

Indexed in: ProQuest database Abstract, USA (ProQuest Science journals, Techonology Research database, Illustrata Technology, Environment Science collection and Health and Medical complete), EBSCO databases (USA), Indian Science abstract.

BUTTERFLIES OF AMBOLI RESERVED FOREST WESTERN GHATS MAHARASHTRA

**BHARMAL, D. L.,¹ ALAND, S. R., MAMLAYYA, A. B.[?]
AND BHAWANE, G. P.**

Department of Zoology, Shivaji University, Kolhapur 416004; ¹Shri Pancham Khemraj Mahavidyalaya Sanwantwadi, Sindhudurga district, Maharashtra. E. mail: mamlayya@rediffmail.com

Received: August 24, 2011; Accepted: October 5, 2011

Abstract: Efforts were made to study the butterflies of Amboli Reserved Forest of Western Ghats Maharashtra in 2008- 2010. During the surveys and collection 107 species and subspecies distributed over 82 genera belonging to eight families of butterflies were reported. Family Lycaenidae was dominant with 29 species followed by families Nymphalidae, Hesperidae, Pieridae, Papilionidae, Satyridae, Danaidae and Riodinidae with 23, 14, 14, 10, 11, 05 and 01 species and subspecies respectively. Out of them 9 species are under schedule I and II and 03 species are endemic.

Key words: Butterflies Western Ghats Maharashtra, India

INTRODUCTION

In all insects, butterflies are ecologically important because they feed on nectar and are pollinating agents of flowering plants. The larval stages feed on the leaves as primary consumers in the ecosystem and play vital role in the transfer of the radiant energy which is fixed by plants, making it available to other organisms. The Western Ghats in Indian are recognized as one of the mega- biodiversity centre. 80, 000 insect species are reported from India [1]. There are about 17, 280 species of butterflies in the world, out of which, 1614 species belonging to 394 genera have been reported from the Indian Subcontinent [2].

The importance and diversity of insects in tropical region suggest that they hold great

promise for illuminating patterns and processes of biological diversification.³ Insects occupy a key position in studies focusing in tropical biology, community diversity, and habitat conservation [3]. Tropical forests resulted from about 60 million years of evolution, are the most stable and sensitive ecosystems as compared to the temperate forests which are of comparatively recent region. Because of its complex nature, any disturbance in the habitat is likely to affect the delicate balance existing between its various components. Man induced changes leading to developments in the land, water, flora and fauna are among the major factors which upset this balance. As a result of disturbances in the biome, many species particularly the insects become extinct. Since most of the tropical forests are located in the underdeveloped countries, lack of adequate scientific expertise is a major constraint

in undertaking ecological studies in order to develop management strategies. As a consequence, the disappearance of many species remains undocumented even before establishing their economic importance. So there is urgent need to study the fauna in these regions [4].

Our knowledge on the insect fauna of Indian forest is largely based on earlier studies by pioneer workers [5-8]. Although a series of revisionary studies have been subsequently carried out from different geographical regions, no exhaustive survey has so far been carried out specifically for the various forests. This is particularly true with regard to the Western Ghats region which is noted for its richness in biodiversity.

MATERIALS AND METHODS

During the present study the butterflies were collected from different localities of Amboli Reserved Forest. Collection was made by the sweep net method. Collected butterflies were etherized in the glass bottle, placed in paper envelopes and brought to the laboratory. The specimens were preserved by dry preservation method [9]. The identification of the material was made with the help of available literature [10-13].

STUDY REGION

Amboli Reserved Forest is a tropical semi evergreen forest in the Sindhudurga district of Maharashtra State, a part of Western Ghats and the total area of this forest is 659.88 ha. It is situated at 15° 37' - 60° 40' N latitude and 73° 19' - 74° 13' E. The average rainfall of this region is 3000 to 5000 mm. The soil of the present study region is red brown.

RESULTS AND DISCUSSION

Altogether 107 species and subspecies of butterflies belonging to eight families were collected and identified. The families Lycaenidae, Nymphalidae, Pieridae and HesperIIDae contained maximum number of species and

subspecies in the study region (Table 1). 13 species are under schedule I and II (* marked) and 03 species are endemic to Western Ghats (** marked).

