

FAUNA OF PROTECTED AREAS IN INDIA - I:
SPIDERS OF VANSDA NATIONAL PARK, GUJARAT

B.H. Patel

6, Patel Society, Vyayam Shala Road, Lotiya Bhagol, Anand, Gujarat 388001, India
Email: parasharya@satyam.net.in

Abstract

An exhaustive survey of spiders made throughout all the seasons from June 1998 to September 1999 in Vansda National Park (VNP) revealed the presence of 22 families of which Lyssomanidae and Theraphosidae were recorded for the first time from Gujarat State. In all, 124 species are represented from 67 different genera. Out of these 18 species of 12 genera are first records for Gujarat. The genus *Scoloderus* belonging to family Araneidae was recorded for the first time from India. An important first record of a theraphosid spider was *Plesiophrictus* sp. from the State.

Keywords

Gujarat, India, spiders, Vansda National Park

Introduction

There are very few references on the spider fauna of protected areas (National Park and Wildlife Sanctuary) of India and the papers by Patel and Vyas (2001) and Saha *et al.* (1994) are preliminary studies. This is an attempt to document the spider fauna of Vansda National Park, an effort that is first in the series of cataloguing spider fauna in protected areas of Gujarat.

Considering the importance of inventorying biodiversity of different protected areas of Gujarat State, the State Forest Department and Gujarat Ecological Education and Research (GEER) Foundation, Gandhinagar planned and undertook projects. This study of spider fauna forms a part of a bigger project "Biodiversity study of Vansda National Park" undertaken by GEER Foundation from April 1998 to August 2000.

Study area

Out of a total 16,902km² area declared as protected area of the State, Vansda National Park (VNP) is the smallest National Park

comprising of 23.99km². This forest was previously owned by ruler of Vansda State. The ruler harvested only teak and bamboo and no exploitation of other forest produce was carried out.

Vansda National Park (20°51'16"-21°21'22"N and 73°20'30"-73°31'20"E) is in Vansda Taluka of Valsad District (now in Navsari District) in southern region of Gujarat State. The eastern boundary is formed by the continuation of Dangs forest and Ambica River and the western side is marked by Navtad-Kala Amba road. The northern boundary is formed of Waghai-Bilimora railway line and Ambica River while the southern margin is marked by reserve forests of Vansda Taluka (Fig. 1).

Physiogeography

VNP is a forest with contiguous tract of Dangs forests, Valsad District forests and forests of Uni Range of Vyara Division, Surat District. The area is a hilly terrain with hills of moderate altitudes. These hills are the extension of Sahyadri range. The Park represents the northern zone of the Western Ghats in Gujarat including Purna Wildlife Sanctuary in Dangs forests. Most of this park area forms a part of the catchment area of Ambica River with many streams and nallas. The forest of VNP is of south Indian tropical moist deciduous forests - 3A/C₁ type. The subtypes within the area are southern moist mixed deciduous forests - 3B/C₂, bamboo brakes - 5/E₉, and tropical riverine forest - 5/1S1 (Champion & Seth, 1968).

The climate is tropical with three distinct seasons, monsoon (June to October), winter (October to February) and summer (March to June). The rainfall ranges from 1000mm to 4650mm. The average temperature ranges from about 10°C minimum during winter months to 40°C maximum during summer months. April and May are dry and the hottest months. July receives highest rainfall during the year. Heavy dew is received following monsoon. Even though normal annual rainfall is as high as 1800mm to 2000mm, the area experiences acute shortage of water during summer months. River Ambica forming the boundary of the Park is a perennial source of water for the wildlife.

