

New distributional range record of the Red slate ornamental spider *Poecilotheria rufilata* (Theraphosidae) in Anaimalai Tiger Reserve, Western Ghats of Tamil Nadu

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Abstract

The distributional records of *Poecilotheria* species are scarce, yet it is crucial to know their distribution patterns for effective species conservation. In this article, we present a new distributional range for *Poecilotheria rufilata*. During a spider survey conducted in August 2022 at Anaimalai Tiger Reserve in Tamil Nadu, a male *P. rufilata*, commonly known as the Red slate ornamental tarantula, was sighted. This species has limited distributional data, with the type locality being Peppara Dam in the Agastyavanam Reserve of the Western Ghats in Kerala. The observation of *P. rufilata* in Anaimalai Tiger Reserve expands our knowledge of the species range and highlights the need for continued distributional work to identify the distribution patterns of *Poecilotheria* spp in Tamil Nadu. Such studies are crucial for developing effective conservation strategies to protect these spiders and their habitats.

Keywords: New range extension; *Poecilotheria* spp; Tiger spider; Anaimalai Tiger Reserve; Western Ghats

1. Introduction

Even though the Indian subcontinent is rich in Arachno-faunal diversity arachnids are given the least importance among taxonomists in India (Borkar et.al., 2006). The family Theraphosidae Thorell, 1869 is represented by 999 species in 147 genera (World Spider Catalogue, 2019). So far 158 genus lists under the family Theraphosidae. *Poecilotheria* genus is one among them. In India, Theraphosidae spiders represented six families. *Poecilotheria* spp of the family Theraphosidae is one of the poorly studied genera in India (Das et.al., 2012).

The Genus *Poecilotheria* Simon, 1885 of the family Theraphosidae (Mygalomorphae) has 15 species in the world of which seven species are endemic to India, six are endemic to Sri Lanka and two species are present both India and Sri Lanka (World Spider Catalogue, 2023). According to IUCN most of the species of this genus are categorized as critically endangered. Especially *Poecilotheria striata* Pocock, 1895 (VU); and *Poecilotheria formosa*, Pocock, 1899, (EN); *Poecilotheria rufilata* Pocock, 1899 (EN) *Poecilotheria regalis* Pocock, 1899 (LC) are reported from Tamil Nadu state and has restricted distribution within its range (IUCN, 2023). Recently all the species of the genus *Poecilotheria* are included under Wildlife Protection Act in Schedule II, Part G (Ministry of Law and Justice).

Poecilotheria spp are a truly arboreal inhabitant, lives inside the tree hole and under the tree barks (Raman et.al., 2019). This spp are distributed in most of the all-forest habitation like evergreen, Deciduous, semi-evergreen forests and some plantations alongside the Western Ghats regions. During mating periods and rainy seasons these spiders are spotted at human habitations (Molur et.al., 2004). Species of this genus are common in the pet trade and also facing many threats like habitat loss, habitat fragmentation and intentional killing (Samarawckrama et.al., 2004).

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In this study, we are reporting a new distribution range of *Poecilotheria rufilata* from Anaimalai Tiger Reserve. This species is endemic to India and Commonly known as a red slate ornamental spider because of its red-shaded setae. Pocock described this species on 1899 then later this species was redescribed by Charpentier in the later 1990s. After a decade in 2001 Smith and Kirk recorded this species' at Agastyavanam reserve, Tamil Nadu. For nearly two decades there is no update on this species information. The purpose of this species range expansion remark is to include this location under the species' recommended site for conservation.

1.1. Study area

Anaimalai Tiger Reserve is situated in the Coimbatore district of Tamil Nadu state. It is one of the important conservation areas in the Southern Western Ghats region. ATR is also known for its endemism and has wide shola forest patches. ATR is spread over 1479.87 sq. km and is located between 10° 13.2' N to 10° 33.3' N Latitude and 76° 49.3' and 77° 21.4' E Latitude. In this present study, the *P. rufilata* species was sighted at the Pollachi range of ATR only. This range is home to a diverse array of forest habitats, including dry-deciduous forests, semi-evergreen forests, and plantations.

