

FAUNA OF PROTECTED AREAS - 2
A PRELIMINARY LIST OF SPIDERS WITH
DESCRIPTIONS OF THREE NEW SPECIES FROM
PARAMBIKULAM WILDLIFE SANCTUARY, KERALA

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Abstract

A preliminary survey of the spider fauna of Parambikulam Wildlife Sanctuary, Kerala, India was carried out in September 2001. A total of 91 species of spiders belonging to 53 genera distributed in 22 families were recorded from four sites within the Sanctuary. Out of these, *Achaearanea globosa* sp. nov. of Tharidiidae, *Neoscona parambikulamensis* sp. nov. of Araneidae and *Strigoplus moluri* sp. nov. of Thomisidae are described and illustrated as new to science. Along with this theraphosid spiders of four species of four different genera are also recorded.

Keywords

Achaearanea, checklist, Kerala, Neoscona, new descriptions, Parambikulam Wildlife Sanctuary, spiders, Strigoplus

Introduction

Indian spiders from all regions have been studied earlier by several European workers and later by Indian arachnologists. Contributions of Gravely (1915, 1918, 1921, 1922, 1935), Hirst (1909), Jose and Sebastian (2001), Narayan (1915), Pocock (1899, 1900, 1900a, 1901), Remioser (1934), Sherriff (1919, 1927, 1928, 1929, 1951), Simon (1887, 1906), Sinha (1951, 1953), Stoliczka (1869) and Tikader (1977, 1980, 1982) on southern Indian spiders have added to the Indian fauna of not more than 143 species distributed in several families including Mygalomorph spiders. The literature reveals the report of only 22 species of Mygale from southern India, out of which six species are from Kerala state and only two species are described from Parambikulam Wildlife Sanctuary (PWS) with a recent record of one more species (Molur & Daniel, 2001). The other species of spiders are accounted to be not more than 22 from Kerala State. This indicates that a fragmentary and scanty work has been done on this important group of animals from Kerala state. Practically no one has tried to explore the spider fauna of this region (state wise or protected areas or any forest areas from southern India)

for the last six decades.

The list provided here is only the result of my observations from the four sites of the Sanctuary area where I walked through and searched for, indicates that if the exhaustive collections are made from all the habitats of PWS throughout the year, many more species can be found out with several new forms.

Physiography

Parambikulam Wildlife Sanctuary (10°20'-10°32'N lat. & 76°35'-76°5'E long.) lies in between Anaimalai and Nelliampathy hill ranges located in Palakkad District of Kerala State. In 1973, the area of 285km² of Parambikulam Valley was notified as a Wildlife Sanctuary contiguous with the Anaimalai Wildlife Sanctuary of Tamil Nadu across the border. The hills are covered with tropical evergreen and semievergreen forests along the western part of the Sanctuary. Other vegetation types are moist teak forests. There are also patches of southern Indian moist deciduous forests and riparian fringing forests. The altitudes in this Sanctuary vary from 460m to 1439m. The Sanctuary area

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includes three main water reservoirs, viz., Parambikulam, Thunakadavu and Peruvripallam and three rivers, viz., Karappan, Parambikulam and Thekkadiyar with their tributaries draining from the hills.

Methodology

The study of spiders was made during 8 to 13 September 2001. The area was surveyed to collect specimens from all types of habitats such as roots of grasses, dry hay and grasses, moist places, under stones, pebbles, dead leaves, humus, bushes, on the bark and branches of trees, water-logged localities, houses and huts, etc. Collections were made by handpicking or directly in to the specimen tubes of 7.2 x 2.5cm size with screw caps. Stones and logs were removed and searched for. Web builders were easily located, even in some cases spiders were traced out in their retreats made on the lower side of leaf connected by a radial thread, sometimes in the dried crumpled leaf hanging on the thread of the broken orb. The bark on the tree trunk was also searched for. All such spiders found were collected and transferred into the specimen tubes.

