3rd Conference of
Asian Society of Arachnology

November 16-19, 2015 Amravati, India

3rd Conference of Asian Society of Arachnology
Program

15/11/2015

16:00 . Registration in the foyer of the venue (1st Floor)

20:00 Welcome dinner

23:00 . Go to bed and sleep well!

16/11/2015, Day-1:

8:00 Registration in the foyer of the venue (1st Floor)

Breakfast: 8.00 to 9.30

10.00 Opening Ceremony

Tea/Coffee break: 11.00 to 11.30

Session 1: 11.30 to 13.30

Chairperson: Dr. Hirotsugu Ono

1. **Pekka T. Lehtinen:** Significance of Oriental taxa in the phylogeny of Araneomorph spiders, especially in the families Thomisidae and Stiphropodidae….Plenary talk
2. **Suresh Benjamin:** Advances in the understanding of the phylogeny of crab spiders (Araneae: Dionycha, Thomisidae)…Plenary talk.
3. **Crisenthiya Indunil Clayton:** Phylogenetic placement of the crab spider genus *Pagida* Simon, 1895 with the redescription of three *Pagida* species.
4. **Majid Moradmand:** An Indo-Iranian Sparassidae Genus *Spariolenus* Simon, 1880: An evolutionary hypothesis that needs to be tested.
5. **Sasanka L. Ranasinghe:** Diversity of goblin spider Genus *Brignolia* (Family: Oonopidae) in Sri Lanka.

Lunch break: 13.30 to 15.00

Session 2: 15.00 to 16.15

Chairperson: Dr. Suresh Benjamin

6. **Matjaž Kuntner:** Sexual size dimorphism in spiders and its biological correlates….Plenary talk
7. **Yuri Marusik:** 1. "A case study: revealing diversity of spiders in Siberia" (How to study taxonomy living in remote areas)….Plenary talk
8. **Peter Jaegar:** Vertically niched, conductor-less and sexually pierced: spiders from the Nat Ma Taung in Myanmar….Plenary talk
9. **Simon Hodge:** Sampling spiders in marine strandlines: When is enough enough?

Tea break: 16.15 to 16.45

Session 3: 16.45 to 18.00

Chairperson: Dr. Yuri Marusik

10. **Hirotsugu Ono:** Island zoogeography in spiders, Okinawa or the Ryukyu Islands as an example….Plenary talk

11. **Ingi Agnarsson:** Biogeography of Arachnids**….**Plenary talk
12. **Zheng Cao:** The comb-tailed spiders (Hahniidae) from Asia.
13. **Tian Lu:** Revision of Chinese wolf spider genus *Pardosa* (lycosidae), I: Reconfirmation of several species' male palpal structure indicating heterogeneous component of *Pardosa.*

Dinner at 20.00

17/11/2015, Day – 2:
Session 4: 9.00 to 10.30
Chairperson: Dr. Peter Jaeger

14. **Hisham K. El-Hennawy:** Genus *Stegodyphus* in India and South East Asia ….Plenary talk
15. **Yuri Marusik:**2 Copulatory organs in "haplogyne" spiders. …Plenary talk
16. **Peter Koomen:** Towards a spider photo guide of Xishuangbanna, Yunnan, China.
17. **Anuradha Rajoria:** Araneae abundance of Satpuda landscape with respect to orb web builders.

Tea/Coffee break: 10.30 to 10.45

Session 5: 10.45 to 12.30
Chairperson: Dr. Matjaz Kuntner

18. **Sharique Ali:** The untold story of spider coloration: Role of ommochromes and the underlying mechanisms.
19. **Shubhi Malik:** Spider (Arachnida: Araneae) fauna of National Capital Territory of Delhi with first report of cobweb spider *Argyrodes bonadea* (Karsch, 1881) from India.
20. **Archana Amle:** Dragline silk of giant wood spider, *Nephila pilipes* (Araneae: Nephilidae).
21. **Vinayak Patil:** Orb-weaver spiders (Araneae:Araneidae) from sacred groves of coastal tehsil of Dapoli in Maharashtra.
22. **Neha Bhatkar:** An introductory approach pointing towards the ecological and behavioral aspect of *Crossopriza* species, with redescription of *Crossopriza lyoni* (Blackwall, 1867).

Session 6: Poster session: 12.30 to 13.30
(Dr. Hirotsugu Ono, Dr. Ingi Agnarsson, Dr. Peter Jaeger)

Lunch break: 13.30 to 14.30
Session 7: 14.30 to 16.00
Chairperson: Dr. Hisham El-Hennawy

23. **Prasit Wongprom:** Spider diversity and guild composition in dry evergreen forest of Sakaerat Environment Research Station, Nakhon Ratchasima, Thailand.
24. **Marashetty Seenappa**: Proposing standards in 'spider photography' for publications

25. **Siddharth Kulkarni, Swara Yadav and Atul Vartak:** Araneofauna of Sahyadri: A taxonomic initiative
26. **Mert Elverici** and Can Bilgin: Preliminary Observations on Wolf Spider [Araneae: Lycosidae] Communities in Various Terrestrial Habitats from Turkey.
27. **Vinod Kumari**: Effect of Temperature on Biology of *Pardosa pseudoannulata* (Bosenberg & Strand, 1906) and *Neoscona mukerjei* Tikader, 1980, Predominant Spiders of Rajasthan
28. **Suvarna More and Vijay Sawant:** Some Amazing Spider Diversity from Protected Areas of Northern Western Ghats of Maharashtra (Chandoli – Koyna, Sahyadri Tiger Reserve and Radhanagari Wildlife Sanctuary).
29. **Phartale, N. N.; T. A. Kadam; H. J. Bhosale, M. A. Karale and G.Gyananath:** Antibacterial activity of *Pardosa brevivulva* Tanaka, 1975 silk.

Group photo: 16.00
Tea break 16.00 to 16.30

Session-8: 16.30 to 17.15
Discussion session (Peter Jaeger, Matjaz Kuntner, Ingi Agnarsson, Hirotsugu Ono)
General assembly of the Asian Society: 17.15 to 18.15
Agenda for general assembly:

1. A summarized report of ASA 2012-2015 by Hirotsugu Ono
2. The present condition of membership and the business by the secretary (Li Shuqiang)
3. On the homepage (website) and logo by Priyanka Hadole
4. Election of the next administration (2015-2018). Report on the results of the election by the election office (Peter Jaeger)
5. Report on the arrangement of the 3rd Asian Congress of Arachnology at Amravati by Ganesh Vankhede
6. The plan of the 4^{th} congress at Baoding, China, 2017 by Zhang Feng
7. Candidate country or city for further congress?
8. Any other matter with the permission of the chair

Cultural program: 19.00 followed by Conference Dinner
18/11/2015, Day – 3:
Session 9: 9.30 to 12.30
Organized by Shri Shivaji College, Akot and Indian Science Congress Association, Amravati Chapter

1. Indian Science Congress Association Award program and
2. **Symposium on Rearing of spiders sponsored by Indian Science Congress Association, India and Shivaji Agriculture College, Amravati**

Dr. Ashok Saxena, President of Indian Science Congress Association,
Govt. of India will be in the chair.

Background behind the symposium: Ganesh Vankhede

Chairperson: Dr. Ingi Agnarsson

30. **Sandhya Kranthi,** Prabhulinga Tenguri , Suvarna Khaddakar, Chinna babu Naik, Bhausaheb, K.R. Kranthi and M.V.Venugopalan: Diversity and role of spiders in cotton pest management.
31. **Seema Keswani:** Spider diversity in irrigated and non-irrigated agro-ecosystems in Central India.
32. **Gihan M. E. Sallam & Nahla A.I. Abd El-Azim:** Biology of *Peucetia arabica* Simon, 1882 (Araneae: Oxyopidae) in Egypt.
33. **Gihan Mohamed El-Sayed Sallam:** Abundance of spiders on grape and apple trees in El Sadat City, Menofia Governorate, Egypt.

Tea break: 11.30 to 11.45

34. **Reena Laharia:** Live demonstration of rearing of spiders.

Lunch break: 12.30 to 14.00

Departure for excursion at 14.00

We will reach Muthawa centre in Melghats *via* Chikhadara hill station and Forest Training Institute at about 19.00.

"Know-how of center" by Kishor Rithe, lunch and then collection of spiders in the center premises.

19/11/2015, Day-4:

Early morning tea, then departure for tourist zone, trekking in nearby forest and then breakfast at 10.30. Discussions at the centre, then lunch at 12.30 and then departure for hotel. We will reach back to hotel at 19.00 pm. Followed by dinner at 20.00.

20/11/2015, Day-5:

Morning tea and breakfast.

Departure for Nagpur as per flight schedule of the participants.

Oral presentations

Oral:1

Significance of Oriental region in phylogeny of Araneomorph spiders, especially in the families Thomisidae and Stiphropodidae.

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Abstract

Liphistiidae, Stenochilidae, and subfamilies Venoniinae and Zoicinae (Lycosidae), unnamed new subfamily (Scytodidae), Pacullinae (Tetrablemmidae) and Cryptothelinae s.str. are endemic to the Oriental Region, while Psechridae lives also in adjacent parts of the Australian and Pacific Regions). Addition of several Oriental and tropical Old World genera to analyses and addition of several new, mainly ultrastructural characters to phylogenetic study of crab spiders has revealed the polyphyly of Thomisidae. Family status of Stiphropodidae is reconfirmed. Poorly known Old World groups Apyretini, Tagulini, Emplesiogonini, Porropini, and relimited Talaini constitute, together with Bominae, the family Bomidae, the sister group of Stiphropodidae. Stephanopinae is restricted to tribes Stephanopini (Oriental-Australian), Epicadini (Neotropical), and an unnamed tribe (Madagascar and Mauritius). *Phrynarachnini, Stephanopoidini* and *Hedanini* are transferred to Thomisinae and *Borboropactini*, *Angaeini*, *Cebrenninini*, and *Epidiini* to Borboro-pactinae. *Senoculifer* Balogh, 1936 (= *Demogenes* Simon, 1895) is transferred from Philodromidae to Thomisidae, and *Takachihoa* Ono, 1985 (= *Pycnaxis*, Simon, 1895) from *Talaini* to *Coriarachnini*. Argumentation for polyphyly of Dietinae Petrunkevitch, 1928 is reconfirmed. *Pycnaxis* and *Demogenes* are relimited. A sclerotized part of haematodocha in Talaini, a branched gnathocoxal process in *Boliscus,* and a modified distal surface of RTA of male palp in several genera of *Misumenini* are previously unknown structures. Several new taxa at are suggested, but not described here due to nomen-clatural restrictions. Systematic use of added ultrastructural characters has helped in solving of many problems in spider phylogeny and proved the presence of two main lines in Araneomorph evolution, referring to paraphyletically evolved two main groups of Araneomorpha from two groups of Dysderomorpha with different ultrastructure. Several groups crucial in the phylogeny of both spiders and separately in crab spiders live in the Oriental region,

Key words: Thomisidae, Stiphropodidae, Oriental region

Oral:2

Advances in the understanding of the phylogeny of crab spiders (Araneae: Dionycha, Thomisidae)

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Abstract

Thomisidae is the sixth largest spider family consisting of around 174 genera, with over 2302 species. Crab spiders are small to medium sized, squat, entelegyne spiders exhibiting complex behaviors. Not surprisingly, they are an important component of terrestrial ecosystems Some thomisids (e.g., *Misumena, Diaea*, *Runcinia* and *Thomisus*) possess the ability to change color and blend into their habitat, in most cases flowers, demonstrating a remarkable ability to change color. There are social crab spiders with maternal care in the *Eucalyptus* forest of Australia. Myrmecomorphism is known in a number of thomisids. Given their ecological significance and appealing adaptations one would expect to see a plethora of phylogenetic studies. However, the phylogeny of thomisidae remains understudied. Moreover, understanding the exact taxonomic limits of this large family has always been problematic. Since Simon (1892) the understanding of generic relationships has not changed much. In my talk, I will discuss recent advances of our understanding of the evolution of this family based on cladistic analysis of morphological and molecular characters.

