Pak. J. Agri. Sci., Vol. 44(4), 2007

A CHECKLIST OF THE SPIDERS OF THE PUNJAB

Razia Parveen, Akbar Ali Khan, S. Mushtaq and S.A. Rana
Department of Zoology and Fisheries, University of Agriculture, Faisalabad, Pakistan

A checklist of the spiders collected from various habitats and ecological zones of the Punjab is presented. Spiders were collected by pitfall traps, hand-picking and jarring method. Identification was made on the basis of morphometric characters. Spider diversity and abundance among different ecological zones were compared by using Shannon diversity indices. It was also tried to evaluate phenological patterns of dominant species in different climatic zones. This baseline data will be critical when evaluating future I.P.M. programmes.
Keywords: Spiders; checklists; Punjab; Pakistan; phenological; ecological zones.

INTRODUCTION

Spiders (Phylum Arthropoda; Sub-Phylum Chelicerate; Class Arachnida; Order Aranae) form one of the most ubiquitous groups of predaceous organisms in the animal kingdom (Riechert and Lockley, 1984). Spiders feed on insect pests and kill as much as 50 times the number of prey they actually consume (kajak, 1978). For employing spiders in I.P.M, we need to know more about their taxonomy, diversity and ecology in the local agro-ecosystems. Pakistan is rich in spider fauna, but no serious attempt has been made to explore it. Recently some very useful information on the taxonomy, distribution and abundance of the spiders of the agroecosystem has been brought forth by the Zoologists of the University of Agriculture Faisalabad (Mushtaq & Qadir, 1999; Butt & Beg, 2000 & 2001 and Ghafoor & Beg, 2002). Interestingly, none of these studies concern the spiders of the non-cropped areas, scrub and arid lands. Being closely associated with the croplands, they might be serving as reservoir habitats to the spider populations of the croplands. The present study is aimed at the taxonomy of the fauna of the non-cropped areas, scrub and arid lands, uplands and orchards and croplands associated with some of these habitats. It was also tried to evaluate phenological patterns of the dominant species in different climatic zones. It will be helpful to decide whether different species may compliment each other during the growing season, and thus potentially exert consistent predation pressure on phytophagous insect pests.

MATERIALS AND METHODS

Spiders were collected from one Federal Territory and 43 locations in 21 districts of the province of Punjab, during 1996 to 1998. The method of collection was manual hand picking, pit-fall traps, and jarring. The specimens were preserved in Oudeman's preservative. Identification was done on the basis of morphometric characters of various body parts, using information provided by Dyal (1935), Kaston (1978), Tikader (1980). Tikader and Biswas (1981), Barrion and Litsinger (1995), and Platnick (2006).

RESULTS AND DISCUSSION

The survey of the foliage and ground spider fauna was carried out from 1996 to 1998. The result was a capture of about 14743 spiders belonging to 21 families, 58 genera and 157 species. One family,10 genera (*Opopaea, Salticus, Callilepies, Nodocion. Megamermecion, Sergiolus, Synaema, Xysticus, Arctosa and Nephila*) and 80 species were recorded for the first time form the Punjab(Pakistan), of these, 32 species were regarded as new to science (Table 1). Family Salticidae was the predominant family, (31.09%) with 9 genera and 27 species. Six species were regarded as new. Genus *Plexippus* C.L. Koch was found to be the most common genus.

Family Oxyopidae (6.2%) comprised of only one genus *Oxyopes* Latreille and 8 species; of which 4 species have been described for the first time.

Family Clubionidae (5.6%) consisted of 3 genera and 9 species, 7 of them were already known, while other two are regarded as new.

Family Thomisidae (5.80%) consisted of 4 genera and 16 species; one species is described as new.

Family Gnaphosidae (2.68%) consisted of 10 genera and 25 species; 2 species are treated as new ones.

Family Eusparassidae was represented by 2 genera and 2 newly described species.

Remaining families like Hersilidae, Linyphiidae, Philodromidae, Oonopidae, Scytodidae, Urocteidae, Pholcidae, Erisidae, Oecobidae, Uloboridae and Microphantidae are each comprised of single genus and single already known species. Not only these families were few in number, smaller in species composition but are also restricted to certain specific environment.

As regards the ecological and geographical distribution of the spiders, habitat preference was a

Table1. The number of families, genera and species recorded during the course of the present study

S.No.	Families	No. of Specimens	No. of Genera	No. of Species
1	Uloboridae	119	1	1
2	Occobiidae	22	1	1
3	Eraesidae	23	1	1
4	Pholsidae	38	1	1
5	Oonopidae	6	1	1
6	Scytodidae	5	1	1
7	Urocteidae	39	1	1
8	Salticidae	4584	9	27
9	Thomisidae	855	4	16
10	Philodromidae	136	2	4
11	Sparassidae	12	2	2
12	Clubionidae	810	2	8
13	Corrindae	19	1	1
14	Gnaphosidae	365	10	25
15	Hersilidae	37	1	2
16	Oxyopidae	916	1	8
17	Lycosidae	2766	5	23
18	Tetragnathidae	462	1	7
19	Araneidae	3360	12	26
20	Linyphiidae	154	1	1
21	Micryphantidae/Erigonidae	15	1	1
Total	21	14743	58	157

preponderance and a pre-requisite. Some species were restricted to a certain habitat and/or district only while others showed a wide range of distribution and overlapping pattern. Families like Salticidae and Lycosidae were cosmopolitan in distribution though their number and species composition were reduced in arid regions.

REFERENCES

Barrion, A.T. and J.A. Litsinger. 1995. The Riceland spiders of South and Southeast Asia. Int. Rice Res. Inst. Manila: 700pp.

Butt, A. and M.A. Beg. 2000. Some new species of Marpissa (Salticidae) from Pakistan. Pak. J. Zool., 32: 75-79.

Butt, A. and M.A. Beg. 2001. Description of two new species of spiders of the families Clubionidae and Oxyopidae from Pakistan. Pak. J. Zool., 33: 35-37

Dyal, S. 1935. Fauna of Lahore, Spiders of Lahore, Bull. Deptt. Zool. Punjab Univ., Lahore, 1:117-252.

Ghafoor, A. and M.A. Beg. 2002. Description of two new species of Araneid spiders from Pakistan. Int. J. Agri. Biol., 4:525-527.

Kajak, A. 1978. Analysis of consumption by spiders under laboratory and field conditions. Ekol. Pol, 26:409-327.

Kaston, B.J. 1978. How to know the Spiders. The Pictured Key Nature Series. Win. C. Brown Co. Publishers. Dubuque, Iowa, USA, 1-272.

Mushtaq, S. and A. Qadar. 1999. Three new species of genus Oxyopes (Araneae: Oxyopidae) from Pakistan. Pak. J. Zool., 31:255-261.

Platnick, N.I. 2006. The World Spider Catalog, Version 6.5. Amer. Mus. Nat. Hist. Htt://www.research. amnh.org/entomology/spiders/catalog/Indexhtml.

Riechert, S.E. and T. Lockely. 1984. Spiders as biological control agents. Ann. Rev. Ent. 29:299-320.

Tikader, B.K.1980. A guide to Indian spiders. Proc. Indian Acad. Sci., 89(3):1-309.

Tikader, B.K. and B. Biswas. 1981. Spider fauna of Calcutta and vicinity part I. Rec. Zool. Surv. India, Occ. Pap. No. 30:1-148.