Spiders thus collected were kept alive, each specimen in a separate tube, as most of the species are by nature cannibals. As soon as the collections were over, the spiders were sacrificed and preserved in 70% ethyl alcohol. All such specimens were kept collectively in the tubes properly labeled with date, locality and other notes of importance.

For the detailed examination of all these specimens, a stereozoom microscope (Getner) with the objectives of 0.7X to 4.5X and the eyepieces of 10X and 20X magnification and 2X attachment was used. The specimens were kept in cavity blocks of 10 x 10cm and 6.25 x 6.25cm sizes filled with water. For the desired position of specimens, pieces of broken glass slides or sand thoroughly washed in water was kept in the blocks to support the specimens and illuminated by a powerful top light. Standard books and other published literature were used for identification of spiders (Bonaldo & Brescovit, 1992; Comstock, 1912; Patel, 2002; Platnick, 2003; Pocock, 1900; Ramirez et al., 1970; Tikader, 1970, 1980, 1982).

The above stated is the usual method of collection and identification. Here the study of spiders was made while searching for tarantulas. So the available specimens were observed, studied with the help of a powerful hand microscope, noted and released back to nature. Only few small unidentified and interesting spiders were brought to the laboratory and identified.

Result and Discussion

In all 91 species were identified and recorded (Table 1). Twenty-two theraphosid species are recorded from southern India out of which six are from Kerala state and two from PWS viz.,

Thrigmopoeus (= *Haploclastus*) *kayi* (Gravely), and *Plesiophrictus bhroi* Gravely, the third is the recent record of *Poecilotheria striata* Pocock by Molur and Daniel (2001).

The literature also reveals the presence of 86 species of spiders other than theraphosids from southern Indian region, out of which 24 species are from various localities from Kerala State and six from Parambikulam, viz., *Leucauge festigata* (Simon), *Leucauge ventralis* (Thorell) and *Leucauge tessellata* (Thorell) of Araneidae; *Tetragnatha cochinchinensis* of Tetragnathidae, *Oxyopes hindostanicus* Pocock of Oxyopidae and *Lycosa quadrifer* Gravely of Lycosidae. As this is the first survey of spiders from PWS, except the above stated six species, all other species listed here are first record from PWS.

The genus *Cheiracanthium* C.L. Koch, 1839 has been transferred from Clubionidae to Miturgidae by Ramirez et al. (1997). It is considered as a senior synonym of *Chiracanthops* Mello-Leitao, 1942 by Bonaldo and Brescovit (1992).

Three new species discovered from PWS are described and illustrated here. The type specimens will be deposited in due course in the National Collection of the Zoological Survey of India, Kolkata.

Achaearanea globosa sp. nov. (Figs. 1-6)

Materials examined

Holotype: One female, 9.ix.2001, Anappady, Parambikulam, Palakkad Dist., Kerala, India, coll. B.H. Patel.

Allotype: One male, 9.ix.2001, Anappady, Parambikulam, Palakkad Dist., Kerala, India, coll. B.H. Patel.

Paratype: One female, 9.ix.2001, Anappady, Parambikulam, Palakkad Dist., Kerala, India, coll. B.H. Patel.

Etymology

The specific name refers to the globular appearance of the abdomen.

Diagnostic features

Morphology: Cephalothorax and abdomen greenish-brown, legs light brown. Total length 5.92mm; carapace 2.5mm long, 1.92mm wide; abdomen 3.92mm long, 3.25mm wide.

Cephalothorax: Longer than wide, convex, narrow in front, clothed with fine hairs. Ocular quad slightly longer than wide. Eyes of anterior row recurved, posterior row slightly procurved; anterior medians black and slightly larger than the others, rest pearly white; laterals contiguous. Clypeus round with a deep groove under the eyes. Cephalic region elevated with distinct

cervical groove. Sternum heart shaped, pointed behind, longer than wide, widest anteriorly at the base of coxae I, light brown, clothed with hairs. Maxillae long, light brown with back apical margin, depressed obliquely near the base. Labium wider than long, light brown as in Fig. 3. Chelicerae small and weak. Legs light brown, long and thin, clothed with fine hairs and few spines. Tarsai IV with a prominent comb.

