

A Preliminary Study on Diversity of Spiders at Amanikere Park in Tumakuru District, Karnataka

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Abstract: Spiders belong to the order Araneae which is the largest order among the class Arachnida. Spiders are considered as indicators of overall species richness and the health of terrestrial communities. The Amanikere Park with different plantations harbors a wide variety of spider fauna. The survey was carried out from August 2019 to January 2020 by using random sampling, gentle tapping, visual observation and photographic methods. During the study, a total number of 50 species belonging to 41 genera of 14 families were documented. In the present study it was found that, the family Araneidae was dominated by having 15 species followed by the family Salticidae having 13 species and the least were from Cheiracanthiidae, Eresidae, Hersiliidae, Philodromidae, Theridiidae and Uloboridae with single species from each family.

Keywords: Araneidae, Amanikere Park, Tumakuru, Deccan Plateau, Spiders Diversity

1. Introduction

Spiders form one of the most ubiquitous groups of predaceous organisms in the animal kingdom (Riechert and Lockley 1984). Among all organisms, spiders (Order: Araneae) form the seventh largest order in terms of number of known species (Sebastian and Peter, 2009). They belong to the class Arachnida of the Phylum Arthropoda that possesses jointed appendages with a chitinous exoskeleton system. They are characterized by two body parts, the cephalothorax having 4 pairs of segmented legs and the abdomen. They have simple eyes, no antenna and no wings, which differentiate them from insects.

Spiders are the key invertebrate predators of almost all terrestrial ecosystems; spiders are a comparatively neglected group of animals. They are the ancient animals with a history going back over 350 million years (Sebastian and Peter, 2010). This is the most diverse, female dominated and entirely predatory order in the Arthropod world. Globally, spiders include about 48,410 described species in 4,161 genera and 120 families. (World Spider Catalog, 10.04.2020). They are distributed on every continent except Antarctica and have adapted to all known ecological environments except air and the open sea (Foelix, 1996). Studies on Indian spiders were initiated by Blackwall (1850). Different studies have shown that spiders regulate prey populations depending on their density. Recent studies have shown that the spiders act as ecological indicators and early warning signs of environmental changes (Kremen et al., 1993). Spiders of the Deccan Plateau are poorly studied compared to other parts of the country. With respect to its geographical, climatic and ecological features, the Deccan Plateau harbors a fair number of arachnids out of which spiders have a huge share. So far, very few attempts were made to study the spider fauna of Tumakuru in Karnataka;

hence the present study is focused on documenting the spider diversity of a green patch in Tumakuru City.

2. Materials and methods

a) Study site

Tumakuru situated at a distance of 70kms northwest of Bengaluru, the capital city of Karnataka, in the Deccan plateau. The study site Amanikere Park is located about 2 kms from the main bust stand of the city. Study site shows good vegetation of cultivated plant, which include trees like Bauhinia, Singapore Cherry and few Ficus species; shrubs like Duranta and few ornamental and flowering plants.

b) Methods

The study was carried out from August 2019 to January 2020. Survey was done 2 times in a month. The technique involved in the study includes random sampling, gentle tapping, visual observation and photographic methods. Identifications were done by referring literatures.

3. Results

In the present study, 50 species of spider fauna have been documented; out of which only two spiders were identified family level. They belong to 41 genera of 14 families (Table.1). Among documented families, the Araneidae is dominated by having 15 species of 9 genera, followed by the Salticidae having 13 species of 12 genera. The family Oxyopidae is documented with 4 species (2 genera), Lycosidae and Tetragnathidae are documented with 3 species (3 genera), and Pholcidae, Sparassidae, Thomisidae with 2 species (2 genera) in each. The remaining six families Cheiracanthiidae, Eresidae, Hersiliidae, Philodromidae, Theridiidae and Uloboridae were documented with single species in each family. (Figure 1).

