# Record Of Some Spiders (ARACHNIDA: ARANEAE) Around The Arunavati Dam Region, Distt- Yavatmal, Maharashtra, India

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**Abstract:**
Spiders are the largest orders of Arachnida and they are cosmopolitan in distribution all over the all continents except Antarctica. Also, we all known that Spiders are significant biocontrol agents in terrestrial ecosystems. Spider notably helps the ecosystem to be protected from the insect pests. This is first attempt to record the spider species of around the Arunavati Dam Region, Distt- Yavatmal, Maharashtra. Survey was conducted for a period of one year from June 2021 to May 2022 at different sites of Arunavati Dam region. In total 23 species of spiders from 17 genera and six families Lycosidae, Araniedae, Oxyopidae, Tetragnathidae, Eracidae, Thomicidae and Pholcidae. Both hunting and orb-web weaver spiders were recorded from this region. From the present investigation we conclude that the Arunavati Dam Region is rich in spider species.

**Keywords:** Arunavati Dam, spider, araneae, ecosystem

## 1) Introduction:

Spiders belong to the arthropods known as arachnids. Spiders are a large group of animals included in order Araneae. Spiders regulate the terrestrial arthropod population as they are important predators (Reichert and Bishop, 1990; Coddington and Levi, 1991). Spiders are significant food source for wasps, lizards, birds and other animals. Ground dwelling (Wolf) spiders may be important in transferring energy directly from the below-ground detritus food wells to the above-grounds terrestrial food web of familiar amphibians, reptiles,birds and mammals (Johnston 2000)
Around 42473 species under 3849 genera and 110 families of spiders are available in the world list (Platnick, 2011: Version 12.0). In India, Tikader (1987) described 1067species in his spider checklist. Spiders are extremely sensitive to small changes in the habitat structure; including habitat complexity, litter depth and microclimate characteristics (Downie et al. (1999) and New (1999). Hirst (1909), Gravely (1915, 1935), Jose and Sebastian (2001), Smith (2004), and Jose et al. (2006) studied the spider fauna in and around Western Ghats but there is no work on spider at Arunavati Dam region, Yavatmal, Maharashtra, hence an attempt is made in the present region to make the preliminary study of spider fauna.

## 2) Materials and Methods:

### a) Study site:

The present study was conducted for a period of one year from June 2020 to May 2021at different study sites around the Arunavati Dam region, Yavatmal, Maharashtra (Table 1). The Arunavati Dam is situated at 20° 7′ 52.76″ N, 77° 44′ 57.52″ E position which is just 5 km away from the Digras town in the Yavatmal district of Maharashtra state (India).

### b) Sampling methods:

Survey was conducted for one year from June 2021 to May 2022at different sites of Arunavati Dam region. Spiders were collected by active searching, hand picking and Umbrella collection.

All surveys were conducted in the morning hours between 7:00 am to11:00 am. Collected spiders were photographed in live condition identified and then released to their natural habitat. Few spiders were observed under microscope for identification and for study of some morphological characteristics.

### c) Photography

Photography of the spider specimens were made in the natural habitat with the help of Digital Camera for identification without disrupting their natural habitat.

Photographs were taken in such a way that there was minimal disturbance to the spiders and associated surrounding habitat.

**d) Identification:**
Majority of the spider species were identified at the field by observing the morphological characteristics by the naked eyes. Further identification was done by various filed guides. Unidentified specimens from the field were identified in the Zoology laboratory of B.B. Arts, N.B.

Commerce & B.P. Science College, Digras, Dist-Yavatmal using stereo zoom microscopes. This spider specimens were identified using the taxonomic keys of Indian spiders given by Tikader (1987), Reddy and Patel (1992), Biswas and Biswas (2003), Majumdar (1995) and Sabbastian and Peter (2009).

**3) Observations and Results:**
23 species of spiders under 17 genera and 08 families (Table 1) were recorded during the study period from the area around the Arunavati Dam region. The noted families were Lysosidae, Araniedae, Oxypidae, Tetragranthidae, Salticidae, Eracidae, Thomicidae and Pholcidae. The most dominant families recorded were Aranidae, Lycosidae and Oxypidae each representing 10, 3 and 3 species respectively. The observed rare families were Eracidae, Thomicidae and Pholcidae, each representing only one spider species.

**Species Richness**
A total of 23 species are discovered from a limited area of nearly 50 $km^2$. This number is very high compared to otherregions like Andaman and Nicobar Islands – 65 species, Calcutta – 99 species and Sikkim – 55 species (Tikader 1987, Tikader 1977 and Tikader and Biswas 1981). This study clears that the desired area is rich in species diversity of spiders.