Abdomen: Globular, longer than wide, widest at one-third posterior region, slightly dark-brown, covered with fine hairs, chalk-white patches on the dorsum and on lateral sides to form irregular pattern as in Fig. 1 and 2. Posterior end is elevated with a blunt end, provided with a black mark dorsally and tapering white mark posteriorly. Spinnerets in a compact bunch behind the middle of abdomen as in Fig. 2. Epigyne as in Fig. 4.

Male: Smaller than female and abdomen dark in color with white spots on dorsum. Total length 2.29 mm; cephalothorax 1.33 mm long, 0.71 mm wide; abdomen 0.96 mm long, 0.89 mm wide. Male palp as in Figs. 5 and 6.

Remarks

This species resembles *Achaearanea durgae* Tikader but differs as follows: (i) Abdomen more triangular as seen laterally; (ii) Posterior end of abdomen blunt with a black mark dorsally and tapering white mark posteriorly but in *A. durgae* posterior knob with yellowish-white mark; (iii) Epigyne differs structurally.

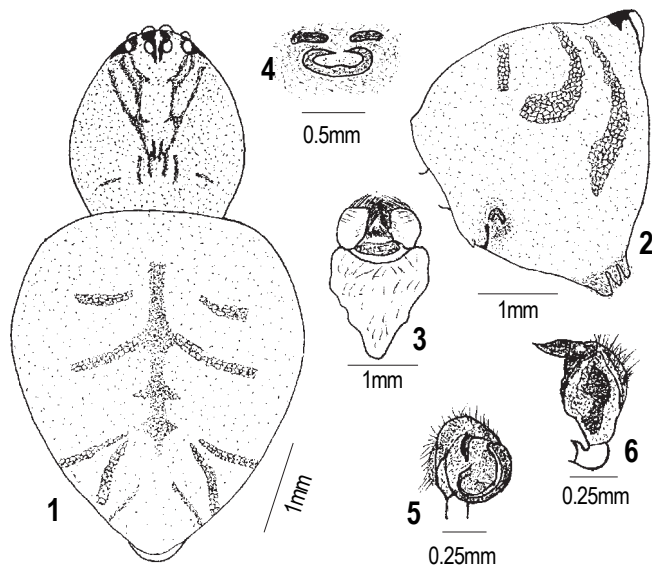


Figure 1-6. *Achaearanea globosa* sp. nov.
 1 - Dorsal view of female, legs omitted; 2 - Lateral view of abdomen; 3 - Sternum, labium and maxillae; 4 - Epigyne; 5 - Male palp - ventral view; 6 - Male palp - lateral view

***Neoscona parambikulamensis* sp. nov.**
 (Figs. 7-11)

Materials examined

Holotype: One female, 11.ix.2001, Karianshola, Parambikulam, Palakkad Dist., Kerala, India, coll. B.H. Patel.

Etymology

Name after the Sanctuary from where the specimen was collected.

Diagnostic features

Morphology: Cephalothorax and abdomen brown. Total length 8.40mm; carapace 3.65mm long, 3.14mm wide; abdomen 5.25mm long, 3.97mm wide.

Cephalothorax: As long as wide, narrowing in front, yellowish with brown patches on lateral sides, cephalic groove distinct, clothed with pubescence and hairs. Thorax with dark coloured indistinct depression in the center. Ocular quad longer than wide on an elevated region. Eyes of both rows recurved, laterals on a tubercal and nearer to each other; medians of both rows equal in size as in Fig. 7. Sternum heart shaped, little oblonged, pointed behind, dark brown. Labium wide, crescent shaped, dark brown with pale white border. Maxillae dark brown with pale white outer margin, almost square and strong as in Fig. 8.

