First report on spiders (Araneae: Arachnida) from the Paddy Fields of Wayanad district, Kerala, India

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Abstract

First comprehensive and preliminary checklist on the spiders of the paddy fields, Wayanad district, Kerala with 939 individuals, 54 species under 41 genera belonging to 11 families are recorded so far. Jumping spiders (Salticidae) are the highest diverse and orb-web builders has maximum number of species and individuals (50.16%). Almost 17 species (average 16.69%) are recorded from each of the collection site with maximum (21) from Kalluvayal and minimum (14) from Sudhunivas. Data clearly says that paddy fields are rich with insect predators like spiders.

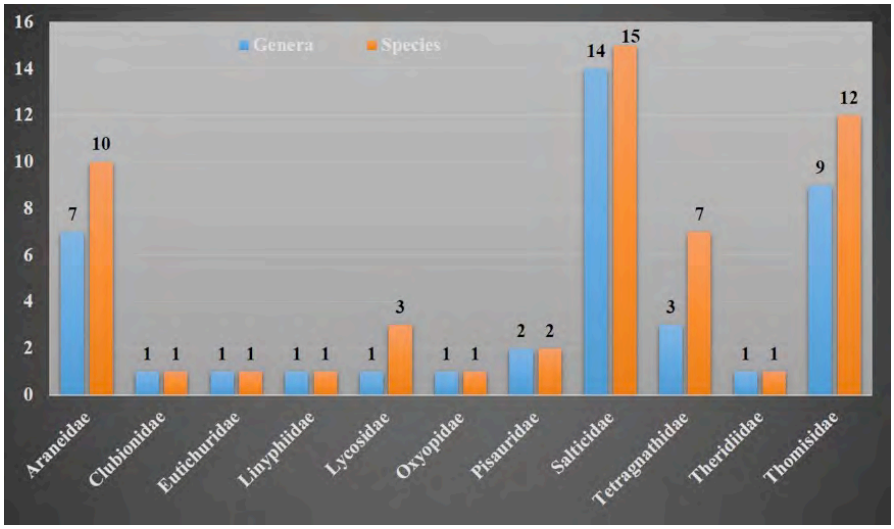

Fig 1. No. of species and genera recorded from different families

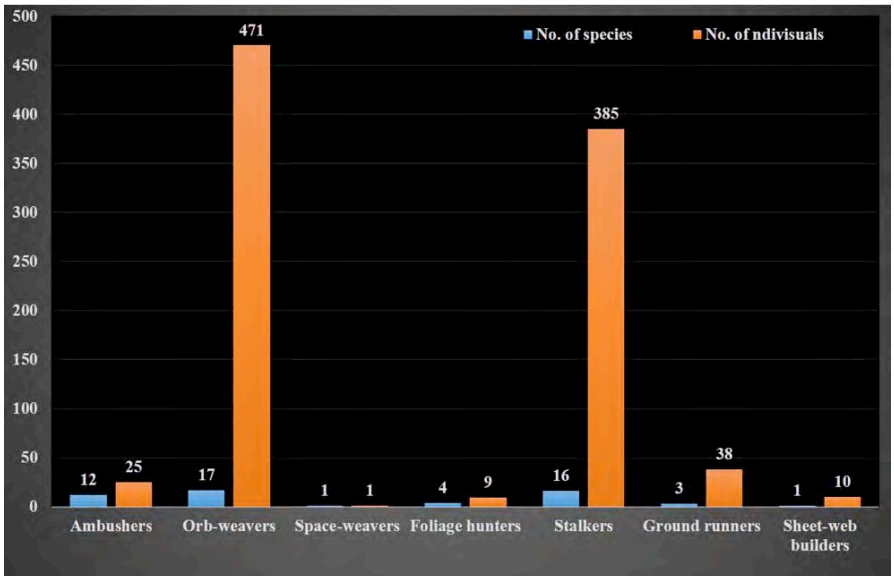

Fig 2. No. of species and individuals recorded from different guild types

Materials and Methods

Wayanad, less populous district is in the northeast of Kerala state, India and is in the southern tip of the Deccan Plateau i.e. part of the Western Ghats. The spider samples were collected by Lydia Betz, BioDIVA Research Group, Institute of Environmental Planning, Leibniz Univeritaet, Hannover, Germany from the selected paddy fields of the district during the period March 2011 to April 2012 which were deposited in the National Zoological collections of Zoological Survey of India, Western Ghat Regional Centre, Calicut (ZSIK). The collection localities belong to 16 villages (Kalathil, Raji Sadanam, Paliyana, Akkanthiril, Niruppel, Karimtholil, Kakkanikal, Manikazhani, Puthanveedu, Adiyanal, Kaniyambetta, Palookkappu, Champakappata, Thamarachira, Sudhunivas, Kalluvayal) of the district. The habitats likely to support the spiders in the study area such as ground, litter, besides boundaries, foliage, and water canals were searched for spiders. Spider was collected by the hand picking method suggested by Tikader (1987). The identification of spiders was done with the help of Tikader (1970, 1977, 1980, 1982, 1987), Barrion and Litsinger (1995), Sebastian and Peter (2009) and Sen *et al.* (2015). The taxonomy and nomenclature followed is as per the World Spider Catalogue (2016) by Natural History Museum, Bern.

Results and Discussions

A total of 939 individuals are dealt for this study. Of which 744 are females and 195 males. Upon identification, we could record 54 species under 41 genera belonging to 11 families (Table 1), among which two new male morphs (*Thomisus keralae* Biswas and Roy and *Oxytate elongata* (Tikader) recorded first time. Jumping spiders (Salticidae) is the highest diverse group followed by Thomisidae and Araneidae (Fig. 1). Analysis of guild structures reveals that orb-web builders has maximum number of species and

