ISSN 2348-313X (Print)
International Journal of Life Sciences Research ISSN 2348-3148 (online)
Vol. 7, Issue 4, pp: (129-134), Month: October - December 2019, Available at: www.researchpublish.com

Spiders (Araneae) from Agro Ecosystem of Kheralu Taluka

Dr. B. M. Parmar

Zoology department, Sheth M. N. Science College, Patan

Email id: parmarbhaveshkumar@gmail.com

Abstract: **The current paper gives baseline information on the biodiversity of spiders from the agriculture fields of Kheralu taluka, which lies within the Mahesana district, Gujarat. The spiders have collected and observed from July 2016 to June 2017, using handpicking collecting methods. A total of 95 species belonging to sixty-two genera and 19 different families were recorded. Araneidae and Salticidae have been determined to be dominant families with followed by Thomisidae, Lycosidae, and Oxyopidae. Also, these agricultural fields lie in the Jungle area which has the potential to preserve the spider populations in agricultural fields via supplying choice habitat to sustain spiders whilst the fields are disturbed in the course of farming practices.**

Keywords: **Spider, diversity, Gujarat.**

I. INTRODUCTION

Spiders are also one of the most diverse groups of arthropods. They are ecologically important predators regulating the terrestrial arthropod population, thus, acting as operative biological control agents of the ecosystem. Due to their extreme sensitivity to natural conditions and disturbances (natural and anthropogenic), spiders are gaining importance as ecological indicators. However, they have largely been ignored in conservational studies despite their fundamental roles in most natural ecosystems. The present study of spiders was carried out in Kheralu for providing baseline information for future study.

II. STUDY AREA

Kheralu taluka lies on 23.88°N latitude and 72.62°E longitudes. It has 334.24 sq. km. Areas with 51 villages, bounded by the north by Satlasana Taluka and Banaskantha district, south by Unjha and Vadnagar taluka and on the eastern part of Sabarmati River. The climatic condition of Kheralu Taluka is uneven rainfall approximate 700mm to 1000mm, summer is precisely hot and winter is precisely cold. The Sabarmati, Rupen, and Pushpavati are the main rivers of the area. Crops are fixed (like Cereals, Pulses, Oilseed, and Cash crops) as crops calendar for local farmers.

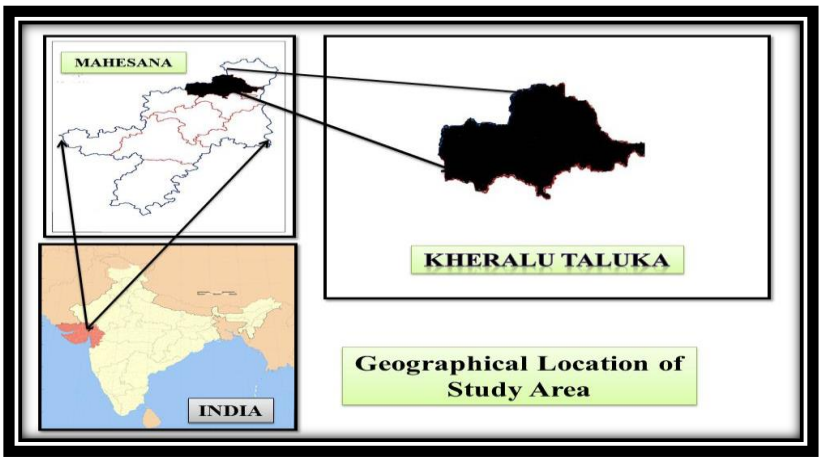

Figure -1: STUDY AREA

ISSN 2348-313X (Print)
International Journal of Life Sciences Research ISSN 2348-3148 (online)
Vol. 7, Issue 4, pp: (129-134), Month: October - December 2019, Available at: www.researchpublish.com

III. MATERIALS AND METHOD

The collection of Spiders' samples and documentation was done through hand picking methods in Various places of the study area, mainly thrice in a day from different parts of the habitations. All captured spider samples were transferred in sample collection vials (screw cap). These vials contain 75% ethyl alcohol for preservation in a laboratory for identification purposes. In the laboratory, the detailed study of collected spiders was done through a stereo zoom microscope and identifies up to the genus/species level using relevant taxonomic literature [3], [4], [10].