Key words: Biodiversity, Conservation, Taxonomy

Oral 3

Monophyly and Phylogenetic placement of the crab spider genus *Pagida* Simon, 1895 (Araneae: THOMISIDAE) with the description of *P.salticiformis, P. pseudorchestes,* and a novel species

Suresh P. Benjamin[123] and Crisenthiya I. Clayton[1]

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Abstract

The genus *Pagida* Simon is circumscribed and the genital anatomy of all species are described in detail. *Pagida salticiformis* (O. P.-Cambridge, 1883), *the type species of Pagida is redescribed* from a series of specimens collected recently from its type locality, Sri Lanka. *Pagida pseudorchestes* is redescribed based on 9 males and 7 females. Finally, a new species is described, based on 4 males and a female. The Monophyly of *Pagida* is supported by several morphological apomorphies. The results of our cladistic analysis show that *Pagida* is sister to *Stiphropus* Gerstäcker, 1873, within Thomisidae. The placement of *Pagida* is supported by the oval tegulum, lack of leg spines, the fused metatarsus and tarsus joint and the longer tarsus. Our results offer new insights to the phylogeny of Thomisidae.

Key words: Biodiversity, Conservation, Endemics, India, *Palaephatus*, Taxonomy

Oral:4

An Indo-Iranian Sparassidae Genus *Spariolenus* Simon, 1880: an evolutionary hypothesis that needs to be tested

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Abstract

The genus *Spariolenus* Simon, 1880 (Sparassidae: Heteropodinae) is one of the largest spiders in the Middle East and South west Asia. Currently seven species of the genus have been described which are distributed in Iran (four), India (two) and Oman (one). *Spariolenus* species are inhabitants of the caves and other subterranean areas. These kinds of habitats were hypothesized as refugia for *Spariolenus* species after the gradual desertification of their area of distribution initiated since Miocene era, circa 20 MYA (Moradmand & Jäger 2011). The closest relatives of Spariolenus is the most specious and evolutionary successful Sparassidae, genus *Heteropoda* Latreille, 1802. The species of *Heteropoda* are inhabitants of humid environments of Asia, thus the relationships of *Spariolenus* with *Heteropoda* and other Heteropodinae members are discussed. Very recently, I discovered more potential new diversity of *Spariolenus* species in different areas of Iran (field work source) and India (European collection source). The Indian continent is one of the diversity hotspots for this taxon with many potential arachnologist who may be interested for a joint collaboration on this special subject.

Key words: Sparassidae, Evolutionary history, Miocene, phylogeography, Iran, India.

Oral:5

Diversity of goblin spider Genus *Brignolia* (Family: Oonopidae) in Sri Lanka

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Abstract

The goblin spider genus *Brignolia* (Dumitrescu & Georgescu,1983) currently contains thirty one species found in Borneo, India, Mauritius, Nepal, Philippines, Seychelles, Sri Lanka, Thailand, USA, Vietnam and the West Indies. However, prior to our study five species of *Brignolia* were known from Sri Lanka, *Brignolia ambigua, B. nigripalpis, B. ratnapura, B. sinharaja* and *B. trichinalis*. Heavily sclerotized palps with dorsal depression are key characters that define this genus. This study is an island wide survey of the genus *Brignolia*.

Field visits were conducted in 115 sites in all provinces of Sri Lanka. Litter samples were sifted and left over night in a Winkler extractor. The collected specimens were examined using an Olympus SZX 7 stereomicroscope. Left male palps were immersed in few drops of Kaiser's glycerol, slide mounted, observed and illustrated with an Olympus BX51 compound microscope attached with a drawing tube.

Of the 258 collected goblin spider specimens, 46 specimens (21 males and 25 females) were *Brignolia.* One male specimen from Monaragala District, eight specimens (four males, four females) from Badulla District and three (2 males, 1 female) from Nuwara Eliya District were identified as *B. ratnapura*. Their body size is 1.26-1.44 mm. They are equipped with a rounded, dorsally sclerotized protrusion on the palp. One male specimen (Body length: 1.30 mm) collected from Matale District was identified as *B. ambigua* because of their short, distally expanded, blunt tipped, palpal bulb. Both of these species are endemics. Male specimen (Body length: 1.34 mm) with dorsally directed palpal bulb was recognized as *Brignolia nigripalpis*. It was collected from Kandy District with three female specimens. *B. parumpunctata* was reported for the first time in Sri Lanka. Palpals of *B. ratnapura* and *B. parumpunctata* were more similar to each other. However, the dorsal protrusion is more coiled in *B. parumpunctata* than the later. Two new species were discovered.from Kandy and Badulla Districts.

All nominal species of the goblin spider genus *Brignolia* from Sri Lanka will be described based on our new material in a future publication

Key words: Diversity, *Brignoli*, Oonopidae, Sri Lanka

Oral:6

Sexual size dimorphism in spiders and its biological correlates

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Abstract

In most organisms the sexes do not dramatically differ in size, which is expected due to inheritance rules. Yet, several animal and plant lineages have independently evolved *sexual size dimorphism* (SSD) where one sex is significantly larger than the other. Spiders are good models for integrative SSD research as size dimorphic lineages exhibit rare but seemingly replicated sexual behaviors that link with genital anatomy. I present a research agenda that uses convergence as a tool to examine patterns of SSD evolution and its correlated phenotypes in spiders, including genital complexity and sexually conflicted mating behaviors. To elucidate evolutionary trends, we study patterns of male and female size variation on phylogenies of selected spider clades that have presumably independently evolved female gigantism: the golden orb weavers (*Nephila* and relatives), cross or wasp spiders (*Argiope* and relatives), tent spiders (*Cyrtophora* and relatives), and bark spiders (*Caerostris*). Our comparative phylogenetic analyses detect no predictable patterns of sex specific size evolution in two clades of similar age (roughly 40 my) and with comparable levels of SSD: While male and female sizes in *Nephila* are phylogenetically independent and their gradual increase at different rates can be described as "sexually dimorphic gigantism", evolution of male and female sizes in *Argiope* remain closely correlated with no gradual increase. Finding replicated biological phenomena linked with SSD in independent lineages would strongly infer on their adaptiveness, linking biological traits to specific selection pressures. At the level of all orb weavers, we predictably find that genital damage, emasculation (males severing their genitals), and sexual cannibalism are all associated with the evolution of SSD. However, in *Nephila*, genital complexity and mating rates evolved independently of SSD despite the prediction that female gigantism facilitates polyandry. This suggests that patterns of predictable spider phenotypic trait co-evolution with SSD are elusive, or non-existent.

Key words: Spiders, Sexual Size Dimorphism, biological correlates

Oral:7

Vertically niched, conductor-less and sexually pierced: spiders from the Nat Ma Taung in Myanmar.

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Abstract

The spider fauna of the Nat Ma Taung (Mt Victoria) in Myanmar was investigated in a two weeks field trip. With 3053 m the mountain is considered the southern-most outpost of several faunal elements of the Himalaya. Spiders were found in vertical belts, i.e. tropical elements like *Argiope*, *Nephilengys*, *Cyrtophora* etc. have been found exclusively in lower elevations, in higher elevations species with adaptations to lower temperatures have been recorded. In two genera with representatives living in the leaf litter of forests a vertical zonation was observed in elevations between 1500 m and the summit region. Five new species of the genus *Pseudopoda* (Sparassidae) were examined. Males of all five species lack the conductor, otherwise present in the subfamily Heteropodinae. One structure is discussed to act as functional surrogate for the conductor. The genus *Ctenus* (Ctenidae) is known from three species, also vertically niched. Males possess an easily breakable tip of the RTA, which was found in one species penetrating the female's cuticle during the process of copulation. This is the first case of such damaging in the RTA-clade.

Key words: Spiders, conducter-less, Myanmar

Oral:8

Sampling spiders in marine strandlines: when is enough enough?

Simon Hodge[1] and CorVink[2]
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Abstract

Marine strandlines, consisting of deposits of seaweed, driftwood and flotsam, form a familiar component of shoreline ecosystems, and provide a habitat for numerous invertebrates, including spiders. This study examined the frequency and seasonal activity of spiders on a sandy beach near Christchurch, New Zealand. Spiders were sampled by hand searching on 382 different days, with species being recorded as present or absent on each occasion.

In total, 506 spider records were obtained, representing 29 species in 14 families. In terms of biogeographic status, eleven species are considered endemic and five native to New Zealand, with the remaining 13 species being introduced. Two common species were generalists; *Anoteropsishilaris* (Lycosidae) and *Tenuiphantes tenuis* (Linyphiidae), endemic and introduced, respectively. The invasive 'false katipō', *Steatoda capensis* (Theridiidae), was the second most recorded species, whereas the endemic katipō, *Latrodectus katipo* (Theridiidae), was not observed. Of the shoreline specialists, the endemic littoral wolf spider *Anoteropsis litoralis* (Lycosidae) was the most frequently observed.

The spider assemblage was, unsurprisingly, more diverse in the summer months compared to winter, and well-defined seasonal patterns in 'abundance' were observed for the more common species. Clear relationships between spider occurrence and weather parameters (e.g. daily temperature; rainfall) were found when considering monthly average values. However, when using binary presence-absence data obtained for each day these patterns were much vaguer.

Eleven of the species recorded (38%) were only observed on one occasion, and this prevalence of singletons suggests that the strandline spiders were under-sampled, despite the number of site visits. This conclusion is supported by species accumulation curves indicating that additional sampling would add further spider species to the inventory, albeit at a low rate. The results indicate that compromises may have to be made in terms of planning sampling efforts to answer specific questions regarding spider seasonality or community composition.
Key words: Spiders, marine, strandlines

Oral: 9

Island zoogeography in spiders, Okinawa or the Ryukyu Islands as an example.

Hirotsugu Ono

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Abstract

Lying on the continental margin of East Eurasia, Japan is an island country, which has five main islands, Hokkaido, Honshu, Shikoku, Kyushu and Okinawa-jima and 6,847 smaller outlying islands scattered in the area with a length of 3,000 km in a straight line from Iturup (45 degrees N), the biggest and northernmost isolated island of Japan, to Okinotori-shima (about 20 degrees N) in the northern part of Micronesia. This aspect was made by a complicated geological history with dynamic diastrophism by continental drift, joining and isolation of islands or those to the continent by glacial development and vertical movement of sea surface due to the global change of temperature since 2.5 million years and volcanic activities in the recent past. The present climate shows a wide range from extremely cold as the Arctic in high altitude areas of Daisetsuzan Mts., Hokkaido to sub-tropic in southwestern islands and oceanic Ogasawara, although most of main islands are blessed in the warm temperate climate. Diverse circumstances of environment and ecosystem are observed on the basis of these topographic, meteorological and biological events. Thus, the whole region of Japan can be regarded as one of the biodiversity hotspots in the world.

One third of all and more than 2,500 islands belong to the prefectures of Kyushu and Okinawa. Of these, islands between Kyushu and Taiwan including the Ryukyus, which consist of continental, volcanic and raised coral islands,are very interesting for the island zoogeography. Topics of some animals without wings as whip scorpions, millipedes and lizardsas well as spiders, especially of Liphistiidae, Agelenidae (Coelotinae), and Thomisidae, from these islands are introduced. Theyshow different physiological characters, dispersion ability with ballooning (wind) or drifting (ocean currents) or less migratory, morphological variation and phylogenetic history, and may cast further subjects for study in the problems of phylogeography.

Key words: Spiders, zoogeography

Oral: 10

Biogeography of arachnids: multiple lineages reveal the role of dispersal and Geology (vicariance) in forming a biodiversity hotspot.

