

# Spider's assemblage and diversity from outskirts of Amravati, Maharashtra, India.

Ujjwala Shivaji Deshmukh

Department of Zoology, Government Vidarbha Institute of Science and Humanities, Amravati 444604 (M.S).

Email: [ujjwaladeshmukh@rediffmail.com](mailto:ujjwaladeshmukh@rediffmail.com)

## Manuscript Details

Available online on <https://www.irjse.in>

ISSN: 2322-0015

Editor: Dr. Arvind Chavhan

## Cite this article as:

Deshmukh Ujjwala Shivaji. Spider's assemblage and diversity from outskirts of Amravati, Maharashtra, India, *Int. Res. Journal of Science & Engineering*, 2020, Special Issue A10: 125-127.

Article published in Special issue of International e-Conference on "Role of Science and technology in Sustainable development-2020" organized by Department of Zoology & IQAC, Digambarrao Bindu ACS College, Bhokar, Dist. Nanded, Maharashtra, India date, August 17-18, 2020.



Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>

## Abstract

The present study was carried to record diversity and abundance of spiders during various seasonal conditions from outskirts of Amravati, Maharashtra, India. The survey was carried from March 2017 to February 2018. The spider were collected and photographed in quadrants covering all significant area with natural vegetation along 5 km of outskirts of Amravati. A total of 97 species of spiders belonging to 48 genera and 14 families were recorded during the study. The Salticidae was the most abundant family representing 20 species with 10 very common followed by the Araneidae with 17 species with 07 very common. Maximum species were recorded during winter, lesser during monsoon which were mostly immature and least during summer.

**Keywords:** Spider, diversity, abundance.

## Introduction

Spiders are invertebrate animals in the phylum Arthropoda, which is a large group of animals with jointed legs, more specifically they belonging to the class Arachnida and rank seventh in total species diversity among all other group of organisms. Spiders are ancient animals with a history going back over 350 million years. Spiders constitute one of the dominant terrestrial communities of polyphagous predators. They are cosmopolitan in nature and found almost in all niches, all through spiders are extremely abundant, diversity and abundance of spiders greatly varied in different ecological and environmental condition. Spiders are important but in general poorly studied Arthropods due to unawareness, lack of knowledge, fear and general dislike towards them. Spiders

are air-breathing predatory animal having two body segments belongs to Class Arachnida, with about 45,776 species under 3974 genera distributed over 114 families [1]. In India they are represented by 1686 species belonging to 438 genera of 61 families [2, 3]. Spiders are dominant predator found in Arthropods communities [4]. India is also rich in both flora and fauna and is a mega diverse Country. Information about the diversity, distribution and abundance of spider in India is not explore to the mark. Studies of spiders are always remained neglected. They are largely been ignored. Spiders serve as bio-control agents [5]. Spiders regulate the terrestrial arthropod population as they are important predators [6, 7].

Spiders are abundant in number and are ecologically important in almost every terrestrial and semi-terrestrial (Wetland) habitat on Earth, from cold Tundra and Alpine ecosystems to tropical rainforests and deserts. Identified and described spider species which correspond to only a small number of their total diversity Numbers often go beyond 100 per square meter, which is equal to 1 million spiders per hectare [8]. Some species are found on the shores of the ocean and some dive into ponds and streams in search of prey-members of one Eurasian spider family (Argyronetidae) even live underwater in smooth "diving bells" which they fill with air brought from the surface clinging to their hairy abdomens. Spiders are found high up on Mount Everest, and some of the most northerly animals are spiders, as well. Spiders are carnivorous arthropods and most abundant predators of insects of terrestrial ecosystems [9]. Spiders play an important role as stabilizing agents or regulators of insect populations in agro, forest and other terrestrial ecosystems. Thus their presence in an ecosystem may influence the population of other arthropods in fields. They are predators of pest and kills a large number of insects from their surroundings and hence has a great importance in reducing and preventing the insect pests in agriculture [10].

This survey aimed to know the diversity and abundance of spiders from outskirts of Amravati, which is at base of Satpura mountain range and

flourished with diverse flora and fauna. The seasons are prominently experienced with very hot summer; temperature goes up to 47 °C, moderate rainfall and winter with lowest temperature 10°C. This variation in season may affect the diversity and abundance of spiders.