**Table 1:** Recorded species of Spiders with their families at around the Arunavati Dam Region, Distt- Yavatmal, Maharashtra, India

| S.N. | Family | Species |
|---|---|---|
| 1 | Lycosidae | *Arctosa littoralis* |
| 2 | | *Paradosa sp.* |
| 3 | | *Hippasa sp.* |
| 4 | Araniedae | *Gasteracantha sp.* |
| 5 | | *Araneus shilangenesis* |
| 6 | | *Neoscona sp.* |
| 7 | | *Larinia sp.* |
| 8 | | *Zygeilla sp.* |
| 9 | | *Cyclosa hexatuberculata* |
| 10 | | *Neoscona sp.* |
| 11 | | *Neoscona sinhagadensis* |
| 12 | | *Zygilla indica* |
| 13 | | *Cyclosa simony* |
| 14 | Oxyopidae | *Oxyopes sp.* |
| 15 | | *Oxyopes pawani* |
| 16 | | *Himataliwa sp.* |
| 17 | Tetragnathidae | *Leucauge decorata* |
| 18 | | *Laucauge sp.* |
| 19 | Salticidae | *Phidippus sp.* |
| 20 | | *Telamonia dimidiata* |
| 21 | Eracidae | *Stegodyphus sp.* |
| 22 | Thomicidae | *Thomisus sp.* |
| 23 | Pholcidae | *Pholcus sp.* |

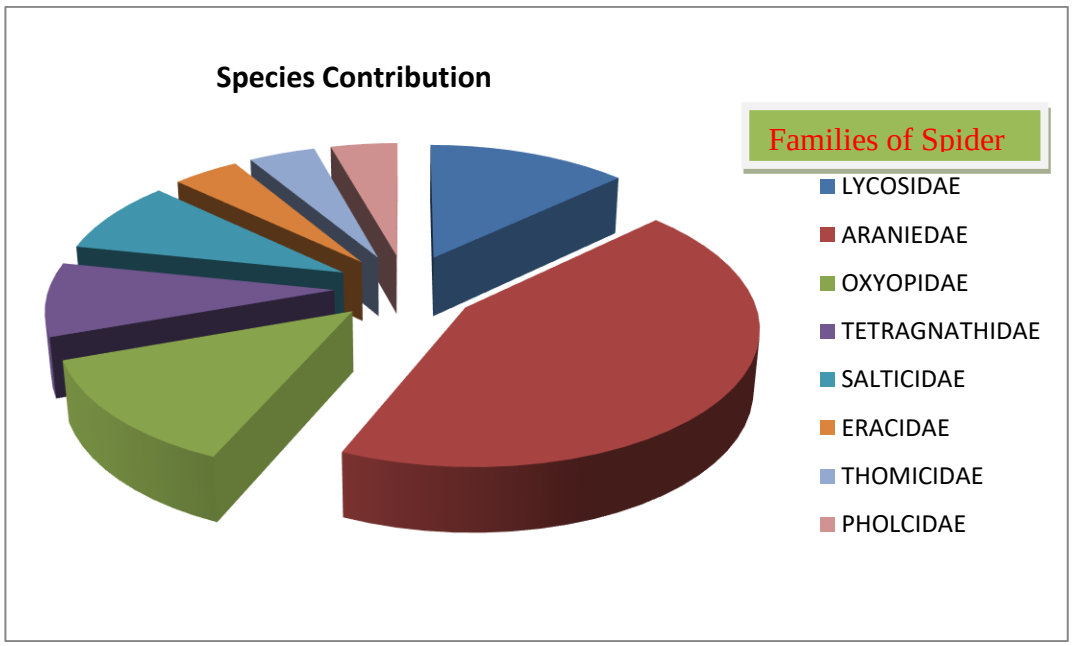


**Fig 1:** Contribution of different families of spiders in the form of species recorded at around the Arunavati Dam Region, Distt- Yavatmal, Maharashtra, India

**4) Discussions and Conclusions:**

Arunavati Dam region also exhibits good number of spiders and remarkable diversity of spider fauna. In the present one-year study observed 23 species of spiders under 17 genera and 08 families from the area around the Arunavati Dam region. Family Araneidae was the most represented family with 10 spider species.

From this first study in the present area, we conclude that, Arunavati Dam region, Yavatmal, Maharashtra, India is rich in spider diversity. It is also concluded from the observations that; this area is also rich in variety of floral diversity.

There is no earlier work in the Arunavati Dam region area regarding the diversity of spiders. This indicates the necessity for further study in this area. The complex interaction of various climatic factors like temperature, rainfall, availability of water source nearby may create many smaller but diverse environmental niches in this area. The presence of diverse habitats like forests, bushes, sand and water can make Arunavati Dam area an important Centre of speciation.

Many environmental factors affect diversity of species (Rosenzweig, 1995). Larger variety of habitat types resulted into increased diversity (Ried and Miller 1989). Hawksworth and Kalin-Arroyo in 1995 stated that there is a correlation between structural complexities of habitats and diversity of species. It is observed that, complex shrubs hold good spider diversity (Uetz 1991). Downie, et al. in 1999 and New in 1999 noted that spiders are sensitive to minute change in the structure of habitat such as habitat complexity, litter depth and microclimate characteristics. Riechert and Gillespie, 1986 recorded that spiders generally have humidity and temperature preferences that limit to areas within the range of their "physiological tolerances" which make spiders an ideal candidate for land conservation studies. Documenting and reporting diversity of spider in the present studied ecosystem can give important information to justify the conservation of this ecosystem. This Arunavati Dam habitat has a diverse spider community and further research should be encouraged in this ecosystem. However, to maintain and manage this high diversity, other factors also needed to be studied. All the Factors at the microhabitat scale, which may be important in influencing the diversity, have to be investigated.

Thus, the existing data suggest that Arunavati Dam region could be rich centers in Vidarbha region of India.

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