



PRELIMINARY STUDY OF SPIDERS (ORDER: *ARANEAE*) FROM SATLASANA TALUKA

B.M. Parmar*

*Department of Zoology, Sheth M.N.Science College, Patan- 384265

*Corresponding Author Email: parmarbhaveshkumar@gmail.com

ABSTRACT

The present research work on spiders is done from Satlasana Taluka, Gujarat. The availability and abundance of different species were studied and collected randomly from the places during the study phase 2014 to 2017. Spiders were collected from six different areas and habitats of Satlasana Taluka using methods like ground hand collection, sweep netting, pitfall trapping, vegetation beating, litter sampling and aerial hand collection. Total 157 species were identified belonging to 27 families and 88 genera. The higher number of species obtained in families Araneidae (32 species), Salticidae (28), Thomisidae (11) and Oxyopidae (10).

KEY WORDS

Spiders, diversity, Satlasana, Gujarat

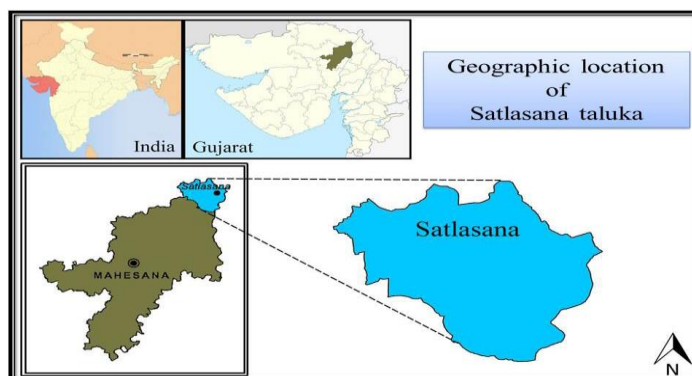
INTRODUCTION:

Araneae order is one of the largest orders in animal kingdom. There are about 45,719 species of 3967 genera belonging to 114 families of spiders in world [26] and about 1686 species belonging to 438 genera spread

over 60 families in of spiders from India [4]. There are about 266 species, 89 genera representing 28 families are recorded from Gujarat State [1], which indicates the Spider fauna was highly diverse and rich.

METHODS:

Study Area:



Satlasana taluka is situated (23.540 N and 72.380 E) in Mahesana district of northern Gujarat. Gujarat state total covers area 308.38 km². Day temperature ranges in Satlasana taluka around 38°C in summer and 20°C in winter. Mostly stony area with infertile soil structure

and the large area of the forest have loose sandy soil. Main two rivers e.g. the Saraswati and the Sabarmati of which Sabarmati feeds Dharoi dam being the main source of irrigation in taluka. This area provides natural

habitat forests where leopards, sloth bears and hyenas are found.

Collection techniques:

As spiders exploit a wide variety of niches, sampling was done in order to collect representative samples from all habitats. Sampling required a combination of methods, so six different collection techniques viz., pitfall trapping, vegetation beating, litter sampling, ground hand collection, aerial hand collection, and sweep netting [2] are employed. All the above methods except for the pitfall traps are employed during the morning and afternoons 8am - 2pm as night sampling is at 10pm to 12am in this area.

Preservation and Identification of specimens:

Collected specimens are transferred to 70% alcohol for later identification. Accurate identification on the family, genus and species level is only feasible with adult specimen. The identification of the spider relies heavily on the genitalia. Thus, identifying immature spiders to species level is considered impractical as sexual characters are needed for species level identification [3]. Identification and classification are also done on the basis of morphometric characters of various body parts. A detailed taxonomic study is carried out based on the various keys and catalogues provided by arachnologist and other relevant literatures [11,16, 18, 20, 21, 22, 25, 26].

RESULTS:

From the collection, 157 species were identified belonging to 27 families and 88 genera [Table: -1]. The higher number of species obtained in families Araneidae (32 species), Salticidae (28), Thomisidae (11) and Oxyopidae (10) while other families had the less than 10 species in the study area.