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Table 1. Checklist of recorded spiders collected from paddy fields of Wayanad district in Kerala with their respective guilds

Family	Species	Guild structure
Araneidae	*Araneus ellipticus* (Tikader & Bal)	Orb-web builders
	Argiope catenulata (Doleschall)	Orb-web builders
	Cyrtophora cicatrosa (Stoliczka)	Orb-web builders
	Eriovixia laglaizei (Simon)	Orb-web builders
	Larinia phthisica (L. Koch)	Orb-web builders
	Neoscona mukerjei Tikader	Orb-web builders
	Neoscona theisi (Walckenaer)	Orb-web builders
	Neoscona vigilans (Blackwall)	Orb-web builders
	Neoscona yptinika Barrion & Litsinger	Orb-web builders
	Odgarius sp.	Orb-web builders
Clubionidae	*Clubiona* sp.	Foliage hunters
Eutichuridae	*Cheiracanthium triviale* (Thorell)	Foliage hunters
Linyphiidae	*Atypena adelinae* Barrion & Litsinger	Sheet web builders
Lycosidae	*Pardosa pseudoannulata* (Bösenberg & Strand)	Ground runners
	Pardosa rhenockensis (Tikader)	Ground runners
	Pardosa sumatrana (Thorell)	Ground runners
Oxyopidae	*Oxyopes javanus* Thorell	Stalkers
Pisauridae	*Nilus albocinctus* (Doleschall)	Foliage hunters
	Pisaura sp.	Foliage hunters
Salticidae	*Bianor narmadaensis* (Tikader)	Stalkers
	Bianor sp.	Stalkers
	Carrhotus viduus (C.L. Koch)	Stalkers
	Epeus indicus Prószyński	Stalkers
	Epocilla aurantiaca (Simon)	Stalkers
	Evarch flavocincta (C.L. Koch)	Stalkers
	Harmochirus brachiatus (Thorell)	Stalkers in ground
	Hasarius adansoni (Audouin)	Stalkers
	Marpissa decorata Tikader	Stalkers
	Menemerus bivittatus (Dufour)	Stalkers
	Myrmarachne melanocephala MacLeay	Stalkers
	Phintella vittata (C.L. Koch)	Stalkers
	Plexippus paykulli (Audouin)	Stalkers
	Rhene danieli Tikader	Stalkers
	Thiania bhamoensis Thorell	Stalkers
Tetragnathidae	*Leucauge pondae* Tikader	Orb-web builders
	Tetragnatha ceylonica O.P. Cambridge	Orb-web builders
	Tetragnatha javana (Thorell)	Orb-web builders
	Tetragnatha mandibulata Walckenaer	Orb-web builders
	Tetragnatha maxillosa Thorell	Orb-web builders
	Tylorida striata (Thorell)	Orb-web builders
	Tylorida ventralis (Thorell)	Orb-web builders
Theridiidae	*Coleosoma blandum* O.P. Cambridge	Space web builders
Thomisidae	*Bomis larvata* L. Koch	Ambushers
	Camaricus formosus Thorell	Ambushers
	Henriksenia hilaris (Thorell)	Ambushers
	Loxobates kapuri (Tikader)	Ambushers
	Mismena sp.	Ambushers
	Oxytate elongata (Tikader)	Ambushers
	Oxytate virens (Thorell)	Ambushers
	Runcinia ghorpadei Tikader	Ambushers
	Thomisus keralae Biswas & Roy	Ambushers
	Thomisus pugilis Stoliczka	Ambushers
	Thomisus rishus Tikader	Ambushers
	Xysticus sp.	Ambushers

