

# Rediscovery of the endangered spider tarantula *Poecilotheria Formosa* from Sri Lankamalleswara reserve forest - Southern Andhra Pradesh - India

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## Abstract

*Poecilotheria formosa* is a species of tarantula, commonly known as the saleem ornamental, beautiful parachute spider or finely formed parachute spider. The genus *Formosa* is known to occur only in India and Sri Lanka. The genus is represented by 8 species in India and 7 in Sri Lanka. Since August 2013 onwards, we are carrying out a detailed biodiversity inventory of the Sri Lankamalleswara reserve forest (Area- 464.42 km<sup>2</sup> (179.31 sq mi) & 14°36'N 78°53'E), Kadapa, Andhra Pradesh. During one of our biodiversity surveys, we sighted a dead specimen of Theraphosid spider in Nethyapujakona, forest complex (14°28'-14.47°N) of Sri Lankamalleswara reserve forest on 16<sup>th</sup> June 2017 and we sighted a live same specimen in Siddavotam north beat (Kadapa Range), Nethyapujakona forest, part of Sri Lankamalleswara reserve forest on 19<sup>th</sup> July 2017. *Poecilotheria formosa* is ranked by the IUCN as Critically Endangered (IUCN 2008). Further research with reference to ecology, threats, and conservation of biodiversity in the area is in progress. So far, many rare species recorded in this area, the present record reveal that the area is very rich in biodiversity and there is an urgent need to adopt conservation policies.

**Keywords:** *Poecilotheria formosa*, sri lankamalleswara reserve forest, kadapa, andhra pradesh

## Introduction

The genus *Poecilotheria formosa*, 1885 belongs to the family Theraphosidae Thorell, 1869 and is made up of arboreal species, which are known to occur in India and Sri Lanka (Molur, S *et al.*, 2008) [10]. The genus is represented by 8 species in India and 7 in Sri Lanka (Siliwal, M. and S. Molur, 2007) [11]. These theraphosid spiders are medium-sized to very large Mygalomorphae differing from the Barychelidae in having the apical segment of the posterior spinners cylindrical and at least as long as the second segment and in the absence of the rostellum. Eyes always aggregated on the distinct tubercle. Most species are fossorial. But they never close the aperture of the burrow with the movable lid. Few species live under stones, in tree holes or in a shelter of any natural crevices. Since August 2013 onwards, we are carrying out a detailed biodiversity inventory of the Sri Lankamalleswara reserve forest in Kadapa district of Andhra Pradesh. During one of our biodiversity surveys, we sighted a dead specimen of Theraphosid spider in Kapilatheertham, forest complex (13°34'N; 79°21'E) of Sri Lankamalleswara reserve forest on 2<sup>nd</sup> July 2017 and another live same specimen of *Grammostola porteri* had seen in north beat (Kadapa Range), Nethyapujakona forest on 16<sup>th</sup> July 2021 (13°76'N; 79°41'E). We identified the female specimen as *Poecilotheria formosa*, 1899. So far very little information was available or published about this species ecology, distribution, and breeding biology. Earlier reports stated that this species was known only from south western India, near Gooty in Andhra Pradesh. It is known only from its type locality. Our specimen of *Poecilotheria formosa* have the color of carapace and abdomen much as in

the other species of the genus *Poecilotheria*, but dark bands on the carapace more widely separated messily and the pale band on the abdomen much less distinct and traversed by a darker stripe. The upper side of legs and palpi tolerably are uniformly coloured and becoming darker towards the extremities, showing faint metallic lustre. Tarsi is not spotted above; protest with a thin brown stripe. Tibia has very indistinct lines of yellow spots. The lower side of palpi is entirely deep brown, with faint metallic blue lustre. The lower side of anterior legs was blackish brown, with strong metallic blue lustre and a large orange-yellow patch on the under and inner sides of the base of the tibia. Third and fourth legs uniformly coloured below with a similar but smaller tibial spot and much less metallic blue tint. The lower side of the abdomen was uniformly dark brown. The carapace was shorter than patella and tibia of the first leg, a little longer than those of second and fourth leg patella and tibia of fourth legs are little longer than of second legs.

## Classification

Kingdom	Phylum	Sub-Phylum	Class	Order	Family
Animalia	Arthropoda	Chelicerata	Arachnida	Araneae	Theraphosidae

## Conservation Status

*Poecilotheria formosa* is ranked by the IUCN as Endangered.

## Study Area

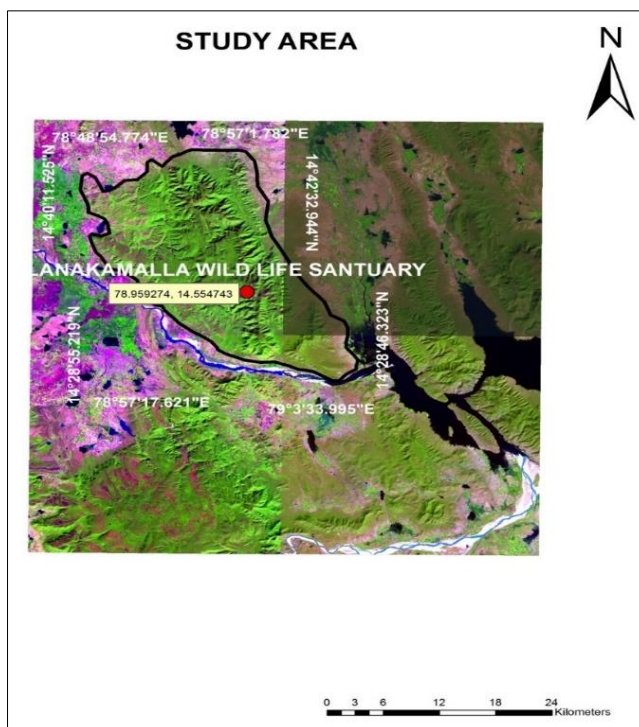
The collection site of *Poecilotheria formosa* was located in Seshachalam hill ranges. These hill ranges are part of the Eastern Ghats lie between 13°38' E and 13°55'N latitudes and

