

ON THE DIVERSITY OF SPIDERS IN AND AROUND SUR-SAROVAR BIRD SANCTUARY, AGRA (UP), INDIA

Krishna Kant Lawania¹ and Priyanka Mathur²

¹IIS University, Jaipur- 302020, Rajasthan

²Head Department of Zoology, IIS University, Jaipur- 302020, Rajasthan
E-mail: ¹kklawania23@gmail.com, ²priyanka.1970@iisuniv.ac.in

Abstract—A survey of spider fauna of Sur-sarovar Bird sanctuary (27.57°N latitude, 80.09°E longitude.) Mathura, (U.P.) was carried out from July 2012 to March 2013. A total of 40 species of spiders belonging to 22 genera under 12 families were recorded. Reports on the spiders of this sanctuary are not available; therefore, the present study was carried out. Araneidae and Salticidae families dominated the habitat. Thick vegetation is probably the reason of this dominance that provides ample space for web construction and offers consequent protection from predators.

Keywords: Sur-sarovar Bird sanctuary, Spider (Araneae), Diversity.

1. INTRODUCTION

According to an estimate 1,70,000 species of spiders could exist globally (Coddington and Levi, 1991). The most comprehensive description on Indian spiders was given by Tikader (1987). The spider fauna of India is represented by 1520 spider species belonging to 377 genera and 60 families (Sebastian and Peter 2009). Uttarpradesh state has fragmentary reports on spiders (Lawania and Trigunayat, 2013 a, b, c). Sur sarovar was not studied for its spider diversity so far therefore the present study was under taken.

2. MATERIAL AND METHODS

The study describes the identification of the spider assemblages with respect to their diversity and distribution in semi-arid area of Sur-sarovar bird sanctuary. Sur-sarovar was declared as bird sanctuary on 27 March 1991 by Uttar Pradesh Forest Department. The sanctuary is located 27.57° N latitude, 80.09°E longitude close to Keetham Lake. It spreads over an area of 7.97 sq. km comprising an aquatic area of 2.25 sq km. The depth of its aquatic area varies from 4 meters to 8 meters.

The climatic condition of the sanctuary area is typical of Uttar Pradesh plains with hot windy summers and extremely cold winters. The average temperature ranges between 15⁰C to 49⁰C. The monsoon season occurs during July to August. The sanctuary is home to approximately 165 species of native and migratory birds, 12 species of mammals and 18 species of reptiles. Seldom reports on the invertebrate group are available. Order Araneae is one such group. Bushes, tree trunks, forest floor, foliage and grass lands were all searched for spiders and collected by using various methods such as hand picking, pitfall trapping, sweep netting, and cryptic searching. The identification of spiders was done following Tikader (1980, 1982, and 1987) Murphy (2000), as well with pictorial guide (Levi, 2002; Sebastian & Peter 2009). The collected spider specimens were preserved in 70% ethyl alcohol with a few drops of glycerin (Prasad, 1985).



Map courtesy: Google map of India

3. RESULT AND DISCUSSION

Table I: Spider species recorded from Sur-sarovar Bird Sanctuary, Agra, (U.P.), India

Family	Species	Guild	Sp. Count
Agelenidae	(i) <i>Agelenidae sp.</i>	Funnel Web builders	6
Araneidae	(i) <i>Acusilas indicus</i>	Orb web builders	3
	(ii) <i>Araneus mitificus</i>	Orb web builders	7
	(iii) <i>Argiope aemula</i>	Orb web builders	28
	(iv) <i>Argiope anasuja</i>	Orb web builders	22
	(v) <i>Argiope pulchella</i>	Orb web builders	26
	(vi) <i>Cyclosa sp.</i>	Orb web builders	2

