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DIVERSITY OF MEGALOMORPHAE SPIDERS IN NALLAMALA FOREST, ANDHRA PRADESH, INDIA

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ABSTRACT

Nallamala forest is distributed in 3 districts of Andhra Pradesh state and 2 districts of Telangana state. i.e; Kurnool, Guntur, Prakasam, Nalgonda and Mahaboob Nagar. In this Districts Nallamal forest is distributed in 9388.05 square Kms.

In Nallamala forest two sanctuaries are present; one is Gundla Brahmeswaram wild life sanctuary, which is occupied by 418.30 Sq Kms in Nallamala circle and 390.22 Sq Kms in Giddalur Circle. Second one is Rollapadu Bird sanctuary, which is covered by 6.14 Sq Kms in Velugodu and Atmakur circle. Apart from these two sanctuaries, there is Rajiv Gandhi Tiger Reserve, which occupied 3568.09 Sq Kms.

Intensive and extensive surveys were done in the study area, during the last 4 years. The study has revealed that, a total of 7 poisonous spiders recorded from the study area, which are belongs to sub-order Megalomorphae. These 7 species are classified under 4 genera.

Adverse human interference, anthropogenic fires, deforestation, developmental activities and pollution are the major threats to the diversity of Spiders in the study area. The present paper deals with diversity and ecological importance of Spiders of Nallamala forest.

Key words: Nallamala, Megalomorphae, Poisonous and diversity.

INTRODUCTION

Spiders are interesting, intelligent and elegant creatures having predatory lifestyle. Most of the spiders have cannibalistic activity during courtship behavior. These carnivorous animals can run and jump very fast whenever required. Hence these are treated as cursorial creatures. These are pest in houses, but boost the crops, by killing harmful insects. Garden spiders are treated as friends of farmers, but farmers killing the spiders by spraying the pesticides. Spiders are an important part of the food chain (Dyal.S, 1935), getting rid of unwanted insects and being food themselves for birds and other large insects and reptiles (Bastawade.D.B, 2002) Some of these having poisonous glands are called tarantulas (Febre, Jean- Henri, 1912). A total of 44,540 species, 3,924 genera belonging to 58 families are present in the world (Platnick N.I, 2014). Among these some are Mygalomorph Spiders, which are having ancient characters are threatened with extinction (Not evaluated, IUCN). Most diverse fauna of spiders indicate the health of the environment. The spiders are extremely diverse in India and harbor 1,700 species, of which seven species of Mygalomorphs and 54 species of Araneomorphs are representing from Nallamala forest in Kurnool district (K.Thulsi Rao et al, 2005).

STUDY AREA

Nallamala forest is distributed in 3 districts of Andhra Pradesh state and 2 districts of Telangana state. i.e; Kurnool, Guntur, Prakasam, Nalgonda and Mahaboob Nagar. In this Districts Nallamal forest is distributed in 9388.05 square Kms.

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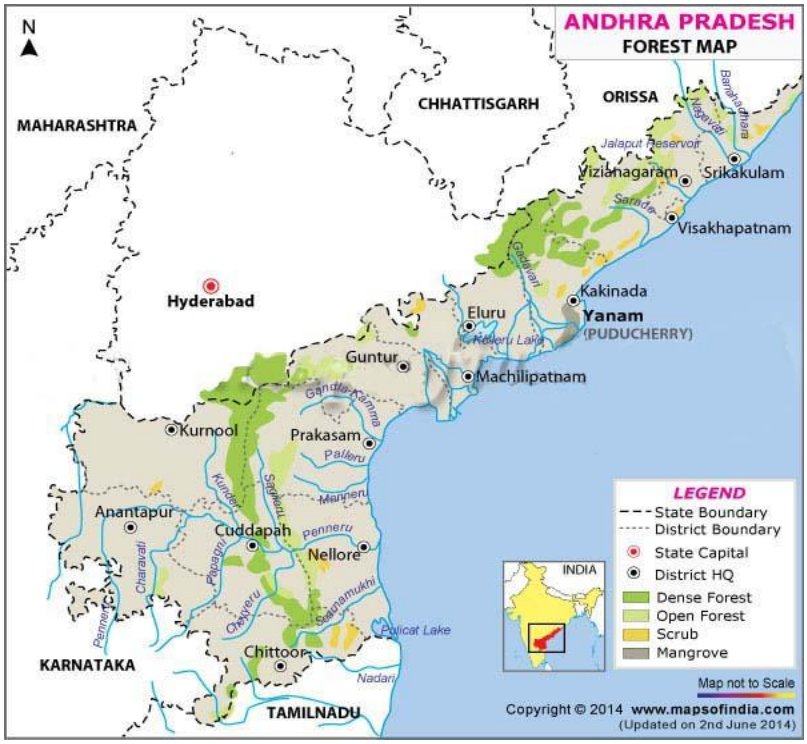