79°07' and 79°24'E longitudes spread over Chittoor and Kadapa districts of Andhra Pradesh. The predominant vegetation type is tropical southern dry mixed deciduous forest. The vegetation is a unique mix of the tropical southern area is having as many as 1750 species belonging to 178 families of vascular plants undulating, with deep forest-covered valleys. The mean maximum temperature ranges from 16°C to 46°C and minimum from 9.7°C to 25°C depending upon the season Average rainfall in this region is between 800 to 900 mm. Sri Lankamalleswara Wildlife Sanctuary, it is the richest floristic

hot spot harbouring many endemic and rare plants. The entire sanctuary is an uninhabited large chunk of dry deciduous Red Sanders bearing forest.

**Observation**

The specimen was collected from the habitat close to forest complex road, surrounding bamboo mixed forest. During the time of collection (Images 1 and 2) and detail morphometry of the (Images 1 and 2) and detail morphometry of the species was taken with a vernier calliper.



**Fig 1:** Spot where *Poecilotheria formosa*, Forest complex Sri Lankamalleswara reserve forest, Kadapa- Andhra Pradesh

All measurements are in mm (Table 1). The dead specimen fixed and preserved in 70 % ethyl alcohol and deposited at the Entomology Laboratory, Yogi Vemana University, Kadapa (ELT - 080). We also sighted same species a live specimen of *Poecilotheria formosa* in Siddavotam north beat (Kadapa Range), Nethyapujakona forest part of Sri Lankamalleswara

reserve forest on 19<sup>th</sup> July 2017 (Image 3). During the time of sighting; we took live specimen photograph after few minutes escaped inside the tree whole. The current record considerably extends dry mixed deciduous types. The known distribution range (Fig. 1).



(1) (2) **Fig 2:** Dorsal and Ventral aspect of *Poecilotheria formosa*

**Table 1:** Morphometry of *Poecilotheria formosa* from Sri Lankamalleswara reserve forest, Kadapa - Andhra Pradesh

S. No	Particulars	Measurements (in mm)
1	Cephalothorax (Dorsal side)	1.8 mm
2	Length (A.L)	1.8 mm
3	Width (Ovral width)	1.9 mm
4	Sternum	1.6 mm
5	Length (W.L)	1.5 mm
6	Width (W.L)	1.4 mm
7	Leg I Length (R.L)	2.2 mm
	Leg I Length (L.L)	2.6 mm
8	Leg II Length (R.L)	2.1 mm
	Leg II Length (L.L)	2.0 mm
9	Leg III Length (R.L)	2.4 mm
	Leg III Length (L.L)	2.0 mm
10	Leg IV Length (R.L)	2.6 mm
	Leg IV Length (L.L)	2.5 mm
11	Palp Length (R.L)	1.6 mm
	Palp Length (L.L)	1.5 mm
12	Abdomen	1.8 mm
15	Total Body Length	4.9 cm

**Taxon Name:** *Poecilotheria formosa* Pocock, 1899

**Common Name(s):** **English:** Beautiful Parachute Spider, Finely Formed Parachute Spider

#### Taxonomic Notes

The description of the species was based only on female specimens and the male was yet to be discovered and described. Taxonomy of this species was not very clear due to lack of information from recent reports.

#### Geographic Range

##### Range Description

*Poecilotheria formosa* was endemic to the southern Eastern Ghats between Salem and Tirupathi in southern India; reported only from three locations, altitude of less than 1,000 m. The extent of occurrence encompassing known and inferred distribution was less than 5,000 km<sup>2</sup>, while the area of occupancy was less than 500 km<sup>2</sup> and could be even less than 100 km<sup>2</sup> due to extensive loss of habitat. In Andhra Pradesh: Renigunta station (Smith and Kirk 2002) [2]; in Tamil Nadu: Kadiampatti, Mullapuram in Salem District (Pocock 1989, 1900a, b) [3, 8].

#### Population

Population information was not available. Although reported from three localities these reports are nearly a hundred years old. The locations are severely fragmented. No surveys have been conducted in these areas to establish the status, but considering the species to be closely related to other *Poecilotheria* species, their behaviours and ecology, we assume that the species has declined due to loss of habitat and degradation in quality of habitat in the Eastern Ghats.

**Current Population Trend:** Decreasing

#### Habitat and Ecology

Forests in these areas are of dry deciduous type with few patches of moist forests. No information is available on this species from the wild in last hundred years except for information on trade.

#### Threats

Habitat loss and degradation are major threats in the reported and inferred localities of the species. It was likely that in many localities the species would have gone locally extinct due to complete deforestation, logging of wood, forest fire and development activities. Given the habitat threats and restricted distribution, collection for international pet trade from the few remaining populations is an additional pressure on the extant populations.

#### Conservation Actions

This species has not been reported from any protected area. The species requires protection at the National level by being included in the Indian Wildlife (Protection) Act. It was also important that this species and all other *Poecilotheria* species from India and Sri Lanka are included under the CITES Appendix II to safeguard them from trade.



**Fig 3:** Live specimen of *Poecilotheria formosa*

#### Conclusion Recommendation

Further research with reference to ecology, threats and conservation of biodiversity in the area was in progress. So far many rare species recorded in this area, the present record reveals that the area was very rich in biodiversity and there is an urgent need to adopt conservation policies. Everyone should realize that the protection of habitat is an important aspect of the conservation of such species.

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