



## **A Preliminary study on Spiders diversity from Watiyim village, Mokokchung district, Nagaland, India**

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### **Abstract**

The preliminary study was conducted spider diversity of in Watiyim Village, Mokokchung Dist. Nagaland. The study were conducted from January 2021 to may 2021. There were total of 83 species belong to 39 genera under 15 families were recorded from the study area. Araneidae, (26 species) Sparassidae (14 species), Salticidae (11 Species), Opiliones (6 Species), Lycosida (5 Species) Pisauridae (4 Species), Thomisidae (3 Species), Theraphosidae (3 Species) Hersilidae (2 Species), Tetragnathidae (2 species), Linyphiidae (2 species), Oxyopidae (2 Species), Amaurobius (2 species), Theridiidae (1 Species) Uloboridae (1 species). 10 species of unidentified spiders recorded in this area.

**Keywords:** Spider, diversity, Nagaland village, Forest.

### **1. Introduction**

As quite possibly the most broadly known gathering of arthropod, insects make up an assorted part of the universes spineless creatures (Coddington et al 1991 J. A and Levi H.W). Spiders are cosmopolitan in distribution and locally abundant in terms of individuals and taxa. Their small body size allows them to maintain their community in small area. They are an integral part of ecosystem plying an important role in the structure of communities and food webs, both as an individual numbers and as energy consumers. Spider has also an important role in the ecosystem maintenance. They are considered as the prospective biological control agents (Riechert and Bishop 1990) they feed on small insects and in turn eaten by birds and other carnivores maintaining the tropic balance of nature. Spiders globally include about 47,099 described species 4,073 genera and 113 families, India is having 1,686 species of spiders

belonging to 60 families and 438 genera which constitutes 3.6% of worlds spider population (Keswani et al., 2012). Very little works has been done on spider diversity North East Region of India and specially in Nagaland state, Akash Chetry has reported 38 species in Namsai district Arunachal Pradesh (Akash Chetry and Janmoni Moran, 2019), Gogoi et al., 2015 studied on insects and spiders from papumpare and East Kameng District, Arunachal Pradesh with commercial and economic value and found a arachnid species Nephila known to produce golden silk among many insects. Some studies are also there in Northeast India covering Sikkim (Tikader, 1970, Biswas and Biswas 2003, Tripura (Biswas and Majumder, 2000), Manipur (Biswas and Biswas, 2004) Mizoram (Biswas and Biswas 2007) [9,10], Arunachal Pradesh (Biswas and Biswas 2006), Assam (Chetia and Kalita, 2021: Singh et al., 2012, Singh and Borkotoki 2014).

The main aim of this study was to explore the spider species richness in study area. In general, taxonomic studies on spiders and invertebrates of Watiyim Village Mokokchung District, Nagaland, India are comparatively few and limited, No specific extensive studies on spider faunal diversity in this region were done. This study focuses on the spiders (Aracnida) as a representative invertebrate fauna from this ecosystem. Data thus collected may facilitate future initiatives of biodiversity database of these species in the region.

## 2. Materials and Methods

**2.1. Sample collection methods:** Visual search sampling methods used by (Cordain et al 2005) was adopted in this study to sample the spider fauna from quadrants selected at random of selected study sites. Spiders were easily collected by driving them into a dry container. Collection of most species were made early in the night time and morning. Spider were taken

photographed in field as much as possible to the documented natural history. Taxonomic identification of the specimen were done with the help of available literature Handbook of spiders by Biswas and Mantovani,(2010) and spiders of India by Sebastian and Peter (2009). Hand Book of Indian Spiders, B.T.Tikader 1987), Common spiders From select Protected Areas of Upper Assam (Assam state biodiversity board 2015).

### 2.2 Study area:

The study was carried out during January 2021 to May 2021. The present study focused on the spider diversity in Watiyim Village under Mokokchung District, Nagaland. It is located between 2.3954° N, 94.5212° E, Mokokchung district covers an area of 1,615 km<sup>2</sup>. The physiography of the district shows six distinct hill ranges. It is located at an elevation of 1325 meters above sea level.