DeVries and Walla [14] made efforts on the species diversity and community structure in neotropical fruit feeding butterflies. The revealed 128 species distributed within five families. Joshi [15] studied community structure and habitat selection of butterflies in Rajaji National Park which is moist deciduous forest in Uttaranchal, India. The study reflected 40 species and 7 families of butterflies. Sreekumar and Balakrishna [16] made an attempt in Aralam Wildlife Sanctuary, Kerala to study habitat and altitude preferences of butterflies. Gaikwad et al. [17] reported 106 species of butterflies belonging to eight families from Amba Reserved forest, Western Ghats, Maharashtra. Borkar and Komarpant [18] reported 91 species of butterflies from Bondla Wildlife Sanctuary, Goa, India.

During the present study, 107 species of butterflies were recorded from Amboli Reserved Forest. The study revealed that Amboli Reserved forest is rich and diversified due to variety of food plants and complex ecological conditions produced as a result of interaction between high rainfall, temperature, and topographical features.

REFERENCES

- [1] Ray, S. and Ray, A.K.: Biodiversity and Biotechnology. New Central Book Agency Pvt. Ltd. Kolkata (2006).
- [2] Varshney, R.K.: Bionotes, 8 (3): 61-63 (2006).
- [3] Janzen, D.H.: Amer. Naturalist, 104: 501-528 (1970).
- [4] Wells, S.M., Pyle, R.M. and Collins, N.M.: The IUCN Red Data Book. IUCN, Switzerland (2011).
- [5] Stebbing E.P.: *Indian Forest Insects of Economic Importance: Coleoptera*. London: Eyre and Spottiswoode LTD (1914).
- [6] Lefroy, H.M.: *Indian Insect Life*, Today's and Tomorrow's Pub., New Delhi (1909).
- [7] Beeson, C.F.C.: *The Ecology and Control of the Forest Insects India and the neighboring Countries*. Govt. of India, New Delhi (1941).

Table 1: List of Butterfly species from Amboli reserved Forest.