Table.1: Spiders recorded in Amanikere Park from August 2019 to January 2020

No	Family	Sl. No	Scientific name	Common name	Total Count
I	Araneidae	1	<i>Araneus mitificus</i> (Simon, 1886)	Kidney Orb Weaver	15

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	Clerck, 1757	2	<i>Argiope aemula</i> (Walckenaer, 1841)	Oval St Andrew's Cross Spider	
		3	<i>Argiope anasuja</i> (Thorell, 1887)	Giant Cross Spider	
		4	<i>Argiope pulchella</i> (Thorell, 1881)	Signature Spider	
		5	<i>Cyclosa spp.</i> (Menge, 1866)	Thrashline Orb Weaver	
		6	<i>Cyrtophora cicatrosa</i> (Stoliczka, 1869)	Tent-web Spider	
		7	<i>Cyrtophora citricola</i> (Forsskal, 1775)	Tropical Tent-web Spider	
		8	<i>Cyrtophora spp.</i> (Simon, 1864)	Tent-web Spider	
		9	<i>Eriovixia spp.</i> (Archer, 1951)	Forest Orb Weaver	
		10	<i>Gasteracantha geminata</i> (Fabricius, 1798)	Oriental Spiny Orb-weaver	
		11	<i>Neoscona mukherjei</i> (Tikader, 1980)	Common Garden Spider	
		12	<i>Neoscona puntigera</i> (Doleschall, 1857)	Monkey Orb Weaver	
		13	<i>Neoscona spp.</i> (Simon 1864)	Garden Orb Weaver	
		14	<i>Nephila spp.</i> (Leach, 1815)	Golden Orb Weaver	
		15	<i>Thelacantha spp.</i> (Hasselt, 1882)	False Spiny Orb-weaver	
II	Cheiracanthiidae Wagner, 1887	16	<i>Cheiracanthium spp.</i> (C.L Koch, 1839)	Yellow Sac Spider	1
III	Eresidae C.L. Koch, 1845	17	<i>Stegodyphus sarasinorum</i> (Karsch, 1892)	Indian Social Spider	1
IV	Hersiliidae Thorell, 1870	18	<i>Hersilia savignyi</i> (Lucas, 1836)	Two Tailed Spider	1
V	Lycosidae Sundevall, 1833	19	<i>Hippasa spp.</i> (Simon, 1885)	Funnel Web Spider	3
		20	Lycosid	Common Wolf Spider	
		21	<i>Pardosa spp.</i> (C.L Koch, 1847)	Wolf Spider	
VI	Oxyopidae Thorell, 1870	22	<i>Oxyopes javanus</i> (Thorell, 1887)	Striped Lynx Spider	4
		23	<i>Oxyopes spp.</i> (Latreille, 1804)	Lynx Spider	
		24	<i>Oxyopes shweta</i> (Tikader, 1970)	White Lynx Spider	
		25	<i>Peuceitia viridana</i> (Hentz, 1832)	Green Lynx Spider	
VII	Philodromidae Thorell, 1870	26	<i>Tibellus spp.</i> (Simon, 1875)	Slender Crab Spider	1
VIII	Pholcidae C.L. Koch, 1850	27	<i>Crossopriza lyoni</i> (Blackwall, 1867)	Tailed Cellar Spider	2
		28	<i>Pholcus spp.</i> (Walckenaer, 1805)	Daddy Long Leg Spider	
IX	Salticidae Blackwall, 1841	29	<i>Carrhotus viduus</i> (C. L. Koch, 1847)	Double Striped Carrhotus	13
		30	<i>Chryssilla spp.</i> (Thorell, 1887)	Coloured Jumping Spider	
		31	<i>Epeus indicus</i> (Proszynski, 1992)	White Spotted Green Jumper	
		32	<i>Hasarius adansoni</i> (Audouin, 1826)	Adanson's House Jumper	
		33	<i>Hyllus semicupreus</i> (Simon, 1885)	Heavy-bodied Jumping Spider	
		34	<i>Menemerus bivittatus</i> (Dufour, 1831)	Grey Wall Jumper	
		35	<i>Myrmaplata plataleoides</i> (O. Pickard-Cambridge, 1869)	Kerengga Ant-like Jumper	
		36	<i>Phintella vittata</i> (C. L. Koch, 1846)	Banded Phintella	
		37	<i>Plexippus paykulli</i> (Audouin, 1826)	Pantropical Jumping Spider	
		38	<i>Plexippus petersi</i> (Karsch, 1878)	Wall Jumping Spider	
		39	<i>Rhene flavicomans</i> (Simon, 1902)	Wasp-mimic Jumping Spider	
		40	<i>Stenaelurillus spp.</i> (Simon, 1886)	Narrow-bodied Jumping Spider	
		41	<i>Telamonia dimidiata</i> (Simon, 1899)	Two-striped Jumping Spider	
X	Sparassidae Bertkau, 1872	42	<i>Heteropoda spp.</i> (Latreille, 1804)	Giant Crab Spider	2
		43	<i>Olios spp.</i> (Walckneae, 1837)	Huntsman Spider	
XI	Tetragnathidae Menge, 1866	44	<i>Leucauge decorata</i> (Blackwall, 1864)	Decorative Silver Orb Weaver	3
		45	<i>Opadometa fastigata</i> (Simon, 1877)	Pear Shaped Leucauge	
		46	<i>Tetragnatha spp.</i> (Latreille, 1804)	Long Jawed Spider	
XII	Theridiidae Sundevall, 1833	47	Theridid	Tangle Web Spider	1
XIII	Thomisidae Sundevall, 1833	48	<i>Misumenops</i> (F.O.P Cambridge, 1900)	Green Crab Spider	2
		49	<i>Thomisus spectabilis</i> (Doleschall, 1859)	White Crab Spider	
XIV	Uloboridae Thorell, 1869	50	<i>Zosis geniculata</i> (Olivier, 1789)	Feather-footed Spider	1