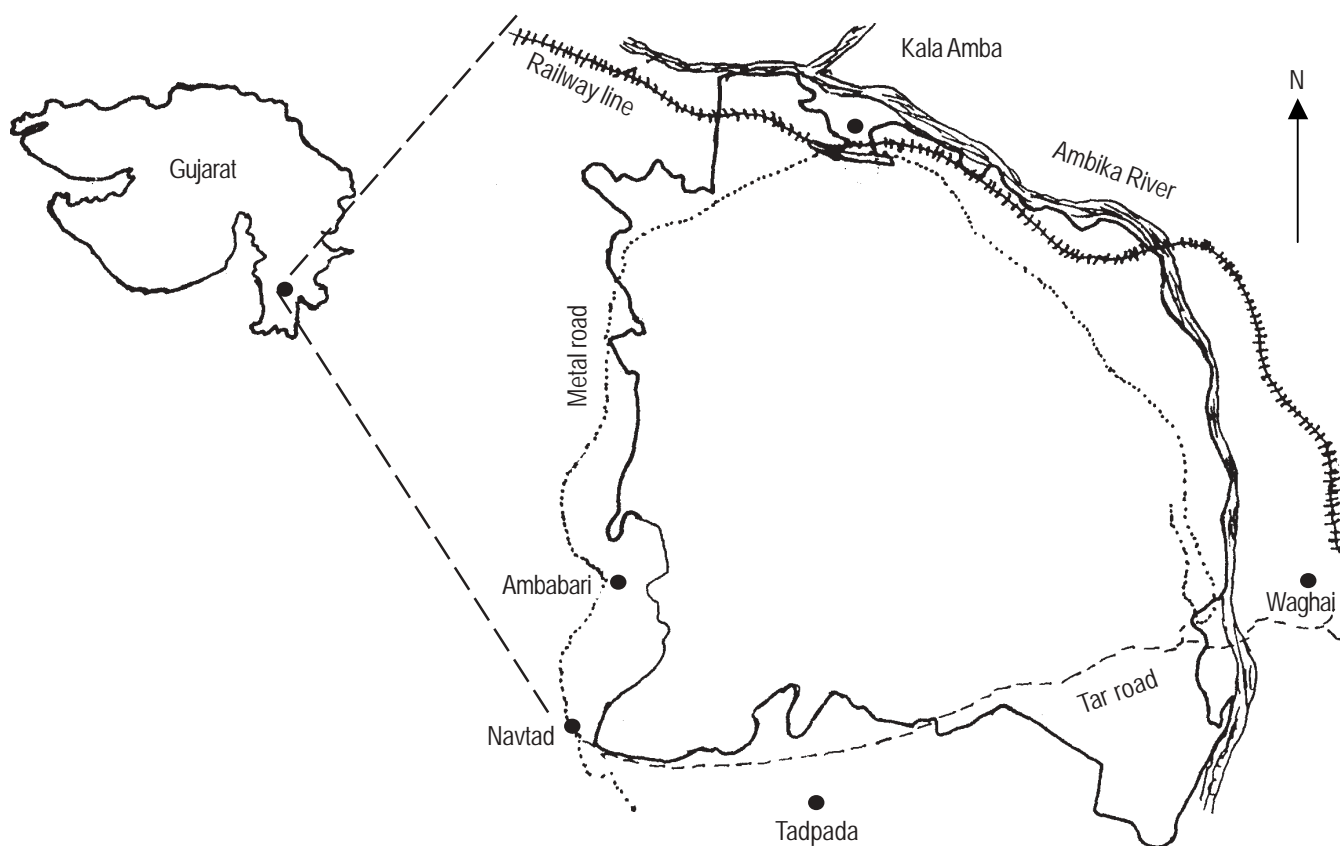


Figure 1. Map showing the geographical position of Vansda National Park

Methodology

The collections of spiders were made during June 1998 to September 1999 from VNP. The area was surveyed extensively to collect specimens from all types of habitats by hand picking or directly into specimen tubes (7.2 X 2.5cm) with screw caps. Stones and logs were removed and searched. All such spiders found were collected and transferred into the specimen tubes. As soon as the collections were over, the spiders were killed 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 detailed examination of all specimens, a stereozoom microscope (Getner) with objectives of 0.7X to 4.5X and eyepieces of 10X and 20X magnification and 2X attachment were 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 positions of specimen, pieces of broken glass slides or sand thoroughly washed in water was kept in the blocks to support the specimen, and illuminated by a powerful top light. Standard references (Comstock, 1967; Pocock, 1900; Tikader, 1980, 1982)

were used for identification of spiders.

The status (C = common; UC = uncommon; R = rare) was arrived upon by personal observations in the field and the records available from the published literature on Indian spiders.

Results

On examining the collections, it is quite interesting and encouraging to record the varied types of spiders found thriving in this small protected area. Overall the habitat is of one type - tropical moist deciduous forest, but has varied microhabitats.