Hilly area has 62 species of spiders, forest Area has 67 species, Agriculture area has 111 species, Wasteland Area has 87 species, the Residential area has 31 species and Area nearby water body has 64 species. 19 interesting records were found from the study area which includes new genera for Gujarat namely, *Eriophora sp.*, *Gea spinipes*, *Singa sp.*, *Haplodrassus sp.*, *Nomisia sp.*, *Hersilia striata*, *Acantholycosa sp.*, *Hamataliwa sp.*, *Chrysilla lauta*, *Epeus indicus*, *Carrhotus sannio*, *Menemerus brachygnathus*, *M. fulvus*; *phintella alboterminus*, *Siler semiglaucus*, *Thiania sp.*, *Achaearanea triangularis*, *Steatoda sp.*, and *Asceua sp.* were documented.

REFERENCES:

- [1]. Coddington, J.A., Levi, H.W., 1991. Systematics and evolution of spiders (Araneae). Annual Review of Ecology and Systematics 22, 565-592.
- [2]. Coddington, J.A, Line L. Sorensens, and Nikolaj S., 2002. Inventorying and Estimating Subcanopy Spider Diversity Using Semiquantitative Sampling Methods in an Afromontane Forest Environment. *Entomology*. 31(2): 319-330.
- [3]. Edwards, R.L., 1993. Can species richness of spiders be determined? *Psyche*. 100: 185-208.
- [4]. Keswani, S., P.Hadole and A.Rajoria, 2012. Check list of Spiders (Arachnida: Araneae) from India, *Indian Journal of Arachnology* 1 (1)1-129.
- [4]. S.B. Patel, N.B. Bhatt AND K. B. Patel, 2012. Diversity of spider fauna Of Ratanmahal sloth Bear Sanctuary, Gujarat. *Life science leaflets* 7:74-79.
- [5]. Manju Siliwal, B. Suresh & Bonny Pilo, 2003. Spiders of Purna Wild life Sanctuary, Dangs, Gujarat. *Zoos Print Journal*. 18(11):1259-1263.
- [6]. Manju Siliwal, 2010. Spiders of Gujarat. *Gujarat State Forest Department, Gandhinagar*.
- [7]. N.C. Vachhani, M.D. Visavadia And S.K. Patel, 2012. A brief account of spiders of Junagadh district, Gujarat *Life science leaflets* 7:80-83.
- [8] World Spider Catalog Version Coddington, J.A., Young, L.H. and Coyle, F. A, 1996. Estimating spider species richness in a southern Appalachian cove hardwood forest. *The Journal of Arachnology*, 24: 111-
- [9]. New, T.R., 1999b. Untangling the web: spiders and the challenges of invertebrate conservation. *Journal of Insect Conservation* 3, 251-256.
- [10]. Nentwig, W., Hänggi, A., Kropf, C. and Blick, T. 2003. Central European spiders – determination key version 8.12.2003. Available at: <http://www.araneae.unibe.ch> accessed 9 January 2013.
- [11]. Nikunj Bhatt, 2008. Study of biodiversity of order Araneae from Narmada District, Gujarat. *Research digests*. 34 (4): 26-28.
- [12]. Parmar, B.M., 2013. "Short term study of spider diversity of Pariej wetland". M.Sc. dissertation thesis, *S.P. University*.
- [13]. Parmar, B.M. and K. B. Patel, 2015. Study of spider diversity from Vadnagar Taluka, Gujarat. *Life science leaflets* 64: 94 – 101.
- [14]. Parmar, B.M., K.B. PATEL., J.D. Joshi and N.R. Chaudari., 2015. Faunastic study of spiders' diversity from islands and coastal areas of Gulf of Kutch, India. *Life science leaflets* 67:12-23.
- [15]. Patel, B.H., 2003. Spiders of Vansda National Park, Gujarat. *Zoos Print Journal*. 18 (4): 1279-1083.