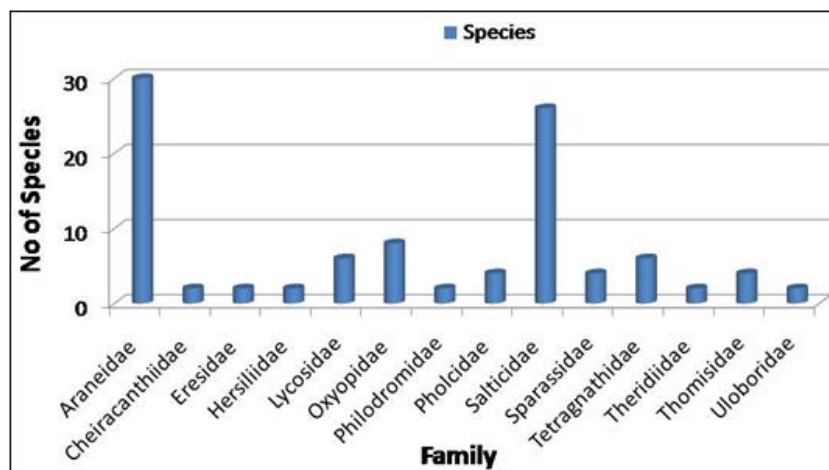


Figure 1: Graph of species percentage under each family

4. Conclusion

Present study reveals that the Amanikere Park supports a good diversity of spider fauna, which is evident that spiders can survive in different habitats as Ground runners (Lycosidae, and Sparassidae) Foliage runners (Hersiliidae) Stackers (Oxyopidae and Salticidae), Ambushers (Thomisidae), and Web-builders. The types of vegetation greatly affect the population and diversity of spiders. Such diversity studies have to be carried out regularly to access the ecological health of the study site.

5. Acknowledgements

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Species Plates

Araneidae



Araneus mitificus (Simon, 1886)



Argiope aemula (Walckenaer, 1841)



Argiope anasuja (Thorell, 1887)



Argiope pulchella (Thorell, 1881)



Cyclosa spp. (Menge, 1866)



Cyrtophora citricola (Forsskal, 1775)



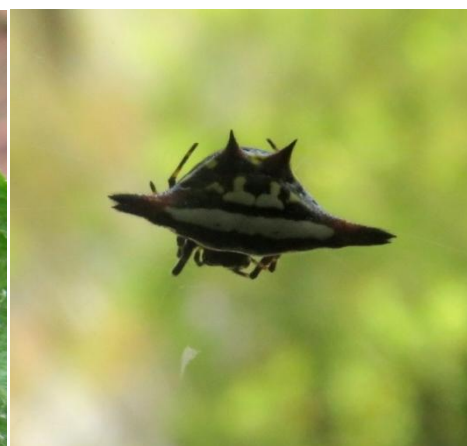
Cyrtophora cicatrosa (Stoliczka, 1869)



Cyrtophora spp. (Simon, 1864)



Eriovixia spp. (Archer, 1951)



Gasteracantha geminata (Fabricius, 1798)



Neoscona mukherjei (Tikader, 1980)



Neoscona puntigera (Doleschall, 1857)



Neoscona spp. (Simon 1864)



Nephila spp. (Leach, 1815)



Thelacantha spp. (Hasselt, 1882)

