



Preliminary study of order Araneae from Little Ran of Kutch, India

B.M. Parmar

Zoology Department, Sheth M. N. Science College, Patan, India
parmarbhaveshkumar@gmail.com

Available online at: www.isca.in, www.isca.me

Received 17th May 2021, revised 25th November 2021, accepted 16th December 2021

Abstract

Present Study of order Araneae from various sites (Table-1) of Little Ran of Kutch was conducted from 2014 to 2015 using the handpicking collecting method. As the result of the study, a total of 88 species and 60 genera belonging to 20 families were identified. Family Araneidae, Lycosidae, and Salticidae were the most diverse families through followed by other families. Order Araneae of LRK was representing a total of 32.78% of the total families documented in India.

Keywords: Gujarat, Little ran of Kutch, spider, diversity, Araneae.

Introduction

Order Araneae is belonging to one of the diverse class Arachnida. Order Araneae of LRK was representing a total of 32.78% of the total families documented in India¹. They contain 49483 recognized and described species, and over 4217 genera, and 129 Families in the World of arthropoda². Indian sub-continent contains a total of 1867 species and 475 genera belong to 61 families of order Araneae¹. In Gujarat, a total of 415 species belong to 169 genera and 40 families were recorded³.

In the Gulf of Kutch, 123 species belong to 81 genera and 25 families were recorded⁴. In Wild Ass Sanctuary (LRK), a total of 27 species belongs to 15 genera and 8 families were recorded⁵. The goal of this study was surveyed to make an inventory of spider fauna.

Methodology

Study Area: According to Biogeographic Zones of India, LRK fall under Semi- Arid Zone and 4B – Semi Arid Zone. Vegetation's of LRK are saline thorn scrub, scrub and tropical Euphorbia scrub, and main plants like the Prosopis cineraria, Capparis decidua, Zizyphus – Salvadora type present in Study area. Climatic condition of study area is the arid and semi humid type.

Temperature ranges in summer is very hot with maximum 40-46°C and in winter lowest at 5-8°C. The rainfall is average 320mm annually received.

Collection and preservation: Potential micro-habitats like wet margins of water bodies, vegetation along the margins of water bodies, undersides of stones, holes, and crevices in the ground, barks of trees, and walls of few buildings were carefully inspected to detect the presence of spiders. As soon as detected, the spiders were collected in small vials using Handpicking

Method. The collected specimens were preserved in 70% alcohol. They were identified later using a Stereo zoom binocular microscope using relevant taxonomic keys and literatures⁶⁻¹⁸.

Results and discussion

During the survey total of 1381 spider samples were collected. In a total of collection, 702 were females, 522 were male and 157 were juvenile. Out of them, a total of 88 species belongs to 20 families were identified (Table-2).

Family Araneidae was dominant in species diversity with 21.59% in this study. The most dominant families in the study were Araneidae, Salticidae, and Lycosidae with 50% of the number of species from total species from the study area.

The numerically higher species were obtained in families Araneidae (19 species), Salticidae (14), and Lycosidae (11) through other families that had less than 7 species from the study area. Table-3 is showing the species contribution percentage with numbers of genera and species.

Total of 9 group of guilds (Table-3) were recorded from the study area: the orb-weaving spiders with the maximum number of total species with 28 species (31.81% of all species), followed by stalker and ground spiders with 18-18 species (20.45%), foliage hunter/ runner and Scattered line weaver spiders with 8-8 species (9.09%), ambusher spiders with 5 species (5.68%), and other guilds consist of not more than 5% of spiders.

In study sites, Shikarpur has 67 species of spiders, Ajitgad has 78 species and Kharagoda has 49 species. They are a wetland-type area around LRK. Nanda bet and Jilandhar bet has 39 species of spiders.

Table-1: Sites geographic location.