- [16]. Patel, B. H. and R. V. Vyas, 2001. Spiders of Hingolghad Nature Sanctuary, Gujarat, India. *Zoos Print Journal*. 16(9): 589-590.
- [17]. Pocock, R.I. (1900). Fauna of British India-Arachnida, Taylor and Francis, London.
- [18]. Russell-Smith, A., 1999. The spiders of Mkomazi Game reserve. In Coe, M. et al. (Eds.), Mkomazi: The Ecology, Biodiversity and Conservation of a Tanzanian Savanna. Royal Geographical Society, London.
- [19]. Sebastian, P.A. and Peter, K.V., 2009. Spiders of India, First edition, *Universities Press, Hyderabad*. pp 398.
- [20]. Siliwal, M., S. Molur, and B. K. Biswas, 2005. Indian Spiders (Arachnida: Araneae): Updated Checklist 2005. *Zoos, Print Journal*. 20(10): 1999-2049.
- [21]. Tikader, B. K., 1987. *Handbook Indian Spiders*. Zoological Survey of India, Calcutta. 1-251pp.
- [22]. Tikader, B. K., 1980. Fauna of India. Spider (Thomisidae and Lycosidae). Zoological survey of India, Calcutta. 1-443pp.
- [23]. Tikader, B. K., 1982. Fauna of India. Spider (Araneidae and Gnaphosidae). Zoological survey of India, Calcutta. 1-533pp.
- [24]. Upamanyu, Hore, 2009. "Diversity and Structure of Spider Assemblages in Terai Conservation Area", thesis PhD, *Saurashtra University*
- [25]. Uniyal, V.P., Sivakumar, K. and Quasin, S., 2011. Diversity of Spiders in Nanda Devi Biosphere Reserve. Wildlife Institute of India, Dehradun. (*DST Project Completion Report*).
- [26]. Vijaylakshmi, K., Ahimaz, P., 1993. Spiders: An Introduction. Madras
- [27]. World spider catalogue virgin, 2015. Online at <http://www.wsc.nmbe.ch/>
- 9. *cicatrosa* Stoliczka, 1869**
- 10. *citricola* Forsskål, 1775**
- e. Genus *Eriophora* Simon, 1864**
- 11. *Eriophora* sp.**
- f. Genus *Eriovixia* Archer, 1951**
- 12. *excels* Simon, 1889**
- 13. *laglaizei* Simon, 1877**
- g. Genus *Gasteracantha* Sundevall, 1833**
- 14. *geminata* Fabricius, 1798**
- h. Genus *Gea* C. L. Koch, 1843**
- 15. *spinipes* C. L. Koch, 1843**
- i. Genus *Larinia* Simon, 1874**
- 16. *chloris* Audouin, 1826**
- 17. *phthisica* L. Koch, 1871**
- 18. *Larinia* sp.**
- j. Genus *Neoscona* Simon, 1864**
- 19. *achine* Simon, 1906**
- 20. *bengalensis* Tikader & Bal, 1981**
- 21. *biswasi* Bhandari & Gajbe, 2001**
- 22. *mukerjei* Tikader, 1980**
- 23. *nautica* L. Koch, 1875**
- 24. *odites* Simon, 1906**
- 25. *subfusca* C. L. Koch, 1837**
- 26. *theisi* Walckenaer, 1841**
- 27. *vigilans* Blackwall, 1865**
- 28. *Neoscona* sp. 1**
- 29. *Neoscona* sp. 2**
- k. Genus *Poltys* C. L. Koch, 1843**
- 30. *bhabanii* Tikader, 1970**
- 31. *Poltys* sp.**
- l. Genus *Singa* C. L. Koch, 1836**
- 32. *Singa* sp.**
- m. Genus *Thelacantha* Hasselt, 1882**
- 33. *brevispina* Doleschall, 1857**
- IV. FAMILY CLUBIONIDAE Wagner, 1887**
- a. Genus *Clubiona* Latreille, 1804**
- 34. *Drassodes* O. P.-Cambridge, 1874**
- 35. *Clubiona* sp.**
- V. FAMILY CORINNIDAE Karsch, 1880**
- a. Genus *Castianeira* Keyserling, 1879**
- 36. *zetes* Simon, 1897**
- 37. *Castianeira* sp.**
- VI. FAMILY CTENIDAE Keyserling, 1877**
- a. Genus *Ctenus* Walckenaer, 1805**
- 38. *Ctenus* sp.**
- VII. FAMILY ERESIDAE C. L. Koch, 1850**
- a. Genus *Stegodyphus* Simon, 1873**
- 39. *sarasinorum* Karsch, 1891**

