

Spider diversity across different habitat types in Bannur village, Dakshina Kannada district, Karnataka, India

Shraddha Kumari Krishnanagara 

JAIN (Deemed-to-be University), #319, 17th Cross, 25th Main, J. P. Nagar, 6th Phase, Bengaluru Karnataka, India 560078
*Corresponding author ✉: k.shraddha@jainuniversity.ac.in

Citation: Krishnanagara, S. K. (2024). Spider diversity across different habitat types in Bannur village, Dakshina Kannada district, Karnataka, India. *Journal of Animal Diversity*, 6 (2): 23–31. <http://dx.doi.org/10.22034/JAD.2024.6.2.3>

Abstract

Spiders are ecologically important indicators of biodiversity, exhibiting diverse distributions influenced by habitat types. This study investigated spider species richness across five habitats in Bannur Village, Dakshina Kannada District, Karnataka, India, amidst rapid urbanization and habitat transformations. Field surveys conducted from April to June 2020 revealed a total of 73 spider species across 18 families. Notably, the highest species richness was found in native forest (59) followed by home gardens (44), *Acacia* plantation land (15), buildings (9), and acacia forest (6). Results also emphasize the habitat-specific adaptation and influence of urbanization on spider diversity. The diverse native forest supported most species while low-diversity acacia forest and regularly checked buildings hosted fewer spider species. This highlights impact of habitat changes on spider diversity. Further long-term research considering variables like climate change, vegetation density, and prey availability would yield a comprehensive understanding of the intricate interplay between environmental factors and spider populations.

Editor-in-Chief: Dr. Ali Gholamifard

Assistant Editor: Dr. Fred Kraus

Subject Editor: Dr. John Caleb

Received: 7 December 2023

Revised: 20 March 2024

Accepted: 22 June 2024

Published online: 30 June 2024

Key words: *Acacia* plantation, Karnataka, native forest, Salticidae, urbanization

Introduction

Spiders—an incredibly widespread and diverse order within the Phylum Arthropoda—stand as one of the most abundant groups of creatures on Earth. Constituting the seventh largest order in terms of known species (Sharma et al., 2020), they boast a staggering 51905 species across 4,375 genera within 138 families (World Spider Catalog, 2024). Their global distribution encompasses nearly every corner of the world, excluding Antarctica (Foelix, 2011).

Efforts have been made to comprehend how spider diversity and abundance varies across habitats receiving different degrees of human disturbance (Chen and Tso, 2004; Rajeevan et al., 2019), distribution patterns in heterogeneous and severely fragmented coastal dune landscapes (Bonte et al., 2004), diversity in different natural habitats (Malhotra et al., 2019), including forests and plantations (Hore and Uniyal, 2008); all these studies indicate that spider

diversity and abundance vary across habitats. Hence it is important to understand the relationship between spider availability and habitats and how spider availability is getting affected by urbanization, so as to help in habitat management (Magura et al., 2010). In this context, the current study assessed the relationship between spider species richness and habitat by exploring the species richness in five different habitats, including both natural and altered ecosystems.

Material and Methods

Study site

Five habitats were chosen in Bannur village (12.78° N 75.19° E) of Puttur Taluk, Dakshina Kannada district of Karnataka, India (Fig. 1). Five habitats were considered as five different study sites:

Study site 1: Native Forest: A native forest patch was selected containing mainly the trees *Aporosa cardiosperma*,

Butea monosperma, *Ficus racemosa*, *Syzygium caryophyllatum*, *Minusops elengi*, *Grewia serrulata*, *Bombax ceiba*, *Tectona grandis*, *Borassus flabellifer*, *Alstonia scholaris*, *Canthium angustifolium*, *Mangifera indica*, *Artocarpus heterophyllus*, *Macaranga peltata*, *Millettia pinnata*, along with bushes, vines, herbs, and grasses. This forest patch was surrounded by Acacia Forest patch and a few houses.

Study site 2: Acacia Forest: A site dominated by an invasive species of tree, *Acacia auriculiformis* (Sandilyan et al., 2018) was selected for the survey. It was adjacent to the selected Native Forest patch and other sides were surrounded by a village road and a few houses. This patch had no significant amount of other vegetation.

Study site 3: Areca Plantation: A well-maintained *Areca catechu* plantation was selected which was bordered by a small road on one side with infrequent vehicle movement and native plants on the other side with rare vehicle movement. This plantation was grown by a family as a commercial crop.