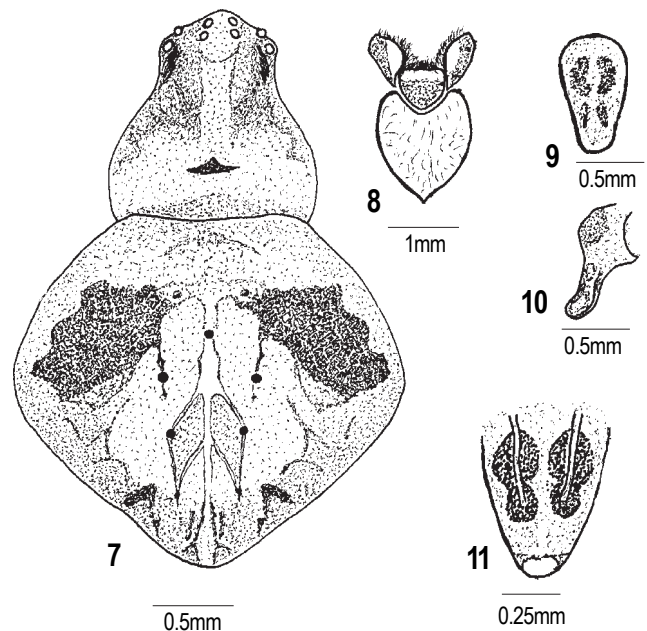


Figure 7-11. *Neoscona parambikulamensis* sp. nov.
 7 - Dorsal view of female, legs omitted; 8 - Sternum, labium and maxillae; 9 - Epigyne ventral view; 10 - Epigyne lateral view; 11 - Internal genitalia

Chelicerae moderate, brown with median boss. Legs long, strong, covered with hairs.

Abdomen: Roundish, wider than long, widest in the middle, overlapping the posterior region of cephalothorax, yellowish-brown with chalk white patches and few brown lines, clothed with pubescence and hairs as in Fig. 7. Dorsum provided with one lateral hump-like elevation on each side and posterior lateral sides little compressed with a little elevated blunt end. Four pairs of sigillae arranged mid-dorsally along with brown lines as in Fig. 7. Ventral side dark with two pairs of chalk white patches in between epigastric furrow and spinnerets. Epigyne with a broad scape with the tip of the scape directed upward as in Figs. 9 and 10. Internal genitalia as in Fig. 11.

Remarks

This species resembles to *Neoscona poonaensis* Tikader and Bal but can be separated as follows: (i) Ocular quad longer than wide but in *Neoscona poonaensis* as long as wide; (ii) Abdomen roundish without any tuft of hairs on dorsum but in *Neoscona poonaensis* abdomen nearly pentangular with irregular tuft of hairs on dorsum; (iii) Dorsum with one lateral hump like elevation on each side, posterior region compressed and a little elevated blunt end but in *Neoscona poonaensis* dorsum with a distinct elongated tail like hump at the posterior end; (iv) Four pairs of sigillae arranged mid-dorsally but in *Neoscona poonaensis* three pairs of sigillae; (v) Epigyne and internal genitalia are structurally different.

Strigoplus moluri sp. nov. (Figs. 12-14)

Materials examined

Holotype: One female, 13.ix.2001, Kuriarkutty, Parambikulam, Palakkad District, Kerala, India, coll. B.H. Patel.

Etymology

This specific name is after Mr. Sanjay Molur who is actively engaged with species conservation activities in South Asia.

Diagnostic features

Morphology: Cephalothorax, legs and abdomen dark brown. Total length 4.34mm; carapase 1.65mm long, 1.92mm wide; abdomen 3.00mm long, 2.63mm wide.