Table -1: Checklist of spiders (Arachnida: Araneae):-

From Araneomorphae, Satlasana Taluka represents 27 Families, 88 genera and 157 species.

I. FAMILY AGELENIDAE C. L. Koch, 1837

a. Genus *Agelena* Walckenaer, 1805

1. *Agelena* sp.

II. FAMILY ARANEIDAE Clerck, 1757

a. Genus *Araneus* Clerck, 1757

2. *bilunifer* Pocock, 1900

3. *ellipticus* Tikader & Bal, 1981

4. *mitificus* Simon, 1886

b. Genus *Argiope* Audouin, 1826

5. *anasuja* Thorell, 1887

c. Genus *Cyclosa* Menge, 1866

6. *bifida* Doleschall, 1859

7. *confraga* Thorell, 1892

8. *Cyclosa* sp.

d. Genus *Cyrtophora* Simon, 1864

40. *pacificus* Pocock, 1900
- VIII. FAMILY EUTICHURIDAE Lehtinen, 1967
- a. Genus *Cheiracanthium* C. L. Koch, 1839
41. *Cheiracanthium* sp.1
42. *Cheiracanthium* sp.2
- IX. FAMILY FILISTATIDAE Ausserer, 1867
- a. Genus *Filistata* Latreille, 1810
43. *Filistata* sp.
- b. Genus *Pritha* Lehtinen, 1967
44. *Pritha* sp.
- c. Genus *Sahastata* Benoit, 1968
45. *ashapuriae* Patel, 1978
- X. FAMILY GNAPHOSIDAE Pocock, 1898
- a. Genus *Drassodes* Westring, 1851
46. *Drassodes* sp.
- b. Genus *Haplodrassus* Chamberlin, 1922
47. *Haplodrassus* sp.
- c. Genus *Nomisia* Dalmas, 1921
48. *Nomisia* sp.
- d. Genus *Poecilochroa* Westring, 1874
49. *Poecilochroa* sp.
- e. Genus *Zelotes* Gistel, 1848
50. *Zelotes* sp.
- XI. FAMILY HERSILIIDAE Thorell, 1870
- a. Genus *Hersilia* Audouin, 1826
51. *savignyi* Lucas, 1836
52. *striata* Wang & Yin, 1985
53. *Hersilia* sp.
- XII. FAMILY LINYPHIIDAE Blackwall, 1859
- a. Genus *Linyphia* Latreille, 1804
54. *Linyphia* sp.
- XIII. FAMILY LYCOSIDAE Sundevall, 1833
- a. Genus *Acantholycosa* Dahl, 1908
55. *Acantholycosa* sp.
- b. Genus *Arctosa* C. L. Koch, 1847
56. *indica* Tikader & Malhotra, 1980
- c. Genus *Hippasa* Simon, 1885
57. *agelenoides* Simon, 1884
- d. Genus *Lycosa* Latreille, 1804
58. *poonaensis* Tikader & Malhotra, 1980