Sr. No	Sites	Geographic location
1.	Shikarpur	23°13'59"N 70°43'06"E
2.	Ajitgadh	23°11'25"N 71°09'15"E
3.	Kharagoda	23°11'32"N 71°41'28"E
4.	Nanda bet	23°33'18"N 71°06'41"E
5.	Jilandhar bet	23°18'40"N 71°36'59"E

Table-2: Spiders collected from Various Sites.

Family	Genus/Species	Site:1	Site:2	Site:3	Site:4	Site:5
Araneidae	<i>Araneus bilunifer</i>	+	+	-	-	-
	<i>Araneus sp.</i>	+	-	-	-	-
	<i>Argiope anasuja</i>	+	+	+	+	+
	<i>Argiope pulchella</i>	-	+	-	-	-
	<i>Cyclosa confraga</i>	+	+	+	+	+
	<i>Cyrtophora citricola</i>	+	+	+	+	+
	<i>Cyrtophora sp.</i>	+	+	+	+	+
	<i>Eriophora sp.</i>	+	+	+	+	+
	<i>Eriovixia excelsa</i>	+	+	+	+	+
	<i>Eriovixia sp.</i>	+	+	+	+	+
	<i>Larinia chloris</i>	+	+	+	+	+
	<i>Gea sp.</i>	-	+	-	+	+
	<i>Neoscona mukerjei</i>	+	+	+	+	+
	<i>Neoscona nautica</i>	+	+	+	+	+
	<i>Neoscona odites</i>	+	+	+	+	+
	<i>Neosconatheisi</i>	+	+	+	+	+
	<i>Neoscona sp.</i>	+	+	+	+	+
	<i>Polys sp.</i>	-	+	-	+	-
	<i>Thelacantha brevispina</i>	+	+	+	-	+
Clubionidae	<i>Clubiona sp.</i>	+	+	-	-	-
Corinnidae	<i>Castianeira tinae</i>	+	+	-	-	-
	<i>Castianeira sp.</i>	+	+	-	-	-
Eresidae	<i>Stegodyphus sarasinorum</i>	-	+	+	-	-

Eutichuridae	<i>Cheiracanthium sp.</i>	-	+	+	-	-
Gnaphosidae	<i>Drassodes sp.</i>	-	+	-	-	+
	<i>Gnaphosa stoliczkai</i>	+	+	-	-	-
	<i>Poecilochroa sp.</i>	-	+	-	-	-
	<i>Zelotes sp.</i>	+	+	-	-	-
Hersiliidae	<i>Hersilia savignyi</i>	+	+	+	+	+
	<i>Hersilia sp.</i>	+	-	-	-	-
Lycosidae	<i>Arctosa indica</i>	-	+	-	-	-
	<i>Arctosa sp.</i>	+	+	+	+	-
	<i>Evippa sp.</i>	+	+	+	-	-
	<i>Hippasa agelenoides</i>	+	+	+	+	+
	<i>Hippasa sp.</i>	+	+	+	-	-
	<i>Lycosa poonaensis</i>	-	+	+	+	-
	<i>Lycosa tista</i>	-	+	+	+	-
	<i>Lycosa sp.</i>	+	+	+	-	-
	<i>Pardosa birmanica</i>	+	+	+	-	-
	<i>Pardosa pseudoannulata</i>	+	-	-	+	-
	<i>Pardosa sp.</i>	+	+	+	-	+
Oecobiidae	<i>Oecobius sp.</i>	+	+	+	-	-
Oxyopidae	<i>Oxyopes bhadatae</i>	+	+	+	+	+
	<i>Oxyopes javanus</i>	+	+	+	+	+
	<i>Oxyopes sp.</i>	+	+	+	+	+
	<i>Peucetia elegans</i>	+	+	-	-	-
Pholcidae	<i>Crossopriza lyoni</i>	+	+	+	+	+
	<i>Pholcus phalangioides</i>	+	+	+	+	+
Pisauridae	<i>Pisaura sp.</i>	+	-	-	+	-
Salticidae	<i>Carrhotus viduus</i>	+	+	-	-	-
	<i>Epeus indicus</i>	+	+	-	-	-
	<i>Epocilla aurantiaca</i>	+	+	-	-	+
	<i>Hasarius adansoni</i>	+	+	+	-	-
	<i>Hyllus semicupreus</i>	+	+	-	+	-
	<i>Menemerus bivittatus</i>	+	+	+	-	-
	<i>Menemerus fulvus</i>	-	+	-	-	-