Cephalothorax: Slightly wider than long, clothed with hairs and spines, clavate hairs in cephalic region, clypeus and chelicerae; cephalic region wider behind than in front. Clypeus broad and conspicuously projecting in front giving a specific appearance to the cephalothorax, the sides and the middle margin concave and anterior margin provided with a row of small clavate hairs. Eyes black and round, both rows recurved, anterior row shorter

than the posterior row, anterior laterals larger than the anterior medians and posterior laterals equal; eyes are encircled by a thin brownish ring, anterior and posterior laterals with grayish-white confluent tubercles. Ocular quad and arch wider than long. Middle of ocular area provided with a patch of few clavate hairs anteriorly and posterior to these hairs, two median brown coloured depressions are seen in between the posterior median eyes, as in Fig. 12. Ocular area and cephalic region behind posterior medians is light in colour. Two long hairs on each corner of clypeus and on the margin below the lateral eyes tubercles; two such prominent hairs also present on the posterior margin of thorax as in Fig. 12. Sternum heart shaped, pointed behind. Labium long. Maxillae notched, narrower apically, provided with scopulae as in Fig. 13. Chelicerae short, stout, fang groove without any teeth on the margins, anterior surface with denticles and spines. Legs I and II longer than III and IV, II being the longest; femur, patela and tibia of all legs with white patches on dorsal side; legs III and IV with apical white and dark rings; patela, tibia and metatarsus of legs III and IV with white lines and patches; tarsai with tufts of hairs and spines.

Abdomen: Oval widest at two-third length posteriorly, overlapping the posterior region of cephalothorax, dorsum with few spines and transverse white stripes, coloured with alternate

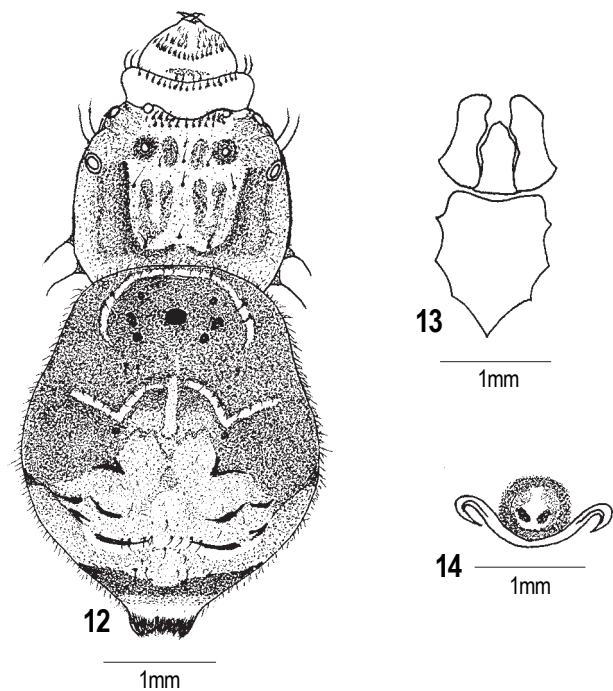


Figure 12-14. *Strigoplus moluri* sp. nov.
12 - Dorsal view of female, legs omitted; 13 - sternum, labium and maxillae; 14 - epigyne

yellow and dark brown patches as in Fig. 12. One anterior median and other three pairs of sigillae present on the dorsum. Ventral side black with faded white margin. Muscular corugations on lateral sides run obliquely from anterior to posterior. Epigyne as in Fig. 14.

Remarks

This species resembles *Strigoplus netravati* Tikader but differs from it as follows: (i) Ocular region with a patch of a few clavate hairs anteriorly and posterior to this two median brown coloured depressions in between posterior median eyes but in *Strigoplus netravati* no such brown coloured depressions present; (ii) Colour pattern of dorsum quite different; (iii) Two long hairs on the corners of clypeus, below the lateral ocular tubercles and on the posterior margin of thorax but in *Strigoplus netravati* no such hairs; (iv) Epigyne differently shaped.

