importance of this area, the invertebrate fauna has not been well defined yet. The only data available on spiders are on the orientation of some species of the genus *Arctosa* (PAPI, 1955a, b, 1959; PAPI, TONGIORGI, 1963).

The “Oasis of Simeto” is a Nature Reserve located in the east part of Sicily near the mouth of the Simeto river, a few kilometres from Catania (Fig. 1). It is one of the larger and more interesting riparian areas of Sicily and represents an important wintering area for migratory birds. It is also particularly interesting for scientific purposes as it is very rich in species that, due to their origin, distribution and ecology, provide significant evidence concerning the origin of the Sicilian fauna.

Specimens were collected with pitfall traps filled 2/3 full with acetic acid and 5% formalin. Five traps were placed in each of 4 different areas and were replaced every 20 days, for 13 months, beginning in May 1994. Trapped spiders were preserved in 70% alcohol and separated into families (ROBERTS, 1985; HEIMER, NENTWIG, 1991).

The sampling areas were representative of the main vegetation types of the Reserve, i.e. psammophilous and halophilous plants (BRULLO et al., 1988). Two of these areas were about

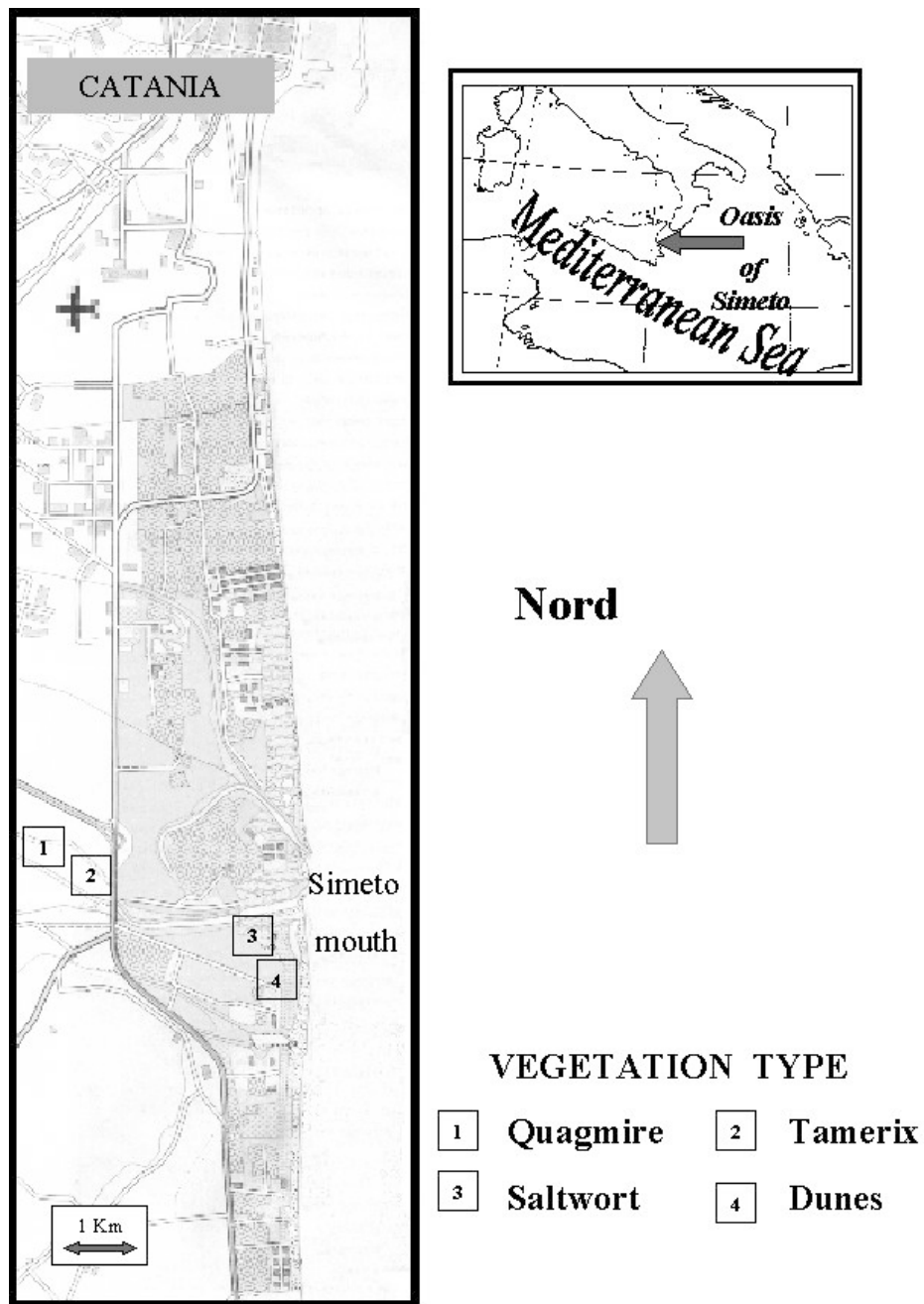


Fig. 1. Map of the Nature Reserve "Oasis of Simeto".