	<i>Myrmarachne sp.</i>	+	+	-	-	-
	<i>Phintella vittata</i>	-	+	+	+	+
	<i>Phintella sp.</i>	+	+	-	-	-
	<i>Plexippus paykulli</i>	+	+	-	-	-
	<i>Stenaelurillus lesserti</i>	-	+	+	+	-
	<i>Telamonia dimidiata</i>	+	+	-	-	-
	<i>Thyene imperialis</i>	+	+	-	-	-
Scytodidae	<i>Scytodes sp.</i>	-	-	+	-	-
Sparassidae	<i>Heteropodavenatoria</i>	+	+	+	+	+
	<i>Heteropoda sp.</i>	+	+	+	+	+
	<i>Olios sp.</i>	-	-	+	-	+
Tetragnathidae	<i>Guizygiella indica</i>	+	+	+	-	+
	<i>Guizygiella melanocrania</i>	+	+	-	+	-
	<i>Leucauge decorate</i>	+	+	+	+	+
	<i>Tetragnatha mandibulata</i>	+	+	-	-	+
	<i>Tetragnatha maxillosa</i>	+	+	-	-	-
	<i>Tetragnatha sp.</i>	+	+	+	-	+
	<i>Tylorida ventralis</i>	-	+	-	-	-
Theridiidae	<i>Achaearanea sp.</i>	-	+	-	+	-
	<i>Argyrodes sp.</i>	+	+	+	+	+
	<i>Chrysso sp.</i>	+	+	+	+	+
	<i>Parasteatoda tepidariorum</i>	-	+	-	-	-
	<i>Steatoda sp.</i>	-	+	-	-	-
	<i>Theridion sp.</i>	-	+	-	-	-
Thomisidae	<i>Indoxysticus minutus</i>	+	+	+	+	-
	<i>Thomisus projectus</i>	+	-	-	+	+
	<i>Thomisus sp.</i>	+	-	+	-	+
	<i>Xysticus kali</i>	-	-	+	-	-
	<i>Xysticus sp.</i>	+	-	-	-	-
Uloboridae	<i>Uloborus krishnae</i>	+	+	-	-	+
	<i>Uloborus plumipes</i>	+	+	-	-	-
Zodaridae	<i>Storena sp.</i>	+	+	+	-	+
	<i>Total</i>	67	78	49	39	39

Site: 1- Shikarpur; Site: 2 - Ajitgadh; Site: 3- Kharagoda; Site: 4- Nanda bet; Site: 5- Jilandhar bet; Absent: -; Present; +.

Table-3: Species contribution percentage.

Family	No of genus	No of species	Species Percentage %	Guild
Araneidae	10	19	21.59	Orb web weaver
Clubionidae	1	1	1.13	Foliage hunter
Corinnidae	1	2	2.27	Ground runner
Eresidae	1	1	1.13	Snare /sheet web builder
Eutichuridae	1	1	1.13	Foliage hunter
Gnaphosidae	4	4	4.54	Foliage hunter
Hersiliidae	1	2	2.27	Foliage hunter
Lycosidae	5	11	12.80	Funnel web / Ground runner
Oecobiidae	1	1	1.13	Disc web builder
Oxyopidae	2	4	4.54	Stalker
Pholcidae	2	2	2.27	Scattered line weaver
Pisauridae	1	1	1.13	Ground runner / Nursery web builder
Salticidae	12	14	15.90	Stalker
Scytodidae	1	1	1.13	Ground runner
Sparassidae	2	3	3.40	Ground runner
Tetragnathidae	4	7	7.95	Orb web weaver
Theridiidae	6	6	6.81	Scattered line weaver
Thomisidae	3	5	5.68	Ambusher
Uloboridae	1	2	2.27	Orb web weaver
Zodaridae	1	1	1.13	Ground runner
Total	60	88	100%	

