

## Butterfly diversity and its Conservation in temple premises of Tamil Nadu, Southern India

M. Gunasekaran\* and P. Balasubramanian

Salim Ali Centre for Ornithology and Natural History, Anaikatty, Coimbatore- 641 108

\* Email: gunasekaramc@yahoo.co.in

Received:11.07.2010; Revision:23.11.2010; Accepted:29.11.2010; Published:15.12.2010

### Abstract

Tamil Nadu synonymous with temples and the age-old traditional practices associated to temples. *Sthalavriksha* worship in temples is a popular practice. Most of these temples have their own *Sthalavrikshas* (temple trees) and *Nanthavanam* (flower garden). A survey was conducted to document *Sthalavrikshas* and its animal association including butterflies in the temples of Tamil Nadu. During the study 52 species of butterflies were recorded, which include seven threatened and three endemic species.

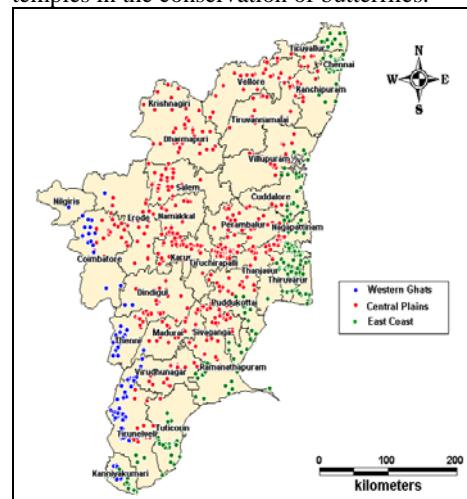
**Key words:** Butterfly, Temple, Temple trees, Temple Garden, Tamil Nadu

### Introduction

Tamil Nadu state, situated in southern peninsular India between 8° 05' and 13° 35' North latitudes and 76° 15' and 80° 20' East longitudes spreading over 1,30,058 sq km and occupying at least 4.08 % of the total area of India is known for its temples and ancient culture. There are about 25,000 ancient temples found in different localities of the state. People here follow several customary practices with religious faith. One such traditional religious practice is *sthala**vriksha* (*sthala*: locality, *vriksha*: tree) worship in temples. "Sthalavriksha" is referred as a plant (mostly single tree) which is equally venerated from time immemorial by the devotees as holy as the presiding deity of a temple. Most of the temple' myth (*sthala**puranas*) and temple history (*sthala**varalaru*) referred that the prime deity was first unearthed or found under the tree. After the construction of temples, these plants were treated as *sthala**vriksha* or temple tree (sacred plant).

Most of these temples have their own *Nanthavanam* (flower garden for deities). These flower gardens were established during the temple constructions itself by the kings. Generous donations were made by ancient rulers and their subjects to institute flower gardens in temples. Flowers from these gardens are used in the adornment of deities during *Pooja* (worship). Sekar, (2000) referred four inscriptions on the donations to the Thiruvanaikka Jambukeswarar temple for creation of gardens by Hoysala and Pandya dynasties. *Sthalavrikshas* and temple gardens form an ideal feeding ground for the butterfly

community in the temples. Tamil Nadu encompasses a wide range of landscapes such as East Coast, Central Plains and Western Ghats (Map 1). Temples are found in all these geographical locations. In many temples, local plants are represented as *sthala**vrikshas*. Though studies and reports are available on butterflies of Tamil Nadu (Larsen, 1987a; 1987b; 1987c; 1988; Asaithambi, 1994, Baskaran and Eswaran, 2003 and Eswaran and Pramod, 2005) there is hardly any literature specific to the butterflies found in temple premises. The present study documents all available butterfly species occurring in the temple complex highlighting the role of temples in the conservation of butterflies.



**Map-1:** Temples Surveyed in Different Geographical Region in Tamil Nadu

A scientific approach has been made to document the sthalavrikshas and its associated butterflies occur in the temples of Tamil Nadu. During the study 1165 temples were surveyed in the state and 112 plant species are under worship.

#### Materials and Methods

Capture of butterflies is restricted in temple premises. Hence VES, (Visual Encounter Survey) was conducted during the survey. Photos were taken for unidentified species and were later identified using the descriptive catalogue Sathiyamurthy (1994) and field guides Gunathilakaraj *et al.*, (1998) and Kunte, (2000). The study was conducted during 2002-2006, in about 1165 temples located in various parts of Tamil Nadu and the adjoining Puducherry state. The GPS coordinates of the exact Latitude, Longitude and Altitude of the temples were also recorded.