IV. RESULTS

A total of 573 samples collected, out of 95 species were identified and recorded from the study area from July 2016 to June 2017. (Table: 1) The family Salticidae used to be numerical dominant which had the highest quantity of species (22); followed through Araneidae (19), Thomisidae (10), Lycosidae (9) and Oxyopidae (8). Most of the other families had much less than eight species. Total nine guilds (Table:2) have been recognized throughout the study, which are Ground runner, Orb web builder, Foliage hunter, Snare/sheet web builder, Foliage runner, Sheet line weavers, Ambusher, Scattered line weaver, and Foliage weaver.

Diversity and community composition

Family Diversity: A total of 19 families captured from the field, they represent 47.5% of total families from Gujarat [11], 36.53% of the total from Country [1] and 15.83% of the total from the World[10].

Generic Diversity: A total of 62 genera captured from the field, these are representing 15.12% of total genera from India [1]

Species Diversity: A total of 95 species captured from the field, they represent 22.89% of total species from Gujarat which statistics are high compared to other areas of State like Junagadh district-76 species [9], Saurashtra regions-37 species [8], Hingolgadh sanctuary- 56 species[2].

Table-1: SPIDERS LIST COLLECTED FROM STUDY AREA

	Family	Name of species
1.	**ARANEIDAE**	***Araneus bilunifer***
		Araneus ellipticus
		Araneus mitificus
		Argiope anasuja
		Cyclosa bifida
		Cyclosa confraga
		Cyrtophora cicatrosa
		Cyrtophora citricola
		Eriovixia excels
		Eriovixia laglaizei
		Neoscona achine
		Neoscona bengalensis
		Neoscona mukerjei
		Neoscona nautical
		Neoscona odites
		Neoscona subfusca
		Neoscona theisi
		Neoscona vigilans
		Poltys bhabanii
2.	**CLUBIONIDAE**	***Clubiona Drassodes***
3.	**CTENIDAE**	***Ctenus sp.***

4.	**ERESIDAE**	***Stegodyphus sarasinorum***
		Stegodyphus pacificus
5.	**EUTICHURIDAE**	***Cheiracanthium sp.***
6.	**GNAPHOSIDAE**	***Drassodes sp.***
		Haplodrassus sp.
		Nomisia sp.
		Zelotes sp.
7.	**HERSILIIDAE**	***Hersilia savignyi***
8.	**LINYPHIIDAE**	***Linyphia sp.***
9.	**LYCOSIDAE**	***Acantholycosa sp.***
		Arctosa indica
		Hippasa agelenoides
		Lycosa poonaensis
		Lycosa tista
		Lycosa sp.
		Pardosa birmanica
		Pardosa pseudoannulata
		Pardosa sp.
10.	**OXYOPIDAE**	***Hamadruas sp.***
		Hamataliwa sp.
		Oxyopes bharatae
		Oxyopes javanus
		Oxyopes ryvesi
		Peucetia akwadaensis
		Peucetia elegans
		Peucetia viridana
11.	**PHILODROMIDAE**	***Philodromus sp.***
12.	**PHOLCIDAE**	***Crossopriza lyoni***
		Pholcus phalangioides
13.	**PISAURIDAE**	***Perenethis sp.***
		Pisaura sp
14.	**SALTICIDAE**	***Carrhotus sp.***
		Chrysilla lauta
		Epeus indicus
		Epocilla aurantiaca
		Hasarius adansoni
		Hyllus semicupreus
		Menemerus bivittatus
		Menemerus brachygnathus
		Menemerus fulvus
		Myrmarachne plataleoides
		Myrmarachne tristis

ISSN 2348-313X (Print)
International Journal of Life Sciences Research ISSN 2348-3148 (online)
Vol. 7, Issue 4, pp: (129-134), Month: October - December 2019, Available at: www.researchpublish.com

