

STUDIES ON SPIDER DIVERSITY FROM SELECTED REGION OF WAYANAD DISTRICT

Navya Andrews¹ and Sajani Jose²

Post graduate student¹ and Assistant professor²

PG and Research Department of Zoology, Nirmala College for Women,

Coimbatore, Tamil Nadu, India

ABSTRACT

The present field study was carried to record variety and abundance of spiders in, kuruvaisland, wayanad district, kerala, India. The field survey was carried from September 2020 to December 2020. The spiders were collected and photographed in quadrants covering all significant area with natural vegetation along 5 km of river patch. Ideally, the sites along the river basin were studied during this period. Diversity index and Evenness of spiders were calculated. This survey shows the occurrence of 19 species belongs to 10 families. Of which Araneidae was prominent (5 species) followed by Theridiidae (3 species) Lycosidae, Oxyopidae and Salticidae belongs to (2 species) Clubionidae, Hersiliidae, Pholcidae and Tetragnathidae belongs to (1 species).

Key word: Spider, Diversity, Species richness, kuruva Island, Western Ghats.

INTRODUCTION

Spiders are arachnid arthropods (Araneae: Arachnida: Chelicerata: Arthropoda) and are among the most diverse group of terrestrial invertebrates (Sharma and Singh, 2020). They are entomophagous predators in several agro ecosystems and their presence is frequently associated with the structural quality of the ecosystems, due to their effect on bio control of insect pests (Riechert, and Lockley, 1984). Spiders are one of the most fascinating and diverse invertebrate animals in the world (Adarsh and Nameer, 2016). A total of 44,540 species of spiders belonging to 3,924 genera of 112 families have been described all over the world (Platnick, 2014). A total of 2,299 species of spiders under 67 families have been reported from South Asia (Siliwal et al., 2005), of which, from India 1,442 species in 59 families were reported (Siliwal and Molur, 2007).

Spiders represent the second largest order within the arachnids. They are a group of predators that occur in various physical and biological conditions of the terrestrial environment (Foelix, 1996). The spiders play an important role in maintaining biological balance of nature. Spiders can play an important role in stabilizing or regulating insect populations in agriculture as well as in forest ecosystem. Biological control through spiders is one of the best strategies to reduce the use of chemical pesticides as well as the population of the insect pests (Ghafoor and Mohamood, 2011). Taxonomic studies of different spider species from wildlife sanctuaries, paddy fields and cotton fields were investigated by many researchers (Chetia and Kumar, 2012) and (Bukhari et al., 2012).

The present study was carried out to report the Spider Diversity in and around the Kuruva island of Wayanad district and to find out their occurrence and to create the awareness for their conservation. The richness of spiders in domesticated areas is an indicator to the extent of damage human interventions have caused.

MATERIALS AND METHODS.

STUDY AREAS

Wayanad district is one of the hill stations of Kerala set high on the Western Ghats with altitudes ranging from 700 to 2100m. The 2131km² area of Wayanad is rich with agricultural fields, plantations and forest cover. The islands in the Pulpally range. The study area is located in 11.8217° N, 76.0922° E.

MAP SHOWING WAYANAD DISTRICT IN KERALA STATE KURUVADWEEP



SAMPLING METHODS

The study was conducted from September 2020 to December 2020. The microhabitats that are likely to support the spiders in the study area such as tree trunks, foliage, water bodies, ground, litter, undergrowth and bushes were searched for spiders. Collections were made by active searching for spiders following a line transect method. Spiders were collected by Handpicking Method, Pit Fall Trap, Beating Method, Visual Search Method, Inverted Umbrella Method, Kerchief Method and Sweep Net Method.

Small specimens were photographed by using a stereo zoom microscope and large specimens were photographed by using Samsung galaxy J5 (15MP camera).

PRESERVATION

The collected specimens were either kept alive or stored in preservative for identification. Preservation was done in 70% ethyl alcohol or 85% isopropyl alcohol as spiders cannot be dry preserved. Airtight containers were used to keep the preserved specimens. Only one or two samples were collected to conserve the numbers. Appropriate labels were given to the bottles for the ease of identification.

IDENTIFICATION

The spiders were identified using field guide (Sebastian and Peter, 2009) and Tikader (1977, 1987). World spider catalogue by Platnick (2014) was used for the taxonomy and nomenclature of spiders.