Study site 4: Home Gardens: About 30 home gardens were selected. These included mainly native flowering plants and a few *Codiaeum variegatum* (Garden croton) (about 3 houses had Garden croton plants).

Study site 5: Buildings: About 30 houses and 6 shop buildings were selected which were near village roads.

Study site mapping

Map was created using Google Earth Pro and ArcGIS version 10.3 with WGS 84 maps of Country and State boundaries.

Data collection and species identification

All potential microhabitats of spiders such as leaves, flowers and twigs of plants, tree trunks, ground, litter, and building walls were closely examined for the presence of spiders during dawn and dusk. Spiders were photographed and identified with the help of literature (Caleb, 2016; Caleb, 2020; Mondal et al., 2020. Sangavi et al., 2023), and nomenclature is in accordance with World Spider Catalog (2023). No spiders were collected from the field.

Study design and data analysis

Field surveys were carried out for 3 months from April to June 2020. Five field surveys were done per week making a total of 60 surveys, 12 visits to each study site. Field surveys were carried out during dawn Data collected were analyzed and visualized through graph

plotting, performed in RStudio 4.3.0 using the ggplot2 package (Hadley, 2016).

Results

Spider species richness varied across different habitats and gave a total of 73 species belonging to 18 families (Table 1). Diversity among families varied from having only one genus and species to 21 genera and 21 species. However, a total of 7 families—Cheiracanthidae, Ctenidae, Eresidae, Hersiliidae, Linyphiidae, Liocranidae, and Scytodidae—were each represented by only a single genus and species (Table 1). Spider diversity was maximum in Native Forest (59 species), followed by Home Gardens (44 species), *Areca* Plantation (15 species), Buildings (9 species) and Acacia Forest (6 species). Also, a few species were observed to be habitat (study site) specific during the study period. Habitat (study site) specific species were highest in Native Forest (59), followed by Buildings (7), Home Gardens (3) and *Areca* Plantation (1) (Fig. 2).

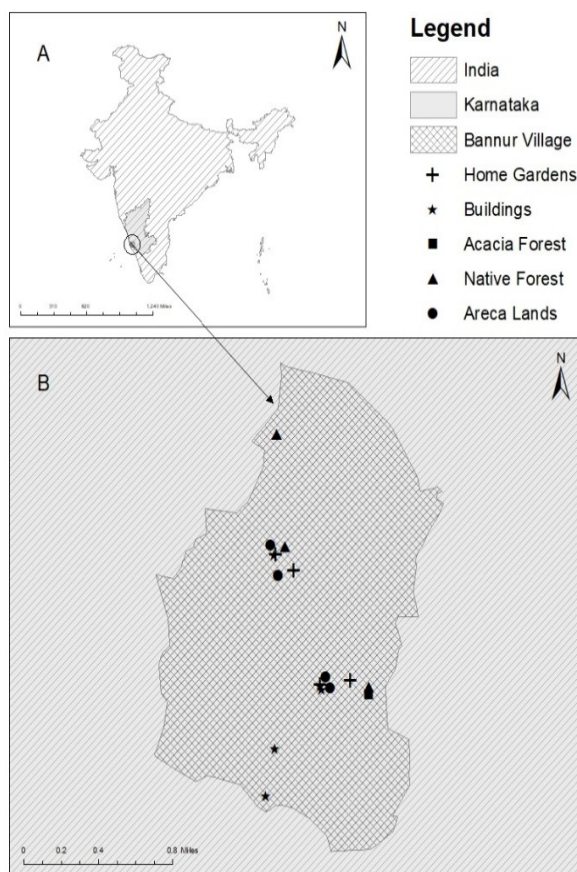


Figure 1: Study site map shows (A) boundary of India and Karnataka state, and (B) Bannur village. Symbols represent different study locations as mentioned in the legend.

Table 1: Spider species recorded in all study sites during the study period. Note: ‘1’ represents the presence and ‘0’ represents the absence of species in particular site.