## Methodology

The survey was carried from March 2017 to February 2018. The spider were collected and photographed in quadrants covering all significant area with natural vegetation along 5 km of outskirts of Amravati, Maharashtra, India.

The spiders were collected by sweep netting, beating sheets, active searching under rocks, wood, grounds debris and loose dead barks of trees on the ground surface, by hand picking; and preserved according to Tikader [11]. Immature spiders were left to its habitat; repetition of collection was avoided. Spiders were collected in the dry containers, photographed and then preserve in 70% alcohol.

## Results and Discussions

Present survey was carried out every weekend during March 2017 to February 2018 to investigate the spider fauna, their diversity and abundance in three different seasons, from outskirts of Amravati, Maharashtra, India. The spiders were collected in quadrants covering all area with natural vegetation along 5 km of outskirts of Amravati. Spiders from 14 families were recorded. Spiders from family Salticidae were observed throughout the survey and is the most dominant family representing highest no. of species (20) from eleven genera, which was followed by Araneidae (17) from seven genera, Lycosidae (6) representing two genera, Oxyopidae (9) representing two genera, Gnaphosidae (6) representing four genera, Tertragnathidae (4) from two genera, Thomisidae (09), representing four genera, Erasidae (2), Theridiidae (1), Uloboridae (2) from single genus. (Table: 1).

**Table: 1. List of Name of Family, Number of Genera and Number of Species recorded from outskirts of Amravati, Maharashtra, India.**

S. No.	Name of Family	Number of Genera	Number of Species
1.	Araneidae	7	17
2	Clubionidae	1	02
3	Eresidae	1	02
4	Gnaphocidae	4	06
5	Hersiliidae	1	01
6	Lycosidae	2	06
7	Oxyopidae	2	09
8	Philodromidae	4	05
9	Pholcidae	1	03
10	Salticidae	11	20
11	Tetragnathidae	2	04
12	Thomisidae	4	09
13	Theridiidae	1	01
14	Uloboridae	1	02

Abundance of spiders has been greatly influenced by seasonal variations, all most all species observed during winter; diversity and abundance of mature spiders was at its peak. Most immature spiders were recorded during monsoon from ten families. Abundance or population of recorded species was maximum. It can be correlated with the availability of food; as diversity of insect is also at peak. Least was recorded during summer, very few spiders from some genera of family Araneidae, Gnaphocidae, Lycosidae, Pholcidae, Salticidae and Thomisidae were observed. To avoid from desiccation during summer most of spiders hide during day time and may wander during night.

**Conflicts of interest:** The authors stated that no conflicts of interest.

## References

- World Spider Catalog (2016) Natural History Museum Bern, online at <http://wsc.nmbe.ch>, version 16.5 (Accessed on 13.01.2016).
- World Spider Catalog (2015) Natural History Museum Bern, online at <http://wsc.nmbe.ch>, version 16.5 (Accessed on 30.11.2015).
- Keswani S, Hadole P, Rajoria A. Checklist of Spiders (Arachnida: Araneae) from India-2012. *Indian Journal of Arachnology*, 2012, 1(1): 129 pp.
- Gertsch WJ. American Spiders. 2<sup>nd</sup> ed. Van Nostran Reinhold, New York, 1979, 274 pp.
- CIKS (2002) Source, indigenous agricultural news unit on "Traditional Indian agricultural, (CIKS - Center for Indian Knowledge System) India, pp 1-2.
- Riechert SE and Bishop L. Prey control by an assemblage of generalist predators: spiders in a garden test system. *Ecology*, 1990, 71:1441-1450.
- Coddington JA and Levi HW. Systematics and Evolution of Spiders (Araneae) *STOR Annual Review of Ecology and Systematics*, 1991, Volume 22 (1991), 565-592.
- Coleman DC and Crossley DA Jr. Fundamentals of Soil Ecology. Academic Press, NY, 1996.
- Edwards CA, Butler CG and Lofty JR. The Invertebrate fauna of the park grass plots II. Surface fauna Rep. *Rothamst. Exp. Stn.* 1975, Part 2:63-89.
- Sunderland KD, Fraser AM and Dixon AFG. Field and laboratory studies on money spiders (Linyphiidae) as predators of cereal aphids. *J. Appl. Ecol.*, 1986, 23:433-447.
- Tikader BK. Studied Spider fauna of Maharashtra and Mysore States Part I.J. Univ. Poona, *Sci. And Tech.*, 1963, 24: 29-54.