

New Distributional Records of Spiders to Andaman and Nicobar Islands, India

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Abstract

In this paper, we report ten new distributions of Araneids from the Andaman and Nicobar Islands. Details of the locality and other details are provided for each species.

Key words: *Neoscona*, Distributional records, Andaman, Nicobar

Introduction

About ninety-three species of spiders were recorded from the Andaman and Nicobar Islands (WSC, 2022). Among the spider fauna, the Ecribellate orb-weavers (Family: Araneidae, Salticidae, and Tetragnathidae) have received relatively greater attention. Although we have implied various methods in the current investigation to assess the spider fauna in Andaman and Nicobar archipelago, including Narcondam Island, in the past few years, most of the collections were performed by visual inspection. With this method, orb-weaving spiders were the most evident specimens for collection. Compared with other groups such as ground spiders, orb weavers' diversity is better understood in these islands, however, the report of new species/new records have been very less in recent years due to less attention in this group.

Studies on spider from the Andaman and Nicobar Islands

Only a few studies have been carried out on spider fauna of the Andaman and Nicobar Islands. Walcenaer (1841) carried out the pioneering work on the taxonomy of spiders of the Andaman Islands. Frauenfeld (1867) commenced the taxonomic work on Araeno-fauna of Andaman and Nicobar Islands by presenting the checklist in the Negotiations of the Imperial Royal Zoological and Botanical Society in Vienna. Later, Simon (1888) initiated South Asian Arachnid Studies from the collection of the Andaman Islands by Mr. R.D. Oldham. Thorell (1891) studied spiders from the Nicobar Islands and other parts of South Asia. Thorell (1892) gave some insights into

some spiders from the Andaman Islands. Thorell (1892) and Pocock (1900) were one of the forerunners in this field and described sixteen species of spiders from these islands. Hingston (1927) reported the protective devices in spiders' snares, with a description of seven new species of orb-weaving spiders. Strand (1907) described the spiders of Andaman and Nicobar Islands from Spiders of the Zoological Institute in Tübingen. Tikader (1977) described 65 species belonging to 41 genera and 20 families.

Study Area

The Andaman and Nicobar Islands are situated in the Bay of Bengal, midway between peninsular India and Burma, an offshore outpost of the Indian union, in the shape of an arc in a north-south direction. The closest continental area is Burma and is about 190 km to its northeast to the west; about 1200 km of sea separates these islands from the mainland of India, and far in the north lies the giant mangrove belt of the Sunderbans. The Andamans consist mainly of two groups of islands, viz., the Andaman group and the Nicobar group. They are separated from each other by a stretch of sea of about 100 km, which is popularly known among the navigators as the dreaded 10° channel. In addition to several outlying islands, the principal islands of the Andaman group are North Andaman Island, Middle Andaman Island, Baratang, South Andaman Island, Rutland, and Little Andaman Island. In the Nicobar group, there are three distinct assemblies of islands, viz., the Car Nicobar group, the Nancowry group, and the Great Nicobar group (Fig. 1).

Methods

The survey was conducted on these islands covering 15 days each month from January 2019 to May 2021. Sampling required a combination of methods, so six different collection techniques, viz., vegetation beating, litter sampling, ground-hand collection, aerial hand collection, and sweep netting were employed (Coddington et al., 1996). The spiders were observed and photographed in the field along with their activities such as Preying, Mating, Web construction, Egg-laying, etc. The images were taken with a Leica DFC500 digital camera attached to a Leica M205A stereo microscope with the software package Leica Application Suite (LAS, ver. 3.8) for stacking images taken at different focal planes. Abbreviations: AER = anterior eye row; ALE = anterior lateral eye; AME = anterior median eye; MA = median apophysis; MOQ = median ocular quadrangle; PER = posterior eye row; PLE = posterior lateral eye; PME = posterior median eye; I–IV = 1st to 4th leg.