Sl. No.	Family	Species	Native Forest	Acacia forest	Areca Plantation	Home Gardens	Buildings
1		<i>Anepision</i> sp.	1	0	0	1	0
2		<i>Argiope aemula</i> (Walckenaer, 1841)	1	0	0	1	0
3		<i>Argiope</i> sp.	1	0	0	0	0
4		<i>Bijoaraneus mitificus</i> (Simon, 1886)	1	0	0	1	0
5		<i>Cyclosa bifida</i> (Doleschall, 1859)	0	0	1	0	0
6		<i>Cyrtophora cicatrosa</i> (Stoliczka, 1869)	1	0	1	1	0
7		<i>Eriovixia</i> sp.	1	1	0	0	0
8	Araneidae	<i>Gasteracantha geminata</i> (Fabricius, 1798)	1	0	0	1	0
9		<i>Gea</i> sp.	1	0	0	1	0
10		<i>Neoscona molemensis</i> Tikader and Bal, 1981	0	0	0	1	0
11		<i>Neoscona</i> sp.	1	0	0	1	0
12		<i>Neoscona nautica</i> (L. Koch, 1875)	1	0	0	1	0
13		<i>Paraplectana</i> sp.	1	0	0	0	0
14		<i>Parawixia dehaani</i> (Doleschall, 1859)	1	0	0	1	0
15		<i>Pasilobus</i> sp.	1	0	0	0	0
16		<i>Thelacantha brevispina</i> (Doleschall, 1857)	1	0	1	1	0
17		Cheiracanthiidae	<i>Cheiracanthium</i> sp.	1	0	1	1
18	Corinnidae	<i>Castianeira zetes</i> Simon, 1897	1	0	0	0	0
19		<i>Coenoptychus</i> sp.	1	0	0	0	0
20	Ctenidae	<i>Ctenus</i> sp.	1	0	1	1	0
21	Eresidae	<i>Stegodyphus sarasinorum</i> Karsch, 1892	1	0	0	0	0
22	Hersiliidae	<i>Hersilia savignyi</i> Lucas, 1836	1	0	1	1	0
23	Linyphiidae	<i>Neriene sundaica</i> (Simon, 1905)	1	0	1	1	0
24	Liocranidae	<i>Oedignatha</i> sp.	1	0	0	0	0
25	Lycosidae	<i>Hippasa</i> sp.	1	1	1	1	0
26		<i>Hogna</i> sp.	1	1	0	0	0
27		<i>Lycosa</i> sp.	1	0	0	1	0
28		<i>Pardosa</i> sp.	1	0	1	1	0
29	Oxyopidae	<i>Hamadruas</i> sp. (Thorell, 1887)	1	0	0	1	0
30		<i>Hamataliwa</i> sp.	1	0	0	1	0
31		<i>Oxyopes shweta</i> Tikader, 1970	1	0	0	1	0
32		<i>Oxyopes</i> sp.	1	0	0	0	0
33		<i>Peuceetia viridana</i> (Stoliczka, 1869)	1	1	0	1	0
34	Pholcidae	<i>Artema</i> sp.	0	0	0	0	1
35		<i>Crossopriza lyoni</i> (Blackwall, 1867)	0	0	0	0	1
36		<i>Pholcus</i> sp.	0	0	0	0	1
37	Salticidae	<i>Asemonea tenuipes</i> (O. Pickard-Cambridge, 1869)	1	0	0	0	0
38		<i>Brettus cingulatus</i> Thorell, 1895	1	0	0	1	0
39		<i>Carrhotus viduus</i> (C. L. Koch, 1847)	1	0	1	1	0
40		<i>Chrysilla volupe</i> (Karsch, 1879)	1	0	1	1	0

Table 1: (Continued).