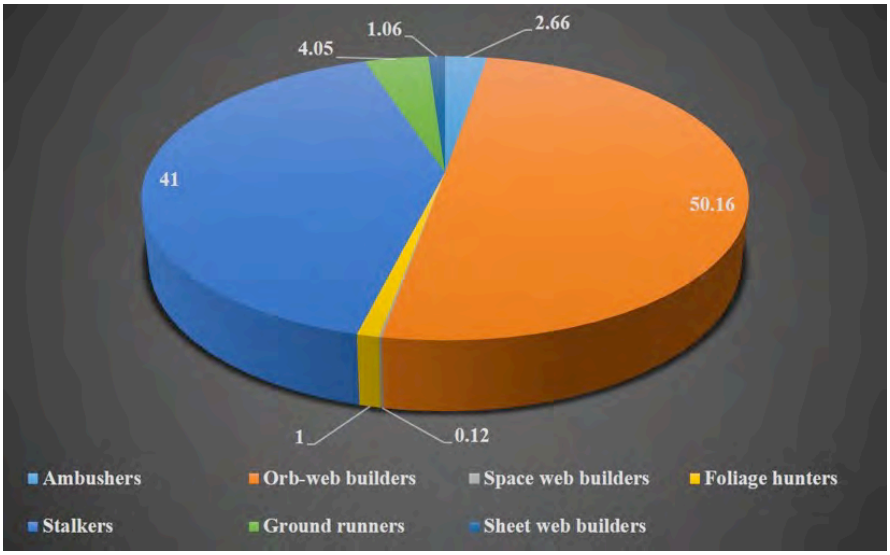

Fig 3. Percentage distribution of individuals recorded from different guild types

individuals (50.16%) followed by stalkers (41%), ambushers and ground runners (Figs. 2, 3 & Table 1). *Oxyopes javanus* Thorell, *Pardosa sumatrana* (Thorell), *Tetragnatha javana* (Thorell), *T. maxillosa* Thorell, *Marpissa decorata* Tikader, *Thiania bhamoensis* Thorell, *Plexippus paykulli* (Audoin) are recorded from all the sites while *Neoscona mukerjei* Tikader and *Tylorida striata* (Thorell) from almost all. Almost 17 species (average 16.69%) are recorded from each of the collection site with maximum (21) from Kalluvayal and minimum (14) from Sudhunivas.

In case of individuals, almost 59 (average 58.69%) are recorded from each of the collection site with maximum (81) from Palookkappu and minimum (41) from Adiyanal. *Tetragnatha maxillosa* Thorell (309) is the most numerically dominant species followed by *Oxyopes javanus* Thorell (185) and minimum (1) from *Oxytate elongata* Tikader, *Neoscona vigilans* (Blackwall), *Coleosoma blandum* O.P. Cambridge, *Henriksenia hilaris* (Thorell) and *Bomis lawata* L. Koch. Though there is a little altitudinal variation (723-746 meters) among the collection sites but there is variation in species composition and number of species. This is due to variation in micro habitats (like irrigation canals and streams, patches of forests and deposited litter near the paddy cultivations and other cultivated plants) within the sites.

Conclusion

A preliminary checklist on the spiders on the paddy fields of Wayanad district, Kerala is provided. This is the first ever documentation of the spiders of paddy fields of Wayanad district. However, this by no means first comprehensive and fit only suggest the great diversity of the spider fauna of paddy fields of Wayanad and thus warranting more detailed and systematic exploration of the spiders of paddy fields of Wayanad district, Kerala.

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