

A Preliminary assessment of Butterfly diversity in Utkal University Campus, Odisha

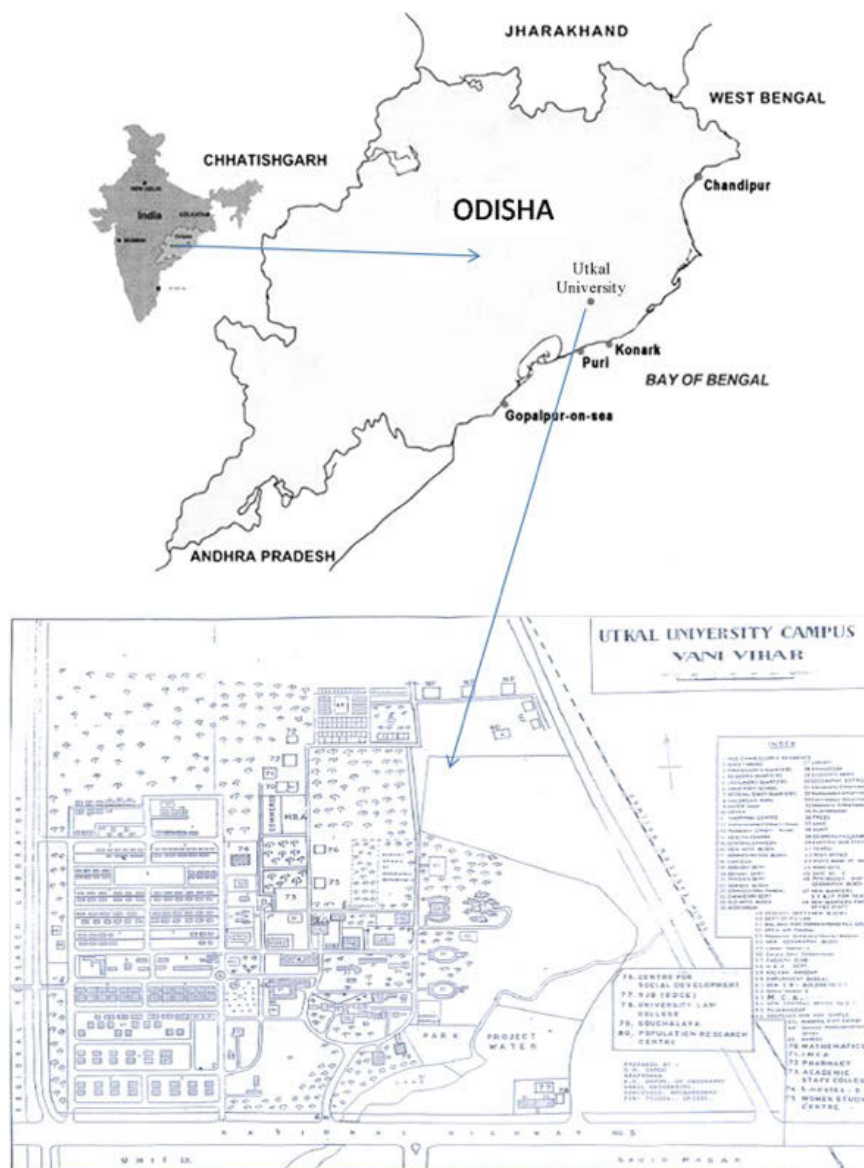
Rajesh Kumar Mohapatra¹, Arun Kumar Mishra², Satyanarayan Mishra³ and Siba Prasad Parida⁴

Abstract

A study on butterfly diversity was carried out in Utkal University campus, Bhubaneswar, Odisha from March, 2009 to February, 2010. A total of 63 species were recorded belonging to the families Nymphalidae (24 Species), Pieridae (14 species), Lycaenidae (12 species), Hesperidae (7 species) and Papilionidae (6 species). Among the recorded species, 4 species come under the Indian Wildlife (Protection) Act 1972. The findings of the present study support the importance of the university campus in providing valuable resources for butterflies.