**Table-1:** Butterflies recorded in temples

S No	Common Name	Scientific Name	WPA 1972	Endemism
	I. PAPILIONIDAE			
1	Common Rose	<i>Pachliopta aristolochiae</i>		
2	Common Mime	<i>Chilasa clytia</i>	Sch. I	
3	Common Mormon	<i>Papilio polytes romulus</i>		
4	Crimson Rose	<i>Pachliopta hector</i>	Sch. I	SI,SL
5	Common banded Peacock	<i>Papilio buddha</i>		
6	Lime butterfly	<i>Papilio cemoleus</i>		
7	Tailed Jay	<i>Graphium agamemnon menibes</i>		
8	Common blue bottle	<i>Graphium sarpedon</i>		
9	Blue Mormon	<i>Papilio polymnestor</i>	-	PI,SL
	II. PIERIDAE			
10	Common Gull	<i>Cepora nerissa nerissa</i>	Sch. II	
11	Common Jezebel	<i>Delias eucharis</i>		
12	Yellow Orange Tip	<i>Ixias pyrene sesia</i>		
13	White Orange Tip	<i>Ixias Marianne</i>		
14	Common Emigrant	<i>Catopsilia crocale</i>		
15	Common Grass Yellow	<i>Eurema hecabe simulate</i>		
16	Spotless Grass Yellow	<i>Terias laeta</i>		
17	Lemon Emigrant	<i>Catopsilia Pomona</i>		
18	Mottled Emigrant	<i>Catopsilia pyranthe</i>		
19	Pioneer	<i>Anaphaeis aurota</i>		
20	Common Wanderer	<i>Pareronia valeria</i>		
	III. NYMPHALIDAE			
21	Joker	<i>Byblia ilithyia</i>		

Sthalavrikshas and other plant specimens were collected and identified on the basis of Flora of the Presidency of Madras (Gamble, 1986) and Flora of Tamil Nadu (Nair and Henry, 1983) and (Henry *et al.*, 1987; 1989).

#### Results and Discussion

Most of the temples in Tamilnadu are ancient with enormous space hence have their own *Nanthavanams* (Temple Garden) where apart from *Sthalavriksha* species a number of other plants also available that attract large number of butterflies to the temple premises. During the study, a total of 52 species of butterflies belonging to five families were recorded (Table 1). Maximum number of species (n=13) belonging to the family Hesperiidae followed by Pieridae and Nymphalidae (n=11), Papilionidae represented by nine and Lycaenidae eight species.

22	The Chocolate Pansy	<i>Precis iphita iphita</i>		
23	Common Leopard	<i>Phalanta phalantha phalantha</i>		
24	Common Castor	<i>Ariadne merione merione</i>		
25	Angled Castor	<i>Ariadne ariadne</i>		
26	Blue Pansy	<i>Junonia orithya</i>		
27	Yellow Pansy	<i>Junonia hirta</i>		
28	Grey Pansy	<i>Junonia atlites</i>		
29	Danaid Eggfly	<i>Hypolimnas misippus</i>	Sch.I & II	
30	Common Nawab	<i>Polyura athamas</i>		
31	Peacock Pansy	<i>Junonia almana</i>		
<b>IV. LYCAENIDAE</b>				
32	Common Pierrot	<i>Castalius rosimon rosimon</i>	Sch. I	
33	Pale Grass Blue	<i>Zizeeria maha ossa</i>		
34	Common Silver Line	<i>Spindasis vulcanus vulcanus</i>		SI, SL
35	Bright Babul Blue	<i>Azanus ubaldus Cramer</i>		
36	Red Pierrot	<i>Talicada nyseus nyseus</i>		
37	Zebra Blue	<i>Syntarucus plinius</i>		
38	Gram Blue	<i>Euchrysops cnejus</i>	Sch. II	
39	Tawny Coster	<i>Acroea violae</i>		
<b>V. HESPERIIDAE</b>				
40	Common Evening Brown	<i>Melanitis leda leda</i>		
41	Common Tree Brown	<i>Lethe rohria</i>		
42	Common Bush Brown	<i>Mycalesis perseus typhlus</i>		
43	Cladeye Bush Brown	<i>Mycalesis patnia</i>		
44	Tamil Catseye	<i>Zipoetis saitis</i>		
45	Dark Blue Tiger	<i>Titumala septentrionis dravidarum</i>		
46	Plain Tiger	<i>Danaus chrysippus chrysippus</i>		
47	Striped Tiger	<i>Danaus genutia genutia</i>		
48	Blue Tiger	<i>Tirumala limniace exoticus</i>		
49	Common Crow	<i>Euploea core core</i>	Sch. IV	
50	Glossy Blue Tiger	<i>Parantica aglea aglea</i>		
51	Common Banded Awl	<i>Hasora chromus</i>		
52	Brown Awl	<i>Badamia exclamationis</i>		

PI - Peninsular India; SI- South India; WPA 1972 - Wildlife Protection Act 1972; Sch. I - Scheduled I; Sch. II - Scheduled II; Sch. IV - Scheduled IV; IS - Endemic to Indian Sub Continent; SL - Sri Lanka

Almost all the butterfly species found in temples directly depend on the host and nectar yielding plants eg., *Capparis* spp. for Common Gull and White Orange Tip. The milk weed butterflies mostly depend on *Calotropis* sp., *Ficus* sp. and *Nerium* sp. These plants are important for its life history events

and these plants are common in the temples. Temples maintained by Archeological Survey of India have well maintained lawns and flower gardens and thus forms ideal grounds for various butterflies. *Madapalli* (exclusive kitchen to make deities food offerings) waste attracts certain butterflies too. A group of

Angled Castor (*Ariadne ariadne*) were observed in Sri Pattiswarar temple at Perur (Figure -1).