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Abstract

The importance of islands in revealing evolutionary processes was already highlighted by Darwin's work on the Galapagos and Wallace's work in the Malay Archipelago. Island biogeography has provided many elegant examples of the evolutionary mechanisms involved in generating biodiversity. These include geological processes such as plate tectonics and volcanism, and traits of organisms such as their size, generation time, and dispersal ability. Dispersal was an early focus of biogeography and is enjoying a renaissance as a key biogeographical player after a brief period of post-plate-tectonic reticence. Nevertheless, the focus on dispersal has long revolved around its role as an alternative to vicariance in explaining distributions. Here we focus on the role of dispersal abilities in the formation of biodiversity in the Caribbean hotspot. The West Indies form a remarkable archipelago for biogeographical studies. They consist of a dizzying number of islands, most of which are sufficiently old and isolated to have generated endemic forms, yet the islands are situated close enough to three continental landmasses to allow a more active biotic interchange between continents and islands than possible on more isolated archipelagos. It is thus an ideal 'laboratory of biogeography and evolution' serving to evaluate how dispersal abilities impact colonization and diversification on archipelagos. By investigating multiple arachnid lineages spanning a large spectrum of dispersal propensities (two scorpion genera, two pseudoscorpion genera, the amblypygid *Phrynus*, and two harvestmen and numerous spider lineages), and their genetic and species diversity over the archipelago, preliminary findings indicate that dispersal ability is of fundamental importance in shaping both distribution and diversity of taxa. The degree to which phylogenetic patterns reflect geological history is inversely related to dispersal ability of taxa, with patterns ranging from predictable in poorer dispersers to highly stochastic in excellent dispersers. Diversification peaks at relatively intermediate dispersal abilities with stretches of ocean permitting rare colonization but acting as effective barriers to gene flow. By looking across multiple lineages that differ in key traits such as dispersal, we are beginning to capture some fundamental components of Caribbean biogeography and the key role of dispersal ability in shaping taxon history and diversity.

Key words: Arachnids, biogeography, vicariance

Oral: 11

Redescription of *Tegenaria vankeerorum* Bolzern, Burckhardt & Hänggi, 2013 (Araneae: Agelenidae) with the first description of the female.

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Abstract

Tegenaria Latreille, 1804 is one genus of the 70 genus of Agelenidae family and represented with 114 extant species. In Turkey this number is 31 and a majority of them are endemics for Turkey and described by the Italian arachnologist "Paolo Marcello Brignoli".

Tegenaria, differs from other similar genera (*Agelena* Walckenaer, 1805; *Agelescape* Levy, 1996; *Allagelena* Zhang, Zhu & Song, 2006; *Coelotes* Blackwall, 1841; *Eratigena* Bolzern, Burckhardt & Hänggi, 2013; *Lycosoides* Lucas, 1846; *Maimuna* Lehtinen, 1967; *Pireneitega* Kishida, 1955; *Textrix* Sundevall, 1833; *Urocoras* Ovtchinnikov, 1999) by the filiform embolus, lamelliform conductor and by the existence of a latero-ventral swelling on the retrolateral tibial apophysis on the male palp, and by the existence of a central division between lobes on epigyne.

Tegenaria vankeerorum Bolzern, Burckhardt & Hänggi, 2013 was described from Rhodes Island of Greece and the female was unknown. It is a similar species to *T. lenkoranica* (Guseinov, Marusik & Koponen, 2005) distributed in Iran and Azerbaijan, differs by a relatively shorter palpal tibia. Withal, *T. vankeerorum* can be easily distinguished from other known *Tegenaria* in Turkey by the unique morphologies of both male and female genitalia.

Aim of this study is to report several new localities for *T. vankeerorum* from Turkey, which was previously only known from its type locality, together with the first description of the female.

Key words: Araneae, *Tegenaria*

Oral: 12

Revision of Chinese wolf spider Genus *Pardosa* (Lycosidae), I: Reconfirmation of several species' male palpal structure indicating heterogeneous component of *Pardosa.*

Tian Lu and Zhi-Sheng Zhang

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Abstract

The inflated genital bulb of *Pardosa lugubris*(Walckenaer, 1802), *P. wuyiensis* Yu & Song, 1988 and *P. xinjiangensis* Hu & Wu, 1989 are dissected and photographed. All of these species are representatives' of *P. lugubris*-group (including the type species of *Pardosa*), *P. wuyiensis*-group and *P. multivaga*-group. Besides, genital bulb's SEM photos of *P. wuyiensis* Yu & Song, 1988 and *P. aciculifera* Chen, Song & Li, 2001 are provided for detailed confirmation. Compared with *P. lugubris* group, a huge and thick T-shaped conductor, a fin-like embolus and a hidden tegular apophysis distinguish *P. wuyiensis* group from the typical *Pardosa* species. And the *P. multivaga* group features a lump tegular apophysis, a distinct anterior conductor holding a curved embolus. The *P. multivaga* group should be transferred into the genus *Bogdocosa* Ponomarev & Belosludtsev, 2008, while the *P. wuyiensis* group need to be further studied. Additionally, the *P. aciculifera* Chen, Song & Li, 2001 should be transferred to *Draposa* Kronestedt, 2010 according to the process on the palea and tegular apophysis.

Key words: Inflated genital bulb, *Bogdocosa*, *Draposa*

Oral: 13

Redescription of *Dysdera sultani* Deeleman-Reinhold, 1988 (Araneae: Dysderidae) with the first description of the female

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Abstract

Members of the spider genus *Dysdera* Latreille, 1804 are nocturnal predators known as foragers on the ground level and commonly found in the leaf litter; primarily feed on terrestrial woodlouse and rest during the day (Jocqué ve Dippenaar-Schoeman, 2006).

According to the current knowledge, the genus is represented by 260 extant species mainly distributed in the West Palearctic, with the exceptions of the cosmopolite *Dysdera crocata* C. L. Koch, 1838 and *Dysdera solers* Walckenaer, 1837 known from Colombia, South America.

First record of the genus *Dysdera* was given from İstanbul by the Italian arachnologist "Pietro Pavesi" in 1876. Contribution followed by Nosek (1905) was actually the first significant one, with the descriptions of *D. argaeica* Nosek, 1905, *D. asiatica* Nosek, 1905 and *D. longimandibularis* Nosek, 1905. During the following period, contributions did not pass beyond discrete records for a very long time, until the work of Deeleman-Reinhold and Deeleman (1988) in which there were eight new *Dysdera* described from Turkey. Today, genus *Dysdera* is represented by 20 species, most of them which are narrow endemics. This number will undoubtedly get higher, as the arachnological interest increase in the country.

Our purpose here is to provide a first description for the female of *D. sultani* Deeleman-Reinhold, 1988 from Central Anatolia which was previously only known on male and only from the type locality, and also to provide additional morphological information on the male.

Keywords: *Dysdera sultani,* female

Oral: 14

Biodiversity of jumping spiders of Bangladesh (Araneae : Salticidae)

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Abstract

Diversity of jumping spiders (Family, Salticidae) of Bangladesh is discussed. Out of 95 genera of 17 spider families, Salticids comprising 63 species under 14 genera are recorded in the fauna of Bangladesh (Ahmed, 2009). Such a high number of faunal compositions focus its density, distribution, endemism and importance of their role in bio-control of pest insects of the country.

Key-words: Diversity, Jumping spider, Salticidae, Bangladesh.

Oral: 15

Stegodyphus tibialis (O. Pickard-Cambridge, 1869) in Central India (Araneae, Eresidae), with notes on Indian *Stegodyphus* species.

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Abstract

Stegodyphus tibialis (O. Pickard-Cambridge, 1869) is known from 7 localities in India. Here, it is recorded for the first time from Raipur, Chhattisgarh, Central India. The single collected male specimen is briefly described and photographed. The *Stegodyphus* species recorded from India are reviewed. *Stegodyphus semadohensis* Shivaji, 2013 is synonymized with *Stegodyphus pacificus* Pocock, 1900. *Stegodyphus hisarensis* Arora & Monga, 1992 is misidentified; it does not belong to genus *Stegodyphus* or even to family Eresidae. Now, the Indian *Stegodyphus* species are 4; *Stegodyphus mirandus* Pocock, 1899, *S. pacificus* Pocock, 1900, *S. sarasinorum* Karsch, 1892, and *S. tibialis* (O. Pickard-Cambridge, 1869).

Keywords: *Stegodyphus tibialis,* Central India

Oral:16

Towards a spider photo guide of Xishuangbanna, Yunnan, China

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Abstract

Reliable field guides with nice, colorful photographs of spiders, with their correct names are not widespread in South East Asia. The oldest is a field guide to common Singapore spiders (1989), only to be followed by guides for Thailand (2001, citrus orchards only), Hong Kong (2007, jumping spiders only), China (2011, entirely), Brunei (2013), and Malaysia (2015). Most of the scientific literature describes how spiders look like in collections, after at least several years of preservation with consequent loss of colors. This all makes it difficult to interest the general public or even life science students in tropical arachnology. We need more field guides (printed, on the internet, or both) to show what magnificent creatures live in tropical rain forests, which are constantly under threat.

In July 2015, the first steps were taken to prepare a field guide with photographs of live spiders of Xishuangbanna prefecture, in the very south of China, close to Laos. Here, expanding rubber plantations pose the greatest threat. Within three weeks, more than 750 specimens where photographed from various points of view. The spiders were collected by hand collecting and by fogging, by day and night, by a team of four collectors. All spiders were anaesthetized and photographed against a white background, in such a way that important features are well visible. Afterwards the spiders were preserved in 96% ethanol and transported to Beijing for a proper identification and, in some cases, DNA analysis. A first Chinese version of the 'Xishuangbanna spider photo guide' with about 150 species is expected to be ready in 2016/2017.

Keywords: Spiders, Identification, Photography, Field guide, South China.

Oral:17

Araneae abundance of Satpuda Landscape with respect to Orb-web Builders

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Abstract

Satpuda Landscape was surveyed from 2013-2015 for spiders especially from orb-web building families. This area represents 7 families out of the 11 orb-web building families recorded from India till date. This is about 64% of the total orb-weaver families reported from India.

By using different sampling methods, 50 species from these 7 families were collected and highest number of genera were collected from cob web builder family Theridiidae, showing 13 genera and 18 species; followed by highest species from Orb web builder Araneidae, including 11 genera and 20 species; then water orb weaver family Tetragnathidae, showing 3 genera and 3 species followed by Hammock web builder family Linyphiidae having 3 genera and 3 species; then triangle web builder family Uloboridae including 2 genera and 3 species; followed by Giant orb web builder family Nephilidae, 1 genera and 1 species and finally Net-casting spider family Deinopidae including 1 genera and 2 species respectively.

Out of these 50 species, there are new records including 4 new species 1 species from Araneidae (*Cyclosa* sp. nov.) 2 species from Theridiidae (*Stemmops satpudaensis* and *Latrodectus* sp. nov.) and 1 species from Uloboridae (*Miagrammopes* sp. nov.).

Similarly 5 new generic records (*Tenuiphantes* Saaristo & Tanasevitch, 1996 from Linyphiidae while *Coscinida* Simon, 1895, *Emertonella* Bryant, 1945, *Stemmops* O. Pickard-Cambridge, 1894 and *Yaginumena* Yoshida, 2002 from Theridiidae respectively) as well as 12 new species records were reported from India including 2 species from Linyphiidae (*Erigone prominens* Bösenberg & Strands, 1906 and *Tenuiphantes cristatus* (Menge, 1866)) and 10 species from Theridiidae including *Coscinida tibialis* Simon, 1895 *****, *Emertonella taczanowskii* (Keyserling, 1886), *Euryopis cyclosisa* Zhu & Song, 1997, *Euryopis episinoides* (Walckenaer, 1847), *Parasteatoda oxymaculata* (Zhu, 1998), *Parasteatoda tesselata* (Keyserling, 1884), *Phycosoma labialis* (Zhu, 1998), *Steatoda cingulata* (Thorell, 1890), *Steatoda erigoniformis* (O. Pickard-Cambridge, 1872) and *Yaginumena maculosa* (Yoshida & Ono, 2000). In addition to that male *Poltys* species (*P. columnaris* & *P. illepidus*) is also recorded for the first time from India.

Key words: Araneae, Satpuda, orb-webs

Oral:18

The untold story of spider: Role of ommochromes and the underlying mechanisms.