T a b l e 1. Number and percentages of species and specimens for each family in the 4 localities sampled.

	Quagmire				Dunes				Salt-wort				Tamarisk			
	species		specimens		species		specimens		species		specimens		species		specimens	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Agelenidae									1	2	3	0.4	1	2	2	0.4
Amaurobiidae	2	4	2	0.5	1	2	1	0.3	1	2	3	0.4				
Clubionidae									1	2	1	0.1	1	2	2	0.4
Dictynidae	1	2	1	0.2	3	6	3	1					1	2	2	0.4
Dysderidae	1	2	5	1.1	1	2	5	1.7	1	2	4	0.6	1	2	11	2
Gnaphosidae	17	35	141	32	8	16	72	25.1	16	35	385	57.6	13	28	131	24.1
Linyphiidae	7	1	54	12.3	8	16	23	8	9	20	36	5.4	9	20	39	7.2
Liocranidae	1	2	8	1.8	1	2	1	0.3	1	2	6	0.9	1	2	19	3.5
Lycosidae	4	8	61	13.9	5	10	37	12.9	5	11	148	22.2	3	7	9	1.7
Mimetidae					1	2	1	0.3	1	2	4	0.6				
Nesticidae									1	2	1	0.1				
Pholcidae													1	2	1	0.2
Salticidae	3	6	10	2.3	9	18	23	8	3	7	13	1.9	6	13	17	3.1
Scytodidae	1	2	3	0.7					1	2	3	0.4				
Tetragnathidae													1	2	2	0.4
Theridiidae	3	6	8	1.8	2	4	2	0.7	2	4	4	0.6	4	9	21	3.9
Thomisidae	7	15	25	5.7	9	18	84	29.3	2	4	20	3	2	4	12	2.2
Zodariidae	1	2	122	27.7	3	6	35	12.2	1	2	37	5.5	2	4	276	50.7
TOTAL	48	100	440	100	51	100	287	100	46	100	668	100	46	100	544	100

2 km from the mouth of the Simeto river (Tamarisk and Quagmire areas) and the others were close to the sea (Salt-wort area and Dunes). The vegetation types of the 4 areas sampled are listed below:

Quagmire area, plant community: *Juncetum-maritimo-acuti* (HORVATIC, 1934), characterised by *Juncus acutus*, *Aster tripolium*, *Juncus maritimus*, *Carex extensa*, *Lotus preslii*, *Holoshoenus australis* and halophilous plants such as *Inula crithmoides*, *Sarcocornia fruticosa*, *Limonium angustifolium*.

Tamarisk area, plant community: *Nerio-Tamaricetea* BR.-BL., OBOLÒS, 1957 characterised by *Tamarix gallica*, *Tamarix africana*, *Salix alba*, *Salix purpurea*, *Salix cfr. pedicellata*

Salt-wort area, plant community *Salicornietum radicans* BR.-BL., 1933, the typical plants of this community are *Sarcocornia perennis* (= *Salicornia radicans*) and *Aleuropus lagopoides*.

Dunes, plant community *Centaureo-Ononidetum ramosissimae*. BR.-BL., FREI 1937 the species that characterise this community are *Ononis ramosissima*, *Seseli tortuosum* var. *maritimum* and *Centaurea spheroccephala*.

In the 4 stations we captured 1938 specimens belonging to 104 species and 18 families (Table 1); Gnaphosidae was the most numerous family in terms of both number of species and

specimens. Lycosidae, Thomisidae and Linyphiidae were also well represented. Although only 4 species of Zodariidae were collected they were very abundant (25% of the total). In contrast, the number of species of Salticidae captured was high (13%) but the number of specimens was low (3%). This could be due to habitat preference and great mobility of Salticidae; they usually stay on the vegetation and only occasionally descend to the soil and fall into traps. The species of Theridiidae collected formed 7% of the total but only 2% of individuals. The other 11 families were each represented by few specimens (0.2-1%, of the total) and by only 1 or 2 species; with the exception of the Dictynidae, which was represented by 4 species.