Conclusion

This is the first comparative documentation of order Araneae in LRK. The diversity at bays and around wetlands type habitat supports large numbers of spiders in LRK. A total of 88 species of spiders were documented from various wetlands and bays type areas from the study area. In these study areas, site-2 and site-1 have the maximum numbers of spiders documented. This survey of order Araneae gives information for future research in the field of archeology.

Acknowledgment

Sincere thanks to Dr. Harshad Salvi, Scientist, and Dr. Sandeep Munjpara, R.A., Geer Foundation, Gandhi nagar, India for facilities.

References

1. Caleb, J.T.D. & Sankaran, P.M. (2021). Araneae of India. Version 2021, online at <http://www.indianspiders.in>, accessed on 21/05/2021.

2. World Spider Catalog (2021). World Spider Catalog. Natural History Museum Bern, online at <http://wsc.nmbe.ch>, version 18.5, accessed on 21/05/2021. DOI: 10.24436/2
3. 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>
4. Parmar, B.M., K.B.Patel, J.D.Joshi, and N.R.Chaudhri. (2015). Faunastic Study of spiders diversity from islands and coastal areas of Gulf of Kutch, India. *Life science leaflets*, 67, 12-23
5. Singh, H.S. and B.H. Patel, *et al.* (1999). Spiders. In: Ecological Studies of Wild Ass Sanctuary (Little Rann of Kutch). *GEER Foundation, Gandhinagar*. Pp. 43-44, 267-268.
6. Parmar B.M. (2018). Taxonomic and Ecological study of Spiders from Satlasana Taluka, Gujarat, India. Ph.D. Thesis, H.N.G. University, Patan
7. Patel B. H. (1972). Studies of spiders fauna (Araneae: Arachnida) from Gujarat. Ph.D. thesis, S. P. university, Anand.
8. Sebastian, P.A. and Peter, K.V. (2009). Spiders of India. First edition, Universities Press, Hyderabad.
9. Tikader, B. K. (1977). Studies on spider fauna of Andaman and Nicobar Islands, Indian Ocean. *Records of the Zoological Survey of India*, 72, 153-212.
10. Tikader, B. K. (1980). Thomisidae (Crab-spiders). *Fauna India* (Araneae), 1, 1-247.
11. Tikader, B. K. & Malhotra, M. S. (1980). Lycosidae (Wolf-spiders). *Fauna India* (Araneae), 1, 248-447.
12. Tikader, B. K. & Biswas, B. (1981). Spider fauna of Calcutta and vicinity: Part-I. *Records of the Zoological Survey of India, Occasional Paper*, 30, 1-149.
13. Tikader, B. K. (1982). Family Gnaphosidae. *Fauna India* (Araneae), 3, 295-536.
14. Tikader, B.K. (1987). Handbook of Indian Spiders. Calcutta, Zoological Survey of India, 251pp.
15. Parmar, B.M. and Acharya, A.V.R.L.N. (2015). The spider fauna of Pariej Wetland, Gujarat, India. *International Journal of Science and Research*. 4(10), 1028-1033.
16. Parmar, B.M. (2018). Preliminary Study of Spiders (order: araneae) from Satlasana Taluka. *International Journal of Pharmacy and Biological Sciences*, 8(3), 735-740.
17. Parmar, B.M. and K.B. Patel (2018). Jumping Spiders (Araneae: Salticidae) of Satlasana Taluka. *International Journal of Advanced Engineering Research and Science*, 5(3), 159-162.
18. Parmar, B.M. (2019). Spiders (Araneae) from Agro Ecosystem of Kheralu Taluka. *International Journal of Life Sciences Research*, 7(4), 129-134.