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Abstract

The astonishing and incredible reversible color change in spiders is reflection of their physiology and is also determined in respect to their genetic makeup. Amazing camouflagic color changes in spiders can be either passive (food induced) or active (physiological, morphological, or behavioral). Knowledge of their nature and localization of pigments like ommochromes in spiders is obviously still very incomplete, surprisingly; the physiology and biochemical foundation of coloration in spiders has seen little progress compared with that of higher invertebrate and vertebrate pigmentation. Hence attempts in the area from inter disciplinary angles including bioinformatics, could prove a powerful tool which can address a number of evolutionary questions. The specific colors of spiders are due to ommochrome pigments, derived from the same origin as that of vertebrate melanophores that are widespread in insects and other arthropods and produce melanin and other carotenoid like pigments. As spider camouflage and mimicry is attracting attention, mainly from behavioral ecologist quarters, an integrative biological approach is the need of the hour. We need both more detailed mechanistic studies within the animal, on the biochemical/physiological pathways from evolutionary behavioral or ecological point of view, both in the laboratory and in the field. In this presentation, some of these aspects like the amazing background matching ability, astonishing reversal of colors and their possible mechanisms are discussed with a phylogenetic background in relation to the pigment cells and their control.

Key words: Spider, Coloration, Ommochromes, Mechanism

Oral:19

Observations on the natural history of *Argiope lobata* from semi-arid grassland ecosystem of Solapur, Maharashtra.

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Abstract

Natural history of *Argiope lobata* was studied in wild and vivarium reared conditions. Habitat requirement, population dynamics, behavior, and reproductive biology were investigated for one year breeding cycle during 2014-2015. Egg sacs were laid mostly between August to November and hatching of spiderlings was observed in June. The reproductive maturity required approximately four to five months. The number of spiderlings ranged between 300-500 per egg sac. Ontogenetic modifications in morphology and color in male and female were noted during the entire life cycle from juvenile stage till their natural death in the laboratory. The variations were compared with those observed in wild specimens. Our results highlight the significance of *Argiope lobata* as an indicator of health of grassland as they show higher affinities with undisturbed habitat patches compared to agro-ecosystems, secondary grassland and disturbed grassland. Contrarily, the distribution of *Argiope anasuja* and *Argiope aemula* was found to be more even at all habitat patches.

Key words: *Argiope lobata*, natural history, Ontogeny, grassland.

Oral: 20

Spider (Arachnida: Araneae) fauna of National Capital Territory of Delhi with first report of cobweb spider *Argyrodes bonadea* (Karsch, 1881) from India.

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Abstract

The present study deals with spider inventory in National Capital Territory of Delhi (NCT Delhi) carried out from 2012 to 2015. During the study 26 species of spiders belonging to 23 genera and 12 families were added to the existing spider fauna of NCT Delhi. After this study, the spider fauna of NCT Delhi comprises a total of 51 species belonging to 29 genera and 15 families. One cobweb spider *Argyrodes bonadea* (Karsch, 1881) was first time reported from India and taxonomic description of the species is provided here. This paper also gives information about distribution of spiders so far reported from Delhi.

Key words: Spider diversity, National Capital Territory of Delhi, *Argyrodes bonadea*

Oral: 21

Dragline silk of giant wood spider, *Nephila pilipes* (Fabricius, 1793) (Araneae: Nephilidae)

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Abstract

Silk production from abdominal glands is unique to spiders. Silk is an essential element in the life of orb weavers. Dragline silk is used to built frame lines and radii, which are the main structural elements of giant orb web of *Nephila pilipes.* This silk is also used as lifeline by spiders while moving through the environment. Thus, it is not surprising that this silk exhibits exceptional material properties. In order to understand what makes dragline silk mechanically superior, it is necessary to understand its structural organization and properties. Hence, properties of dragline silk of *Nephila pilipes* were examined from the biophysical and biochemical point of view. In the present investigation, various techniques such as AFM, XRD and FTIR are used for structural characterization of dragline silk of *Nephila pilipes.*

Dragline silk of *Nephila pilipes* possesses the properties like water absorbance, super contraction and antimicrobial activities. So, it may be used as excellent material for bandage and wound dressing. This silk can be recommended for preparation of clinical masks.

Thus, dragline silk of *Nephila pilipes* is a high quality bio-material, which can be used to manufacture bulletproof jackets, antibacterial cloths for small children and also for manufacture of surgical threads and bandages. For this, recombinant DNA technologies can be applied for large scale production.

Key words: *Nephila pilipes*, dragline silk.

Oral: 22

Orb-weaver spiders (Araneae: Araneidae) from sacred groves of coastal tehsil of Dapoli in Maharashtra, India.

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Abstract

Diversity of spiders was studied in sacred groves and similar wooded habitats in Dapoli taluka of Ratnagiri district in Maharashtra, India. The study area is located in the Konkan region which is a narrow strip between the Western Ghats and the west coast. The objective was to assess the impact of habitat modification especially forest degradation on spider diversity. The sacred groves represent old growth forest; reserved forest represents degraded secondary forest whereas mango and cashew orchards represent destroyed forest regrown into tree-monocultures. However, within the sacred groves, there is a substantial variability of habitat in terms of patch size, surrounding matrix and vegetation composition. Total 32 sites were covered in which 56 sampling locations were marked. Spider sampling was carried out by vegetation beating and litter sorting methods. Two samples with each method were collected at each sampling location. Results pertaining to the family Araneidae for the summers of 2014 and 2015 are presented here. Thirty four species of Araneidae were recorded. Of these, 26 were identified to the species, 4 to the genus, 1 to the subfamily and 3 to the family level. In this study, 3 genera and 10 species are reported from India for the first time. They include *Acusilas coccineus*, *Araneus ejusmodi*, *Cyclosa omonaga*, *Eriovixia cavaleirie*, *E. jianfengensis*, *E. nigrimaculata*, *E.sakiedaorum*, *Hypsosinga sanguinea*, *Neoscona punctigera*, *Poltys stygius* and an unconfirmed species each of the genus *Cyphalonotus* and subfamily Arkyine. The diversity of the family Araneidae along a gradient of forest degradation was explored.

Key words: Forest degradation, Spider assemblages, Diversity, Orchards, Reserved forest

Oral: 23

Ecology and behavior of *Crossopriza* species, with redescription of *Crossopriza lyoni* (Blackwall, 1867).

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Abstract

Pholcidae is the one of the largest family within Haplogynae. The family is commonly called as Daddy long legged family since the species in this family possesses extremely long legs with 6 to 8 eyes. Here, the ecology and behavior of this particular genus of this family is discussed with respect to habit, social behavior, and prey capturing and web structure.

Key words: Ecology, Pholcidae, *Crossopriza*, Webs, Prey Capture.

Oral: 24

Spider diversity and guild composition in Dry evergreen forest of Sakaerat Environment Research Station, Nakhon Ratchasima, Thailand

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Abstract

The diversity and guild composition of sub-canopy spiders in Dry evergreen forest of Sakaerat Environment Research Station, Wang Nam Kheiw District, NakhonRatchasima Province were investigated between July 2012 and June .2013Sampling yielded 2,560 spiders representing 212morpho-species 166genera and 42 families in total. The highest number of species (40 species, 19 (%was registered in the family Araneidae, the second species dominant families were Salticidae (36 species,(%17, Theridiidae((19 species, (%9, and Thomisidae (16 species, (%8in relatively. The second abundance families were Salticidae, Zodariidae, and Thomisidae.Eight guilds were discriminated: (1) sensing (2) orb , (3) space, (4) sheet web weavers; (5) ambush, (6) ground, (7) other hunters; (8) specialists. Majority of the guild composition were orb web weavers and other hunters.

Key words: Spiders, Dry evergreen forest, Sakaerat, Thailand

Oral: 25

Proposing standards in 'spider photography' for publications

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Abstract

The discovery of new genera and new species of spiders published in journals, books and catalogues have included drawings and initially photographs in black and white and subsequently in colour. Collation of photographs in these publications is on 'as submitted' basis. Further, in many cases photographscontinue to be based on preserved and decolourd specimens. Consequently, descriptions and photographs do not always match. Most commonly only one photograph (generally a dorsal view) is published that of a female, as males are yet to be recorded for many. Digital colour photography including macro photography have started to be very popular. Face book and other social media often publish better portraits of spiders but with unconfirmed identification. The need has arisen for common standards in spider photographs in publications.

As a first requirement, it is stated that the photography for showing morphological features be based on a live spider. Colour photo above 10 Mega pixels preferred. A 1:1 magnification is generally reflective of the size and appearance of spider in nature. A template of four photographs of good clarity is suggested as a common standard for external morphology. This will include a 'dorsal' view, a 'ventral' view., 'frontal' or front view and a view showing the most 'unique' feature of the spider or its body part. Photo of the spider on a 'cm/mm' ruler is also very useful. As identification is commonly based on the genital organs often dissected, appropriate standard microphotography is suggested with measurements. Advantages of macrophotography will be discussed. The paper will also elaborate on suggestions to replace all photographs of decoloured specimens currently included in the world spider catalogue with those depicting natural colours and pattern.

Key words: quality standards, digital photography, spider publications, spider photography

Oral: 26

Araneofauna of Sahyadri: A taxonomic initiative

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Abstract

Collated taxonomic documentation of any living group provides far clearer identity about species' diversity, delimitation and distribution than set of individual species papers. Lack of comprehensive and updated compilation of Indian spiders has hindered revisionary studies. To ease this problem, we initiated a study, firstly by documenting spiders from the Western Ghats of Maharashtra and Goa, the Sahyadri hill ranges. The initiative comprises digitization of all material, including specimens that were described from this region. In the first part of the series of 'Araneofauna Sahyadri', we document 100 spider species. Taxonomic remarks and new distributional records are made wherever possible.

Keywords: Araneae, Sahyadari, taxonomy

Oral: 27

Preliminary Observations on Wolf Spider [Araneae: Lycosidae] Communities in Various Terrestrial Habitats from Turkey

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Abstract

Spiders are potentially a good candidate for beingindicatorsof environmental change amonginvertebrates, mainly regarding their extraordinary diversity and strict predatory roles in communities. However, as for most invertebrates, their classical sampling and identification procedures are usually very time and labor consuming. In search of a more practical application, we tried to measure how spiders are dispersed in natural or managed habitats, and how they are effected from various land use patterns.

In order to address these questions, community composition, abundances and body sizes of lycosid spiderswere examined during the summer of 2015, in a variety of terrestrial habitats from 2 different major ecosystems: 1-) olive grove ecosystems at the Aegean coast with various habitat types: semi-natural olive groves,adjacent maquis forests, highly managed olive groves under conventional or organic farming and relict natural mixed forests; 2-) Central Anatolian forest ecosystems: with black pine plantation and relict oak forest habitats.

Descriptive data were collected by use of line transect surveys at night, when spiders were active. Individuals were detected by their shining eyes under the flashlight of headlamps.

Three and two species of large lycosids were identified respectively from Aegean and Central Anatolian study regions:*Hognaradiata* (Latreille, 1817) and *Lycosapraegrandis* C.L. Koch, 1836 were found in both sites, while *Hogna* cf. *graeca* (Roewer, 1951) was only found at the Aegean sites. Abundances varied greatly between habitats, riparian transects were characterized by very high abundances of both *Hogna* species. *Lycosapraegrandis*is more associated with olive groves or open habitats, it is absent in closed forests. No significant relation between body sizes and habitat type or management could be found, however evidence suggest that this three species model could be further examined for studying character displacement or ecological release.