Nallamala forest in Andhra Pradesh

MATERIALS AND METHODS

The spiders were collected from the forest area, mainly composed of dry deciduous environment. The study was carried out for two years that is between June, 2014 and 2015. The spiders were collected by using various collection methods mainly, visual search, sweep net, inverted umbrella methods and pitfall trap method. These spiders were preserved in 70% ethyl alcohol with few drops of glycerin (Prasad, 1985). Specimens were made in polypropylene tubes and labeled. The pitfall traps were keenly observed twice a day. Collected spiders were identified with the help of keys (Keswani et al, 2012 & Platnick.N, 2013). Photographs (Camera: Nikon D5300 with 50 mm macro lens) were taken. Genitalia of the spiders observed under stereo zoom microscope.

RESULTS

In the present study, all observed spiders are poisonous spiders, belongs to sub order Megalomarphae. All these seven spiders included in three families and four genera.

Region	Families	Genera	Species
World	16	336	2,861
India	08	23	79
Nallamala Forest	03	04	07

Table-1: Diversity of Megalomorphae Spiders

1. Atrax robustus (Simon 1892)

They are mostly terrestrial spiders, which built typical silk lined tubular burrow retreats, with a collapsed tunnel or open funnel entrance from which irregular trip lines radiate out over the ground. The silk entrance tube may be split in to two openings in a Y or T form.

Adult male spiders leave the burrow permanently to seek a mate. Such wandering male spiders may enter houses, sometimes even find their way in to clothing, and thus account for many bites. Most funnel web spiders are ground or log dwellers, but some are tree dwellers.

The Australian funnel web spiders are probably the most dangerous spiders we can encounter. There is chance to be bitten are small. They can cause severe "envenomation" the poison of this spider is called robustaxin.

2. *Acanthodon constructor* Pocock

Diagnostic Characters: Colour of carapace, etc. Mahogany red, legs paler; abdomen blackish. Carapace with ocular tubercle elevated in front; eyes of posterior line unequally spaced the medians a little more than two diameters apart and about one diameter from the laterals about the same distance from the anterior medians to which they are subequal in size the anterior medians about a diameter apart their posterior edges on a level with the anterior edges of the posterior laterals. Labium with a marginal row of 4-5 teeth and some smaller ones behind them.

Coxa of 4th leg furnished beneath with a median longitudinal band of short spinules tibia of 3rd leg short and thick, as wide as long.

3. *Poecilotheria regalis* Pocock

Diagnostic Characters : Female (-): carapace grayish, marked in the middle with a pair of longitudinal dark stripes; abdomen with a broad whitish, marginally sinuous band, edged with black, black stripes pass laterally on to the sides of the abdomen; coxae sternum and lower side of abdomen deep chocolate-brown or almost black, a broad transverse dull brownish band behind the epigastric fold; upper side of legs and palpi variegated with gray and black, femora black, patellae and tibiae of 1st and 2nd legs bright sulphur- yellow, of 3rd and 4th bluish white; femora and tibiae each ornamented with a broad blackish stripe, which on the femora narrower than the pale basal area, but much broader than the pale distal area; a very narrow basal stripe on inner side of femora. Carapace almost equal to patella and tibia of 2nd leg. Femora of palp and of 1st and 2nd legs fringed externally and internally at apex. Male smaller than female and much more uniformly coloured above.