Introduction

Butterflies are generally regarded as one of the best taxonomically studied groups of insects (Robbins & Opler, 1997). Since early 18 century about 19,238 species of butterflies have been documented worldwide (Heppner, 1998). India hosts about 1,501 species of butterflies (Gaonkar, 1996) of which peninsular India hosts 350 species. Although pioneer research on the diversity of butterflies have been carried out in different parts of India (Mason & Niceville, 1886; Doherty, 1889; Talbot, 1939 & 1947; Wynter-Blyth, 1957; Varshney & Chanda, 1971), there have been few in Odisha. Previous studies have been carried out in the certain protected areas of Odisha like Similipal Tiger Reserve (Sahu *et al.*, 2006 and Nair, 2007) and Nandankanan Wildlife Sanctuary (Mishra *et al.*, 2010). In the present investigation an attempt has been made to know the existing diversity of butterflies in the Utkal University Campus, Odisha. The current study also intended to understand species diversity of butterflies in disturbed semi-natural habitat. Although the total collection is small, they throw some light of further explorations,



Utkal University map

which would help in framing conservation strategy for butterflies.^o

Materials and Method

Study site

Utkal University (20°17' 46.10"- 20°18' 35.61"N and 85°50' 00.35"- 85° 50' 53.78" E) is located on a sprawling 399.9 acre area in the heart of Bhubaneswar, Odisha beside the National Highway No. 5 connecting Kolkata and Chennai. The campus harbours a wide variety of plant

species; thus an ideal site for natural and manmade semi-natural habitats (marked as circles in Figure -1) like gardens, parks, grasslands, swamps, banks of

^{1&2}PhD Scholar, Utkal University, Bhubaneswar, Odisha. Email: ²arunkumarmishra5@gmail.com
³Curator, Indira Gandhi Park Zoo, Rourkela, Odisha. Email: satyanarayanster@gmail.com
⁴Regional Museum of Natural History, Bhubaneswar, Odisha. Email: paridas@gmail.com
 Corresponding author: ¹rajesh.wildlife@gmail.com

Table-1. List of butterflies recorded from Utkal University Campus, Bhubaneswar, Odisha.

Sl. No.	Family	Common Name	Scientific Name
1	Papilionidae	Common Jay	<i>Graphium doson</i> C & R Felder
2	Papilionidae	Common Mormon	<i>Papilio polytes</i> Linnaeus
3	Papilionidae	Common Rose	<i>Atrophaneura aristolochiae</i> (Fabricius)
4	Papilionidae	Crimson Rose	<i>Atrophaneura hector</i> (Linnaeus)
5	Papilionidae	Lime	<i>Papilio demoleus</i> Linnaeus
6	Papilionidae	Tailed Jay	<i>Graphium agamemnon</i> Linnaeus
7	Pieridae	Common Albatross**	<i>Appias albina</i> Boisduval
8	Pieridae	Common Emigrant	<i>Catopsilia pomona</i> Fabricius
9	Pieridae	Common Grass Yellow	<i>Eurema hecabe</i> Linnaeus
10	Pieridae	Common Gull**	<i>Cepora nerissa</i> (Fabricius)
11	Pieridae	Common Wanderer	<i>Pareronia valeria</i> Cramer
12	Pieridae	Mottled Emigrant	<i>Catopsilia pyranthe</i> Linnaeus
13	Pieridae	Psyche	<i>Leptosia nina</i> Fabricius
14	Pieridae	Small Grass Yellow	<i>Eurema brigitta</i> (Cramer)
15	Pieridae	Small Orange Tip	<i>Colotis etrida</i> (Boisduval)
16	Pieridae	Spotless Grass Yellow	<i>Eurema laeta</i> (Boisduval)
17	Pieridae	Striped Albatross***	<i>Appias libythea</i> (Fabricius)
18	Pieridae	Three Spot Grass Yellow	<i>Eurema blanda</i> (Boisduval)
19	Pieridae	White Orange Tip	<i>Ixias marianne</i> Cramer
20	Pieridae	Yellow Orange Tip	<i>Ixias pyrene</i> (Linnaeus)
21	Nymphalidae	Common Evening Brown	<i>Melanitis leda</i> Linnaeus
22	Nymphalidae	Angled Castor	<i>Ariadne ariadne</i> Linnaeus
23	Nymphalidae	Baronate	<i>Euthalia nais</i> Forster
24	Nymphalidae	Blue Pansy	<i>Junonia orithya</i> (Linnaeus)
25	Nymphalidae	Blue Tiger	<i>Tirumala limniace</i> Cramer
26	Nymphalidae	Chocolate Pansy	<i>Junonia iphita</i> (Cramer)
27	Nymphalidae	Commander	<i>Limenitis procris</i> Cramer
28	Nymphalidae	Common Baron	<i>Euthalia aconthea</i> Cramer
29	Nymphalidae	Common Bushbrown	<i>Mycalesis perseus</i> Fabricius
30	Nymphalidae	Common Indian Crow	<i>Euploea core</i> Cramer
31	Nymphalidae	Common Leopard	<i>Phalanta phalantha</i> Drury

small and medium water resources, large open spaces, bare lands, road sides, avenue vegetations, plantation plots, educational premises, sports grounds and human habitations were visited to document the butterfly diversity of the university campus.