	Myrmarachne sp.
	Phintella vittata
	Phintella sp.
	Phlegra dhakuriensis
	Plexippus paykulli
	Siler semiglaucus
	Stenaelurillus lesserti
	Stenaelurillus sp.
	Telamonia dimidiate
	Thiania sp.
	Thyene imperialis
15. **SPARASSIDAE**	***Heteropoda venatoria***
	Olios bhavnagarensis
	Olios iranii
	Olios millet
	Olios tikaderi
16. **TETRAGNATHIDAE**	***Leucauge decorate***
17. **THERIDIIDAE**	***Argyrodes sp.***
	Chrysso angula
	Chrysso sp.
18. **THOMISIDAE**	***Diaea sp.***
	Indoxysticus minutus
	Misumena sp.
	Oxytate sp.
	Runcinia sp.
	Synema decoratum
	Thomisus lobosus
	Thomisus projectus
	Thomisus sp.
	Xysticus sp.
19. **ULOBORIDAE**	***Miagrammopes sp.***
	Uloborus sp.

Table-2: SPIDER COMMON NAMES AND GUILDS

No	Family	Common name	Guild
1	**ARANEIDAE**	Orb- Weavers	***Orb web builder***
2	**CLUBIONIDAE**	Leaf-curling sac spiders	***Foliage hunter***
3	**CTENIDAE**	Wandering Spiders	***Ground runner***
4	**ERESIDAE**	Velvet Spiders	***Snare/sheet web builder***
5	**EUTICHURIDAE**	Long-Legged Sac Spiders	***Foliage runner***
6	**GNAPHOSIDAE**	Flat-bellied Ground Spiders	***Ground runner***
7	**HERSILIIDAE**	Two-Tailed Spiders	***Foliage hunter***
8	**LINYPHIIDAE**	Sheet web spiders	***Sheet line weavers***
9	**LYCOSIDAE**	Wolf spiders	***Ground runner***
10	**OXYOPIDAE**	Lynx Spiders	***Foliage runner***
11	**PHILODROMIDAE**	Running Crab Spider	***Ambusher***

ISSN 2348-313X (Print)
International Journal of Life Sciences Research ISSN 2348-3148 (online)
Vol. 7, Issue 4, pp: (129-134), Month: October - December 2019, Available at: www.researchpublish.com

12	**PHOLCIDAE**	Cellar spiders or Daddy long legs	***Scattered line weaver***
13	**PISAURIDAE**	Nursery Web Spiders	***Foliage weaver***
14	**SALTICIDAE**	Jumping spiders	***Foliage runner***
15	**SPARASSIDAE**	Huntsman spiders	***Ground runner***
16	**TETRAGNATHIDAE**	Long jawed orb weavers	***Orb web builder***
17	**THERIDIIDAE**	Cob web weavers	***Scattered line weaver***
18	**THOMISIDAE**	Crab Spiders	***Ambusher***
19	**ULOBORIDAE**	Hackled-Orb-web spiders	***Orb web builder***

Table -3: SPECIES CONTRIBUTION PERCENTAGE

No	Family	No of genus	No of species	Species Percentage %
1.	**ARANEIDAE**	**7**	**19**	**20**
2.	**CLUBIONIDAE**	**1**	**1**	**1.05**
3.	**CTENIDAE**	**1**	**1**	**1.05**
4.	**ERESIDAE**	**1**	**2**	**2.10**
5.	**EUTICHURIDAE**	**1**	**1**	**1.05**
6.	**GNAPHOSIDAE**	**4**	**4**	**4.21**
7.	**HERSILIIDAE**	**1**	**1**	**1.05**
8.	**LINYPHIIDAE**	**1**	**1**	**1.05**
9.	**LYCOSIDAE**	**5**	**9**	**9.47**
10.	**OXYOPIDAE**	**4**	**8**	**8.42**
11.	**PHILODROMIDAE**	**1**	**1**	**1.05**
12.	**PHOLCIDAE**	**2**	**2**	**2.10**
13.	**PISAURIDAE**	**2**	**2**	**2.10**
14.	**SALTICIDAE**	**16**	**22**	**23.15**
15.	**SPARASSIDAE**	**2**	**5**	**5.26**
16.	**TETRAGNATHIDAE**	**1**	**1**	**1.05**
17.	**THERIDIIDAE**	**2**	**3**	**3.15**
18.	**THOMISIDAE**	**8**	**10**	**10.52**
19.	**ULOBORIDAE**	**2**	**2**	**2.10**
Total		**62**	**95**	**100%**