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Table 1. List of spiders from Parambikulam Wildlife Sanctuary

Scientific name	Scientific name	Scientific name
Theraphosidae <i>Poecilotheria striata</i> <i>Plesiophrictus</i> sp. <i>Annandaliela</i> sp. <i>Thrigmopoeus</i> sp.	<i>Neoscona parambikulamensis</i> sp. nov. <i>Neoscona</i> sp. <i>Neoscona</i> sp. <i>Araneus bituberculatus</i> <i>Gasteracantha mammosa</i> <i>Gasteracantha geminata</i> <i>Gasteracantha kuhlii</i> <i>Gasteracantha hasseltii</i> <i>Gasteracantha</i> sp. <i>Cyclosa insulana</i> <i>Cyclosa moonduensis</i> <i>Cyclosa mulemeinensis</i> <i>Cyclosa</i> sp. <i>Chorizopes calciope</i> <i>Parawixia dehaanii</i>	Clubionidae <i>Castianeira</i> sp.
Oecobiidae <i>Oecobius putus</i>	Tetragnathidae <i>Leucauge decorata</i> <i>Leucauge tessellata</i> <i>Leucauge celebesiana</i> <i>Leucauge ventralis</i> <i>Leucauge fastigata</i> <i>Herennia ornatissima</i> <i>Tetragnatha mandibulata</i> <i>Nephila maculata</i> <i>Nephila malabarensis</i> <i>Tetragnatha sutherlandi</i> <i>Tetragnatha listeri</i>	Miturgidae <i>Chiracanthium</i> sp.
Psechridae <i>Psechrus</i> sp.	Hersiliidae <i>Hersilia savignyi</i> <i>Hersilia</i> sp.	Gnaphosidae <i>Drassodes</i> sp. <i>Gnaphosa</i> sp.
Dictynidae <i>Dictyna</i> sp.	Pisauridae <i>Pisaura</i> sp.	Heteropodidae <i>Heteropoda phasma</i> <i>Heteropoda venatoria</i> <i>Olios</i> sp.
Uloboridae <i>Uloborus danolius</i> <i>Uloborus khasiensis</i> <i>Uloborus</i> sp.	Zodariidae <i>Storena</i> sp.	Lycosidae <i>Lycosa quadrifer</i> <i>Lycosa madani</i> <i>Lycosa</i> sp. <i>Pardosa annandalei</i> <i>Pardosa birmanica</i> <i>Pardosa oakleyi</i> <i>Pardosa lucopalpis</i> <i>Pardosa</i> sp. <i>Pardosa</i> sp. <i>Hippasa pisaurina</i> <i>Hippasa agelenoides</i> <i>Hippasa greenalliae</i> <i>Hippasa lycosina</i>
Loxoscelidae <i>Loxoscelus kinsukus</i>	Thomisidae <i>Thomisus</i> sp. <i>Misumena</i> sp. <i>Strigoplus moluri</i> sp. nov.	Oxyopidae <i>Oxyopes wroughtonii</i> <i>Oxyopes</i> sp. <i>Peucetia</i> sp.
Scytodiidae <i>Scytobes thoracica</i>	Philodromidae <i>Tibellus elongates</i>	Ctenidae <i>Ctenus</i> sp.
Pholcidae <i>Pholcus phalangeoides</i> <i>Crossopriza layoni</i> <i>Artema atlanta</i>		Salticidae <i>Plexyppus payakulii</i> <i>Marpissa trigrina</i> <i>Phidippus indicus</i> <i>Phidippus</i> sp. <i>Myrmarachnae</i> sp.
Theridiidae <i>Theridion manjithar</i> <i>Theridion</i> sp. <i>Aargyrodus</i> sp. <i>Rhomphaea vansdaensis</i> <i>Achaeearanea globosa</i> sp. nov.		
Araneidae <i>Arachnura angura</i> <i>Argeope anasuja</i> <i>Argeope pulchella</i> <i>Cyrtophora cicatrosa</i> <i>Cyrtophora citricola</i> <i>Neoscona mukerjei</i> <i>Neoscona laglaizei</i> <i>Neoscona rumpfi</i>		