The results of collection for 16 consecutive months revealed the presence of 124 species of 67 genera belonging to 22 different families (Table 3). Out of these, family Zodariidae that rarely occurs in India, was found to occur with two species of two different genera, *Storena* Walckenaer and *Leutica* Marx. Unfortunately, the specimens collected of both the genera were found to be juveniles, so they could not be confirmed to the species level. Only five species of *Storena* and three species of *Leutica* are represented in India. Genera *Camaricus* Thorell,

Table 1. Genera recorded for the first time from Gujarat showing their status

Genus name	Family	Status	
		Gujarat	India
<i>Plesiophrictus</i>	Theraphosidae	R	C
<i>Rhomphaea</i>	Theridiidae	R	R
<i>Herennia</i>	Araneidae	R	UC
<i>Cyrtarachne</i>	Araneidae	UC	UC
<i>Scoloderus</i> *	Araneidae	R	R
<i>Camaricus</i>	Thomisidae	R	R
<i>Dieta</i>	Thomisidae	R	UC
<i>Amyciaea</i>	Thomisidae	R	UC
<i>Synaema</i>	Thomisidae	UC	UC
<i>Misumenops</i>	Thomisidae	UC	-
<i>Strigoplus</i>	Thomisidae	R	R
<i>Lyssomanes</i>	Lyssomanidae	UC	UC

* This genus is recorded for the first time from India

C - Common; UC - Uncommon; R - Rare

Dieta Simon, *Amyciaea* Simon, *Synaema* Simon, *Misumenops* Cambridge and *Strigoplus* Simon of the family Thomisidae are recorded for the first time from Gujarat (Table 1). *Dieta* is represented by *Dieta elongata* Tikader, one juvenile of *Dieta* sp. which is quite different from it and also from *Dieta bengalensis* Tikader, the only two representatives of the Indian fauna. *Amyciaea forticeps* (Cambridge) is the first record from Gujarat. Genera *Camaricus*, *Synaema*, *Misumenops* and *Strigoplus* are also recorded but the specimens collected were found to be juveniles and hence species could not be designated. Out of the total 17 species of 12 genera of the family Thomisidae seven species of six genera were recorded for the first time from Gujarat. The genus *Scoloderus* Simon of the family Araneidae was recorded for the first time from India (Comstock, 1967) with a new species. Araneids were represented with 34 species belonging to 14 different genera showing the highest diversity in this family. Family Lyssomanidae was recorded for the first time from Gujarat with a new species. This is the third species of the genus *Lyssomanes*, the first one *Lyssomanes sikkimensis* Tikader (1970) from Sikkim and the second one *Lyssomanes andamanensis* Tikader (1977) from Andaman Island. This indicates the extreme range of distribution of this family and the genus. In all, eight species were found to be new to this protected area, and 16 species are being recorded for the first time from Gujarat (Table 2). The new species will be described in a separate paper and are indicated here only at the generic level in Table 3.

Theraphosidae is an important family of large-sized beautifully-coloured primitive spiders. This family and the genus *Plesiophrictus* Pocock was recorded for the first time from

Table 2. Species recorded for the first time from Gujarat showing their status

Scientific name	Status
Theraphosidae	
<i>Plesiophrictus</i> sp. -- female . juv.	R
Araneidae	
<i>Neoscona pavida</i> (Simon) -- female	UC
<i>Neoscona poonaensis</i> Tikader & Bal -- female	UC
<i>Gasteracantha kuhlii</i> C.L. Koch -- female	UC
<i>Gasteracantha hasseltii</i> C.L. Koch -- female	C
<i>Herennia ornatissima</i> Doleschall -- female	R
<i>Cyrtophora feae</i> (Thorell) -- female	UC
Thomisidae	
<i>Monaesus mukundi</i> Tikader -- female	UC
<i>Tibellus poonaensis</i> Tikader -- female	UC
<i>Dieta elongata</i> Tikader -- female	R
<i>Amyciaea forticeps</i> (Cambridge) -- female	R
Oxyopidae	
<i>Oxyopes birmanicus</i> Thorell -- female	C
Lycosidae	
<i>Hippasa greenalliae</i> (Blackwall) -- female	C
<i>Hippasa mahabaleswarensis</i> Tikader & Malhotra -- female	UC
<i>Lycosa prolifica</i> Pocock -- female	UC
<i>Lycosa geotubalis</i> Pocock -- female	C

C - Common; UC - Uncommon; R - Rare

Gujarat. All the eight new species and the *Plesiophrictus* sp. will be described separately. On considering the results of 60 man days of field work, many more species of spiders are likely to be missed. A further thorough systematic study is required to understand the complete spider fauna of this area as well as determine species identity of the juveniles collected during this study.