RESULTS AND DISCUSSION

The selected site for studying the diversity of spiders is Kuruva Island at Wayanad district. The study was conducted for three months, from September 2020 to December 2020. The identified species were listed in the table: 1

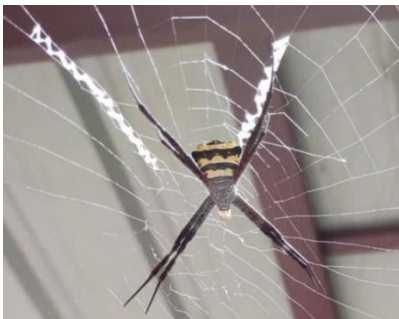
Table: 1 LIST OF SPECIES IDENTIFIED FROM – KURUVA ISLAND

SCIENTIFIC NAME	FAMILY
<i>Argiopepulchella</i>	Araneidae
<i>Cyrtophoracicatrossa</i>	Araneidae
<i>Cyrtophoracitricola</i>	Araneidae
<i>Leucauge sp.</i>	Araneidae
<i>Neoscoanmukerji</i>	Araneidae
<i>Clubionadrassodes</i>	Clubionidae
<i>Hersiliasavignyi</i>	Hersilidae
<i>Hippasaagelenoides</i>	Lycosidae
<i>Pardosa sp.</i>	Lycosidae
<i>Oxyopesshweta</i>	Oxyopidae
<i>Oxyopes sp.</i>	Oxyopidae

<i>Pholcusphalangoides</i>	Pholcidae
<i>Myrmaplataplateleoides</i>	Salticidae
<i>Siler semiglacus</i>	Salticidae
<i>Heteropodavenatoria</i>	Sparassidae
<i>Opadometafastigata</i>	Tetragnathidae
<i>Nesticodesrufipes</i>	Theridiidae
<i>Steatoda sp.</i>	Theridiidae
<i>Theridiidae sp.</i>	Theridiidae

Photoplate 1: List of species identified from kuruva Island

Argiopepulchella



Cyrtophoracitrossa



Cyrtophoracitricola



Leucaugesp



Neoscoanmukerji



Clubionadrassodes



Plate 2:List of species identified from Kuruva Island

Hersiliasavignyi



Hippasaagelenoides



Pardosasp.



Oxyopesshweta



Oxyopes sp.



Pholcusphalangoides



Plate3:List of species identified from Kuruva Island

Myrmaplataplateleoides



Siler semiglacus



Heteropodavenatoria*Opadometafastigata**Nesticodesrufipes**Steatodasp**Theridiidaesp*

A total of 19 species under 10 families were recorded from Kuruvaisland. The recorded species were *Argiopepulchella*, *Cyrtophoracicatrossa*, *Cyrtophoracitricola*, *Leucaugesp.and*, *Neoscoanmukerji* belonging to the Araneidae family. *Clubionadrassodes*, belonging to Clubionidae family. *Hersiliasavignyi* which belongs to the Hersilidae family, *Hippasaagelenoides* and *pardosa sp.* comes under the Lycosidae family, *Oxyopesshweta* and *Oxyopes sp.* belongs to Oxyopidae family, *Pholcusphalangoides* belongs to Pholcidae family, *Myrmaplataplateleoides* and *Siler semiglacus* comes under Salticidae family, *Heteropodavenatoria* belongs to Sparassidae family, *Opadometafastigata* under the Tetragnathidae family, *Nesticodesrufipes*, *Steatoda sp.* and *Theridiidae sp.* belongs to Theridiidae family.

In this survey, followed by Araneidae (5 species), Lycosidae (2 species), Theridiidae (3 species), Oxyopidae (2 species), and Clubionidae, Hersilidae, Pholcidae, Sparassidae and Tetragnathidae with 1 species each. The highest species richness were observed in the forested habitat of Kuruva which provided 19 species of 17 genera from 10 families. The families Araneidae exhibited dominance in the region. Salticidae and Araneidae were the most frequently sighted groups during this study. Status of all species were categorized depending on the direct sightings during the study, which showed 2 species with rare sightings, 3 species with occasional appearance and 13 species were spotted commonly.

The documenting of spider diversities of these varying ecosystems can provide major information that may be used as a basis for the conservation strategies for these ecosystems. The environment degrading activities like deforestation and urbanization are an immense threat to the populations and the species diversity of most of the organisms, including spiders and mankind eventually.

CONCLUSION

The study documented 19 spider species of belonging to 22 genera under 10 families with Araneidae being the dominant family. The orb weavers were the major guild structure. They are maintaining ecological equilibrium by suppressing insect pest. However, the forest is under pressure from habitat loss and degradation due to deforestation which is the primary threats to spider diversity. Despite spiders being the most diverse group of predators and crucial to the health of terrestrial ecosystems, none of the species recorded in India is listed in IUCN Red List. Extensive survey for these spiders is urgently required.

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