59. *tista* Tikader, 1970
60. *Lycosa* sp.
- e. Genus *Pardosa* C. L. Koch, 1847
61. *birmanica* Simon, 1884
62. *pseudoannulata* Bösenberg & Strand, 1906
63. *Pardosa* sp.
- XIV. FAMILY NEPHILIDAE Simon, 1894
- a. Genus *Nephila* Leach, 1815
64. *pilipes* Fabricius, 1793
- XV. FAMILY OECOBIIDAE Blackwall, 1862
- a. Genus *Oecobius* Lucas, 1846
65. *putus* O. Pickard-Cambridge, 1876
- b. Genus *Uroctea* Dufour, 1820
66. *thaleri* Rheims et al., 2007
67. *Uroctea* sp.
- XVI. FAMILY OXYOPIIDAE Thorell, 1870
- a. Genus *Hamadruas* Deeleman-Reinhold, 2009
68. *Hamadruas* sp.
- b. Genus *Hamataliwa* Kerserling, 1887
69. *Hamataliwa* sp.
- c. Genus *Oxyopes* Latreille, 1804
70. *bharatae* Gajbe, 1999
71. *javanus* Thorell, 1887
72. *ryvesi* Pocock, 1901
73. *Oxyopes* sp.1
74. *Oxyopes* sp.2
- d. Genus *Peucezia* Thorell, 1869
75. *akwadaensis* Patel, 1978
76. *elegans* Blackwall, 1864
77. *viridana* Stoliczka, 1869
- XVII. FAMILY PHILODROMIDAE Thorell, 1870
- a. Genus *Philodromus* Walckenaer, 1826
78. *Philodromus* sp.
- XVIII. FAMILY PHOLCIDAE C. L. Koch, 1850
- a. Genus *Artema* Walckenaer, 1837
79. *atlanta* Walckenaer, 1837
- b. Genus *Crossopriza* Simon, 1893
80. *lyoni* Blackwall, 1867
- c. Genus *Pholcus* Walckenaer, 1805
81. *phalangioides* Fuesslin, 1775
- XIX. FAMILY PISAURIDAE Simon, 1890
- a. Genus *Perenethis* L. Koch, 1878
82. *Perenethis* sp.
- a. Genus *Pisaura* Simon, 1885
83. *Pisaura* sp.
- XX. FAMILY SALTICIDAE Blackwall, 1841
- a. Genus *Carrhotus* Thorell, 1891
84. *sannio* Thorell, 1877
85. *Carrhotus* sp.
- b. Genus *Chrysilla* Thorell, 1887
86. *lauta* Thorell, 1887
- c. Genus *Epeus* Peckham & Peckham, 1886
87. *indicus* Prószyński, 1992
- d. Genus *Epocilla* Thorell, 1887
88. *aurantiaca* Simon, 1885
- e. Genus *Hasarius* Simon, 1871
89. *adansoni* Audouin, 1826
- f. Genus *Hyllus* C. L. Koch, 1846