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Table 3. List of spiders from Vansda national Park showing their status

Scientific name	Status	Scientific name	Status
Theraphosidae		<i>Neoscona laglaizei</i> (Simon) - female	C
<i>Plesiophrictus</i> sp. - female juv.	R	<i>Neoscona lugubris</i> (Walckenaer) - female	C
		<i>Neoscona excelsus</i> (Simon) - female	C
Filistatidae		<i>Neoscona</i> sp. - female juv.	-
<i>Filistata napadensis</i> Patel - female	C	<i>Araneus bilunifer</i> Pocock - female	UC
<i>Filistata</i> sp. - female juv.	UC	<i>Araneus</i> sp. - female juv.	-
<i>Priitha dharmakumarshinhiji</i> Patel - female	C	<i>Araneus</i> sp. - female juv.	-
Oecobiidae		<i>Gasteracantha kuhlii</i> C.L. Koch - female	C
<i>Oecobous putus</i> Cambridge - female	C	<i>Gasteracantha hasseltii</i> C.L. Koch - female	C
		<i>Cyclosa insulana</i> (Costa) - female	R
		<i>Cyclosa confrega</i> (Thorell) - female	C
Eresidae		<i>Cyclosa</i> sp. - female juv.	UC
<i>Stegodyphus sarasinorum</i> Karsch - female, male	C	<i>Cyrtarachne</i> sp. - female	R
<i>Stegodyphus socialis</i> Pocock - female	C	<i>Cyrtophora citricola</i> (Doleschall) - female	C
<i>Stegodyphus pacificus</i> Pocock - female	UC	<i>Cyrtophora cicatrosa</i> (Stoliczka) - female	C
		<i>Cyrtophora feae</i> (Thorell) - female	C
Uloboridae		<i>Leucauge decorate</i> (Blackwall) - female	C
<i>Uloborus danolius</i> Tikader - female	C	<i>Leucauge celebesiana</i> (Walckenaer) - female	UC
<i>Uloborus khasiensis</i> Tikader - female	C	<i>Leucauge tessellate</i> (Thorell) - female	UC
<i>Uloborus krishnae</i> Tikader - female	R	<i>Larinia phitica</i> (L. Koch) - female	UC
		<i>Herennia ornatissima</i> (Doleschall) - female	C
Loxoscelidae		<i>Chorizopes khanjanis</i> (Tikader) - female	R
<i>Loxoscelus kinuskus</i> Patel - female, male	C	<i>Nephila maculate</i> (Fabricius) - female, male	UC
		<i>Scoloderus</i> sp. - female	
Scytodiidae		<i>Zygeilla indica</i> Tikader & Bal - female	
<i>Scytodes thoracica</i> (Latreille) - female, male	UC		
		Tetragnathidae	
Pholcidae		<i>Tetragnatha manibulata</i> Walckenaer - female, male	C
<i>Pholcus phallangioides</i> (Fuesslin) - female, male	C	<i>Tetragnatha fletcheri</i> Gravely - female, male	C
<i>Artema atlanta</i> Walckenaer - female	R	<i>Tetragnatha listeri</i> Gravely - female, male	C
<i>Crossopriza layoni</i> (Blackwall) - female, male	C	<i>Tetragnatha</i> sp. - female juv.	
		<i>Eucta javana</i> Thorell - female, male	C
Theridiidae			
<i>Theridion tikaderi</i> Patel - female, male	C	Hersiliidae	
<i>Theridion</i> sp. - female juv.	-	<i>Hersilia savignyi</i> Lucas - female, male	C
<i>Thwaitesia dangensis</i> Patel & Patel - female, male	C		
<i>Argyrodes projiciens</i> (O.P. Cambridge) - female, male	C	Pisauridae	
<i>Argyrodes jamkhedes</i> Tikader - female	UC	<i>Pisaura</i> sp. - female juv.	UC
<i>Argyrodes djpalii</i> Tikader - female	C		
<i>Argyrodes gazedes</i> Tikader - female	C	Clubionidae	
<i>Argyrodes</i> sp. - female		<i>Clubiona pashabhahi</i> Patel & Patel - female	
<i>Cylognatha surajbae</i> Patel & Patel - female, male	R	<i>Cheiracanthium saraswati</i> Tikader - female, male	C
<i>Rhomphaea</i> sp. - female	UC	<i>Cheiracanthium</i> sp. - female juv.	
		<i>Micara</i> sp. - female juv.	
Araneidae			
<i>Argeope aemula</i> (Walckenaer) - female	UC	Zodariidae	
<i>Argeope anasuja</i> Thorell - female	C	<i>Storena</i> sp. - female juv, male juv.	R
<i>Argeope pulchella</i> Thorell - female	C	<i>Leutica</i> sp. - female juv.	R
<i>Argeope shillongensis</i> Sinha - female	R		
<i>Neoscona mukeerjei</i> Tikader - female	C	Gnaphosidae	
<i>Neoscona rumfi</i> (Thorell) - female	C	<i>Drassodes</i> sp. - female juv.	
<i>Neoscona theis</i> (Walckenaer) - female, male	C	<i>Herpyllus</i> sp. - female juv.	
<i>Neoscona pavidia</i> (Simon) - female	UC		
<i>Neoscona poonaensis</i> Tikader & Bal - female	UC		