Sl. No.	Family	Species	Native Forest	Acacia forest	Areca Plantation	Home Gardens	Buildings
41		<i>Epeus cf. indicus</i> Proszynski, 1992	1	0	1	1	0
42		<i>Hasarisus adansoni</i> (Audouin, 1826)	0	0	0	1	1
43		<i>Hyllus semicupreus</i> (Simon, 1885)	1	0	0	1	0
44		<i>Indopadilla</i> sp.	1	0	0	0	0
45		<i>Menemerus bivittatus</i> (Dufour, 1831)	0	0	0	1	1
46		<i>Myrmaplata plataleoides</i> (O. Pickard-Cambridge, 1869)	1	0	0	1	0
47		<i>Myrmarachne melanocephala</i> MacLeay, 1839	1	0	0	1	0
48	Salticidae	<i>Phintella vittata</i> (C. L. Koch, 1846)	1	0	0	1	0
49		<i>Phintella platnicki</i> Sudhin, Sen and Caleb, 2023	0	0	0	1	0
50		<i>Plexippus paykulli</i> (Audouin, 1826)	0	0	0	0	1
51		<i>Plexippus petersi</i> (Karsch, 1878)	0	0	0	0	1
52		<i>Portia</i> sp.	1	0	0	0	0
53		<i>Rhene flavicomans</i> Simon, 1902	1	0	0	0	0
54		<i>Siler semiglaucus</i> (Simon, 1901)	1	0	0	1	0
55		<i>Stenaelurillus</i> sp.	1	0	0	0	0
56		<i>Telamonia dimidiata</i> (Simon, 1899)	1	0	0	1	0
57		<i>Thiania bhamoensis</i> Thorell, 1887	1	0	0	1	0
58	Scytodidae	<i>Scytodes</i> sp.	0	0	0	0	1
59		<i>Gnathopolystes</i> sp.	1	0	0	1	0
60	Sparassidae	<i>Heteropoda venatoria</i> (Linnaeus, 1767)	0	0	0	0	1
61		<i>Olios</i> sp.	1	0	0	0	0
62	Tetragnathidae	<i>Leucauge decorata</i> (Blackwall, 1864)	1	0	1	1	0
63		<i>Leucauge fastigata</i> (Simon, 1877)	1	0	0	0	0
64		<i>Tetragnatha</i> sp.	1	0	1	1	0
65	Theridiidae	<i>Meotipa</i> sp.	1	1	0	0	0
66		<i>Thwaitesia</i> sp.	1	1	0	1	0
67	Thomisidae	<i>Amyciaea forticeps</i> (O. Pickard-Cambridge, 1873)	1	0	0	0	0
68		<i>Camarius formosus</i> Thorell, 1887	1	0	0	1	0
69		<i>Misumena</i> sp.	0	0	0	1	0
70		<i>Indoxysticus</i> sp.	1	0	0	0	0
71		<i>Thomisus</i> sp.	0	0	0	1	0
72	Uloboridae	<i>Miagrammopes</i> sp.	1	0	0	0	0
73		<i>Zosis geniculata</i> (Olivier, 1789)	1	0	1	1	0
TOTAL			59	6	15	44	9

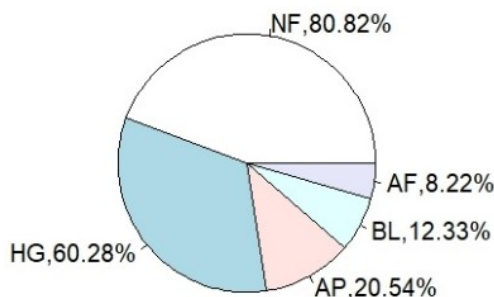


Figure 2: Spider species richness in study sites: The chart shows percentage composition of species diversity found in each study site (habitat). NF = Native Forest; HG = Home Gardens; AP = Areca Plantation; BL = Buildings; AF = Acacia Forest.

In the Native Forest a total of 59 species were documented from 16 families in Native Forest patches. Family Salticidae dominated with 16 species, followed by Araneidae with 15 species, and the fewest were from Cheiracanthiidae, Eresidae, Hersiliidae, Linyphiidae, Liocranidae, and Theridiidae (represented by single species in each). Nearly 25% (18 species) of the species found here were habitat (study site) specific. In the Acacia Forest only 6 species belonging to 4 families were documented. Two species each from Lycosidae and Theridiidae, and the remaining two from Araneidae and Oxyopidae were documented. There was no habitat (study site) specific species. In the *Areca* Plantation, 15 species from 9 families were recorded in *Areca* Plantation. Araneidae and Salticidae had the highest members (3 species in each) followed by Lycosidae and Tetragnathidae (2 species each); the remaining families Cheiracanthiidae, Ctenidae, Hersiliidae, Linyphiidae, and Uloboridae had only a single species in each. Only one species was found to be habitat (study site) specific. In Home Gardens, a total of 44 species were recorded. This is the habitat with the second-highest species richness. Salticidae had the highest number of species (14) followed by Araneidae (11). There were 4 habitat (study site) specific species. In Buildings, a total of 9 species were documented from buildings and, interestingly, 7 were found to be habitat (study site) specific (Appendix 1 and Table 1).