Sr. No.	Scientific Name	Family	
1	<i>Graphium sarpedon</i>	Papilionidae	
2	<i>Graphium agamnenon</i>		
3	<i>Papilio demolus</i>		
4	<i>Papilio polymnestor</i>		
5	<i>Papilio polytes polytes</i>		
6	<i>Chilasa clytia clytia*</i>		
7	<i>Prin ceptus helenus helenus</i>		
8	<i>Pachliopta aristolochiae</i>		
9	<i>Pachliopta hector*</i>		
10	<i>Papilio budha**</i>		
11	<i>Belenois aurota aurota</i>	Pieridae	
12	<i>Cephora nerissa phryne</i>		
13	<i>Delias e ucharis</i>		
14	<i>Appias lycida latifasciata*</i>		
15	<i>Appias indra*</i>		
16	<i>Leptosia nina nina</i>		
17	<i>Ixias marianne</i>		
18	<i>Hebomoia glaucippe glaucippe</i>		
19	<i>Pareronia valeria hippia</i>		
20	<i>Catopsilia pomona</i>		
21	<i>Catopsilia pyranthe pyranthe</i>		
22	<i>Terias hecabe simulata</i>		
23	<i>Terias laeta laeta</i>		
24	<i>Terias brigitta rubella</i>		
25	<i>Danaus chrysippus*</i>		Dan a i d a e
26	<i>Danaus genutia*</i>		
27	<i>Tirumala limnias leopardus</i>		
28	<i>Euploea core core</i>		
29	<i>Idea malabarica**</i>	Satyridae	
30	<i>Melanitis leda ismene</i>		
31	<i>Melanitis phedima</i>		
32	<i>Elymnias hypernestra undularis</i>		
33	<i>Lethe rohira</i>		
34	<i>Lethe europa europa</i>		
35	<i>Mycalopsis igilia merceia</i>		
36	<i>Mycalopsis pereus tabitha</i>		
37	<i>Orsotrioena medus medus</i>		
38	<i>Ypthima aste rope</i>		
39	<i>Ypthima huebneri</i>		
40	<i>Ypthima baldus satpura</i>		
41	<i>Ariadne merione</i>		Nympha li dae
42	<i>Phalanta phalantha</i>		
43	<i>Cynthia cardui</i>		
44	<i>Precis iphita</i>		
45	<i>Junonia almana almana</i>		
46	<i>Junonia orithya swinhoei</i>		
47	<i>Junonia lemonias vaisya</i>		
48	<i>Hypolimnas bolina</i>		
49	<i>Hypolimnas misippus</i>		
50	<i>Neptis hylas jumbah</i>		
51	<i>Pantoporia hordonia hordonia</i>		
52	<i>Athyma rangaranga</i>		
53	<i>Athyma perius</i>		
54	<i>Moduza procris procris*</i>		
55	<i>Tanaecia lepidea</i>		
56	<i>Euthalia aconthea</i>		
57	<i>Euthalia lubentina</i>		
58	<i>Polyura athamas</i>		
59	<i>Charaxes solon</i>		
60	<i>Acraea terpscote</i>		
61	<i>Cyrestis thyodamas thyodamas</i>		
62	<i>Kallima horsfieldi</i>		
63	<i>Curetis thetis thetis</i>		Lycaenidae
64	<i>Caleta decidia</i>		
65	<i>Jamides celeno aelianus</i>		
66	<i>Jamides alecto</i>		
67	<i>Catochrysops starbo strabo</i>		
68	<i>Lampides boeticus*</i>		
69	<i>Leptotes plinius</i>		
70	<i>Castalius rosimon rosimon*</i>		
71	<i>Tarucus nara</i>		
72	<i>Zizeeria knysna karasandra</i>		
73	<i>Zizinia otis sangra</i>		
74	<i>Pseudozizeeria maha</i>		
75	<i>Zizula hylax</i>		
76	<i>Everes lacturnus</i>		
77	<i>Talicauda nyseus</i>		
78	<i>Pithecopus corvus</i>		
79	<i>Cilastrina lavendularis puspa</i>		
80	<i>Acetolepis puspa</i>		
81	<i>Euchrysops cnejus*</i>		
82	<i>Chitades laius laius</i>		
83	<i>Freyeria trochilus putli</i>		
84	<i>Loxura atynnus continentalis</i>		
85	<i>Virachola isocrates</i>		
86	<i>Rathinda amor</i>		
87	<i>Bibasis sena*</i>		Hesperiidae
88	<i>Hasora cromus</i>		
89	<i>Badamia exclamationis</i>		
90	<i>Celaenorrhinus ambareesa</i>		
91	<i>Celaenorrhinus leucocera</i>		
92	<i>Coladenia indrani</i>		
93	<i>Spialia galba</i>		
94	<i>Udaspus folus*</i>		
95	<i>Telicota ancilla bambusae</i>		
96	<i>Pletopidas mathais mathais</i>		
97	<i>Caltoris kumara</i>		
98	<i>Suastus gremius</i>		
99	<i>Toractrocera maevius</i>		
100	<i>Borbo cinara</i>		

- [8] Ayyar, T.V.R.: *Handbook of Economic Entomology for South India*. Govt. Press, Madras (1940).
- [9] Alfred, J.R.B. and Ramakrishna: *Collection, Preservation and identification of Animals*. Zoological Survey of India, Kolkata (2004).
- [10] Gay, T. and Kehimkar, T.D.: *Common butterflies of India, World Wide Fund For Nature, India*. Oxford University Press, Bombay (1992).
- [11] Gunathigalraj, K.: *Some South Indian Butterflies*. Nilgiri Wildlife and Environment Association, Tamil Nadu (1998).
- [12] Haribal, M.: *The Butterflies of Sikkim Himalaya and their Natural History*, Sikkim Nature Conservation Foundation, Gangtok (1992).
- [13] Wynter- Blyth, M.A.: *Butterflies of Indian Region*, Bombay Natural History Society, Bombay (1957).
- [14] De Vries, P.J. and Walla, T.R.: *Biol. J. Linnean Society*, 74: 1-25 (2001).
- [15] Joshi, P.C.: *Tropical Ecol.*, 48(1): 119-123 (2007).
- [16] Sreekumar, P.G. and Balakrishnan, M.: *Tropical Ecol.* 42(2): 277-281 (2001).
- [17] Gaikwad, S.M., Aland, S.R.: Mamlayya, A.B. and Bhawane, G.P.: *Bionotes*, 11(1): 26-27 (2009).
- [18] Borkar, M.R. and Komarpant, N.: *Zool. Print J.* 19(10): 1648-1653 (2004).