

# DIVERSITY AND DISTRIBUTION OF SPIDERS IN AND AROUND VRINDAVAN, MATHURA, (UP), INDIA

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**Abstract**—Vrindavan, a town hardly 10 k.m. away from Mathura, birth place of Lord Krishna, has not been explored for its diversity. An attempt was made to explore its spider diversity. The survey was conducted from July 2012 to March 2013. 37 species of spiders belonging to 12 families under 22 genera were recorded. The spiders were also observed for its web pattern and architecture. The present study is a maiden report from Vrindavan area.

**Keywords:** Vrindavan, Spiders, Diversity, Web pattern and architecture.

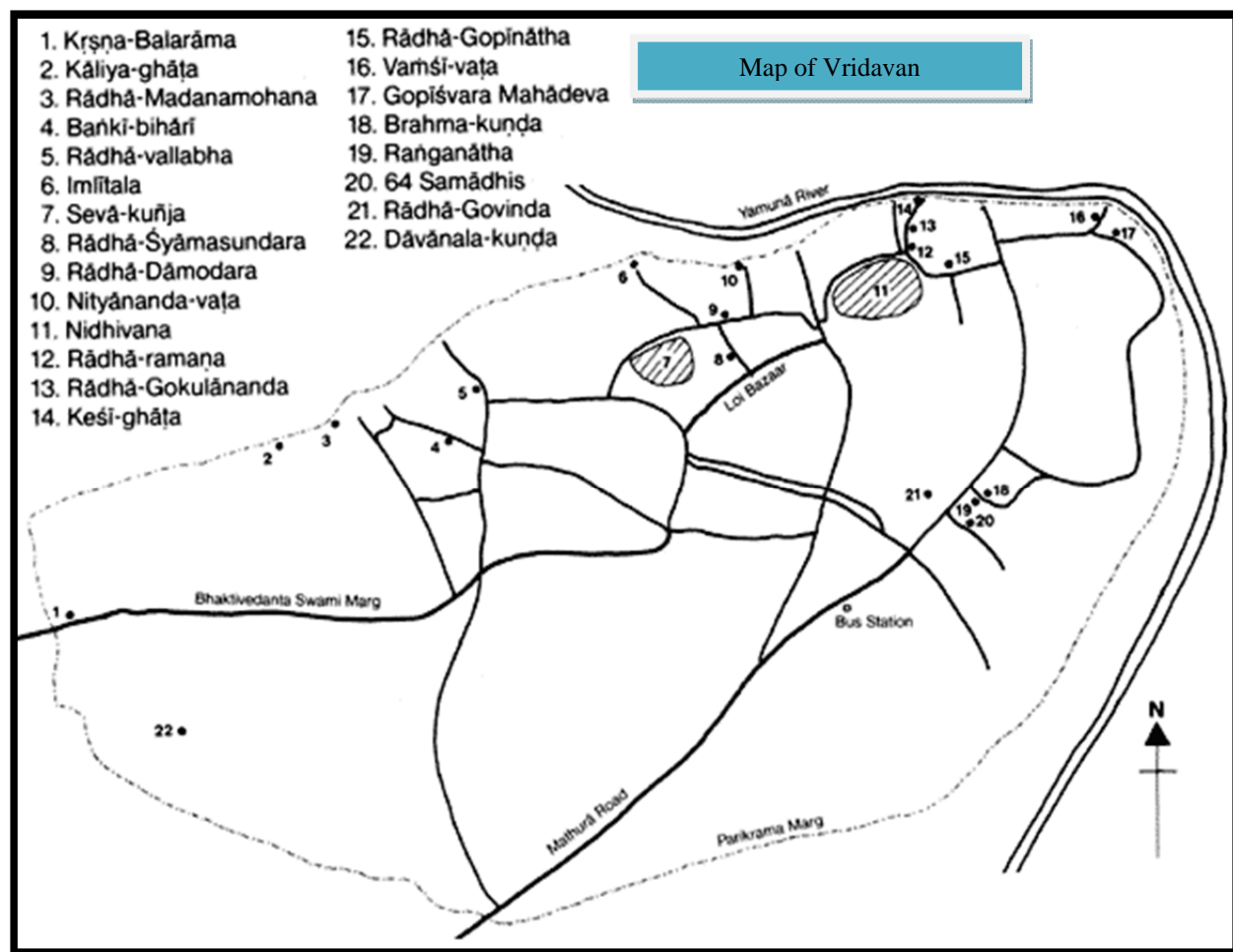
## 1. INTRODUCTION

Our knowledge of Indian spider fauna is extremely fragmentary. Indian spiders from all regions have been studied earlier by several European workers (Stoliczka 1869) and later by Indian Archanologist Pocock (1899, 1900). The global list of spider fauna is approximately 42,055, belonging to 3821 genera and 110 families (Platnick, 2011). Currently 39,882 valid species of spiders, in 3676 genera and 108 families have been described (Platnick, 2007). The spider fauna of India is represented by 1520 spider species belonging to 377 genera and 60 families (Sebastian and Peter 2009). Tikader (1987) published the first comprehensive list of Indian spiders, which included 1067 species belonging to 249 genera in 43 families. No work on spiders of Vrindavan, Mathura has been done. However, diversity in Braj-bhoomi and Agra region was studied (Lawania and Mathur 2013) and web pattern and architecture (Lawania *et. al* 2013).

## 2. MATERIAL AND METHODS

Vrindav located at 27.58° N latitude, 77.70° E longitudes, is a major place of Hindu pilgrimage just 15 k.m. from Mathura. It is known for various temples depicting Hindu mythology. The study area extends from the present city of Vrindavan to Nandgram and Varsana. On one side to Goverdhana and on the other side extending around 57 k.m. (32 miles). The present study is the maiden report on the spider diversity of this area of rich heritage and culture. The hot and humid climate during