Discussion

This study showed the presence of 73 spider species in the study area (Appendix 2), which is more diverse compared to other diversity studies from elsewhere in Karnataka (Prashanthakumara et al., 2015; Deshpande and Paul, 2016; Prashanthakumara and Venkateshwarlu, 2017a, b; Mubeen and Basavarajappa, 2018; Rao et al., 2018; Tabasum et al., 2018; Suraj and Parimala, 2020; Shraddha and Chaturved, 2019, 2020; Padma and Sundararaj, 2021). Unlike prior studies, which focused solely on overall species numbers, the current study provides a comparative analysis of spider diversity across different habitats.

The findings emphasize the significant role of habitat on spider diversity, particularly in response to urbanization. From the study, it is evident that the Native Forest supports more species, including around 81% of total species diversity (59 out of 73 species). On the other hand, the Acacia Forest is least supportive, containing only 8% (6 out of 73 species). It suggests that the natural resource of the Native Forest supports spider life and though Acacia Forest has trees and green cover, it minimally supports the spider life, which might be attributed to the lack of diversity in vegetation (Foelix, 2011; Saini et al., 2012; Malhotra et al., 2019) and prey availability (Harwood et al., 2001). Also, no habitat (study site) specific species were found in Acacia Forest, indicating that only highly adaptable species prefer this habitat. *Areca* Plantation had only 21% of total

species, suggesting that it moderately supports spider diversity, aligning with Sangavi et al. (2023). Buildings had less species richness (9 species), Home Gardens had the second-highest species richness (44 species), suggesting that the vegetation of home gardens also favors spider existence. This might be due to the availability of prey organisms, mainly insects attracted to flowering plants in home gardens. On the other hand, building habitats, which are dominated by humans and regularly checked for pests, was least supportive for spider survival.

Conclusion

Though this short-time study provides a snapshot of the impact of habitat differences on spider species richness, a long-term investigation spanning all seasons would significantly contribute to understanding seasonal variation in spider diversity. Also, future studies extending this analysis with additional parameters, especially climate-change aspects, vegetation density, prey availability, prey density, spider species abundance and density across seasons will furnish insights on the impact of multiple environmental variables to the species richness and abundance of spiders.

Acknowledgements

I thank all generous landowners who graciously permitted me to conduct field surveys on their private lands. I extend my gratitude to Ms. Magdaline Christina Rajanand, Mrs. Pavithra K, and Mr. Ramakrishna V Bhat for their valuable contributions during the manuscript preparation. I also thank Mr. Deekshith Kumar P and Mr. Srijan C K for sharing some photos of spiders. I thank anonymous reviewers for their valuable comments. Special thanks are also due to the subject editor Dr. John Caleb and native English editor Dr. Fred Kraus for their critical editorial support.

Author contributions

All work in this article was done by the author.

Conflicts of interest

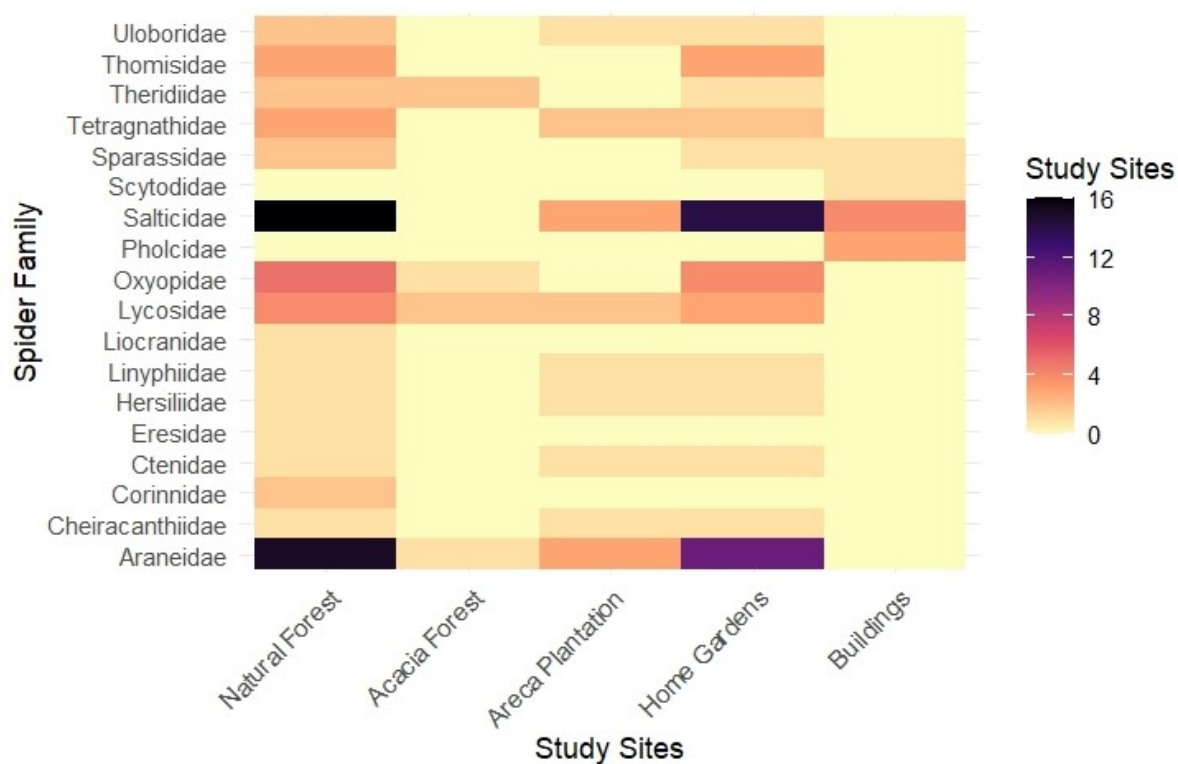
The author declares that there are no conflicting issues related to this research article.