Scientific name	Status	Scientific name	Status
Thomisidae		Lycosidae	
<i>Camaricus</i> sp. - female	R	<i>Hippasa greenalliae</i> (Blackwall) - female	C
<i>Thomisus projectus</i> Tikader - female	UC	<i>Hippasa pisaurina</i> Pocock - female	C
<i>Thomisus bulani</i> Tikader - female	R	<i>Hippasa madhuae</i> Tikader & Malhotra - female	UC
<i>Thomisus</i> sp. - female juv.		<i>Hippasa mahabaleswerensis</i> Tikader & Malhotra - female	R
<i>Xysticus minutus</i> Tikader - female	R	<i>Hippasa madraspatna</i> Gravely - female	
<i>Monaeses mukundi</i> Tikader - female	R	<i>Hippasa partita</i> (Cambridge) - female	UC
<i>Tmaraus kotigeharus</i> Tikader - female	C	<i>Hippasa bharadiensis</i> sp.nov. - female	R
<i>Tibellus elongates</i> Tikader - female	UC	<i>Pardosa birmanica</i> Simon - female, male	C
<i>Tibellus poonaensis</i> Tikader - female	UC	<i>Pardosa sumatrana</i> (Thorell) - female, male	C
<i>Tibellus</i> sp. - female		<i>Pardosa annandalei</i> (Gravely) - female, male	C
<i>Thantaus</i> sp. - female juv.	R	<i>Pardosa</i> sp. - female juv.	
<i>Strigoplus</i> sp. - female juv.	R	<i>Pardosa</i> sp. - female juv.	
<i>Dieta elongate</i> Tikader - female	R	<i>Evippa</i> sp. - female juv.	R
<i>Dieta</i> sp. - female juv.		<i>Ocyale</i> sp. - female juv.	R
<i>Misumenops</i> sp. - female juv.	UC	<i>Lycosa bistriata</i> Gravely - female	R
<i>Amyciaea forticeps</i> (Cambridge) - female	UC	<i>Lycosa prolifica</i> Pocock - female	UC
<i>Synaema</i> sp. - female juv.	UC	<i>Lycosa geotubalis</i> Tikader & Malhotra - female	UC
Heteropodidae		Salticidae	
<i>Heteropoda bhikakai</i> Patel & Patel - female	C	<i>Plexyppus payakullii</i> (Savigny & Audouin) - female	C
<i>Olios</i> sp. - female juv.	C	<i>Phidippus</i> sp. - female juv.	C
Oxyopidae		<i>Phidippus</i> sp. - female juv.	C
<i>Oxyopes wroughtoni</i> Pocock - female, male	C	<i>Marpissa</i> sp. - female juv., male juv.	C
<i>Oxyopes birmanicus</i> Thorell - female	UC	<i>Marpissa</i> sp. - female juv.	
<i>Oxyopes</i> sp. - female juv.		<i>Marpissa</i> sp. - female juv.	
<i>Peucetia</i> sp. - female juv.	UC	<i>Myrmarachnae</i> sp. - female juv.	UC
		<i>Salticus</i> sp. - female juv.	UC
		Lyssomanidae	
		<i>Lyssomanes</i> sp. - female	R

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