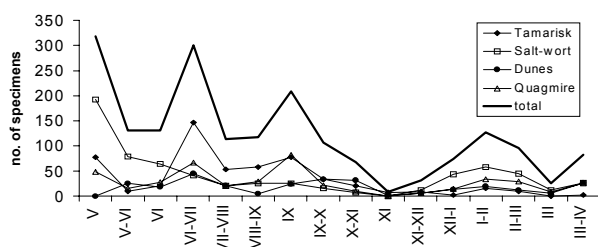


Fig. 2. Seasonal occurrence of spiders (number of specimens) on study localities.

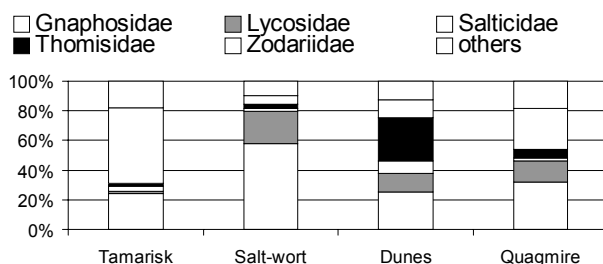


Fig. 3. Comparison of family composition on the study localities. Only the most abundant families are included.

Spiders were more abundant at the end of spring (May, July) and at the beginning of autumn (September-October, Fig. 1). In summer and during the autumn their density decreased slightly.

It is possible to point out some differences in species composition and population density at the 4 stations that are due to the different environmental conditions and vegetation types. More or less the same number of species were captured in each locality, except for the Dunes, where more were caught. The largest number of specimens were collected in the Salt-wort area, the least in the Dunes (Table 1). In the Quagmire area the Gnaphosidae were the most represented spider family in terms of both species and individuals (32% of the total). The Zodariidae were also numerous but they belonged to only one species (Table 1). Thomisidae and Linyphiidae were represented by a significant number of species but few

individuals. Lycosidae were also rather numerous. Even in the Tamarisk area the most significant family was the Gnaphosidae (Table 1, Fig. 2), at least in terms of species. The Zodariidae were more numerous as specimens (51% of the total) and this was probably due to a habitat preference of one species (still not identified) of this family. The adults of Zodariidae appeared at the beginning of summer, reached their peak (probably a period of reproduction) in July, then their numbers decreased, whereas the juveniles emerged and reached their peak at the end of September. During the winter we caught only a few immatures. There were 9 species of Linyphiidae and 6 of Salticidae but their populations were not numerous. The other families were little represented here.

In the Salt-wort area the prevailing family was also the Gnaphosidae, both as number of species (35%) and individuals (50%) (Table 1, Fig. 2); the most abundant species was *Trachyzelotes lyonneti* (AUDOUIN). Adults appeared at the beginning of spring, reached a peak in May, then declined. We did not capture individuals of this species in fall and winter. Lycosidae were also very abundant (22%) but not so rich in species diversity (11%), indeed, a large proportion belonged only to *Pardosa proxima* (C. L. KOCH). Adults of this species increased at the beginning of winter, reached a peak (assumed to be a reproductive period) one month later, and then declined. Immatures were more abundant in summer and fall. The data collected in this area showed that the two dominant species, *T. lyonneti* and *P. proxima*, were active in two different periods of the year: *T. lyonneti* in spring and *P. proxima* in winter. In contrast, Linyphiidae were rich in species but with few individuals per species. Only 1 or 2 species and few specimens were captured for each of the other families.

In the Dunes area the highest number of species and the lowest number of individuals were recorded. The species composition was different to the other areas (Table 1, Fig. 2). Families which prefer to live in vegetation were most abundant here. Thomisidae were dominant, both as number of species (18%) and individuals (29%); Salticidae and Linyphiidae were still notable. Few specimens of Zodariidae were caught but there were more species than in the other localities. Gnaphosidae formed 16% of species and 25% of individuals. This was less than in the other areas, perhaps because this environment was less suitable for the species of this family. These results could reflect the particular environmental situation of this station: i.e. vegetation was formed predominantly by bushes of *O. ramosissima*, often separated from each other only by sand.

This study provides preliminary information on the spiders living in the Nature Reserve "Oasis of the Simeto", because the analysis carried out had taken into consideration only some aspects concerning the families of Araneae. The study is still in progress and the information reported here will be integrated with further data about the species. At the present we can already point out the presence in the Reserve of two interesting species: *Clubiona leucaspis* SIMON (Clubionidae) and *Cybaeodes avolensis* PLATNICK ET DI FRANCO (Liocranidae). *C. leucaspis* is a little-known species reported in Italy only from some agroecosystems of Sicily and Calabria (DI FRANCO, 1993). *C. avolensis* is an endemic Sicilian species; 33 adults have been captured in autumn in Tamarisk, Saltwort and Quagmire area, only 1 specimen has been captured in Dunes.

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