

# Inventorization of Spider Diversity from Vakoba, Devrai Region of Radhanagari Wildlife Sanctuary

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**Abstract:** Diversity of spiders from Vakoba, Devrai region of Radhanagari Wildlife Sanctuary in Western Ghats is studied for the first time. From the study area 61 species belonging to 50 genera and 19 families are recorded during 2011-2013 with a dominance of Araneids, Salticids and Lycosid spiders. So far no body has worked out or studied the spider fauna of Radhanagari Wildlife Sanctuary and hence we have decide to explore the spider diversity from this Sanctuary. Most of the area is dense semi-evergreen forest with a wide range of flora. The area prevails humid and moderate climate and heavy rainfall. The Radhanagari Wildlife Sanctuary covers an area of 351.16 Sq. Kms. This Wildlife Sanctuary is one of the important protected areas of the Maharashtra State, located in the Western Ghats. The Sanctuary area is home to several species rich endemic flora and harbors different species of fauna. The spiders from Family araneidae, thomisidae, oxyopidae, lycosidae, salticidae theropsidae nephilidae are the characteristic.

**Keywords:** Spider diversity, Radhanagari Wildlife Sanctuary

## 1. Introduction

The spiders are known to occupy nearly every terrestrial habitat. Many spider species are not yet known to science. Spiders are found all over the world. The occurrence of major spider families and their relative abundance were studied in the central Western Ghats by Rajashekar K. P. and Raghavendra N. [19]. The ecological development of these types is attributed to various climatic, edaphic, and topographic factors. However biotic factors play a significant role depending upon their frequency and intensity. In the Western Ghats the intensity of these factors varies from place to place.

Spiders comprise one of the largest orders of animals. The spider fauna of India has never been studied in its entirety despite of contributions by many arachnologists [20]. Review of available literature reveals that the earliest contribution and the pioneer workers of Indian spiders [3, 9 and 21]. They described many species from India. Tikader (1987) also published the first comprehensive list of Indian spiders, which included 1067 species belonging to 249 genera in 43 families from the last three decades [24]. Gajbe described 147 new spider species from different habitats of India. [4, 5]. The updated spider checklist given by Keswani et al. of SGB Amravati University Arachnology laboratory shows 1686 species from 438 genera and 60 families [11]. According to world spider catalogue there are spiders of protected areas in India, are studied by Gajbe (1995a) in Indravati Tiger Reserve and recorded 13 species [5]. Rane and Singh recorded five species and Gajbe 14 species from Kanha Tiger Reserve Madhya Pradesh [18, 6]. Gajbe prepared a checklist of 186 species of spiders in 69 genera under 24 families distributed in Madhya Pradesh and Chhattisgarh [4]. Patel described 91 species belonging to 53 genera from Parabikulam Wildlife Sanctuary, Kerala [15]. Patel and Vyas described 56 species of spider belonging to 34 genera and 18 families [16]. He also carried out spider diversity in Vansda National Park [14, 15]. Manju Silwal et al. recorded 116 species from 66 genera and 25 families of spiders from Puma wildlife Sanctuary, Dangs Gujarat [13]. So far nobody has worked out or studied the spider fauna of

Vakoba, Devrai region of Radhanagari Wildlife Sanctuary and hence we have decided to explore the spider diversity from this area. Recently Western Ghats is declared as world heritage site. The present study is restricted to Vakoba, Devrai region of Radhanagari Wildlife Sanctuary which forms the northern end of Western Ghats. The main geological formation of the area is the Deccan trap. The area prevails humid and moderate climate, heavy rainfall.

## 2. Materials and Methods

The techniques used for spider study was visual search, litter sampling and sweep netting. The study was carried out during early morning hours (6 hours to 9 hours) and day time (16 hours to 18 hours), from different parts of the microhabitats, like, rolled or folded leaves, plant branches, leaf litter, tree trunks, rock surface, grass blades, etc. The Lycosids and Gnaphosids were found from the soil surface and also from the river beds. Many spiders can be seen by sharp eyed person in webs. They were photographed as in their natural conditions. Each spider was identified mainly on the basis of morphological characteristics, epigyne and or palp structure after carrying out the necessary dissections and by using the literature [10, 1, 24, 12]. The details of body parts of specimens were examined under a good quality stereo zoom microscope. The identification of species was carried out by the comparison of morphological features with the help of published literature, standard books and field guides.

## 3. Observations and Results

A total of 61 species (Table-1) belonging to 50 genera and 19 families were recorded from the study area during 2011-2013. Among all these 19 families, high diversity was observed in the family's Araneidae (15 species) > Salticidae (13 species) > Lycosidae (5 species) > Thomisidae (3 species).