References

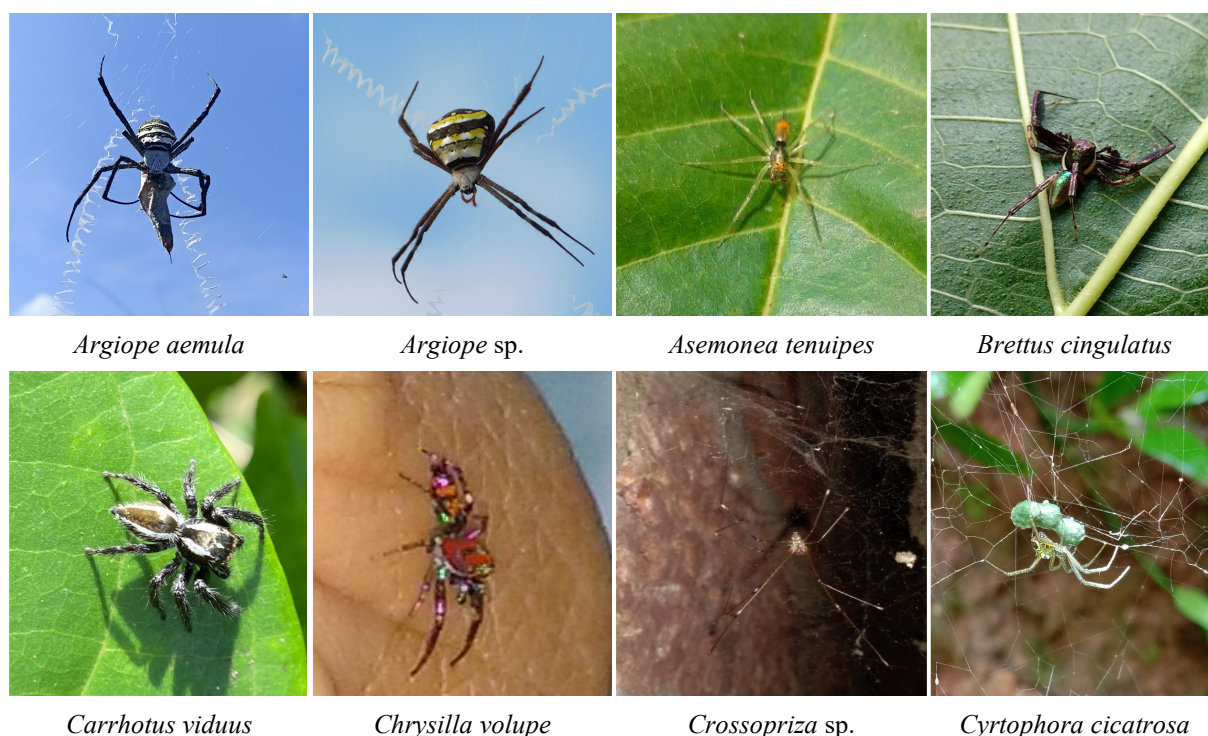
- Bonte, D., Baert, L., Lens, L. and Maelfait, J. P. (2004). Effects of aerial dispersal, habitat specialism, and landscape structure on spider distribution across fragmented grey dunes. *Ecography*, 27 (3): 343–349. <https://doi.org/10.1111/j.0906-7590.2004.03844.x>
- Caleb, J. T. (2016). Taxonomic notes on some antimimicking jumping spiders (Araneae: Salticidae) from India. *Arthropoda Selecta*, 25 (4): 403–420. <https://doi.org/10.15298/arthscl.25.4.09>