90. *semicupreus* Simon, 1885
- g. Genus *Menemerus* Simon, 1868
91. *bivittatus* Dufour, 1831
92. *brachygnathus* Thorell, 1887
93. *fulvus* L. Koch, 1878
- h. Genus *Myrmarachne* MacLeay, 1839
94. *plataleoides* O. P.-Cambridge, 1869
95. *tristis* Simon, 1882
96. *Myrmarachne* sp. 1
97. *Myrmarachne* sp. 2
- i. Genus *Phintella* Strand, in Bösenberg & Strand, 1906
98. *vittata* C. L. Koch, 1846
99. *alboterminus* John T. D. Caleb, 2014
- j. Genus *Phlegra* Simon, 1876
100. *dhakuriensis* Tikader, 1974
- k. Genus *Plexippus* C. L. Koch, 1846
101. *paykulli* Audouin, 1826
- l. Genus *Ptocasius* Simon, 1885
102. *Ptocasius* sp.
- m. Genus *Siler* Simon, 1889
103. *Siler semiglaucus* Simon, 1901
104. *Siler* sp.
- n. Genus *Stenaelurillus* Simon, 1886
105. *lesserti* Reimoser, 1934
106. *Stenaelurillus* sp. 1
107. *Stenaelurillus* sp. 2
108. *Stenaelurillus* sp. 3
- o. Genus *Telamonia* Thorell, 1887
109. *dimidiata* Simon, 1899
- p. Genus *Thiania* C. L. Koch, 1846
110. *Thiania* sp.
- q. Genus *Thyene* Simon, 1885
111. *imperialis* Rossi, 1846
- XXI. FAMILY SCYTODIDAE Blackwall, 1864
- a. Genus *Scytodes* Latreille, 1804
112. *thoracica* Latreille, 1802
113. *Scytodes* sp.
- XXII. FAMILY SELENOPIIDAE Simon, 1897
- a. Genus *Selenops* Latreille, 1819
114. *Selenops* sp.
- XXIII. FAMILY SPARASSIDAE Bertkau, 1872
- a. Genus *Heteropoda* Latreille, 1804
115. *bhaikakai* Patel & Patel, 1973
116. *Heteropoda* sp.
- b. Genus *Olios* Walckenaer, 1837
117. *bhavnagarensis* Sethi & Tikader, 1988
118. *iranii* (Pocock, 1901)
119. *milleti* (Pocock, 1901)
120. *tikaderi* Kunduet al., 1999
121. *wroughtoni* Simon, 1897
122. *Olios* sp.
- XXIV. FAMILY TETRAGNATHIDAE Menge, 1866
- a. Genus *Guizygiella* Zhu, Kim & Song, 1997
123. *indica* Tikader & Bal, 1980
124. *melanocrania* Thorell, 1887
125. *shivui* Patel & Reddy, 1990
- b. Genus *Leucauge* White, 1841
126. *decorate* Blackwall, 1864
- c. Genus *Tetragnatha* Latreille, 1804
127. *extensa* Linnaeus, 1758
128. *mandibulata* Walckenaer, 1841
129. *maxillosa* Thorell, 1895
130. *Tetragnatha* sp.
- d. Genus *Tylorida* Simon, 1894
131. *ventralis* Thorell, 1877
- XXV. FAMILY THERIDIIDAE Sundevall, 1833
- a. Genus *Achaearanea* Strand, 1929
132. *durgae* Tikader, 1970
133. *triangularis* Patel, 2005
134. *Achaearanea* sp.
- b. Genus *Argyrodes* Simon, 1864
135. *Argyrodes* sp. 1
136. *Argyrodes* sp. 2
- c. Genus *Chryso* O. P.-Cambridge, 1882
137. *angula* Tikader, 1970
138. *Chryso* sp.
- d. Genus *Steatoda* Sundevall, 1833
139. *Steatoda* sp.
- XXVI. FAMILY THOMISIDAE Sundevall, 1833
- a. Genus *Diaea* Thorell, 1869
140. *Diaea* sp.
- b. Genus *Indoxysticus* Benjamin & Jaleel, 2010
141. *minutus* Tikader, 1960
- c. Genus *Misumena* Latreille, 1804
142. *Misumena* sp.
- d. Genus *Oxytate* L. Koch, 1878
143. *Oxytate* sp.
- e. Genus *Runcinia* Simon, 1875
144. *Runcinia* sp.
- f. Genus *Synema* Simon, 1864
145. *decoratum* Tikader, 1960
- g. Genus *Thomisus* Walckenaer, 1805
146. *lobosus* Tikader, 1965
147. *projectus* Tikader, 1960
148. *Thomisus* sp. 1
149. *Thomisus* sp. 2
- h. Genus *Xysticus* C. L. Koch, 1835



150. *Xysticus sp.*

XXVII. FAMILY ULOBORIDAE Thorell, 1869

a. Genus *Miagrammopes* O. P.-Cambridge, 1870

151. *Miagrammopes sp.*

b. Genus *Uloborus* Latreille, 1806

152. *danolius Tikader, 1969*

153. *krishnae Tikader, 1970*

154. *Uloboru sp. 1*

155. *Uloboru sp. 2*

XXVIII. FAMILY ZODARIIDAE Thorell, 1881

a. Genus *Asceua* Thorell, 1887

156. *Asceua sp.*

b. Genus *Storena* Walckenaer, 1805

157. *Storena sp.*

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***Corresponding Author:**

B.M. Parmar*

Email: parmarbhaveshkumar@gmail.com