**Table 1:** Diversity of spiders Vakoba, Devrai region of Radhanagari Wildlife Sanctuary

**1. Araneidae – Orb Web Spiders**

1. *Araneus mitifica* (simon) Female
2. *Arachnura angora* (Tikadar) 1970
3. *Araneus himalayaensis* (Tikadar) 1975
4. *Argiope aemula* (Walckenaer) Female
5. *Argiope aemula* (Thorell) Male
6. *Argiope anasuja* Female
7. *Cyclosa hexatuberculata* (Tikadar) Female
8. *Cyclosa confraga* (Thorell) 1892
9. *Gasteracantha geminata* (Fabricius) 1798, Female
10. *Gasteracantha kuhli* (C L. Koch) Female
11. *Telecantha brevispina* (Doleschall) Female
12. *Larinia emertoni* (Gajbe and Gajbe) 2004
13. *Neoscona mukerjei* (Tikadar) Female
14. *Poltys nagpurensis* (Tikadar) 1982.
15. *Neoscona bengalensis* (Tikadar and Bal.) 1981

**2. Clubionidae - Sac Spiders**

16. *Clubiona bengalensis* (Biswas), 1984

**3. Corinnidae – Ant Mimicking Sac Spiders**

17. *Castianeira zetes* (Simon) 1897 Female
18. *Castianeira himalayansis* (Gravely) 1931

**4. Eresidae – Social Spiders**

19. *Stegodyphus sarasinorum* (Karsch,) 1891 Female

**5. Gnaphosidae – Ground Spiders/Mouse Spiders**

20. *Gnaphosa poonaensis* (Tikadar) 1973
21. *Scotophaesis bhartatae* (Gajbe) 1989
22. *Poecilochroa harmani* (Tikadar) 1982

**6. Hersiliidae – Two Tailed Spiders/Bark Spiders**

23. *Hersilia Savignyi* (Lucas) 1836 Female

**7. Lycosidae – Wolf Spiders**

24. *Lycosa thoracica* (Patel and Reddy) 1993
25. *Evipa mandlaensis* (Gajbe) 2004
26. *Hippasa hansae* (Gajbe and Gajbe) 1999
27. *Hippasa madhuai* (Tikadar and Malhotra) 1980
28. *Pardosa ranjani* Gajbe 2004

**8. Miturgidae – Dark Sac Spiders**

29. *Cheiranthium danieli* (Tikadar) 1975 Female

**9. Nephilidae**

30. *Nephila pilipes*

**10. Philodromidae – Running Crab Spiders/Elongated Crab Spiders**

31. *Philodromus pali* (Gajbe) 2000
32. *Tibulus poonaensis* (Tikadar) 1962

**11. Pholcidae – Daddy Long Leg Spiders**

33. *Pholcus phalangoides* (Fuesslin) 1775

**12. Pisauridae – Nursery Web Spiders**

34. *Pisaura gitae* Tikadar 1970 Female
35. *Nilus marginatus* Simon 1888
36. *Thalassius albocinctus* (Doleschall) 1859

**13. Salticidae – Jumping Spiders**

37. *Epeus albus* Proszynski 1992
38. *Hyllus semicupreus* (Simon) 1885
39. *Marpissa singhi* Monga, (Singh and Sadana) 1989
40. *Myrmarachne incerta* (Narayan) 1915
41. *Myrmarachne jajpurensis* (Proszynski) 1992
42. *Myrmarachne* (Maratha Tikadar) 1973
43. *Myrmarachne satarensis* (Narayan) 1915
44. *Myrmarachne uniseriata* (Narayan) 1915
45. *Phintella vittata* C. L. (Koch) 1846
46. *Portia fimbriata* (Doleschall,) 1859
47. *Rhene decorate* (Tikadar) 1977
48. *Telamonia dimidiata* (simon 1899) Female
49. *Telamonia peckhami* (Thorell) 1891

**14. Scytodidae – Spitting Spiders**

50. *Scytodes fusca*, (Walckenaer,) 1837

**15. Sparassidae – Giant Crab Spiders**

51. *Heteropoda venatoria*, (Linnaeus,) 1767
52. *Olios millet* (Pocock,) 1901

**16. Tetragnathidae**

53. *Leucauge decorate* (Blackwall), 1864 Female
54. *Tetragnatha mandibulata* (Walckenaer) (Male and Female)

**17. Theridiidae – Comb Footed Spiders/Cob Web Spider**

55. *Propostira quadraangulata*, (Simon) 1894
56. *Rhomphaea projiciens* (O. P. Cambridge). 1896
57. *Theridion spinosissimum*, (Caporiacco) 1934

**18. Thomisidae – Crab Spiders/Flower Spiders**

58. *Thomisus pathaki* (Gajbe) 2004
59. *Xysticus bhartatae* (Gajbe and Gajbe) 1999
60. *Xysticus tikaderi* (Bhandari and Gajbe) 2001

**19. Uloboridae**

61. *Uloborus khasiensis* (Tikadar) 1969

**4. Discussion**

Spiders are undoubtedly fascinating. They are of great value to the environment. The present study of spider fauna will be a great significance from the point of view of biodiversity. Spiders have a general blanket effect promoting evolution helping and keeping insect population under control and supplying food for many other animals and therefore keeping the flow of life moving. Thus the results indicate the dominance of ground dwelling spiders like Salticids, Gnaphosids and Lycosides in the Vakoba, Devrai region of Radhanagari Wildlife Sanctuary. The forest is semi evergreen and rich in shrubs as undestroyed habitats resulting into ground dwelling spiders A total of 61 species (Table-1) belonging to 50 genera and 19 families were recorded from the study area during 2011-2013.

**5. Acknowledgements**

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