- Caleb, J. T. (2020). Spider (Arachnida: Araneae) fauna of the scrub jungle in the Madras Christian College campus, Chennai, India. *Journal of Threatened Taxa*, 12 (7): 15711–15766. <https://doi.org/10.11609/jott.5758.12.7.15711-15766>
- Chen, K. C. and Tso, I. M. (2004). Spider diversity on Orchid Island, Taiwan: A comparison between habitats receiving different degrees of human disturbance. *Zoological Studies-Taipei*, 43 (3): 598–611.
- Deshpande, A. and Paul, R. (2016). Preliminary study on spiders of Gulbarga, Karnataka State. *International Journal of Environment, Agriculture and Biotechnology*, 1 (4): 680–686. <https://doi.org/10.22161/ijeab/1.4.9>
- Foelix, R. F. (2011). *Biology of Spiders*. Third Edition. Oxford University Press, New York. 419 pp.
- Hadley, W. (2016). *ggplot2: Elegant graphics for data analysis*. Springer Cham. 260 pp.
- Harwood, J. D., Sunderland, K. D. and Symondson, W. O. C. (2001). Living where the food is: Web location by linyphiid spiders in relation to prey availability in winter wheat. *Journal of Applied Ecology*, 38 (1): 88–99. <https://doi.org/10.1046/j.1365-2664.2001.00572.x>
- Hore, U. and Uniyal, V. P. (2008). Use of spiders (Araneae) as an indicator for monitoring habitat conditions in Tarai Conservation Area, India. *Indian Forester*, 134 (10): 1371–1380.
- Magura, T., Horváth, R. and Tóthmérész, B. (2010). Effects of urbanization on ground-dwelling spiders in forest patches, in Hungary. *Landscape Ecology*, 25: 621–629. <https://doi.org/10.1007/s10980-009-9445-6>
- Malhotra, G. S., Neera, K. and Saxena, M. M. (2019). Spider diversity and abundance in different habitats of Upper-Northern Rajasthan. *Essence International Journal for Environmental Rehabilitation and Conservation*, 10 (1): 1–14.
- Mondal, A., Chanda, D., Vartak, A. and Kulkarni, S. (2020). *A Field Guide to the Spider Genera of India*. Ayan Mondal. India. Siddharth Kulkarni. 408 pp.
- Mubeen, M. and Basavarajappa, S. (2018). Density, abundance and per cent occurrence of spider species (Arachnida: Araneae) in and around Mysore city, Karnataka, India—a case study. *IOSR Journal of Pharmacy and Biological Sciences*, 13 (3): 31–40.
- Padma, S. and Sundararaj, R. (2021). Diversity of spiders (Arachnida: Araneae) and the impact of pruning in Indian sandalwood plantations from Karnataka, India. *Journal of Threatened Taxa*, 13 (12): 19762–19772. <https://doi.org/10.11609/jott.7514.13.12.19762-19772>
- Prashanthakumara, S. M. and Venkateshwarlu, M. (2017a). Preliminary study of spiders (Araneae: Arachnida) in Gudavi Bird Sanctuary, Shivamogga, Karnataka. *International Journal of Recent Scientific Research*, 8 (8): 19277–19281.
- Prashanthakumara, S. M. and Venkateshwarlu, M. (2017b). Diversity and distribution of spider fauna in different ecosystems of Chikmagalur Parts of Western Ghats, Karnataka. *International Journal of Innovative Research and Advanced Studies*, 4 (7): 20–24.
- Prashanthakumara, S. M., Nijagal, B. S. and Venkateshwarlu, M. (2015). Study on diversity of spider fauna in Jnana Sahyadri campus, Shimoga, Karnataka. *Bulletin of Pure and Applied Sciences-Zoology*, 34 (1 and 2): 1–9. <https://doi.org/10.5958/2320-3188.2015.00001.7>
- Rajeevan, S., Kunnath, S. M., Varghese, T. and Kandambeth, P. P. (2019). Spider diversity (Arachnida: Araneae) in different ecosystems of the Western Ghats, Wayanad region, India. *South Asian Journal of Life Science*, 7 (2): 29–39. <https://doi.org/10.17582/journal.sajls/2019/7.2.29.39>
- Rao, S., Srikanth, S. K., Ashwini, V., Rekha, K. N. and Shenoy, K. B. (2018). Spider diversity on Mangalore University campus. *JEZS*, 6 (2): 3186–3194.
- Saini, K. C., Chauhan, R. and Singh, N. P. (2012). Analysis of spider density across Shekhawati Aravalian region of Rajasthan, India. *Indian Journal of Arachnology*, 1 (2): 30–39.
- Sangavi, D., Anisha, P. S., Vinothini, G. and Nathan, P. T. (2023). Diversity of spiders (Arachnida: Araneae) in natural and altered ecosystems in Salem district, Tamil Nadu, India. *Journal of Animal Diversity*, 5 (1): 113–126. <https://doi.org/10.61186/JAD.5.1.113>
- Sharma, A., Singh, G. and Singh, R. (2020). Faunal diversity of Linyphiidae (Araneomorphae: Araneae: Arachnida) in India. *Asian Journal of Conservation Biology*, 9 (2): 304–314.
- Shraddha, K. K. and Chaturved, S. R. (2019). A study on diversity of spiders at Malavagoppa village. *Shimoga District, Karnataka. International Journal of Environment Agriculture and Biotechnology*, 4 (2): 544–555. <https://doi.org/10.22161/ijeab/4.2.40>
- Shraddha, K. K. and Chaturved, S. R. (2020). A preliminary study on diversity of spiders at Amanikere Park in Tumakuru District, Karnataka. *International Journal of Science and Research*, 9 (5): 570–581.
- Suraj, R. and Parimala, B. (2020). Study on diversity of spider fauna in University College of Science Campus, Tumakuru, Karnataka, India. *International Journal of Innovative Research in Science, Engineering and Technology*, 9 (5): 3301–3304.
- World Spider Catalog (2024). World Spider Catalog. Version 25. Natural History Museum Bern. Retrieved from <http://wsc.nmbe.ch>. Retrieved on 04 February 2024.
- Sandilyan, S., Meenakumari, B., Babu, C. R. and Mandal, R. (2018). Invasive alien species of India. National Biodiversity Authority, Chennai, 22.