**Fig.-1 : Study area Watiyim Village under Mokokchung District, Nagaland, India.**

## 3. Results and Discussion

During the study we had reported 83 species of spiders belonging to 15 family and 39 genera from the Watiyim Village, Mokokchung District, Nagaland has made a significant contribution towards increasing knowledge of spiders species distribution in this area. During the survey for 4 month in village Spiders species were recorded from different families viz

Araneidae, Sparassidae, Salticidae, Lycosida, Araneidae, Sparassidae, Salticidae, Lycosida, Uloboridae, Linyphiidae, Amaurobius, Theridiidae, Oxyopidae. Abundance of the spiders species are arranged family wise with descending orders Araneidae, (26 species, 31%) Sparassidae (14 species, 17 %), Salticidae (11 Species 13%), Opiliones

(6 Species, 7%), Lycosida (5 Species 6%) Pisauridae (4 Species 5 %), Thomisidae (3 Species 4 %), Theraphosidae (3 Species 4%) Hersilidae (2 Species 3%), Tetragnthidae (2 species 2 %), Linyphiidae (2 species, 2%), Oxyopidae (2 Species 2 %), Amaurobius (2 species 2%), Theridiidae (1 Species,1%) Uloboridae (1 species 1 %).10 species of unidentified spiders recorded in this area. No previous reported on spiders has been carry out in this area. so the study

represents new distribution records for all species recorded. A total number of describes species of spiders from all over the world is 48,173 species belonging to 4139 genera and 117 families (world spider catalog 2019). In India there are 1686 species belonging to 438 genera and 60 families (keswani et al., 2012) In this study, In Matia, Goalpara district of Assam 37 species of spiders belonging to 12 families were recorded. (Al Faruki Ahmed 2018).










**Table-1: Spiders species recorded during the study**

SN	Family		Genus	Species names
1	Araneidae	1	Argiope	Argiope pulchella
		2	Argiope	Argiope sp
		3	Argiope	Argiope versicolor
		4	Argiope	Argiope aemula
		5	Argiope	Argiope sp (yellow Collor)
		6	Argiope	Argiope sp
		7	Neoscona	Neoscona nautical (Grey sphere spider)
		8	Neoscona	Neoscona subfusca
		9	Neoscona	Neoscona (1)
		10	Neoscona	Neoscona (2)
		11	Neoscona	Neoscona (3)
		12	Eriovixia	Eriovixia sp
		13	Eriovixia	Eriovixia sp
		14	Eriovixia sp	Eriovixia sp
		15	Zygiella	Zygiella sp
		16	Gasteracantha	Gasteracantha kuhli
		17	Gasteracantha	Gasteracantha diadema
		18	Araneus	Araneus mitificus (Yellow Collor)
		19	Araneus	Araneus mitificus (Green Collor)
		20	Nephila	Nephila pilipes
		21	Nephila	Nephila kuhli
		22	Nephila	Nephila sp
		23	Herennia	Herennia multipuncta
		24	Gea	Gea spiders
		25	Cyclosa	Cyclosa turbinata
		26	Cyclosa	Cyclosa sp
2	Salticidae	27	Plexippus	Plexippus paykulli (female)
		28	Plexippus	Plexippus paykulli
		29	Menemerus	Menemerus bivittatus
		30	Plexippus	Plexippus petersi
		31	Stenaelurillus	Stenaelurillus sp
		32	Brettus	Brettus cingulatus
		33	Brettus	Brettus sp
		34	Platycryptus	Platycryptus
		35	Phintella	Phintella sp
		36	Phintella	Phintell sp
		37	Telamonia	Telamonia sp