summer and rainy season offers ideal conditions for the occurrence of spiders. 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), Pictorial guide (Levi, 2002; Sebastian & Peter 2009). The Collected 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 Vrindavan, Mathura, (U.P.), India

Family	Species	Guild	Sp. Count
Agelenidae	(i) <i>Agelenidae sp.</i>	Funnel Web builders	5
Araneidae	(i) <i>Acusilas indicus</i>	Orb web builders	6
	(ii) <i>Argiope aemula</i>	Orb web builders	21
	(iii) <i>Argiope anasuja</i>	Orb web builders	23
	(iv) <i>Argiope pulchella</i>	Orb web builders	19
	(v) <i>Cyclosa sp.</i>	Orb web builders	2
	(vi) <i>Cyrtophora cicutrosa</i>	Orb web builders	16
	(vii) <i>Cyrtophora citricola</i>	Orb web builders	18
Gnaphosidae	(i) <i>Callilepis lambai</i>	Ground runner	7
	(ii) <i>Callilepis rukminiae</i>	Ground runner	2
	(iii) <i>Drassodes sp.</i>	Ground runner	3

Linyphidae	(i) <i>Linyphia sp.</i>	Sheet web builders	5
Lycosidae	(i) <i>Geolycosa urbana</i>	Ground runner	4
	(ii) <i>Lycosa pictula</i>	Ground runner	9
	(iii) <i>Perdosa sp.</i>	Ground runner	7
Nephilidae	(i) <i>Nephila sp.</i>	Orb web builders	8
Oxyopidae	(i) <i>Oxyopes biramanicus</i>	Foliage runner	16
	(ii) <i>Oxyopes javanus</i>	Foliage runner	22
	(iii) <i>Oxyopes ratanae</i>	Foliage runner	16
	(iv) <i>Oxyopes shweta</i>	Foliage runner	18
	(v) <i>Oxyopes sp.</i>	Foliage runner	3
	(vi) <i>Oxyopes pankaji</i>	Foliage runner	16
	(vii) <i>Oxyopes retene</i>	Foliage runner	2
Pholcidae	(i) <i>Artema atlanta</i>	Irregular web builders	23
	(ii) <i>Crosspriza lyoni</i>	Irregular web builders	9
	(iii) <i>Pholcus phalangiodes</i>	Irregular web builders	5
Salticidae	(i) <i>Plexippus paykuli male</i>	Foliage runner	26
	(ii) <i>Plexippus paykuli female</i>	Foliage runner	11
	(iii) <i>Phidippus pateli</i>	Foliage runner	13
	(vi) <i>Phidippus indicus</i>	Foliage runner	9
	(v) <i>Portia assamensis</i>	Foliage runner	7
	(vi) <i>Portia sp.</i>	Foliage runner	6
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	11
	(ii) <i>Thomisus projectus</i>	Ambusher	3
Uloboridae	(i) <i>Uloborus donoli</i>	Dome shape horizontal web	1