Keywords: Araneae, Lycosidae, Turkey

Oral: 28

Effect of Temperature on Biology of *Pardosa pseudoannulata* (Bosenberg & Strand, 1906) and *Neoscona mukerjei* Tikader, 1980, Predominant Spiders of Rajasthan

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Abstract

The biology of *Pardosa pseudoannulata* (Bosenberg & Strand, 1906) and *Neoscona mukerjei* Tikader, 1980 at different levels of temperature on their development pattern was worked out. A stock culture of both the spiders was maintained in the laboratory at 25±2 ºC and 70±5% RH in BOD incubator. Spiders were reared individually in separate glass containers to avoid cannibalism. An actual determination of particular instars during experiments conducted on *P. pseudoannulata* and *N. mukerjei*, was carried out by counting and separating the subsequent exuviae shed off by developing spiderlings time to time throughout the moulting process. The results showed that female *P. pseudoannulata* had 7 instars while males 6 instars, although some males matured at the seventh instar, while in case of *N. mukerjei*, females and males matured after 9 and 7 instars, respectively. However, in these experiments development periods fluctuated at various temperatures (i.e. 20, 25 and 30˚C). Male *P. pseudoannulata* required 79.16±0.38 days at 20˚C for attaining adulthood, while at 25˚C and 30˚C, this period was recorded to be 74.40±1.2 and 82.75±0.47 days, respectively. Female *P. pseudoannulata* took 90.40±0.76, 85.28±0.69 and 94±0.91 days to become an adult at 20˚C, 25˚C and 30˚C, respectively. Observations on *N. mukerjei*, revealed that males took 98.2±0.48, 85.2±1.6 and 97±2.34 days for becoming adult at 20˚C and 25˚C and 30˚C, respectively. On the other hand, females required 106±0.41, 95.5±1.29 and 107±0.5 days to get adult stage at 20˚C, 25˚C and 30˚C, respectively. Analysis of variance (ANOVA) revealed that data on effect of temperature on development periods were found significantly variable at three temperature levels. 30°C was found as most suitable temperature for male and female (*P. pseudoannulata* and *N. mukerjei)*. The length of development period of different instars of male and female of both spider species was found to be significantly higher at 30˚C.

Key words: *Pardosa pseudoannulata* (Bosenberg & Strand, 1906), *Neoscona mukerjei* Tikader, 1980, temperature, biology, exuviae.

Oral: 29

Some amazing spider diversity from protected areas of Northern Western Ghats of Maharashtra (Chandoli - Koyna (Sahyadri Tiger Reserve) and Radhanagari Wildlife Sanctuary)

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Abstract

The Western Ghats area of India is considered as an important biodiversity hot spot. Western Ghats are among the ecologically richest regions of India. The Radhanagari Wildlife Sanctuary Chandoli National Park and Koyna Wildlife Sanctuary are one of the important Protected areas of the Maharashtra State located in the Northern Western Ghats of Maharashtra. These Sanctuary areas are home to several species with rich endemic flora and fauna. Spiders are one of the most ubiquitous groups of predators in the animal kingdom commonly found in all terrestrial and many aquatic ecosystems. So far no body has worked out or studied the spider diversity from the core zones of Radhanagari Wildlife Sanctuary (Konoli, Savarde and Bagalwadi region),Chandoli National Park (Nivale, Prachitgad, Ramnadi Kasav Nala region) and Koyna Wildlife Sanctuary (Chandel Pali and Vasota); hence we have decided to explore the spider diversity from these Sanctuaries. . Most of the area is dense semi-evergreen forest with a wide range of flora. The area prevails humid and moderate climate and heavy rainfall. The maximum temperature of summer in this sanctuary ranges between 38^0 to 40^0 Celsius and minimum in winter ranges between 12^0 to 2^0 Celsius. The forests areas are semi-evergreen and rich in shrubs and understory habitats resulting into ground dwelling spiders. Spiders have a very significant role to play in ecology by being exclusively predatory and thereby maintaining ecological equilibrium The spiders from Family Theraposidae, araneidae, thomasidae. gnaphosidae, oxyopidae, lycosidae , salticidae ,nephilidae and mygalomorphae are the characterstic in this region. The dominance of ground dwelling spiders like Salticids, Gnaphosids are observed.

Key words : Spider, Northern Western Ghats, Sahyadri Tiger Reserve and Radhanagari Wildlife sanctuary

Oral: 30

Antibacterial activity of *Pardosa brevivulva* Tanaka, 1975 silk

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Abstract

Spider silk is the most versatile natural fiber with various biological applications. In the present study, the spider silk of *Pardosa brevivulva* Tanaka, 1975 was tested for antibacterial activity against six species of bacteria i.e. *Bacillus megaterium, Pseudomonas aeruginosa, phylococcus aureus, Salmonella typhi, Klebsiella pneumonia* and *Proteus vulgaris* by disc diffusion method. After 24 hours of incubation, it was observed that *Pardosa brevivulva* silk was able to inhibit the growth of *B. megaterium, S. typhi* and *K. pneumoniae.* The maximum zone of inhibition was 6 mm in diameter recorded against *S. typhi*. The minimum inhibitory concentration was determined by Alamer Blue assay, for *B. megaterium, K. pneumoniae* and *S. typhi.* The MIC was observed as1.67 µg/ml for *B. megaterium*and, *K. pneumonia* while *S. typhi* showed MIC of 0.83 µg/ml. It can be summrised from preliminary studies that *Pardosa brevivulva* silk is effective against the test organisms and possess useful bactericidal properties.

Keywords: *Pardosa brevivulva,* Spider silk, Antibacterial activity.

Oral: 31

Diversity of spiders in agro-ecosystems from Purna river basin, Vidarbha, India

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Abstract

Agro-ecosystems growing Banana, Cotton and Citrus were surveyed throughout the Purna river basin during 2010 to 2013. A total 27746 spiders were collected representing 21 families, 64 genera and 85 species.

Among all the species collected from all the three agro-ecosystems hunters dominated numerically (61.90%) and web builders comprised of only 38.09%. In the collection sub-adults were 32.84% and adults comprised the maximum population that is 67.16%.

At a species level *Pardosa pseudoannulata, Eriovixia excelsa* and *Cyclosa moonduensis* were most common spider species observed in all the three different types of agro-ecosystems. 22 spider to all the three agro-ecosystems while 17 species were found exclusively from Banana fields. 12 spider species from Cotton fields and 13 from only Citrus fields. 31 species were collected both from Banana and Citrus fields, 32 species were common to Cotton and Citrus fields and only 24 species were similar both in Banana and Cotton fields.

Thelacantha brevispina (Doleschall,1857)* was reported only from Banana agro-ecosystem and *Poltys illepidus* C. L. Koch,1843 * only from Citrus agro-ecosystem.

In Banana agro-ecosystem, the species abundance was in the order Araneidae > Salticidae > Lycosidae > Sparassidae. Salticids exhibited highest generic diversity followed by Araneidae and Lycosidae. Population of Araneids and Lycosids alone was more than 50% of the total population. Population of Oxyopids and Tetragnathids was negligible in banana agro-ecosystem and Thomisids were not observed.

In the survey of cotton agro-ecosystem, Lycosids dominated the collection with 1957 (22.01%) specimens followed by Araneids 1588 (17.86%), Oxyopids 1288 (14.48%), Tetragnathids 989 (11.12%) and then Salticids 929 (10.44%). Sparassids were not reported from cotton fields and thomisid spiders were just 0.95% of the total population.

Citrus agro-ecosystem was dominated by Thomisids with 1679 (24.07%) specimens followed by Araneids 1366 (19.58%), Lycosids 788 (11.29%) and Salticids 762 (10.92%). Thus species population was in the order of Thomisidae > Araneidae > Lycosidae > Salticidae > Tetragnathidae. Salticidae exhibited highest generic and species diversity followed by Araneidae and Thomisidae with 6 genera each. The dominant species recorded from Citrus agro-ecosystem were *Tmarus* indoaurantiaca sp. nov., *Lycosa poonaensis, Eriovixia excelsa, Indoxysticus minutus, Philodamia citrofoliata* sp. nov., *Uloborus walckenaerius* and *Poltys illepidus.* Oxyopids and Sparrassids were represented by very less number.

The spiders in all the selected agro-ecosystems are observed preying upon insect pests from orders Lepidoptera, Diptera, Homoptera, Coleoptera, Hymenoptera, and Orthoptera. The orb-

weavers Araneidae and Tetragnathidae were observed feeding upon Homoptera such as leafhoppers, Diptera and Orthoptera, especially grasshoppers. The smaller sheet web-weavers such as Theridiidae were seen capturing insects from Diptera, Hemiptera and Homoptera (especially aphids and leafhoppers). The funnel web spider, *Hippasa* and the social spider *Stegodyphus sarasinorum* were seen preying upon Orthopterans, Coleopterans and Lepidopterans. Hunting spiders (Lycosidae, Oxyopidae, Thomisidae and Salticidae) frequently were observed preying upon species from Orthoptera, Homoptera, Hemiptera, Lepidoptera, Thysanoptera, Diptera and some Coleoptera and Hymenoptera.
Key words: Diversity, spiders, agro-ecosystems, Vidarbha, India

Oral: 32

Abundance of spiders on grapevines and apple trees in El Sadat city, Menofia Governorate, Egypt

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Abstract

Using plant shaking and hand sorting collecting methods at El Sadat city in Menofia Governorate, Egypt, sixteen families of spiders were recorded in this study which was conducted on two horticulture plantations, Grapevine (*Vitis vinifera*) and Apple tress (*Malus domestica*). 28 genera and 24 identified species were obtained. The identification of some families, genera and species is difficult in some cases. Juvenile specimens are useless and unidentifiable even to genus level. Apple trees were the most plant harbored spiders. The most dominant families recorded and represented with the largest number of species were Gnaphosidae, Philodromidae, Salticidae, Theridiidae and Thomisidae. The fewest species were belonged to Araneidae, Eutichuridae, Oecobiidae, Oxyopidae, Scytodidae, Trachelidae and Uloboridae families. Otherwise, some families are identified to the family species only, *i.e.* Agelenidae, Dictynidae, Linyphiidae and Liocranidae.

Key words: Abundance, Spiders, Grapevine, Apple trees, Menofia Governorate, Egypt.

Oral: 33

Let us recall with pride the contributions to Arachnology by eighteenth and nineteenth centuries' Arachnologists in Germany, France, England and Sweden

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Abstract

Dr. Carl Wilhem (16.12.1786 to 07.11.1835) was a German Zoologist and author of first German Monograph on SPIDERS. He was an all-round natural history scientist. C.W. Hahn after 1816 AD made up his mind to devote his life to his favourite predilection for natural history. He had this type of mind set for observing nature and organisms since early childhood. Dr. Hahn first focused his attention on his, first, ornithological studies, namely, "Birds from Asia, Africa, America and New Holland". Dr. Hahn was quite closer to the then internationally known natural- history scientist, namely, Jakob Sturn. In honour of Mr. Sturn, Dr. Hahn named a spider after Dr. Jakob Sturn as *Aranens sturni* which is now known as *Atea sturmi*(Hahn,1831). Mr. Hahn was also very close to Dr. Johann Georg Wagler and once more named another spider species as *Lycosa waglerii* which is today known as *Pardosa wagleri* (Hahn, 1822). In this very tandem Dr. Hahn dedicated his work on spiders, namely, "Monograph on spiders" to another great natural history Scientist Franz-Von-Paula (Von) Schran. Dr. Hahn also did commendable work on true bugs (Heteroptera). His work on Spiders remains influential even today. Another Spider expert, Carl Ludwig Koch, continued working on Spiders after Dr. Hahn death by publishing "Die-Archniden". Mr. Koch, even named a Genus of Spider in honour of Mr. Hahn i.e. Hahnia Spp in 1841 AD. Later Hahnia Spp spider retained its named for an entire family, Namely, Family Hahniidae (BertKau- 1878). Dr. Carl Wilhelm Hahn died on 07.11.1835 due to lung cancer in the primetime of his life. Dr. Carl Hahn's work on spiders is of a rare quality published as "MONOGRAPHIE der Spinnen-Monograph on Spiders". It is worth mentioning that today only 14 Original incomplete copies of this monograph are available. It is believed that one spider expert, Mr. Sachner, collected these copies of Monographie-der-Spinnen" collected these 14-copies from Germany (Wittenberg, Berlin, Jena, Darmstadt, Erlangen, Kiel, Munich, Frankfurt); England (London); USA (Cambrige-Mass); Austria (Vienna) and France (Paris). It is interesting to note that Dr. Hahn had differences with his publisher Mr. Lachner and therefore, in 1831 AD he rechristened Monographie der Spinnen as Die Arachniden. A fresh copy of the monograph was published as recently in 1988AD. One may say that Monographie der Spinnen is far more than just a bibliophilic work that Hahn was a good observer is shown clearly by the example of spider *Eresus annulatus* (E. Sandaliatus(Matini + Goez,1778) and . cinnaberinus, E. Kollari Rossi,1846). After more than 150 years, Arachnologists follow his classification of various TAXA even today. It was certainly, the first ever Monograph in

German language. Moreover, it was a very unusual landmark in the history of Arachnology. As far back as 180 years, Mr. Hahn brought into focus Spiders as Organisms worthy of a very detailed research work. Also, it is rather stunning to point out that Monographie der Spinner explicitly confirms that Mr. Hahn was also an exceptionally and extra-ordinarily "Artist" cum "Lithographer". Mr. Hahns' twin achievements i.e. Monoraph Der Spinnen and Die-Archniden in 14-volumes between 1831 -1848AD. Mr. C.L Koch played sufficient role which need to Linnaeus , coined the genus Aranea for today's Spider, scorpions and related forms regarding these as wingless insects and part of entomology and this practice continued until end of 18th century. However, it was Mr. Latreille who established the first set of genera for Spiders in his work, which is marking the real beginning of "Arachnological systematic" i.e. Histoire Naturelle des insects Apteres" between 1837-1847.