3	Lycosidae	38	Honga	Honga carolinensis
		39	Honga	Hogna carolinensis (Female)
		40	Honga	Hogna sp.,
		41	Lycosidae	Lycosidae sp
		42	Lycosidae	Alopecosa Aculeata
4	Pisauridae	43	Dolomedes	Dolomedes Sp
		44	Dolomedes	Dolomedus Scriptus
		45	Dolomedes	D.Albineus
		46	Dolomedes	Dolomedus sp
5	Opiliones	47	Leiobunum	Leiobunum rotundum (daddy long legs spiders)
		48	Opiliones	Harvestmen long legs spiders
		49	Opiliones	Harvestmen (shorter legs)
		50	Opiliones	Daddy long legs spiders
		51	Artema	Artema Atlanta
		52	Artema	Artema sp
6	Sparassidae	53	Heteropoda	Giant Huntsman <i>spiders</i>
		54	Heteropoda	Huntsman sp
		55	Heteropoda	Giant crab spider (Heteropoda venatoria) (1)
		56	Heteropoda	Heteropoda sp
		57	Heteropoda	Heteropoda vanatoria (Female)
		58	Heteropoda	Heteropoda sp
		59	Heteropoda	Heteropoda venatoria
		60	Heteropoda	Heteropoda venatoria
		61	Heteropoda	Heteropoda sp (Female)
		62	Heteropoda	Heteropoda sp
		63	Heteropoda	Heteropoda sp
		64	Heteropoda	Heteropoda sp
		65	Heteropoda	Heteropoda venatoria
		66	Delena	Delena cancerides
7	Hersiliidae	65	Hersilia	Hersilia savignyi lucas
		66	Hersilia	Hersilia sp
8	Thomisidae	67	Thomisus	Thomisus pugilis
		68	Thomisus	Thomisus onustus
		69	Xysticus	Xysticus croceus
9	Theraphosidae	70	<i>Chaetopelma</i>	<i>Chaetopelma</i> sp
		71	Poecilotheria	Poecilotheria sp
		72	Chilobrachys	Chilobrachys sp
10	Tetragnathidae	73	Leucauge	Leucauge tessellata
		74	Leucauge	Silver leucauge
11	Uloboridae	75	Zosis	zosis geniculate
12	Amaurobius	77	Callobius	Callobius sp
		78	Amaurobius	Amaurobius ferox

13	Theridiidae	79	Steatoda	Steatoda triangulosa
14	Linyphiidae	80	Linyphia	Linyphia sp
		81	Cyrtophora	Cyrtophora cicatrosa
15	Oxyopidae	82	Oxyopes	Oxyopes sp
		83	Oxyopes	<i>Oxyopes</i> sp
16	Unidentified	84		Unidentified 1
		85		Unidentified 2
		86		Unidentified 3
		87		Unidentified 4
		88		Unidentified 5
		89		Unidentified 6
		90		Unidentified 7
		91		Unidentified 8
		92		Unidentified 9
		93		Unidentified 10

**Table-1: Checklist of spider fauna from Watiyim Village, Mokokchung District, Nagaland**













		
Argiope pulchella	Argiope sp.,	Argiope versicolor
		
Argiope aemula	Argiope sp (yellow Collor)	Argiope sp
		
Neoscona nautical ( Grey Collor)	Neoscona subfusca	Neoscona sp (1)









		
Neoscona sp (2)	Neoscona sp (3)	Eriovixia sp
		
<i>Eriovixia</i> sp	Eriovixia sp	Zygiella sp
		
Gasteracantha kuhli	Gasteracantha diademi	Araneus mitificus (Yellow Collar)
		
Araneus mitificus (Green Collar)	Nephila pilipes	Nephila kuhlii
		
Nephila sp	Herennia multipuncta	Gea spider


 <p>Cyclosa sp</p>	 <p>Cyclosa turbinata</p>	 <p>Plexippus paykkulli (female)</p>
 <p>Plexippus paykkulli (male)</p>	 <p>Menemerus bivittatus</p>	 <p>Plexippus petersi</p>
 <p>Stenaelurillus sp</p>	 <p>Brettus cingulatus</p>	 <p>Brettus sp</p>
 <p>Tan jumping spider</p>	 <p>Phintella sp</p>	 <p>Phintella sp</p>




 <p>Telamonia sp</p>	 <p>Honga carolinensis</p>	 <p>Honga carolinensis (female)</p>
 <p>Honga sp</p>	 <p>Lycosidae sp</p>	 <p>Alopecosa Aculeata</p>
 <p>Dolomedes Sp</p>	 <p>Dolomedes Scriptus</p>	 <p>D.Albineus</p>
 <p>Dolomedes sp</p>	 <p>Leiobunum rotundum</p>	 <p>Harvestmen long legs spiders</p>



		
Harvestmen sp	Daddy long legs spiders	Artema Atlanta
		
Artema Sp	Giant Huntsman spiders	Huntsman spiders
		
Giant crab spider ( <i>Heteropoda venatoria</i> )	<i>Heteropoda sp</i>	<i>Heteropoda venatoria</i> (Female)
		