Appendix



Appendix 1: Distribution of spider families across all the study sites, where darker color indicates higher number of species as mentioned in legend.



Appendix 2: Photographic documentation of spider species from the study sites.



Cyrtophora cicatrosa



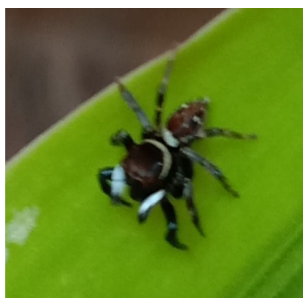
Epeus cf. indicus



Eriovixia sp.



Hamadruas sp.



Hasarisus adansoni



Hersilia savignyi



Heteropoda venatoria



Hippasa sp.



Hyllus semicupreus



Indopadilla sp.



Menemerus bivittatus



Myrmaplata plataleoides



Neoscona molemensis



Neoscona sp.



Neoscona nautica



Oedignatha spp.



Olios sp.



Oxyopes shweta



Oxyopes sp.



Pasilobus sp.



Peucetia viridana



Phintella vittata



Phintella platnicki



Portia sp.



Rhene flavicomans



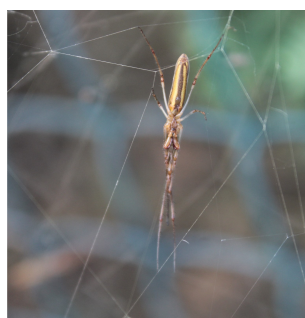
Siler semiglaucus



Stegodyphus sarasinorum



Telamonia dimidiata



Tetragnatha sp.



Thomisus sp.



Thwaitesia sp.



Indoysticus sp.



Thiania bhamoensis