Mr. Simon was one very important French Arachnologists. He was deeply impressed by Mr. Hahn's Die-Arachniden. Germany produced yet another spider expert, namely, Carl Ludwing Koch –a great entomologist cum arachnologost. Carl Ludwing was infact, an Inspector of water and forests. Koch succeded in compiling information on Spiders in 16- volumes in the name of Die Arachniden (1831-1848) and this publication was commenced by yet another great Arachnologist, Carl Wilhelm Hahn (1786-1836). Carl also contributed one chapter on spiders in "Faunae Insectorum Germamacal-Initia oder Deutschlands insecten" (Elements of insects Fauna of Germany), a work by George Wolfgang Franz Panzer (1755-1829). Koch co-authored an important monograph namely, *Die Im Bernstein befindlichen-myriapoden, Arachniden and Apteren der-Vorwelt* (1874) with Dr. George Karl Berendt. Carl Ludwig Koch had a son Ludwig Carl Christian Koch (1825-1908) who was also a well known entomologist.

Tamerlan Thorell (03.05.1830 to 22.12.1901) was a Swedish Arachnologist Thorell described more than 1000 spiders during 1850 to 1900 AD. Thorell wrote two significant books on Spiders: (i) On European Spiders (1869), (ii) Synonym of European Spiders (1870-73). Two "orbs-weaver" spider GENERA are named after Dr. Thorell (a) *Thorellina* sp, (b) Jumping spider genus: Thorelliodea spp. Also, at least another 30 species of spiders are named after Thorell.

Reverred Octavuis Pickard-Cambridge (3.11.128 to 9.3.1917) was an English clergyman. He was a Zoologist too. He studied Theology at the University of Durham. Reverred Octavuis was an expert on spiders, birds, butterflies and moths/ Octavia was introduced to spiders by entomologist-Frederick Bond in 1854AD on a visit to the new Forests in Hampshire. Mr. Frederick Bond also introduced Mr. Octavius to the published work of Arachnologist John Blackwall. Mr Octavius met Mr. Blackwall in 1860 in person and assisted him in the publication of British and Irish Spiders between 1861 to 1864. Mr. Octavia himself published extensively on spiders between 1859-1917. Mr. Octavia published☹a) Biologia –centrali-Americanii between 1883-1902. His best work was the spiders of Dorset. Mr. Octavia became a world authority on Spiders, describing a considerable number of new species including the Costa-Rica-Red-Leg-Tarantula: *Egaphobema-mesomeles*, and the Sydney-Funnel-Web-spider: *Atrax robustus*. He became a fellow of Royal Society in 1887. His collection of spiders and library were bequeathed to the University of Oxford.

Mr. Octavius nephew Mr. Frederick Octavius Cambridge (1860 to 1905) was also a noted Arachnologist.

Mr. John Blackwall was an English Arachnologist(20.01.1790 to May 1881). He published "A History of the spiders" of Great Britain and Ireland in 2 volumes between 1861 to 1864 having account of 304 species. He gave the first adequate descriptions of British Spiders.

As such, it may be said that although, even today Spiders may appear as obscure and curious creatures of no ultimate academic interest and classified on a very scientific way by dozens of naturalists in Germany, France, England and India too. Arachnologists Carl Ludwig Koch, George Wolfgang Franz Panzer, Tamerlan Thorell, Eugene Simon, Octavius Pickard Cambridge, John Blackwall, Thomas Workman and above all Mr. Hahn did voluminous pioneering studies on Spiders which even today stand out distinct distinguished explicit, monumental work on the taxonomy, natural history and other significant aspects of serious, meaningful contributions n Arachnology. It is quite urgent upon us today to recall with pride the contributions.

Key words: Arachnology, Germany, France, England and Sweden

Posters

Poster: 1

Colour variations in *Thelecantha brevispana* (Doleschall, 1857)

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Abstract

Thelecantha brevispana is abundantly found in banana agro-ecosystem around Malkapur. This is a robust spider which secretes green silk. Its web shows typical spiral silk stabilimenta which gives strength to the web.

In banana agro-ecosystem *Thelecantha* is found in different colors red and white patches, orange and white patches, totally black colour and in black and white texture. Those these drastic change in coloration is seen as common, all of their genitalia indicate only one species i.e. brevispana. However males do not show any color variations and are only black in color.

Key words: *Thelecantha brevispana,* variation

Poster: 2

FTIR spectroscopy of spider (*Nephila pilipes*) silk

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Silk proteins, especially spider silk, have gained growing interest during the last ten years because of their remarkable mechanical properties. FTIR spectroscopic study of dragline silk of *Nephila pilipes* is carried out to know the secondary structure of silk fibers. The prominent peaks indicated presence of repeated amides. The high tensile strength and elasticity of spider silk may be because of the high concentration of amides in silk protein.
Keywords: Spider silk, FTIR spectroscopy, amides

Poster: 3

Chromosomal study of genus *Neoscona* from Akola district.

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Abstract

Genus *Neoscona* belongs to third largest spider family the Araneidae and is not studied for chromosomal aspects, in Maharashtra. So in 2013 we began our study with the aim to analyze karyotypically, the three species of *Neoscona* from Akola district. The specimens *Neoscona nautica, Neoscona mukherjei and* and *Neoscona theisi* were collected and the gonads were dissected out and chromosome preparation was made using standard staining techniques. The meiotic cells were photographed using a imaging capture camera attached to a light microscope. The chromosomal morphologies in these spiders are as below.

N mukherjei 2n = 24, X1X2, 22T + X1X2T.
N. nautica 2n = 24, X1X2, 22T + X1X2T,
N theisi 2n = 24, X1X2, 14M + 2Sm + 6T + X1X2T

We observed three types of chromosomes, metacentric, sub-metacentric and telocentric. The autosomes in *N. theisi* are of metacentric, sub-metacentric type while in *N nautica* and *N mukherjie* all the autosomes are telocentric. The sex chromosomes are easily recognized and are telocentric in all the three spiders.

Keywords: karyotype, chromosomes, Giemsa stain, *Neoscona mukherjei, Neoscona nautica, Neoscona theisi*

Poster: 4

Spider diversity of Akola district (MS) India

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Abstract

Present study on spider diversity were made during 2014-15 on Akola district. During investigation member of 11 family 30 genera and 65 species were recorded from Akola district. Prominent member of family salticidae (37%) followed by araneidae(14%),and thombicidae 14% were recorded from sanctuary. Among generic diversity *Runcinia* sp. (4.79%); *Opisthoncus* sp. (2.9%); *Aranaeus* sp. (2.77%), *Cyclosa* sp. (2.65%), *Phintela vitata* 2.27% were observed in the different habitat of Akola district.

Keywords:-Spider diversity, Akola district.

Poster: 5

Diversity and ecology of spider of the family Araneid Clerck 1757 from Shivaji college campus, Akola

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Abstract

Present study was carried out on morphology and ecology of spiders *Argiope aemula, Araneus mitificus, Cyrtophora citricola* and *Neoscona crucifera (all from* Araneidae) from Shri Shivaji college Akola campus during 2014-15. During this study four species of family Araneidae were observed in the campus. Male and female of *Neoscona* and *Cyrtophora* were collected whereas only female of *Araneus mitificus* and *Argiope aemula were* collected from the college campus. Measurements of total body length, length and width of cephalothorax, abdomen and sternum were also recoded. Total length of leg and different parts of legs also measured. Measurement of chelicerae, pedipalp were also studied in the present study. Measurements of female *Argiope aemula, Araneus mitificus, Neoscona crucifera* and *Cyrtophora citricola*: total body length 38.85 mm, 5.40mm, 38.23 mm,7mm, respectively. Comparatively *Argiope aemula* is the largest spider observed in the campus.

Keywords: Araneid spiders college campus, ecology and morphology 2014-15.

Poster: 6

Rare spider of genus *Prodidomus* discovered at Navsari, Gujarat – India

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Arthropods are not only biologically distinct groups of organisms but also one of the oldest and largest groups found on this globe since the prehistoric times. Its mere existence reveal number of facts and resolve many queries related to ecology. Arachnids inhabit the whole world are believed to be the first land animals from the fossils discovered so far. Small and insignificant looking carnivorous spiders, members of Araneae order, class Arachnida, are very important predators and prey to multitude of other animals. They work as guards and check the population of number of insects in various food chains and food webs of different ecosystems. With this view, the present study was undertaken to understand the role spiders play, in an agricultural and horticulture ecosystem.

While undertaking the study on diversity of spiders in different parts of Navsari District, Gujarat, this very rare species of prodidomidae family and genus *Prodidomus* commonly known as long spinnered ground spider was discovered at Navsari Agriculture University (NAU) Campus and B. P. Baria Sci. Inst., Navsari during monsoon season of the year 2015. Two pale yellow coloured female spiders were discovered, one under the rock near Banana and Papaya fields of NAU campus and another near the staircase of college building of Baria Inst.Spider samples were preserved in 70% alcohol to preserve this organism. Nocturnal ground dwellers, black and white eyes and long spinnerets with bristles are the key demarcating features of this spider. Male spider was not found. Due to the rarity of the genus – species and its 6-7 mm size, its species is yet to be studied. Moreover, the researchers have not come across any past records or evidence of finding this extremely rare spider in the state of Gujarat till date. Only 7 species of *prodidomus* are so far reported from India (Sebastian and Peter, 2009).

Further detailed studies on the systematic position, relationship of this spider and the geographical region of Navsari district can reveal many more facts about the co relationships, co-existence, and presence of this spider in this locality. Moreover it is very likely that its presence might be an indication to climate change.

Keywords: *Prodidomus,* Spider, spinnerets, nocturnal

Poster: 7

Distribution of Spiders from Cotton Fields of Pulgaon village, District -Wardha (M.S.) India

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Abstract

Spiders are most abundant predatory creature in the terrestrial ecosystem. Due to their high abundance and predominantly insectivorous feeding habits, spiders are suspected to play an important predatory role in agro ecosystems, woodlands, and terrestrial ecosystems. They mostly feed on insect, other arthropods. Spiders are regarded as good indicators of habitat quality due to higher sensitivity to change in their environment. Spiders are more attractive because of their interesting biology and they can be easily collected and maintained in laboratory. Spiders can be effectively used for pest control in cotton field. Spiders play an important role in regulating insect pests in agro-ecosystem. Spiders are predaceous creature which feed largely on insects, larvae and eggs of arthropods. For different economically important crops i.e. wheat, rice, maize and cotton insecticides and pesticides are used widely which decreases the activity of spiders. However, their role in pest control management and crop protection has not utilized properly in India. Spiders are one of the major groups of predators that are desirable in the development of efficient production, sustainable & low-input agricultural systems. Spiders are an important group of predators in various ecosystems.