4. Poecilotheria metallica

Poecilotheria metallica is a species of tarantula, it reflects brilliant metallic blue colour. This whole genus of arboreal tarantulas exhibits an intricate fractal-like pattern on the abdomen. This species natural habitat is primarily southeastern India and Srilanka. Poecilotheria metallica was first discovered in a town in central southern India called Gooty. Hence its common name is Gooty sapphire ornamental tree spider or simply Gooty sapphire.

Poecilotheria metallica behavior parallels that of many arboreal spiders. In the wild Poecilotheria metallica lives in holes of tall trees where they make asymmetric funnel webs. Their primary prey consists of various flying insects, which they catch manually and paralyze. Poecilotheria metallica females live for about 12 years, i.e:- 3,4 times longer than males. This long lifespan make them more expensive.

5. Pocilotheria nallamalensis

Commonly called bird eating spiders, tarantulas, pocilotheria spp. These largest spiders found in Indian sub continent. They are arboreal spiders living in the cracks and holes existing in

the bark of tall forest grees. They live in colonies, with each burrow consisting of males, females and young ones. they are nocturnal and hunt mostly at night. Though they mainly feed on insects they are capable of eating any animal which it can overpower including geckos, small birds etc.

6. *Chilobrachys fimbriatus* Pocock

Diagnostic Characters: Stridulating organ-outer face of the chelicerae with 3/6 rows of mixed modified setae on its basal corner, lower line usually made up of tapering, medium to long, straight setaem remainder and majority short thorny setae, prolateral face of the maxillae (coxa of the pedipalp) 2/3 lines of horizontal, bacilliform setae, the outer, larger setae being paddle shaped. Spermathecae: twin seminal receptacles-usually with rounded lobes at apex with a wide base. Male palpal bulb: embolus long or stout and tapering with tegular keels (Smith unpublished date).

7. *hilobrachys hardwickii* (Pocock)

Diagnostic Characters: Stridulating organ-outer face of the chelicerae with 3/6 rows of mixed modified setae on its basal corner. Lower line usually made up of tapering, medium to long, straight setae. The remainder and majority area of short and tough and pointed setae, prrolateral face of the maxillae (coxa of the pedipalp) with 2/3 lines of horizontal, bacciliform setae, the outer, larger setae being paddle shaped. Spermathecae: twin seminal receptacles – usually rounded lobes at apex with a wide base.

Note : C. fimbriatus exists with fused seminal receptacle. Male palpal bulb: embolus long or stout and tapering with tegular keels.

DISCUSSION

In Nallamala forest 7 species were recorded, which belongs to 3 families. Theraphosidae is the most diverse family in Megalomorphae sub order. It consist of 5 species belongs to two genera. Idiopidae and Hexathilidae families are very rare in India as well as in Nallamala forest

To form a basis for research in the field of biodiversity of spiders in Nallamala forest to determine the variety of spider species in forest habitat. The study was made 2014 to 2015. Observations were made one in a month from forest habitat by various methods from various sites of the study area. The diversity levels of the spider families found in various habitats were studied in detail.

From this study it can be concluded that the spider fauna of the Nallamala forest is very rich in quality and quantity, these spiders are very rare and must be conserved. But nessery steps need to be taken up to conserve these natural fauna. Megalomorph spiders must be included in the World Red data list. In India these spiders must include in the schudules of Wildlife Protection Act-1972.

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MEGALOMORPHAE SPIDERS

Atrax robustus

Idiops constructor

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Poecilotheria metallica

Poecilotheria nallamalensis

Chilobrachys fimbriatus