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## To Investigate Functional Assemblages of Spiders (*Arachnida:Araneae*) from Western Ghat Ranges of Radhanagari Wildlife Sanctuary Kolhapur, Maharashtra

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### Introduction:

Spiders being an important group of arthropods, they are studied poorly. The origin of spider could be traced back nearly 400 million years to the Devonian period. The abundance and resemblance of the spiders to their modern descendants can be dated back to the early tertiary period (i.e. 70 million years ago). Basically spiders play an important role in insect pests regulation and other invertebrates populations in most ecosystems. Generally Spiders are found in virtually all terrestrial ecosystems including some freshwater and marine habits and all continents except Antartica (Turnbull, 1973; Cushings, 2005). Although they are not insects themselves, Spiders are meat-eaters, feeding on insects- and other spiders. Spiders represent seventh most diverse order of animals in terms of named species (Nyffler and Benz, 1987, Coddington and Levi, 1991). It has been estimated that the extent species of spiders range as high as 1,70,000 (Coddington and Levi, 1991).

Spiders are rich in number, averaging 50,000 individuals per acre in vegetated areas. Spiders play an important role in most terrestrial ecosystems and serve as both predators and prey. Despite their abundance, ecological

importance and ubiquitous occurrences, spiders are seldom included among organisms surveyed for extensive studies & conservation (Cole, 1994). Extensive work is needed to understand the significance of spiders as indicator species in the environment.

Kolhapur forms a part of Pune division of Maharashtra state and is situated between 15° and 17°N latitudes and 73° and 74° E longitudes. It is bounded on the North by Satara district. On the West by Ratnagiri and Sindhudurg districts, South and East by Belgaum district of Karnataka State. The district, on the whole is a part of Deccan table –land with an average height of 500 m above the sea level, with Sahayadri scarp forming most prominent feature along its Western administrative boundary. The Western side of Kolhapur district is characterized by North-South Sahayadri ranges, the off –shoots of which run West-East up to the central part. The Eastern tract is almost plane with small scattered hillocks.

The Western part of the district receives heavy rainfall up to 6500mm. This part of the district near Sahayadri is always cooler than that in eastern part. This total geographical area of the district is 20,40,320 acres of which is about 18.5% is under covering of the forest. The vegetation along the Western rim and its descending slopes mainly consists of Semi-evergreen species mixed with few deciduous species, excepting a few pockets where the vegetation is mainly composed of evergreen species.

Radhanagari is situated at 16° 30'N and 74° 00' L and the total area of the Taluka is about 5000 sq.km. Its altitude varies from 955m to 549 m. As early as in 1958, 19.16 sq.km. area of the forest at Dajipur, in taluka Radhanagari, was initial reserved as Dajipur Bison (Indian Gaur) Sanctuary by the Government of Maharashtra. Subsequently in 1985 the area of the Sanctuary was expanded to 351.16 sq. kms and the sanctuary was renamed as 'Radhanagari Wildlife Sanctuary'.

## **Methodology:**

The sampling survey was held for two years during 2011 – 2013 in various habitat patches like undisturbed forest, agricultural area, grassland and fully protected human managed patches of forest. The captured spiders specified from this habitat were preserved in 70% ethanol. The collection date, habitat were recorded at each vial.

The spiders were identified up to the species level using the identification keys by (Tikader, 1987. Pocock, 1990 ). The world spider catalog (Platnick, 2011 : version 12 ) is also followed while revising & compiling the check list of spiders. Radhanagari wildlife Sanctuary including taxonomic classification.

Different layers of each habitat is selected i.e. trees, shrub layers, grass land & soil layer. Spiders will be collected by using standard techniques as mentioned below.

a. Beating Sheets: Spiders from the trees & shrubs are collected by this method. Here a standardized stick is used for beating the trees & shrubs so as to dislodge the spiders. Once dislodged they are then trapped & collected.

b. Active Searching & Hand Picking: In this method, Spiders will be searched under different layers such as logs, rocks, ground debris & loose dead barks of trees & so on.

c. Sweeping Method: In this method, Spiders will be collected by using standardized insect collecting net. Here mainly field layers of soil were selected.

## **Results & Discussion:**

At the time of study spiders were recorded. The investigation showed that 18 families that almost represent 30% of the total families reported from India. The families representing highest number of species in Radhanagari Wildlife Sanctuary (few areas) are Araneidae with 16 species followed by Salticidae

with 10 species. Among them 7 mono typic families represented by single species.

### Conclusion:

As Radhanagari Wildlife Sanctuary being one of the hot spot areas in Western ghats, it is rich in flora and fauna diversity with different ecological zones. Spider study is untouched and checklist or records are not yet prepared to a maximum extent. There is a wide scope to study in details and this will help in conservation in near future.

### Spiders recorded during the survey:

Table No. 1

Family	Genus
Araneidae	Eriovixia
	Argiopepulchella
	Eriovixia
	Neosconasps.
	Neosconatheis
	Argiopepulchella
	Argiopeaemulla
	Neosconasps.
	Araneus
	Cyrtophorasps.
	Lariniapthisica
	Clubionidae
Gnaphosidae	Zelotessps.
Lycisidae	Lycosasps.
	Hippasa
	Geolycosasps.
Miturgidae	Chiracanthiumsp.
Nephilidae	Nephilapilipes
Oxyopidae	Tapponiasps.
	Peucetiasps.
	Oxyopessps.
	Oxy2opes sps.
	Hippasa
Pisauridae	Dolomedessps.
	Thalasiussps.

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Pholcidae	Pholcussps.
	Artemasps.
Salticidae	Phidippussps.
	Carrhotussps.
	Carrhotus sps.2
	Myrmarachnesps.
	Brettus or cosmophasis
	Hyllussps.
	Phidippussps.
	Carrhotussps.
	Phintellavittata
	Hasariusadansoni

**Table No. 2**

Scytodidae	Scytodesthorasica
Sicaridae	Loxoscelesrufescens
Sparassidae	Neosparassussps.
	Heteropodasps.
Thomisidae	Oxytatesps.
	Miumenopssps
	Thomisussps.
	Oxytatesps.
	Thomisus sps.2
	Thomisus sps.3
Therididae	Argyrodesps.
	Argyrodesps. 2
	Acaearaneasps.
	Argyrodes sps.3
	Chryso or Theridula
Theraphosidae	Theraphosidaesps.
Tetragnathidae	Opadometasps.
	Tetragnathasps.
	Tetragnatha sps.2
Uloboridae	Miagrammopessps.

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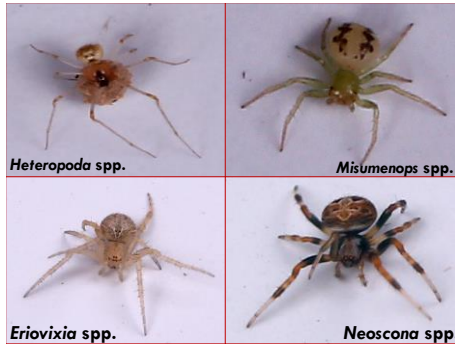
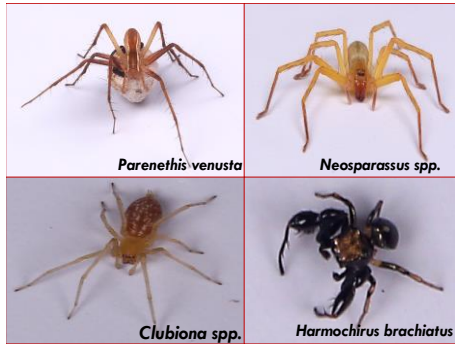
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