Spiders are close relationship with their surrounding because they need attachment sites for their webs and their sensory organs, which can recognize the perceptible vibrations of the substrate. Spiders have high host finding ability and capacity to consume greater number of prey than other field predators. In our faunal investigation of spiders in the Agro-ecosystem particularly in Cotton fields on the bank of Wardha River which passes through the Pulgaon village, the most abundant species are belonged to Araneidae, Clubionidae, Eresidae, Gnaphosidae, Hersiliidae, Lycosidae, Miturgidae, Oxyopidae, Salticidae, Tetragnathidae & Thomisidae families. The current study was carried out for a period of Twelve months from August 2014 to August 2015. They are one of the important predators in these cotton fields and play an important role in controlling cotton pests. Before evaluate the role of spiders in suppressing pest populations in a given agricultural situation, there must be available sufficient information on their taxonomic diversity and abundance habitat in space and time, body size of species, predators and prey objects, hunting strategy and the rate of their consumption, and reproduction.

Keywords: Spiders, Cotton field, Diversity, Wardha River.

Poster: 8

Spider fauna of family Araneidae (Arachnida-Araneae) from Narmada region of Madhya Pradesh, India

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Abstract

Narmada river flowing through Madhya Pradesh has made the fertile land with good agriculture fields inhabiting variety of spiders. This is the first attempt of study in which spider diversity is fully explored along the Narmada River from Barwani to Omkareshwar. In all 19 spider species are recorded from 10 genera belonging to family araneidae from the study area.

Keywords: Araneae, Araneidae, Spider fauna, Narmada basin, Madhya Pradesh, India

Poster: 9

Diversity and distribution of spider fauna in and around the Katepurna Sanctuary Akola, India

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Abstract

A study on the diversity and distribution of spider fauna in and around the Katepurna Sanctuary, India, was conducted during June to October 2015. The Katepurna Sanctuary India is an exotic sanctuary dotted with an abundance of flora and fauna. Positioned in Akola district in Vidarbha region of the state of Maharashtra, the sanctuary lies in close proximity to the catchments area of Katepurna reservoir (Mahan Dam). Its area is geographically located at - 20°25'0.54"N 77°10'50.14"E.

So far nobody has studied the spider fauna of this Wildlife Sanctuary and hence we decided to explore the spider diversity from this Sanctuary. A total of 54 species of spiders belonging to 48 genera under 17 families were recorded. Spiders from the families Araneidae, Salticidae, Theridiidae and Thomisidae are dominated in this region. Thus, the present study reveals a rich diversity of spider fauna in Katepurna Sanctuary, Akola and it can be possibly utilized in agricultural sector in integrated pest management (IPM) as bio-control agent.

Key words-Katepurna Sanctuary, Akola, Spider (Araneae), Diversity and distribution.

Poster: 10

First record of *Euryophis cyclosisa* Zhu & Song, 1997 (Araneae: Theridiidae) from India

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Abstract

Genus *Euryophis* Menge, 1868 is currently known with 75 valid species from the world. Most of the species are reported from Asiatic region. As far as India is concern, only two species are reported, *E. nubile* Simon, 1889 and *E. venutissima* in 1934 as *Philarcus venutissimus* by Caporiacco from Karakorum (later on transferred in *Euryophis*). These two species are reported previously long time ago. *Euryophis cyclosisa* Zhu & Song, 1997 was previously known only from China. Following study is the first time report of its occurrence in India.

Key words: Daryapur, Theridiidae, China, India, Araneae.

Poster: 11

New species of *Myrmarachne* Macleay, 1839 (Araneae: Salticidae) from India.

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Abstract

Myrmarachne MacLeay, 1839 is specially known for its ant mimicking behavior and its ant like appearance. 227 species are reported so far from the world. As far as India is concern 26 species are known. As it is a temperate genus, diversity of species of this genus in India is more. Some species of *Myrmarachne* males are with forked chelicerae belonging to formicara group and few are from tristis group. Present study is the record of a new species of *Myrmarachne* with unique forked chelicerae. Its diagnosis and illustration will be presented.

Key words: Central India, *Myrmarachne,* jumping spider, salticid.

Poster: 12

Redescription of *Harmochirus zabkai* Logunov, 2001 (Araneae: Salticidae) from India

Shiraz Khan[1], Pradnya umale[2], Rawsaheb Deshmukh3, Sawan Deshukh[4] & Atul Bodkhe[5].

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Abstract

Salticidae is one of the interesting and diverse families of spiders containing 589 genera and 5845 species. Genus *Harmochirus* Simon, 1885 is known from 9 valid species from Africa and Asian countries, as far as India in concerned, 4 species are reported (WSC NMB 2015) till date. Present paper deals with the specimens collected from J. D. P. Sangludkar Mahavidyalaya Daryapur from Amravati district. Specimens were collected from small grasses. A brief discussion of species from genus *Harmochirus* Simon, 1885 along with the redescription and diagnosis are presented.
Key Words: Salticids, Maharashtra, fissidentate, scutum.

Poster: 13

First record of spider genus *Hypsosinga* Ausserer, 1871 with description of its new species (Araneae: Araneidae) from Satpura Landscape, India

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Abstract

New genera of the spider *Hypsosinga* Ausserer, 1871b is recorded from Araneidae for the first time in India. From this poorly known genus *Hypsosinga* only 19 species are recorded so far worldwide, however there was no report from India. The present paper deals with description of this new genus along with its new species from Pachmarhi Wildlife Sanctuary, Dist. Hoshangabad (M P), India.

Key words: *Singa*, new record, Central India.

Poster: 14

First record of spider genus *Cambalida* Simon, 1910 to India (Araneae: Corinnidae) with the description of new species.

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Abstract

The genus *Cambalida* Simon, 1910 poorly known genera from the family Corinnidae contain 10 valid species worldwide, as far as Asia is concerned not a single species recorded and described. *Cambalida* Simon, 1910 previously only know for Afrotrical Africa but present investigation deals with the record of *Cambalida* Simon, 1910 in Pachmarhi Wildlife Sanctuary M.P. India. Taxonomic description and its photographs are given.

Key words: Castianeirinae, Satpura Landscape, Areneo-fauna, pantropic, ground spider.

Poster: 15

New Species of the Spider genus *Pandava* Lehtinen, 1967(Araneae: Titanoecidae) from Lonar Crater Sanctuary, India

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Abstract

New species of spider genus *Pandava* Lehtinen, is reported from Lonar Crater Sanctuary, India with description of *Pandava maharashtraensis* sp.nov**.** Morphological characters & illustration are presented here. *Pandava maharashtraensis* sp. nov. resembles *P. laminata* (Thorell, 1878) and *Pandava ganesha*, *P. sarasvati* Almeida-Silva *et al.* 2010 in the general shape of the epigynum, but differs by Epigynal rim attached, looped spermathecae and long, strongly sclerotized copulatory ducts that are visible through the cuticle.

Keywords: *Pandava maharashtraensis*, Taxonomy, New Record

Poster: 16

Web construction pattern of Orb Weaving Spider, *Eriovixia excelsa* Simon, 1889 (Araneae: Araneidae)

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Abstract

Webs of spiders are the proverbial symbols of this group of animals; however the variation in webs is enormous. The aim of the present study was to focus on orb web biology of a poorly known araneid spider *Eriovixia excelsa* Simon, 1889 (Araneae: Araneidae). The study was carried out during 2014 and 2015 in the orange growing area at Morshi in the state of Maharashtra, India. We calculated capture area, web asymmetry, hub asymmetry, mesh width, web width and web height as well as radial and spiral counts. In our study, we recorded the height of constructed webs at that ranged from 135 cm to 153cm from ground and construction of web was completed in 34.28 ± 0.25 min. We observed that web is disturbed they run away from hub or jump off the web. Prey recorded from these webs were in the order Diptera > Homoptera > Hymenoptera > Coleoptera. Therefore we concluded that *Eriovixia excelsa* maintains the basic web architecture during prey capture and it reflects many selection pressure in the environment.

Key words: *Eriovixia excelsa*, Web Pattern, Orange Plantation, Prey capture, Morshi, India.

Poster: 17

An addition to the spider fauna from the vicinity of Radhanagari Wild Life Sanctuary, Kolhapur

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Abstract

Among the arthropod group, spiders are considered to be important as they play a vital role in insect pests regulation and other invertebrates populations in most ecosystems. There are 12 talukas of Kolhapur district, out of which Shahuwadi, Gaganbavada, Radhanagari, Bhudargad and Ajara talukas are situated at Western side of the district. Radhanagari is situated at 16" 30"N and 74" 00" L and the total area of the taluka is about 5000 sq.km. Its altitude varies from 955m to 549 m. In Radhanagari taluka out of four rivulets running through wide valleys formed by these sub-ranges the northern ones, namely Dhamani and Tulasi, are very small, but the southern rivers Bhogavati and Doodhganga are important tributaries of the river Krishna. The bed of Bhogavati river is turned into ecological zigzag, extensive lake (4,256 acres) called "Laxmi Sagar" by the construction of the dam to the of Radhanagari and "Kalammawadi Dam" on Doodhganga river ,an artificial large lake is formed known as "Doodh Sagar".

As early as in 1958, 19.16 sq.km. area of the forest at Dajipur , in taluka Radhanagari, was initial reserved as Dajipur Bison (Indian Gaur) Sanctuary by the Government of Maharashtra. Subsequently in 1985 the area of the Sanctuary was expanded to 351.16 sq.kms and the sanctuary was renamed as 'Radhanagari Wildlife Sanctuary'. This Sanctuary includes Radhanagari and Gaganbawada talukas of Kolhapur district which is well known for its majestic 'Indian Gaur'.

The survey was conducted in the vicinity of Radhanagari Wildlife Sanctuary for a period of one year from Dec 2013 - January 2015. The investigation showed that previously 18 families were recorded for the year 20011-2013 and now it records to 24 families, of which Araneidae records maximum with 20 species followed by Salticidae with 18 species. Among them 09 mono typic families represented by single species.

Key words: Spider, fauna, Radhanagari, Kolhapur

Poster: 18

Egg sac morphology of various spiders from agro-ecosystems

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Abstract

During the field survey and collection of spiders, female spiders were seen guarding their egg sacs. The morphology of egg sacs, number of egg sacs laid by them and number of eggs per egg sac were studied. In all 25 spider species from 15 families were observed for their egg sacs. Ten spider species were found laying more than 2 egg sacs and they used specific microhabitat for laying their egg sacs. The size of egg sacs varies from 0.4mm to 2 cm. The number of eggs per sac ranges from 8 to 3002. Their color and shapes differ from species to species and hence, the morphological characters of egg sacs can be of use in taxonomy.

Depending upon the occurrence of spiders in various agro-ecosystems and the egg sac characteristics, farmers can choose spiders for rearing and ultimately for pest control.

Key words: Spider, egg sac, morphology

Poster: 19

Diversity of Spiders from Multiple Use Area (MUA) of Melghats, District Amravati (Maharashtra State) - India.

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Abstract

Spiders are among the most abundant insectivorous predators of terrestrial ecosystem. The spiders vary greatly in their shape and size. They are widespread and found in all types of habitats. A survey of Spiders was carried out in MUA of Melghats during 2012-15. During the present survey, I have reported 103 species of spiders belonging to 21 Families and 54 genera. Spiders of Families Araneidae, Clubionidae, Eresidae, Gnaphosidae, Hersilidae, Linyphiidae, Lycosidae, Eutichuridae, Nephilidae, Oecobiidae, Oxyopidae, Philodromidae, Pholcidae, Pisauridae, Salticidae, Scytodidae, Sparassidae, Tetragnathidae, Theridiidae, Thomisidae, Uloboridae were recorded during the investigation. The occurrence of spiders was in the order Araneidae>Salticidae>Lycosidae>Thomisidae>Gnaphosidae.

Sr. No.	Family	Genera	Species
1	Araneidae	11	16
2	Clubionidae	01	02
3	Eresidae	01	01
4	Gnaphosidae	04	10
5	Hersilidae	01	01
6	Linyphiidae	02	04
7	Lycosidae	05	12
8	Eutichuridae	01	01
9	Nephilidae	01	02
10	Oecobiidae	01	02
11	Oxyopidae	04	07
12	Philodromidae	01	01
13	Pholcidae	01	02
14	Pisauridae	01	02
15	Saltisidae	09	14
16	Scytodidae	01	02
17	Sparassidae	01	02

18	Tetragnathidae	02	05
19	Theridiidae	01	03
20	Thomisidae	04	11
21	Uloboridae	01	02
Total		**54**	**103**

Keywords: Diversity, Spiders, Forest-ecosystems.