<i>Heteropoda sp</i>	<i>Heteropoda venatoria</i>	<i>Heteropoda venatoria</i>

		
Heteropoda sp (Female)	Heteropoda sp	Heteropoda
		
Heteropoda sp	Heteropoda venatoria	Delena cancerides
		
Hersilia savignyi lucas	Hersilia sp	Thomisus pugilis
		
Thomisus onustus	Xysticus croceus	Chaetopelma sp



 <p>Poecilotheria sp (Theraphosidae)</p>	 <p>Chilobrachys sp</p>	 <p>Leucauge decorata</p>
 <p>Silver leucauge spider</p>	 <p>zosis geniculate (Uloboridae)</p>	 <p>Linyphia sp ( Family : Linyphiidae)</p>
 <p>Callobius sp</p>	 <p>Amaurobius ferox</p>	 <p>Steatoda sp (triangulosa)</p>
 <p><i>Cyrtophora cicatrosa</i></p>	 <p><i>Oxyopes sp</i></p>	 <p><i>Oxyopes sp</i></p>





Unidentified spiders 1



Unidentified spiders 2



Unidentified spiders 3

Unidentified spiders 4



Unidentified spiders 5



Unidentified spiders 6



Unidentified spiders7



Unidentified spiders 8

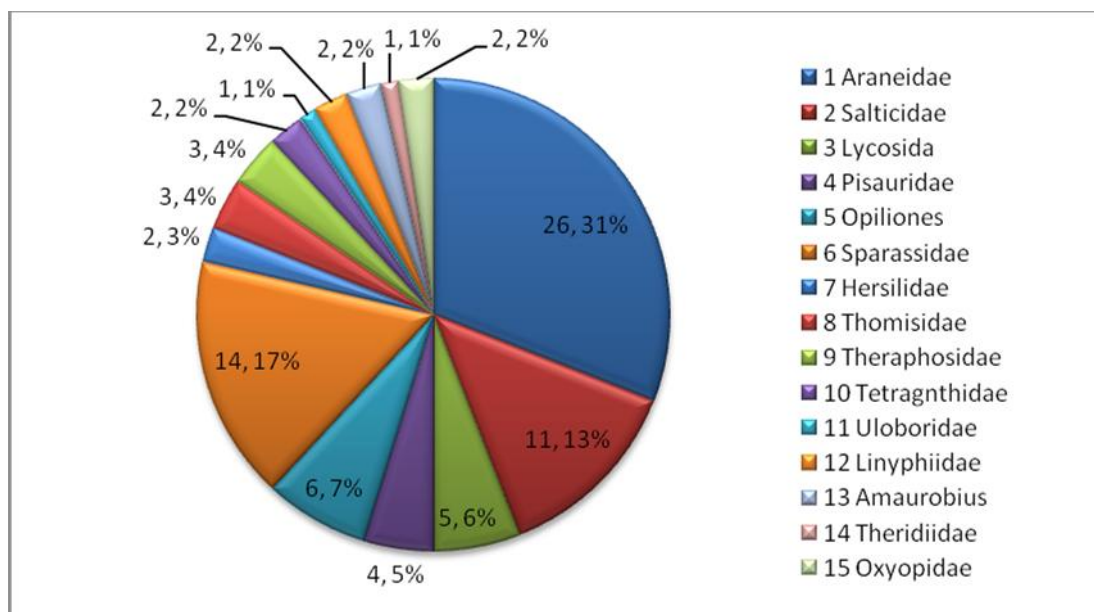


Unidentified spiders 9



Unidentified spiders 10

**Fig- 2 Showing Species wise spider species with percentage recorded form Watiyim Village , Mokokchung District, Nagaland**



## Conclusion

The review uncovered that concentrate on region is subjectively wealthy in spiders species. Variety for the most part increments when a more noteworthy assortment of natural environment types were available. While absence of data in nature and scientific categorization of Indian spiders anyway brings down the utilization of spiders as biological indicator species. Certain components like circulation and relationship of them to the different living spaces, and its reactions to the diverse unsettling influence made troublesome, utilizing them as marker species. The study show information related to the species disturbance, and availability of food. The study area is endowed with different types of habitats such as rain forest and dry deciduous forest and shrubs. This may be the reason for the species richness. It also emphasizes the need for conservation of this ecosystem by characterizing species diversity and highlighting rare and endemic species in this ecosystem.

## Conflict interested statement

There no conflict interest.

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