	(vii) <i>Cyrtophora cicatrosa</i>	Orb web builders	23
	(viii) <i>Cyrtophora citricola</i>	Orb web builders	21
Gnaphosidae	(i) <i>Callilepis lambai</i>	Ground runner	7
	(ii) <i>Callilepis rukminiae</i>	Ground runner	2
	(iii) <i>Drassodes sp.</i>	Ground runner	5
Linyphidae	(i) <i>Linyphia sp.</i>	Sheet web builders	5
Lycosidae	(i) <i>Lycosa mackenziei</i>	Ground runner	1
	(ii) <i>Lycosa pictula</i>	Ground runner	5
	(iii) <i>Pardosa birmanica</i>	Ground runner	14
	(iv) <i>Perdosa sp.</i>	Ground runner	9
Nephilidae	(i) <i>Nephila sp.</i>	Orb web builders	7
Oxyopidae	(i) <i>Oxyopes biramanicus</i>	Foliage runner	16
	(ii) <i>Oxyopes javanus</i>	Foliage runner	27
	(iii) <i>Oxyopes ratanae</i>	Foliage runner	15
	(iv) <i>Oxyopes shweta</i>	Foliage runner	17
	(v) <i>Oxyopes sp.</i>	Foliage runner	3
	(vi) <i>Oxyopes pankaji</i>	Foliage runner	22
	(vii) <i>Oxyopes retene</i>	Foliage runner	2
Pholcidae	(i) <i>Artema atlanta</i>	Irregular web builders	19
	(ii) <i>Crosspriza lyoni</i>	Irregular web builders	9
Salticidae	(i) <i>Plexippus paykuli male</i>	Foliage runner	27
	(ii) <i>Plexippus paykuli female</i>	Foliage runner	11
	(iii) <i>Phidippus pateli</i>	Foliage runner	9
	(iv) <i>Phidippus yashdharae</i>	Foliage runner	8
	(v) <i>Salticus runjitus</i>	Foliage runner	14
	(vi) <i>Phidippus indicus</i>	Foliage runner	19
	(vii) <i>Portia assamensis</i>	Foliage runner	7
	(viii) <i>Portia sp.</i>	Foliage runner	12
Tetragnathidae	(i) <i>Leucauge decorate</i>	Orb web builders	5
	(ii) <i>Leucauge sp.</i>	Orb web builders	2
Thomisidae	(i) <i>Thomisus lobosus</i>	Ambusher	17
	(ii) <i>Thomisus projectus</i>	Ambusher	9
Uloboridae	(i) <i>Uloborus donolius</i>	Dome shape horizontal web	1

Table 2: Number of genera and species of spiders from Sur-sarovar Bird Sanctuary

Sr. No.	Families	No. of Genera	No. of Species
1.	Agelenidae	1	1
2.	Areneidae	5	8
3.	Gnaphosidae	2	3
4.	Linyphidae	1	1
5.	Lycocidae	2	4
6.	Nephilidae	1	1
7.	Oxyopidae	1	7
8.	Pholcidae	2	2
9.	Salticidae	4	8
10.	Tetragnathidae	1	2
11.	Thomisidae	1	2
12.	Uloboridae	1	1
	Total	22	40