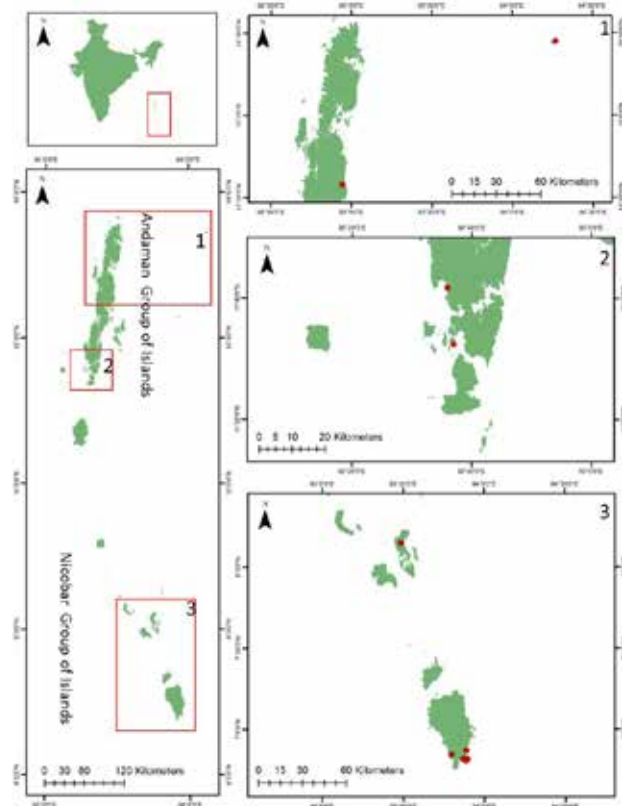


Fig. 1 Map showing localities of survey areas

Results and Discussion

In the present study, we have reported ten new records to Andaman and Nicobar Islands. Activity and density of spiders were significantly influenced by the study region, and by the location in the field. There can be a twofold illustration for this outcome such as in coming of the wet season and short comings in the previous collection techniques, such as applying only hand-picking method.

Taxonomy

Order: Aranea Clerck, 1757

Family: ARAENIDAE Clerck, 1757

Genus: *Argiope* Audouin, 1826

Argiope aemula (Walckenaer, 1841)

Material Examined: 3 mature females; Gandhi Nagar, Great Nicobar (6.817633 N; 93.89588 E); 5.11. 2018; Collected By: G. Gokulakrishnan; Reg. No. ZSI/ANRC T-7483

Diagnosis: The epigynum differs from that of *Argiope magnifica*, a similar species, by having a posterior median swelling on the posterior plate, also visible in ventral view. The lateral borders of the depression are smooth, rounded and seemingly polished, the outside edge black.

Remarks: Levi (1983) illustrated for these specimens an epigyne with striking differences compared with material from other part of the distribution range. Jäger and Praxaysombath (2011) recorded this species for the first time from Laos.

Argiope macrochoera Thorell, 1891

Material Examined: 1 mature female; Panchavati, Middle Andaman (12° 34.864'N; 92° 56.718'E); 12.5.2018; Collected by: Minakshi Dash; Reg. No. ZSI/ANRC T-5825; 3 Sub-adults; Narcondam Island; North Andaman (13.45263 N; 94.27158 E); 17.5.2020; Collected by: G. Gokulakrishnan; Reg. No. ZSI/ANRC T-11659

Diagnosis: Like *Argiope manila*, the rim and septum are formed into a scape-like structure constricted anteriorly.

Argiope macrochoera differs by having the abdomen banded, and, in posterior view, the posterior plate of the epigynum is wider than long and appears to have three branches.

***Argiope anasuja* Thorell, 1887**

Material Examined: 1 mature female; Galathea, Great Nicobar (6.818058 N; 93.86888 E); Collected by: Sant Kumar; 17.8.2019; Reg. No. ZSI/ANRC T-6159

Diagnosis: The female had a pair of anterolateral tubercles and transverse bands on the dorsum of the abdomen. The rims of the epigynum have a flange with a lateral tooth providing an anterior lip to the openings; the openings are posterior, within the posteriorly extended septum.

Remarks: Specimens were collected throughout the Andaman and Nicobar Islands. Thus, it can be reported that the species is present in these islands along with the previous distribution in Seychelles, Maldives, Iran, Pakistan, India, Sri Lanka, Australia (Cocos Is.).

Genus: *Herennia* Thorell, 1877

***Herennia multipuncta* (Doleschall, 1859)**

Material Examined: 1 mature female; Shastri Nagar, Great Nicobar (66.807767 N; 93.88813 E); 21.11.2018; Collected by: G. Gokulakrishnan; Reg. No. ZSI/ANRC-9995

Diagnosis: This species can be differentiated from other species under this genus by heavy sclerotization in the epigynum from lateral to the posterior and further from Southeast Asian species by a V-shaped yellowish-orange patch on the carapace (in ethanol) and flat abdomen with noticeable lobes.

