

Introduction

In the framework of a wider study on the community structure of the soil arthropods which was begun in 1984 and completed in 1991, an attempt to examine the distribution of spiders and pseudoscorpions, two of the more abundant soil arthropods, in a typical insular ecosystem in the Aegean sea was also made. The study area is a maquis ecosystem on the island of Naxos (Cyclades), where the degraded woody shrubs (due to overgrazing by goats) of *Quercus coccifera* and *Pistacia lentiscus* dominate. The climatic conditions in this area of the central Aegean, according to our measurements are characteristic of a xero-thermo-mediterranean climate.

Methods - Results and Discussion

In order to measure the density of these two groups in the entire ecosystem as well as in the main microhabitats of the soil arthropods, 6 squares 1x1m in the clearings (open ground) and 10 squares 0.25x0.25m in the litter of each of the main shrubs were taken on a monthly basis from March 1984 until April 1986. For the extraction of the animals the Rothamsted method was used. The results concerning the phenology and density distribution of the spiders and pseudoscorpions in the all ecosystem and in the litter of the dominant shrubs or in the clearings under the stones, as well as the seasonal density variation are given in Table I and in Figure 1. In Table II the main coefficient values concerning the spatio-temporal patterns are given.

Groups	Total Ecosystem ind/m ²	Litter Q.coccifera ind/m ²	Litter P.lentiscus ind/m ²	Clearings ind/m ²	Spring ind/m ²	Summer ind/m ²	Autumn ind/m ²	Winter ind/m ²
Pseudosc.	14.12	55.63	37.83	0.07	8.61	0.40	8.99	34.56
Spiders	11.27	37.74	27.49	2.90	15.11	4.14	7.40	15.52

Table I. Distribution and seasonal variation of the density.

According to the data in Table I & Fig. 1, it is obvious that both groups preferred the litter microhabitat and especially that of *Q. coccifera*. Concerning Pseudoscorpions the highest density values were noted during the winter and in the early spring with a peak in January, while during the warm and dry period (late spring until middle autumn) the respective values were very low. On the contrary, spiders have more or less a continuous presence during an annual cycle and its peak appeared during the April. According to TAYLOR's law and the regression coefficient values β_s and β_t , (TAYLOR & WOIWOD, 1982), was proven that both groups have aggregated spatio-temporal patterns and consequently display a contagious distribution. It must be noted that in this case, in order to avoid considering a Poisson distribution as contagious, all the samples for which the mean density value ≤ 1 were not taken into account.

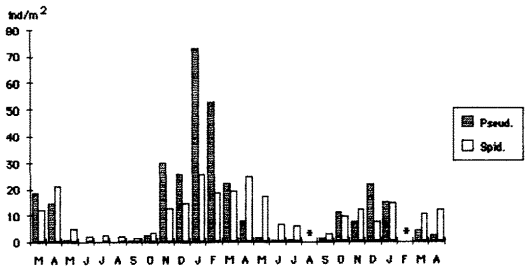


Figure 1: Phenology of Pseudoscorpions and Spiders in the all ecosystem from March 1984 - April 1986 (*) : no samples taken.

	β_s	a_s	r_s	r_s^2	SE_r
Pseudosc.	1.308	1.003	0.837	0.700	0.330
Spiders	1.559	0.598	0.748	0.599	0.281
	β_t	a_t	r_t	r_t^2	SE_r
Pseudosc.	1.893	0.648	0.923	0.853	0.242
Spiders	1.852	0.652	0.703	0.494	0.299

Table II. Coefficient values of spatio-temporal patterns.

As was proven, a determinant role of the density distribution is played by the available quantity and particularly the quality of the microhabitats and refuges, while seasonal variation is defined by the climatic conditions and the life cycle of the species. Based on comparisons which took place between the ecosystem under examination and other ecosystems in Greece and ecosystems of other mediterranean-climate regions in Egypt and Chile, the values of relative abundance of Pseudoscorpions and Spiders are among the highest on Naxos.

REFERENCES

TAYLOR L.R. & WOIWOD. I.P., 1982.- Comparative synoptic dynamics. I. Relationships between inter- and intra-specific spatial and temporal variance/mean population parameters. *J. of Anim. Ecology*, 51: 879-906.