Cheiracanthiidae

Eresidae



Cheiracanthium spp. (C.L Koch, 1839)



Stegodyphus sarasinorum (Karsch, 1892)

Hersiliidae



Hersilia savignyi (Lucas, 1836)

Lycosidae



Hippasa spp. (Simon, 1885)



Lycosid



Pardosa spp. (C.L Koch, 1847)

Oxyopidae



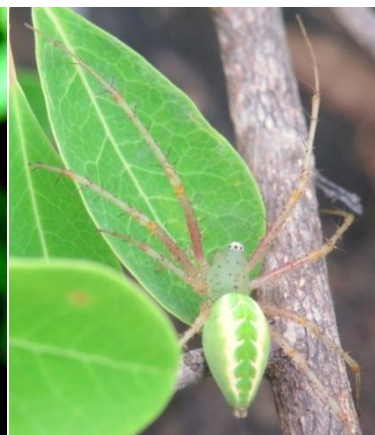
Oxyopes javanus (Thorell, 1887)



Oxyopes spp. (Latreille, 1804)



Oxyopes shweta (Tikader, 1970)



Peucetia viridana (Hentz, 1832)

Philodromidae



Tibellus spp. (Simon, 1875)

Pholcidae



Crossopriza lyoni (Blackwall, 1867)



Pholcus spp. (Walckenaer, 1805)

Salticidae



Carrhotus viduus (C. L. Koch, 1847)



Chrysilla spp. (Thorell, 1887)



Epeus indicus (Proszynski, 1992)



Hasarius adansoni (Audouin, 1826)



Hyllus semicupreus (Simon, 1885)



Menemerus bivittatus (Dufour, 1831)



Myrmaplata plataleoides



Phintella vittata (C. L. Koch, 1846)
(O. Pickard-Cambridge, 1869)



Plexippus paykulli (Audouin, 1826)



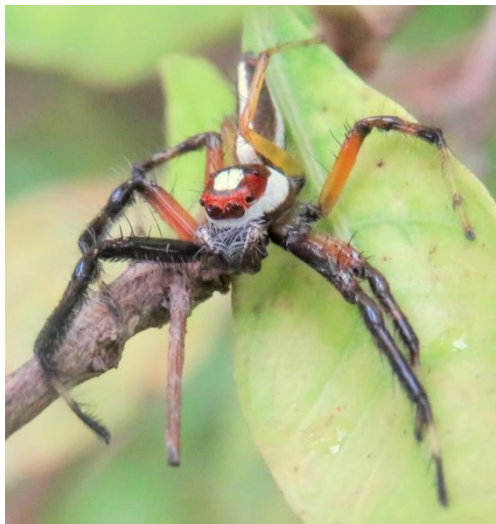
Plexippus petersi (Karsch, 1878)



Rhene flavicomans (Simon, 1902)



Stenaelurillus spp. (Simon, 1886)



Telamonia dimidiata (Simon, 1899)

Sparassidae



Heteropoda spp. (Latreille, 1804)

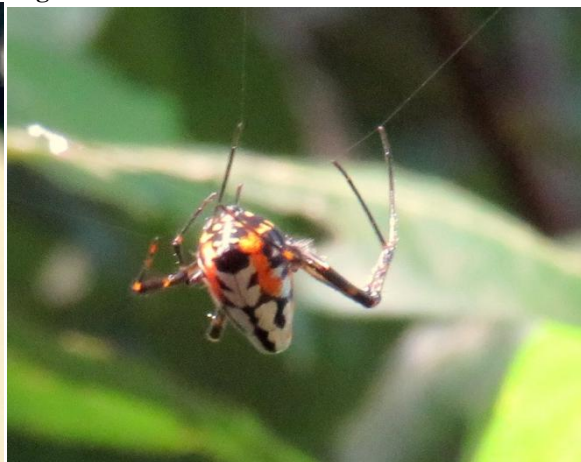


Olios spp. (Walckneer, 1837)

Tetragnathidae



Leucauge decorata (Blackwall, 1864)



Opadometa fastigata (Simon, 1877)



Tetragnatha spp. (Latreille, 1804)

Theridiidae



Theridid

Thomisidae



Misumenops spp. (F.O.P Cambridge, 1900)



Thomisus spectabilis (Doleschall, 1859)

Uloboridae



Zosis geniculata (Olivier, 1789)