**Table 2: Number of genera and species of spider from Vrindavan**

Sr. No.	Families	No. of Genera	No. of Species
1.	Agelenidae	1	1
2.	Areneidae	4	6
3.	Gnaphosidae	2	3
4.	Linyphidae	1	1
5.	Lycocidae	3	3
6.	Nephilidae	1	1
7.	Oxyopidae	1	7
8.	Pholcidae	3	3
9.	Salticidae	3	6
10.	Tetragnathidae	1	2
11.	Thomisidae	1	2
12.	Uloboridae	1	1
	<b>Total</b>	<b>22</b>	<b>36</b>

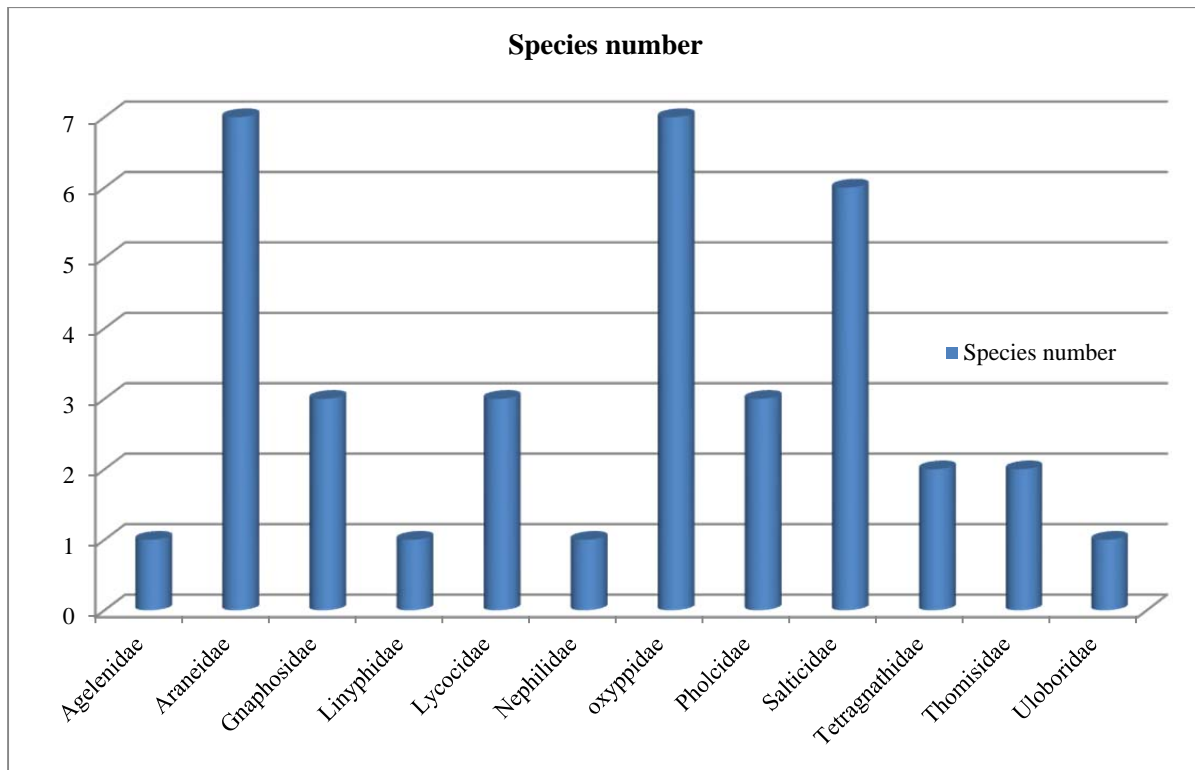


Fig. 1: Spiders and their number recorded during the study

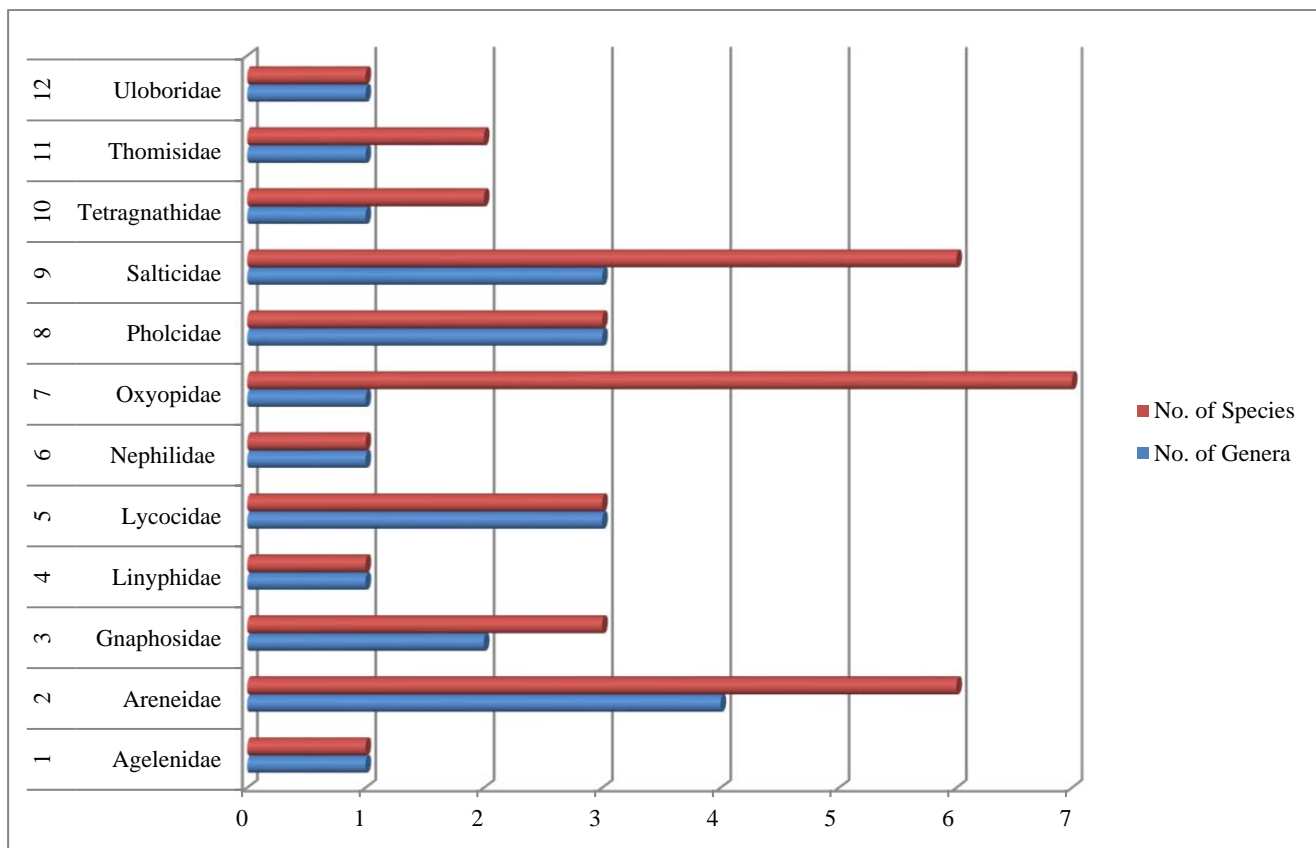
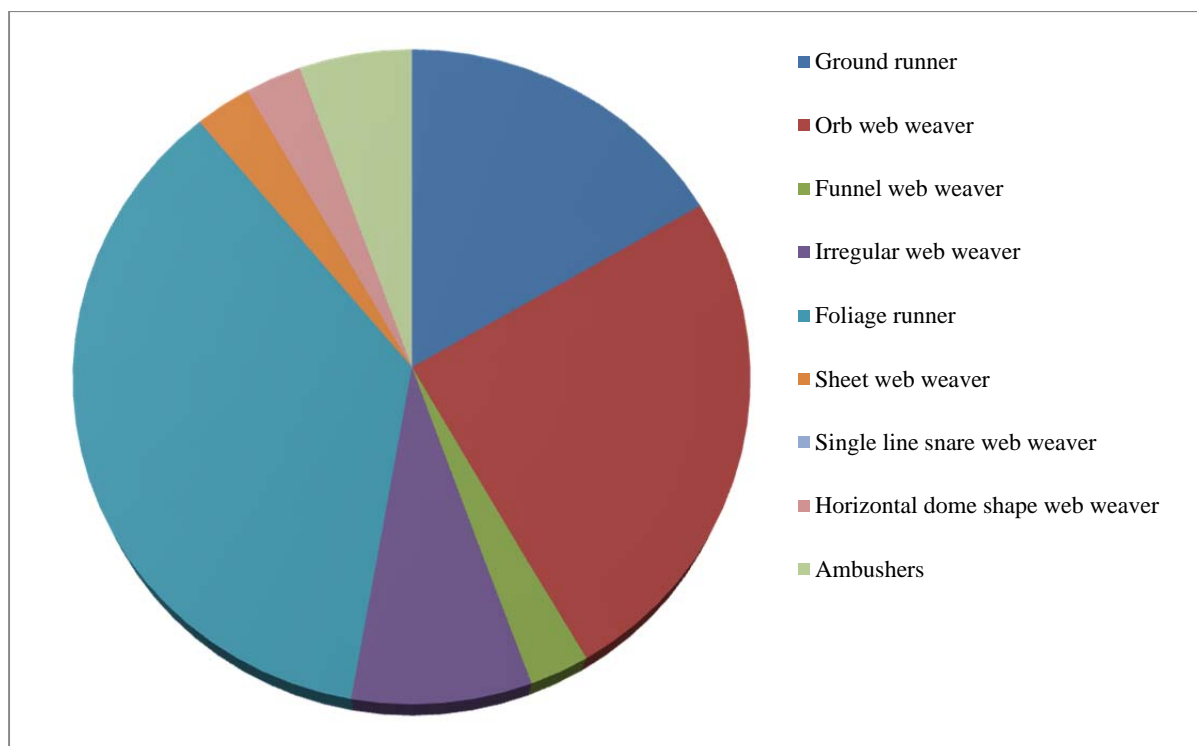


Fig. 2: Number of genera and species of spider during the study.



**Fig. 3: Comparative Guild density (Percentage) of spiders recorded during the study.**

A complete check list of the spider species is given in table-1. A total of 36 species belonging to 12 families under 22 genera were recorded. The spiders belongs to nine guild based on their foraging behavior in the field. The orb web weavers comprised of 10 species of spiders. Family Araneidea, Tetragnethidae, Nephilidae fall under this category. Foliage runners were dominant guild in the study area, comprising of 13 species, ground runners 5 species, irregular web weaver 3 species, funnel web weavers 1 species, sheet web weavers 1 species, Dome shape horizontal web weavers 1 species, no species was found of single web weaver guild, ambushers 2 species. (Table-2). 12 families were reported that represent 20% of the total family recorded from India. Most species found were from Oxyopidae and Araenidae and Salticidae families. *Plexippus paykulli*, *Oxyopes javanus*, *Argiope pulchella*, *Argiope aemula* were found to be the most abundant species in the study area.

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