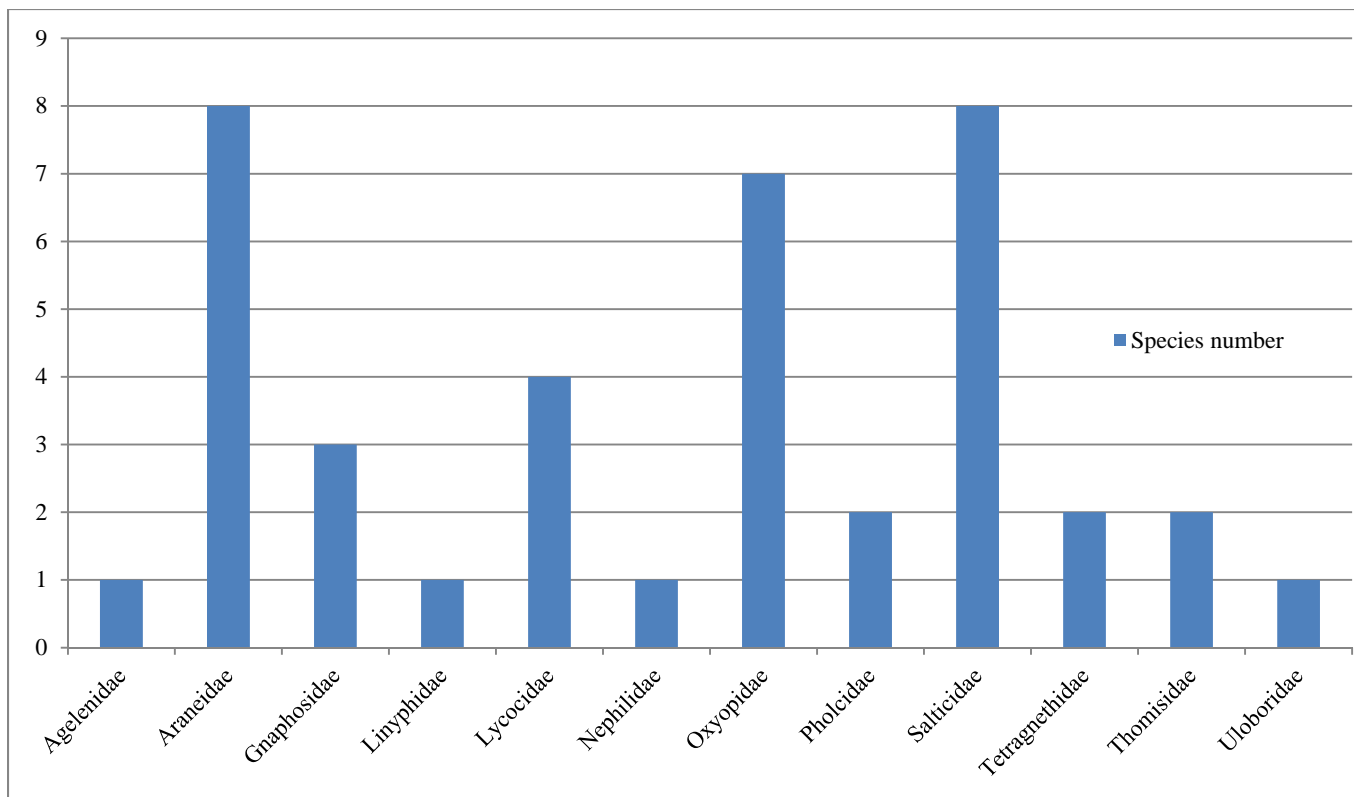


Fig.1: Spiders and their number recorded during the study

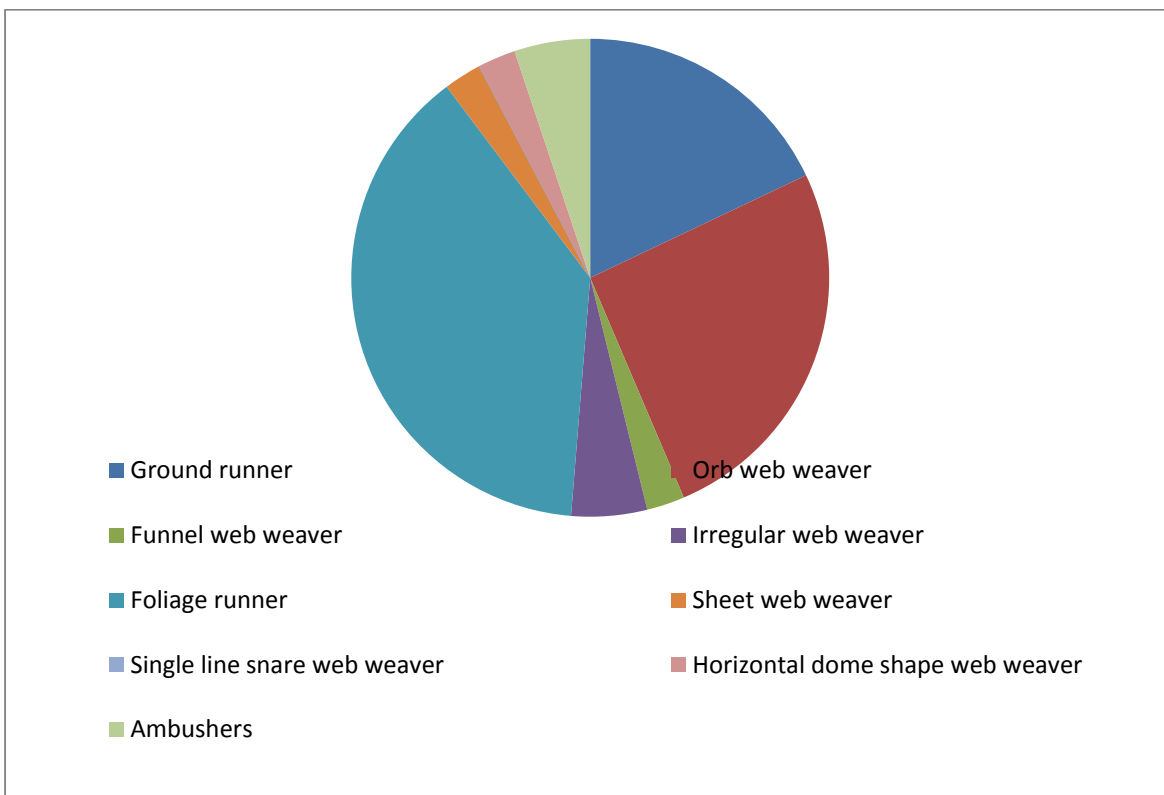


Fig. 2: Comparative guild density (percentage) of spiders recorded during the study.