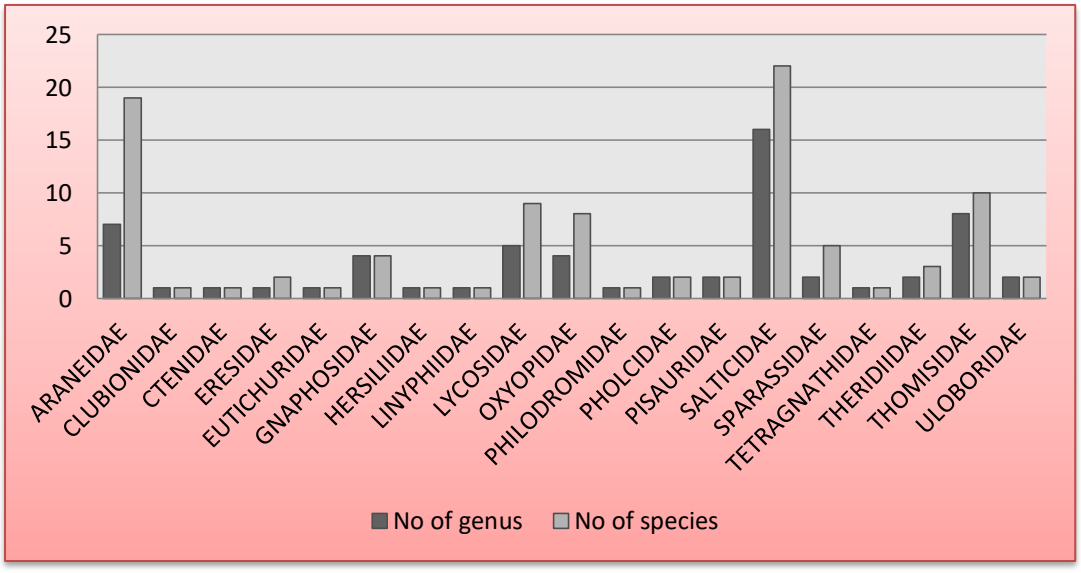

FIGURE 2: FAMILY WISE NUMBERS OF GENERA AND SPECIES

ISSN 2348-313X (Print)
International Journal of Life Sciences Research ISSN 2348-3148 (online)
Vol. 7, Issue 4, pp: (129-134), Month: October - December 2019, Available at: www.researchpublish.com