Remarks: This is the first record of *H. multipuncta* (Doleschall, 1859) from the Andaman and Nicobar Islands.

Genus *Neoscona* Simon, 1864

Neoscona bengalensis Tikader and Bal, 1981

Material Examined: 1 mature female; Galathea, Great Nicobar (6.818058 N; 93.86888 E); 17.12.2019; Collected by: Minakshi Dash; Reg. No. ZSI/ANRC T-10582

Diagnosis: In comparison to another *Neoscona* sp. found in these Islands this can be marked easily during field. The ventral side shows a dark brown longitudinal line running from the epigastric fold up to the spinnerets, which can be seen even when the species lies in its web. Besides, the epigynal scape is narrow and thin, bent toward the right angle from the base of epigyne, single pair of lateral lobes not as marked as in *N. shillongensis*.

Remarks: This is the first report of this species from the Andaman and Nicobar Islands.

***Neoscona mukerjei* Tikader, 1980**

Material Examined: 1 mature female; Narcondam Island, North Andaman (13.45263 N; 94.27158 E); 21.3.2020; Collected by: G. Gokulakrishnan; Reg. No. ZSI/ANRC T-11467

Diagnosis: Tikader, 1982 had mentioned about intraspecific color variation in *N. mukerjei*. He attributed these changes in the abdominal patterns with the foliage they use commonly as their hiding ground during foraging. He analysed more than 300 specimens and observed 18 patterns in this species. In our study, we got 6 patterns distributed across many latitudes and forest vegetation patterns. This species can be confused with other *Neoscona* species that are commonly found in these Islands but can be distinguished by examining the epigynum; longer scape; deep lateral constrictions; indistinct lateral lobes.

Remarks: This is the first report from the Andaman and Nicobar Islands apart from the previous distribution.

***Neoscona nautica* (L. Koch, 1875)**

Material Examined: 1 mature female; Collinpur, South Andaman (11.69481 N; 92.59941 E); 23.7.2020; Collected by: Sagarika Kumari; Reg. No. ZSI/ANRC T-11461; 2 mature females; ZSI/ANRC T-11655/67; 17.5.2020; Collected by: G. Gokulakrishnan; Narcondam Island, (13.45263 N; 94.27158 E)

Diagnosis: This species can be distinguished by a short scape, positioned slightly opposite the basal area of the epigynum, curved, thickened at its base (from angular position; illustration by L. Koch, 1875).

Remarks: This is the first report from the Andaman and Nicobar Islands along with its worldwide distribution.

***Neoscona odites* (Simon, 1906)**

Material Examined: 1 mature female; Collinpur, South Andaman (11.69481 N; 92.59941 E); 23.7.2020; Collected by: Dilmani Kumari; Reg. No. ZSI/ANRC T-11446.

Diagnosis: This species can be differentiated by the epigynal scape narrowed to a tip and distinct lateral lobes viewed dorsally without dissection and no lateral constrictions as *N. nautica*.

Remarks: Tikader, 1982 has described this species from India by illustrating epigynum diagrams with the genus transfer from *Araneus*. Here we report *N. odites* (Simon, 1906) for the first time from the Andaman and Nicobar Islands.

***Neoscona shillongensis* Tikader & Bal, 1981**

Material Examined: 1 mature female; Narcondam Island, North Andaman (13.45263 N; 94.27158 E); 17.5.2020; Collected by: G. Gokulakrishnan; Reg. No. ZSI/ANRC T-11662; 1 mature female; Reg. No. ZSI/ANRC T-5192; 13.1.2018; Collected by: Minakshi Dash; Kakana, Nancowry, Central Nicobar (8.149483 N; 93.48798 E)

Diagnosis: Species can be marked with conscious epigynal features like 1) scape truncated and bent downwards 2) constrictions when viewed dorsally 3) 2 pairs of lateral lobes and another pair situated anteriorly.

Remarks: This is the first report of this species from the Andaman and Nicobar Islands.

***Neoscona theisi* (Walckenaer, 1841)**

Material Examined: 2 mature females; Kokiyem, Great Nicobar, (6.844617 N; 93.797 E) 18.12.2019; Collected by: B. Sumit Kumar Rao; Reg. No. ZSI/ANRC T-10642/45

Diagnosis: *N. theisi* can be distinguished by the presence of a rim on the outer margin of the epigynal scape and with presence of lateral lobes

Remarks: This is the first report from the Andaman and Nicobar Islands.

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