



SPIDER DIVERSITY AROUND SONALA DAM, SONALA, DIST. WASHIM, MAHARASHTRA

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ABSTRACT:

The paper reveals the study and identification of spiders found at Sonala dam, Washim and at its adjoining forest and agriculture fields. The survey conducted and recorded, noticed over all 28 mature male and female spiders, belonging to 10 families, and 24 species. Although, the spiders of different families were noticed, the most dominant family observed was Araneidae with 7 species. The vegetation and the climate present at Sonala dam and at its adjoining area ascertain the availability of recorded species of spiders.

Keywords :- Spiders, Climate, Araneidae, conservation.

INTRODUCTION :

Arachnids are a diverse group of invertebrate populations that exploit a wide range of spatial and temporal niches in virtually all biomes on the earth. Spiders are an important group of arthropods although poorly studied. Despite their rich abundance, ecological importance and ubiquitous occurrences, spiders are seldom included among organisms surveyed for extensive studies and conservation (Cole, 1994). Spiders play an indispensable role in the regulation of insect pests and other invertebrate populations in most ecosystems, as well play a vital role in sustaining the ecosystem (Russell-Smith, 1999). Spiders are widespread predators; they are of extensive economic importance to man due to their ability to suppress pest abundance in agro ecosystem. Spiders are very sensitive biological indicators and exhibit immense taxon and guild responses to environmental changes (Uetz, 1991). Spiders are widely used to assess the health of ecosystems, since they can be easily identified and are differentially responsive to natural and anthropogenic disturbances (Pearce and Venier, 2006). Spiders are discernible, amenable to

capture by relatively economical, easily deployable and replicable techniques. The spider fauna of India is represented by 1520 spider species belonging to 377 genera and 60 families (Sebastian and Peter, 2009).

MATERIALS AND METHODS

STUDY AREA :-

Sonala Dam reservoir was constructed in the year 1981. Agricultural fields surround the reservoir including dense vegetation. The reservoir is mainly used for drinking water supply to nearby villages and for irrigation. The nearby villages also use the water for bathing and washing purposes. The dam is constructed by irrigation department of Maharashtra Govt. The Sonala dam is located at 770, 12', 30" Longitude and latitude of 200, 19', 00" in Sonala village of Washim district in Maharashtra (India). It is an earthen dam with 19.20 meter maximum height and 446.90 hector submergence with 132.50 square Km. of catchment area. The dam is presently used for irrigation and drinking for regional rural areas. The reservoir is constructed on the River Aran also known as River Adan a tributary of River

Godavari. Adan River in its way runs through the Maraldoh village, before draining in the dam.

SAMPLING :

Spiders were collected every month by adopting standard sampling techniques. Spiders were collected from tree trunks, ground, vegetation, under stones/crevices, grasslands and near water body etc. While collecting spiders care was taken to avoid collection of immature spiders and emphasis was given on collection of mature spiders. Also repetition was avoided during collection of sample. Spiders were sampled using many standard sampling techniques, each with its own limitations, such as active visual searching and hand picking, insect's nets, and beating, pitfall trap, sweeping, and stroking sticks. Collected specimens were preserved in 70% alcohol. At the initial level all the specimens were separated from other materials, labeled and identified according to Barrion and Litsinger (1995), Biswas and Biswas (1992), Davies and Zabka (1989), Gajbe (1987), Tikader (1962, 1970, 1987) Platnick (1989, 2004).

MORPHOLOGY :

Spiders are commonly named according to web pattern, behavior of spiders and resemblance with other animals. Some of the common names are given in table 1.

RESULT AND DISCUSSION :

On examining the collection, it is quite fascinating and encouraging to document the varied types of spiders living around the Sonala dam. A total of 28 mature male and female spiders were recorded from the study area, belonging to 10 families and 24 species. The largest number of species belonging to family Araneidae, which is represented by 7 species followed by Salticidae representing 4 species, Gnaphosidae, Lycosidae, Oxyopidae, Uloporidae and Theridiidae were represented by 2 species each. The spiders were found to be thriving in different habitats. The spider families which mainly inhabited vegetation were Araneidae,

Tetragnathidae, Oxyopidae and Philiodromidae. Hippasa, the member of Lycoidae family was found in funnel webs made over holes in the ground. Crab spiders belonging to Philodromidae were mainly found thriving on flowering plants. Tetragnathidae spiders were predominantly found on the reeds overhanging the water body. Spiders belonging to family Phosidae and Oxypidae were ground dwellers. The spider families predominantly found in agricultural field were Oxyopidae, Lycosidae, Salticidae, Araneidae and Gnaphosidae.