Poster: 20

Comparative Spectroscopic (FTIR) Characterization Spider silk of Family Lycosidae and Eresidae

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Key words- Amide, Amino acid, Lycosidae, Eresidae, Silk

ABSTRACT

Spiders are unique in their ability to synthesize and utilize silk for various purposes. The primary structure of silk is its amino acid sequence, mainly consisting of highly repetitive blocks, which is why silks are often referred to as a block co-polymer. This attempt was made to characterize silk of Lycosidae and Eresidae for the amino acids by FTIR. The test results shows that, the silk of Lycosidaeshows strong –COOH asymmetrical vibration and $–NH_3$ symmetrical bending vibration for Glumatic acid and Lysine, while in Eresidae, Argnine amino acid and with - NH_2 medium bendig vibrations. Both the silk samples show presence of beta – sheet secondary protein structure. In Lycosidae Spider silk, strong vibrations in Amide-I region, while in Eresidae spider silk, medium vibrations get observed. Amide-II band are absent in Eresidae. Amide– B band are observed in both the samples.

Poster: 21

Investigation of mycobiota collected from spider webs of Melghat forest, Maharashtra, India

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Abstract

Spider webs were revealed to be effective collectors of airborne microorganisms such as bacteria and fungi. Spider webs were collected from different regions of Maharashtra's Melghat forest such as Chikhaldara, Simadoh, Jaridhred . These spider webs were cultured on potato dextrose agar plate supplemented with antibiotic to inhibit the growth of bacteria Methodology assured sterility during collection and permitted *In situ* microbial growth , observation and enumeration of fungi. These samples were then analyzed for fungi content. To be considered suitable passive collectors, webs had to satisfy some basic conditions such as collection of microorganisms without discrimination based on species or size or type, Collection under variable environmental conditions and saturation avoidance in the presence of strong microbial launching sources. Samples were collected from different height, at different temperatures, from thin to thick forest .These parameters covers major region of Melghat forest to create a database of fungi . Variety of isolates of fungi were recovered from all collected web samples.

On the basis of pure culture isolation, morphology, microscopy , cultural characteristics , pigmentation fungi were confirmed. Total 190 colonies were isolated from 78 web samples constituting 15 species belonging to 07 genera. *Aspergillus species, Fusarium species* and *Trichoderma species* were more dominant ones and rest includes *Penecillium* and *Rhizopus, Alternaria, Cladosporium.*

Key words: mycobiota, Melghat, Maharashtra

Poster 22

Poster: 23

Comparative Spectroscopic (FTIR) Characterization Spider silk of Family Lycosidae and Eresidae

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Abstract

Spiders are unique in their ability to synthesize and utilize silk for various purposes. The primary structure of silk is its amino acid sequence, mainly consisting of highly repetitive blocks, that is why silk is often referred to as a block co-polymer. This attempt was made to characterize silk of Lycosidae and Eresidae for the amino acids by FTIR. The test results show that, the silk of Lycosidae is strong –COOH asymmetrical vibration and $–NH_3$ symmetrical bending vibration for Glumatic acid and Lysine, while in Eresidae, argnine amino acid and with $-NH_2$ medium bending vibrations. Both the silk samples show presence of beta – sheet secondary protein structure. In Lycosidae Spider silk, strong vibrations in Amide-I region, while in Eresidae spider silk, medium vibrations were observed. Amide-II band are absent in Eresidae. Amide– B bands are observed in both the samples.

Key words- Amide, Amino acid, Lycosidae, Eresidae, Silk

Poster: 24

Diversity of spiders from kitchen gardens of Amravati city Maharashtra India

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Amravati is located at 20.93°N 77.75°E. It has an average elevation of 343 metres (1125 feet).

A detail survey of spiders from araneidae family was carried out in kitchen gardens of Amravati city during 2014. We have reported 87species from 11 genera. The maximum species diversity was noted from August to January, 2014, *Cyclosa, Leucauge decorata, Plexippus pyculli, Neoscona theisi* and *Phintela vitata* are the most common species recorded from all the kitchen gardens selected from the present study.

Key words: Spider diversity, kitchen garden, Amravati

Poster: 25

Notes on the *Metellina orientalis* (Spassky, 1932) [Araneae: Tetragnathidae] from Turkey

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Abstract

Metellina is one of the 47 genera of Tetragnathidae and currently represented by seven species (WSC, 2015); it has mainly a Eurasian distribution except two North American species, *M. curtisi* (McCook, 1894) and *M. mimetoides* Chamberlin &Ivie, 1941. One Palearctic species, *M. segmentata* (Clerck, 1757) was also reported from Canada as introduced (Platnick, 2010). Members of the genus differ from other tetragnathid spiders by their large paracymbium, roll shaped embolar apophysis and wide, bilobed spermatheca.

Purpose of this report is to confirm the questionable existence of *M. orientalis* (Spassky, 1932) in Turkish checklists, based on new material from several recently discovered populations. Taxonomic characters are also defined in detail.

Keywords: *Metellina orientalis,* Tetragnathidae, Turkey

Poster: 26

Relationship of Spiders with Plants: the study of association of selected spiders in Painganga forest near Umarkhed tahsil District Yavatmal

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Abstract

Physical structure and species composition of vegetation determine spider diversity through habitat availability. We have assessed the role of plant structure (type, flowering, having thorns, leaf architecture, height of plant, location from water source, distance between two plants, etc.) on web building spider communities in Umarkhed area of dry deciduous forest. These studies have shown that architectural features of vegetation, prey availability, and microclimatic conditions all are important in determining the abundance and distribution of spiders. Spiders use leaves of plants for laying egg sacs.

Key words: Plant, spiders, association

Poster: 27

New species of *Orchestina* Simon, 1882 (Araneae: Orchestininae :Oonopidae) From Lonar Crater Sanctuary, India

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Abstract

The Spider genus *Orchestina* Simon, 1882 from Oonopidae is the first scientific record from India with description of the new species from Lonar Crater Sanctuary, Dist- Buldhana (M.S), India. Diagnosis & illustrations are presented.

Keywords: Taxonomy, New record, Maharashtra, Ecology

Poster: 28

Distribution and microhabitat utilization of jumping spiders in four habitats in Mihintale Sanctuary, Sri Lanka.

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Abstract

Salticids, commonly known as jumping spiders are one of the most prominent and abundant group of spiders in Sri Lanka as well as in the world. They are extremely environmentally sensitive and microhabitats play an important role in providing favorable and viable conditions for them to live. Studies on jumping spiders are at its infancy in the island. As initiative first look, this study is mainly focused on distribution of species in selected prominent habitat types in the Mihintale sanctuary (Anuradhapura district) including their usage of microhabitats.

Our study was conducted from April to August of 2013. Data collection was carried out in four main habitat types; grass patch(G), rocky area(R), forest interior (F) and in pond area (P) within the western flank of the sanctuary in the mornings and in the evenings. Two transects (50m) were established in the each habitat type. Semi-quantitative collection methods were used for collection. The collected specimens were preserved in 70% alcohol. Individuals were identified into morphospecies and to species where ever possible.

During the study the total of 37 species belonging to 19 genera was recorded. Numbers of species recorded in the habitats are 11(G), 12(R), 15(F) and 14(P) respectively. Shannon - Weiner diversity index (H') for overall species diversity in each habitat were 1.51 in grass patch, 1.071 in rocky area, 2.341 in the forest and 2.319 in the pond area. Most abundant species was *Stenaelurillus sp*. in all four habitats. Highest relative abundance of species was recorded in the rocky area (41.3%). Morisita's overlap index for habitat similarity and dissimilarity of the species were 0.245 and 0.775 respectively. Highest range of vertical strata utilization was shown by *Siler sp*. (0-140 cm).

Accordingly, forest interior harbors the highest number of species due to favorable conditions present. Morisita's index implies showing the high dissimilarity among the habitats and occurrence of species are habitat specific. Microhabitat conditions and their variability are vital factors for species distribution. Also those factors create viable environments for habitat specific species. Thus this study is an indication of the significance of microhabitat for jumping spiders and suggests the necessity of further studies that may lead to their conservation.

Poster: 29

Autecology of Arachnids in the food web of Waders of Upper Wardha Wetland in Amravati, Maharashtra

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Abstract

Waders or shorebirds are champion migratory belongs to the group of water birds. These are the birds ecologically dependant on wetlands. They normally foraged in wetland habitat due to greater invertebrate abundance appeared there. Waders belong to the family Sclopacidae, Recurvirostridae, Rostratulidae, Jacanidae, Burhinidae, Charadriidae and Glareoldae. Waders mainly probe and pick prey from the ground which are mainly consist of immobile or free flying adult invertebrates, particularly terrestrial group of invertebrates including animals from class Arachnida. From this class their diet mainly includes spiders from the order Araneae, Mites and ticks from order Acari, animals from order Opiliones and scorpions from order Scorpionida.

Wetland ecosystem is a very productive ecosystem. Many plants, vertebrates and invertebrates mainly including Class Arachnida contribute to its biodiversity. They successfully had been used as ecological indicators of wetland management practices Increase spider population in summer provides food to waders in back migrations.

In the present study we have enlisted arachnid dependant waders from the Upper wardha dam wetland in Amravati region. During this study waders from the family: Charadriidae incuding Common Redshank *(Tringa ttanus),*Pacific Golden Plover *(Pluvialis fulva),* Little Ringed Plover *(Charadrius dubius),*Yellow-wattled Lapwing *(Vanellus malabaricus),* Red-wattled lapwing *(Venellus indicus),*Grey -headed lapwing (*Vanellus cinereus)* are found to be dependent on arachnids. From family Sclopacidae Common Snipe (*Galinago galinago)* Wood Sandpiper (*Tringa glareola),* Green Sandpiper (*Tringa Ochropus),* Common Sandpiper (*Actitus hypoleucos)* Dunlin (*Calidris alpine)* Curlew Sandpiper (*Calidris ferruginea),* Eurasian Woodcock *(Scolopax rusticola),*Common Redshank (*Tringa ttanus)* prefer spiders and mites as food and family Recurvirostridae represented by Black-winged Stilt (*Himantopus himantopus)* also found to be dependent on spiders. These arachnids were observed by quadrate sampling method and spiders were collected by pit-fall trap and hand picking method from the open mudflat of study area. The

number of individuals on open mudflat within the plot of known area provides the density of the species is also calculated at the study site.

Wetland destruction mainly due to sand mining, rock mining, land silting leads to the loss of wetland biodiversity. So there is a disturbance in entire link in food web of shorebirds. Poorer breeding success and less survival of birds are may be due to decline in the protein rich food availability which includesspiders. “This study significantly demonstrates that the Arachnids population may act as limiting factor for the waders and migratory birds population.”

Key Words: Waders, Arachnids, food web, Wetlands, Amravati, Maharashtra

Poster: 30

Burrowing activities of *Apistobuthus susanae* (Arachnida: Scorpionida: Butidae) in Iran

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Abstract

However, burrows provide very important facilities for scorpions, a little knowledge has been established so far regarding burrow habitat. The aim of current study was to describe the burrowing biology of *Apistobuthus susanae* in some parts of Khouzestan a south west province of Iran, which is a habitat of this species. This research study was carried out through a particular nest sampling procedure in 12 nesting sites of scorpions of Ahvaz and Shoushtar, sw of Iran. No significant difference was recorded in ratios of dimensions of scorpion borrows in the present study. Findings of the current study indicated that *Apistobuthus susanae* used same engineering method in excavating their tunnels. The comparison among the ratios of width/height using lower and upper limits of nest dimensions showed no significant different in the way of tunnels during making the nests. This fact explained that similar techniques, using the pedipalps, were applied in nest making by this species.

Keywords: *Apistobuthus susanae,* Arachnida, Scorpionida, Butidae, Iran

Registered participants at 3rd Conference of Asian Society of Arachnology, Amravati, India

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