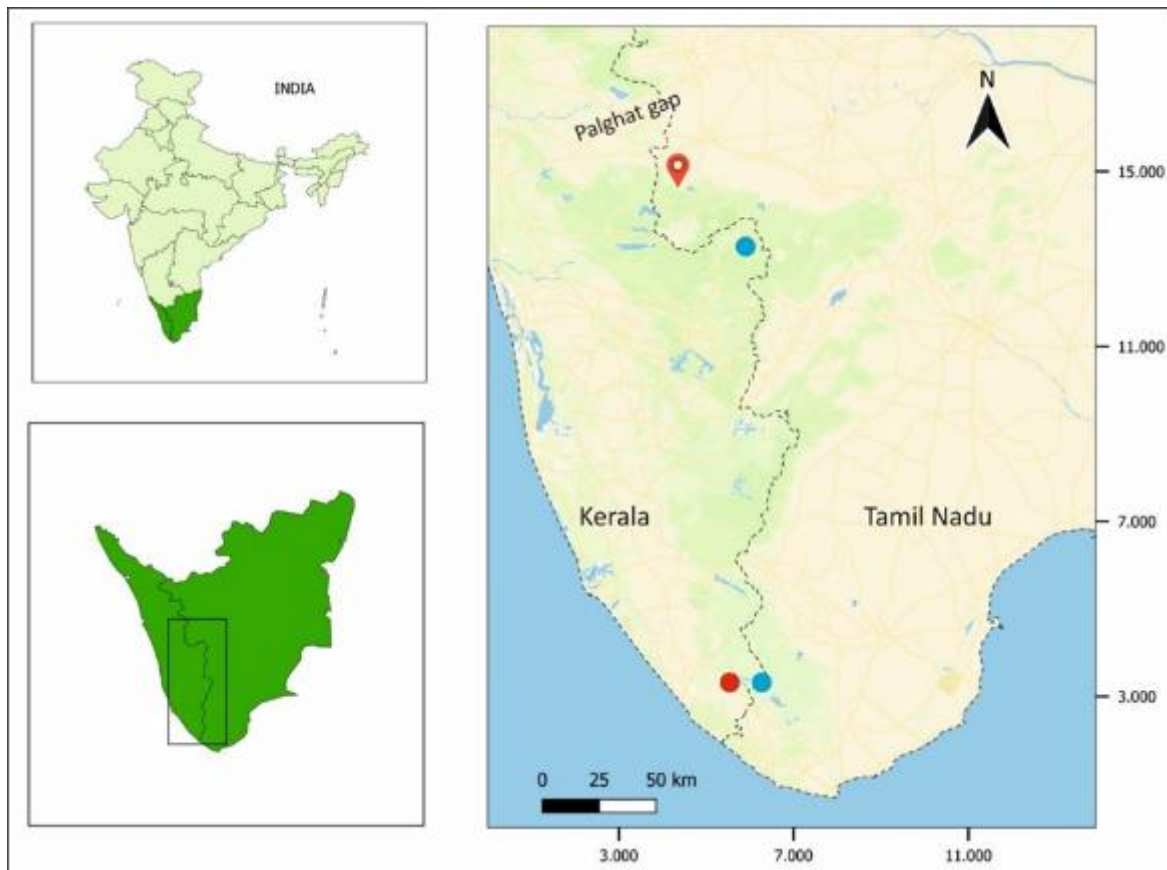


Figure 1 The study area is located in the Southern Western Ghats region, and a map of the area indicates the type locality of the species with a red dot, while blue dots represent previous records of the species. The sighting of the species in this study is denoted by a placeholder on the map"

2. Material and methods

A survey was conducted in August 2022 to study Mygalomorph spiders in the Pollachi range of Anaimalai Tiger Reserve (ATR). The survey was carried out by walking a 2 km transect marked in the Pothamadai beat, focusing on suitable habitats like tree holes and dead trees. During the survey, a species belonging to the *Poecilotheria* genus was spotted in a *Prosopis* tree. The spider was later identified as *Poecilotheria rufilata*. The GPS coordinates of the location were recorded using a Garmin etrex 10, and photographs were taken using a Canon EOS 1500D camera. Near the nest, an exuvia (moulted skin) was found, and it was collected with proper permission. The study was conducted with the permission of the authorities to carry out research work in the entire Anaimalai Tiger Reserve. The identification of the species was done using Carpentier's redescription notes on *Poecilotheria rufilata* and Tarantula Classification and

Identification Guide by Andrew M. Smith. The findings of this study provide insights into the distribution and habitat preferences of *Poecilotheria rufilata* in the Pollachi range of ATR.

3. Results

3.1. Observation

Poecilotheria rufilata, a species of the tarantula genus *Poecilotheria*, can be easily identified by its distinct characteristics. The spider has a greyish-red surface, and the setae on all of its legs are greyish or red. The first pair of legs are four times larger than the carapace and have prominent yellow patches underneath legs one and two. The carapace, abdomen, and femora of legs one and two have a unique velvety black colour. Additionally, a male palpal bulb has been observed, making it easier to identify males of the species. These distinctive characteristics make *Poecilotheria rufilata* stand out among other species in the genus, and aid in its identification and classification.



Figure 2 Observing the arboreal *Poecilotheria Rufilata* in Its Natural Habitat of Tree Holes

4. Discussion

An earlier study stated that *P. rufilata* only existed between altitudes of 900 to 1400 meters and was difficult to spot. However, more recent studies, including our own, have shown that this species can survive in lower altitudes as well, even below 500 meters. According to Charpentier who conducted a redescribing study on this species, *P. rufilata* prefers dead or standing trees located near water sources. During our study, we observed this species in a tree close to a check dam. Unfortunately, habitat fragmentation and intentional killing are major threats to the survival of this species in our region. The local community holds an unfavorable attitude towards this spider, believing it to be deadly, and thus will kill it upon sight. Conservation education programs are essential to eradicating these negative perceptions and promoting the protection of the species. It is noteworthy that the Indian Wildlife Protection Act of 2022 officially included this genus in Schedule II, part G, it's a welcome move that is expected to enhance the protection of this spider species in the future.

5. Conclusion

The discovery of *Poecilotheria* spiders in new locations in Tamil Nadu expands our knowledge of their distribution in the Western Ghats region. The discovery of new a distributional range is a positive development for the conservation of the species and highlights the importance of continued research and conservation efforts to protect the species from extinction. The *Poecilotheria* spiders are a valuable part of the ecosystem, and their protection is essential for maintaining the ecological balance. It is important that we continue to study and monitor the *Poecilotheria* Spider distribution in Tamil Nadu to ensure their survival in near future.

Compliance with ethical standards

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Disclosure of conflict of interest

All authors have no conflicts of interest in connection with this paper, and the material described is not under publication or consideration for publication elsewhere

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