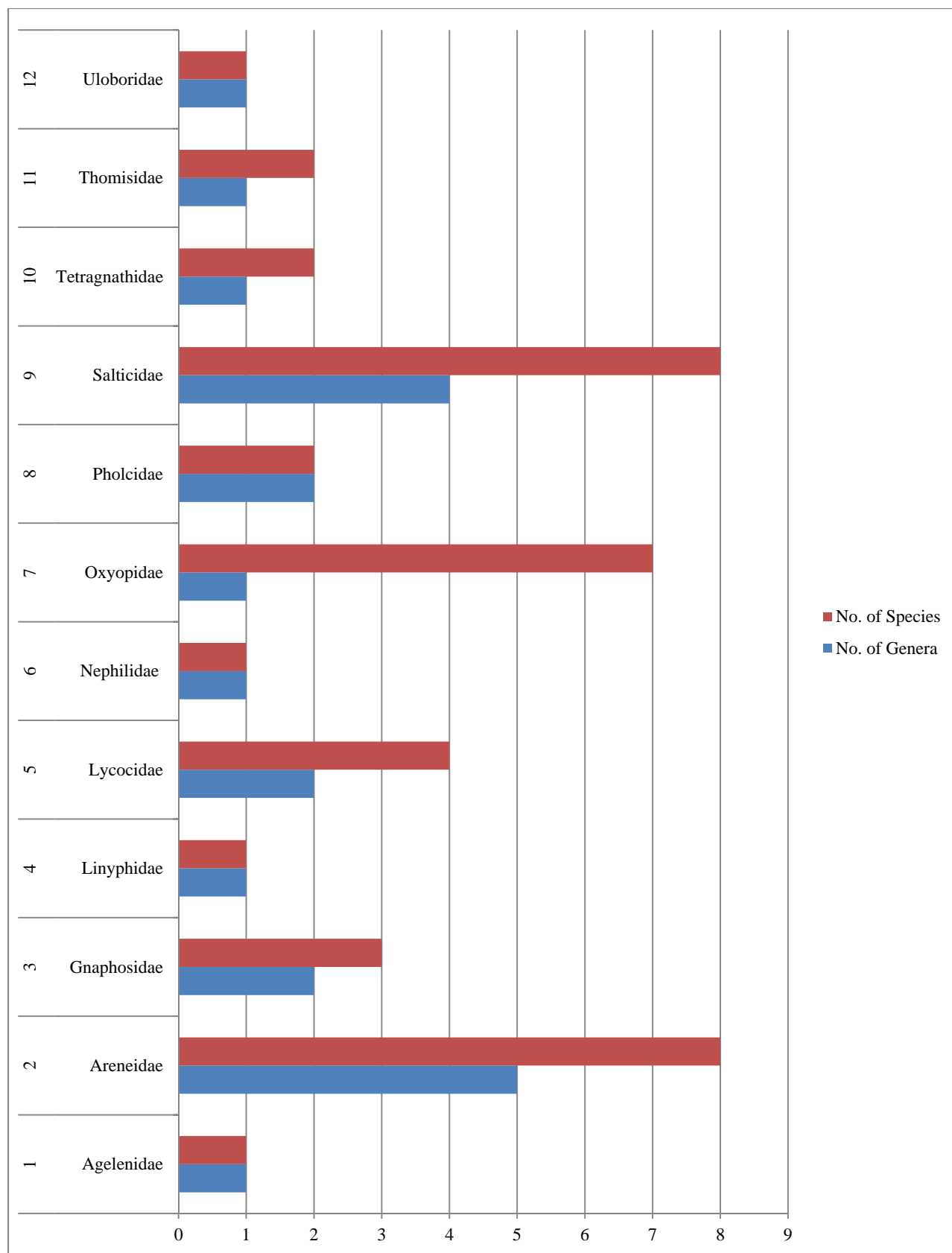


Fig. 3: Number of genera and species of spider during the study

A total of 40 species belonging to 12 families under 22 genera were recorded. 12 families represent 20% of the total family recorded from India. Most species of spiders found were from Salticidae and Araneidae families. *Plexippus paykulli*, *Oxyopes javanus*, *Argiope pulchella* and *Argiope aemula* were found to be the most abundant species in this region. Out of total spider species recorded, about 38% were foliage runners, 18% ground runners, 26% Orb web weavers, 5% irregular web weavers, 3 % sheet web weavers, 2% funnel web weavers, 0% single line snare weavers, 3% horizontal dome shape weavers, and 5% ambushers.

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REFERENCE

- [1] Coddington, J.A. and H.W. Levi (1991), Systematic and evaluation of spiders (Araneae). *Annual Review of Ecology and Systematic* 22:565-592.
- [2] Levi, L.R. (2002), Spider and their kin. *St. martins press, New York*.
- [3] Murphy, J.F. (2000), an introduction to the spider of South East Asia. Kuala- Lumpur, Malaysia. *Malaysian Nature Society*, 625pp.
- [4] Prasad, B. (1985), Setting and preservation of spiders. *Entomologists' news letter*. 1(8).2-3.
- [5] Sebastian P.A. and K.V. Peter. (2009), Spiders of India, *University Press publication*.
- [6] Tikader, B.K. (1980), Thomisidae (Crab-spiders) - Fauna of India (Araneae), *Zoological Survey of India* 1: 1-247.
- [7] Tikader, B.K. (1982), Family Araneidae Argiopidae) typical orb weavers. *Fauna of India (Araneae)*, 2: 1-293.
- [8] Tikader, B.K. (1987), Handbook of Indian Spiders, *Zool. Surv. India, Calcutta*, 251 pp.