Environmental parameters, such as vegetation, topography and climate tend to influence spider distribution and diversity; as spiders are very sensitive to these parameters. Spiders are the most important invertebrate predators in many terrestrial ecosystems. Among the arthropods spiders play a significant role in ecosystem functioning throughout the habitat (Van Hook, 1971). Spiders seem well suited to discriminate habitat type and quality, since they play a significant role as diverse and abundant invertebrate predators in terrestrial ecosystem (Skrel, 1999). Despite their valuable ecological role in many ecosystems, spiders have not yet received due attention from conservation point of view. Negative public attitudes towards spiders might be one of the causes affecting attention (Kellert, 1986). A paucity of compiled information on spider conservation status and distribution may be a more important issue. This indirect approach of spider conservation indicates that the spider fauna is to be considered broadly in general conservation planning and habitat protection efforts as an important component of terrestrial ecosystems (Kishor Rithe, 2012). Substantial information in this respect will greatly determine the viability of this approach. Increased communication between conservation professionals and spider researchers may yield new co-operative approaches for assessing the

usefulness of spiders in conservation tools. Hence it can be concluded that the area around Sonala dam is having rich biodiversity and should be essentially protected from anthropogenic encroachment. Spider can be used as an indicator of healthy ecosystem and hence our prime duty to protect the vegetation so as, to increase the production of different species.

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Table No. 1 : Spider Family Name and Common Name

| Sr.No. | Family Name | Common Name |
|--------|----------------|----------------------------|
| 1. | Araneidae | Orbweavers |
| 2. | Clubonidae | Sac Spiders |
| 3. | Gnaphosidae | Ground Spiders |
| 4. | Lycosidae | Wolf Spiders |
| 5. | Oxyopidae | Lynx Spiders |
| 6. | Philodromidae | Running Crab Spiders |
| 7. | Salticidae | Jumping Spiders |
| 8. | Theridiidae | Combfooted Spiders |
| 9. | Tetragnathidae | Long jawed orb web weavers |
| 10. | Uloboridae | Triangle weavers |

Table No. 2 :- Total Species found in Study region

| Sr.No. | Family | No. of Speies |
|--------|----------------|---------------|
| 1. | Araneidae | 7 |
| 2. | Clubonidae | 1 |
| 3. | Gnaphosidae | 2 |
| 4. | Lycosidae | 1 |
| 5. | Oxyopidae | 2 |
| 6. | Philodromidae | 2 |
| 7. | Salticidae | 4 |
| 8. | Theridiidae | 2 |
| 9. | Tetragnathidae | 1 |
| 10. | Uloboridae | 1 |

Table No. 3 :- Spider fauna from study area

| Family | Species |
|----------------|---------------------------|
| Araneidae | Araneus sp. (F) |
| | Araneus marmoreus (M) |
| | Argiope aemula (M) |
| | Neoscona sp. (M) |
| | Neoscona sp. (F) |
| | Zygiella sp. (F) |
| | Zelotes choubai (M) |
| Clubionoidae | Clubiona sp. (M) |
| Gnaphosidae | Gnaphosa paurinsis (F) |
| | Zelotes chandosiensis (F) |
| Lycosidae | Lycosa sp (F) |
| | Hippasa sp. (M) |
| Oxyopidae | Oxyopus sp. (M) |
| | Oxyopus sp. (F) |
| Philodromidae | Philodromus sp. (M) |
| Salticidae | Plexipus insulana (F) |
| | Plexipus paykulii (M) |
| | Plexipus paykulii (F) |
| | Plexipus sp. |
| Tetragnathidae | Tetragnathidae sp. (M) |
| Theridiidae | Leucage sp. M/F |
| | Leucage fastigata (M) |
| Uloboridae | Uloborus sp. (F) |