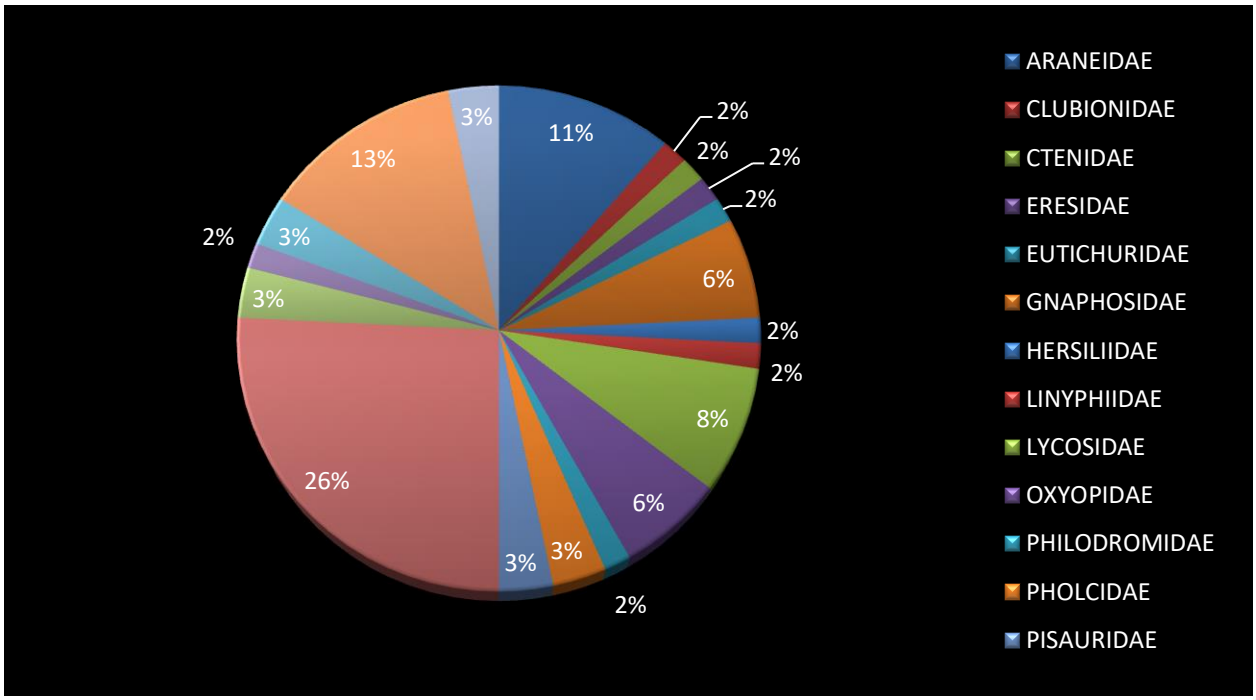

FIGURE 3: PERCENTILE DISTRIBUTION OF FAMILIES

REFERENCES

[1] Keswani, S., Hadole P. and Rajoria, A. (2012): Checklist of Spiders (Arachnida: Araneae) from India, *Indian Journal of Arachnology*1 (1) 1-129

[2] Patel, B. H., and Vyas, R. V. (2001): Spiders of Hingolgadh Nature Sanctuary, Gujarat, India. *Zoos Print Journal*. 16(9): 589-590.

[3] Parmar, B.M., (2013): "Short-term study of spider diversity of Pariej wetland". M.Sc. dissertation thesis, *S.P.University.*

[4] Parmar, B.M., (2018): "Taxonomic and Ecological study of Spiders from Satlasana Taluka, Gujarat, India" PH.D. Thesis, H.N.G.University

[5] Parmar, B.M. and A.V.R.L.N. ACHARYA, 2015(c). The spider fauna of Pariej Wetland, Gujarat, India. *International Journal of Science and Research* Vol. 4(10), 1028-1033.

[6] Parmar, B.M. and K. B. Patel, 2018(a). Jumping Spiders (Araneae: Salticidae) of Satlasana Taluka. *International Journal of Advanced Engineering Research and Science* Vol. 5(3), 159-162

[7] Parmar, Bhavesh. M. 2018(b). Some Spiders from in and around the Caves of Taranga Hills, Mahesana, Gujarat, India. *Ambient Science*, Vol. 05(1); 49-50.

[8] Trivedi, V., (2009): Diversity of spiders in Groundnut crop fields in the village area of Saurashtra regions. *Journal of the Bombay natural history society*, 106(2).

[9] Vachhani, N.C., Visavadia, M.D. and Patel, S.K. (2012): A brief account of spiders of Junagadh district, Gujarat *Life science leaflets* 7: 80-83.

[10] World Spider Catalog (2019): World Spider Catalog. Natural History Museum Bern, online at http://wsc.nmbe.ch, version 18.5, accessed on {date of access}. DOI: 10.24436/2

[11] Yadav, A., R. Solanki, M. Siliwal & D. Kumar (2017). Spiders of Gujarat: a preliminary checklist. Journal of Threatened Taxa 9(9): 10697–10716; http://doi. org/10.11609/jott.3042.9.9.10697-10716