Angled Castor feeding in Madapalli waste



Danaid Eggfly



Common Gull



Common Pierrot



Blue Mormon



Common Crow

**Fig.1:** Important Butterflies Recorded in Temples

Of the 1165 temples surveyed during the study 328 have *Aegle marmelos* trees as sthalavrikshas, which ensures food source for Common Mormon and Lime Butterflies. *Cassia fistula* is regarded as sthalavriksha tree in 23 temples and it feeds Mottled Emigrant butterflies. *Cadaba fruticosa*, *Capparis divaricata*, *Capparis zeylanica* and other

*Capparis* spp. plants are the main food source of the Pieridae butterflies. Common Gull, Yellow Orange Tip, Pioneer and Common Wanderer butterflies are regular visitors to the flowers of these plants. Mottled Emigrant butterflies are found frequently visiting the flowers of *Cassia fistula* plants. Common Pierrots preferred the flowers of *Ziziphus* spp.

and Common Nawab was noted to make recurrent visits to the *Albizia lebbeck* plants. Brown butterflies for instance Common Evening Brown, Common Tree Brown and Common Bush Brown mostly depended on the grasses found in temple Nandavanams. The Pansy butterflies i.e., Blue Pansy, Lemon Pansy and Yellow Pansy were observed to frequently visit *Barleria* spp. found in the temple premises and Nandavanam.

#### Conclusion

Of the 52 species recorded in temples three species namely Common Mime, Crimson Rose and Common Pierrot are protected under Scheduled I of Wildlife Protection Act 1972 (amended in 2002). Other species in the Scheduled lists are Common Gull in Scheduled II, and Common Crow in Scheduled IV. Blue Mormon is endemic to Western Ghats. Common Silver Line is endemic to south India and Crimson Rose is endemic to south India and Sri Lanka. Butterflies play a vital role on pollination and seed setting in several plants species. Temple premises of Tamil Nadu acts as a safe abode and important feeding ground for several butterfly species.

#### Acknowledgements

We are thankful to the Commissioner, Hindu Religious and Charitable Endowment, Govt. of Tamil Nadu for granting permission to temples for the study and Director, Salim Ali Centre for Ornithology and Natural History for facilities.

#### References

Asaithambi, P. 1994. Butterflies of Mudumalai Wildlife Sanctuary, Tamil Nadu, *Zoo's Print* 12.11.1.

Baskaran, S. and Eswaran, R. 2003. Patterns of Phenology and Voltinism of Butterfly species in Sivakasi District (Virudhunagar), Tamil Nadu, India. *Oikoassay*, Vol. 16 No. 1 2003.15-16.

Eswaran, R. and Pramod, P. 1994. Structure of Butterfly Community of Anaikatti Hills, Western Ghats, *Zoo's Print Journal*, 20(8): 1939-1942.

Gamble, J.S. 1915-1936. Flora of the Presidency of Madras, Vol. 1-3, Bishen Singh Mahendra Pal Singh, Dehra Dun.

Gunathilagaraj, K., Perumal, T.N.A., Jayaram, K. and Ganesh Kumar. 1998. Some South Indian Butterflies, Nilgiri Wildlife and Environment Association, Nilgiris, pp. 274.

Henry, A.N., Kumari, G. R. and Chitra, V. 1987. Flora of Tamil Nadu, India. Vol. 2. Botanical Survey of India, Coimbatore, pp. 258.

Henry, A.N., Chitra, V. and Balakrishnan, N.P. 1989. Flora of Tamil Nadu, India. Vol.3. Botanical Survey of India, Coimbatore, pp. 171.

Kunte, K. 2000. Butterflies of Peninsular India, (eds.) Gadgil, M, Indian Academy of Sciences. Hyderabad, pp. 254.

Larsen, T.B. 1987a. The butterflies of the Nilgiri mountains of Southern India (Lepidoptera: Rhopalocera) *Journal of Bombay Natural History Society*. 84.1: 26-54.

Larsen, T.B. 1987b. The butterflies of the Nilgiri mountains of Southern India (Lepidoptera: Rhopalocera) *Journal of Bombay Natural History Society*. 84.2: 291-316.

Larsen, T.B. 1987c. The butterflies of the Nilgiri mountains of Southern India (Lepidoptera: Rhopalocera) *Journal of Bombay Natural History Society*, 84.3: 560-584.

Larsen, T.B. 1988. The butterflies of the Nilgiri mountains of Southern India (Lepidoptera: Rhopalocera) *Journal of Bombay Natural History Society*, 85.1: 26-43.

Nair, N.C. and Henry A.N., 1983. Flora of Tamil Nadu, India. Vol.1. Botanical Survey of India, Coimbatore, pp. 184.

Sathyamurti Thomas, S. 1994. Descriptive Catalogue of the Butterflies in the collection of the Madras Government Museum, Commissioner of Museum, Govt. of Tamil Nadu, pp. 272.

Sekar, K., 2000. Thiruvanaikka Temple, Registrar, Bharadhidasan University, Thiruchirappalli.