Identification of Butterfly species

Identification of the butterflies was primarily made directly in the field, followed by following field guides Kunte (2000), Kehimkar (2008) and Haribal (1992). All scientific names and common English names follow Kunte (2000). In some inapproachable areas, when specimens could not be identified directly like some lycaenids, they were collected with handheld aerial sweep nets, identified and released back to their habitat. Collected specimens were placed in a paper triangle to minimize damage to their scaly wings. These doubtful specimens were carried to the laboratory for further identification (up to species) with the help field guide (Kunte, 2000; Kehimkar, 2008). Comparison was made with the preserved specimens and whenever necessary by the aid of a stereo-zoom microscope, at Regional Museum of Natural History (RMNH), Bhubaneswar, Odisha.

Results

The findings presented here are based on a field survey carried out during morning hours from March, 2009 to February, 2010 in the study site. During the study period 63 species of butterfly, belonging to 5 families, were recorded of which Nymphalidae (24 Species) were found dominant, followed by Pieridae (14 species), Lycaenidae (12 species). Hesperidae (7 species) and Papilionidae (6 species) (Table 1). Among the recorded species, 5 species come under the Indian Wildlife (Protection) Act, 1972. The findings of the present study underline the importance of

Sl. No.	Family	Common Name	Scientific Name
32	Nymphalidae	Common Palmfly	<i>Elymnias hypermenstra</i> (Linnaeus)
33	Nymphalidae	Common Sailor	<i>Neptis hylas</i> Moore
34	Nymphalidae	Danaid Eggfly*	<i>Hypolimnas misippus</i> Linnaeus
35	Nymphalidae	Dark Branded Bushbrown	<i>Mycalesis mineus</i> (Linnaeus)
36	Nymphalidae	Glassy Tiger	<i>Parantica aglea</i> (Stoll)
37	Nymphalidae	Great Eggfly	<i>Hypolimnas bolina</i> (Linnaeus)
38	Nymphalidae	Grey Pansy	<i>Junonia atlites</i> (Linnaeus)
39	Nymphalidae	Lemon Pansy	<i>Junonia lemonias</i> Linnaeus
40	Nymphalidae	Peacock Pansy	<i>Junonia almana</i> (Linnaeus)
41	Nymphalidae	Plain Tiger	<i>Danaus chrysippus</i> Linnaeus
42	Nymphalidae	Striped Tiger	<i>Danaus genutia</i> Cramer
43	Nymphalidae	Tawny Coster	<i>Acraea violae</i> Fabricius
44	Nymphalidae	Yellow Pansy	<i>Junonia hierta</i> (Fabricius)
45	Lycaenidae	Common Cerulean	<i>Jamides celeno</i> Linnaeus
46	Lycaenidae	Common Pierrot*	<i>Castalius rosimon</i> Fabricius
47	Lycaenidae	Common Silverline	<i>Spindasis vulcanus</i> Fabricius
48	Lycaenidae	Gram Blue	<i>Euchrysops cnejus</i> Fabricius
49	Lycaenidae	Lesser Grass Blue	<i>Zizina otis</i> (Fabricius)
50	Lycaenidae	Lime Blue	<i>Chilades laius</i> Stoll
51	Lycaenidae	Line Blue sp.	<i>Nacaduba</i> sp.
52	Lycaenidae	Pale Grass Blue	<i>Psuedozizeeria maha</i> (Kollar)
53	Lycaenidae	Plains Cupid	<i>Chilades pandava</i> (Fabricius)
54	Lycaenidae	Striped Pierrot	<i>Tarucus nara</i> Kollar
55	Lycaenidae	Sun Beam	<i>Curetis thetis</i> (Drury)
56	Lycaenidae	Zebra Blue	<i>Leptotes plinius</i> Fabricius
57	Hesperiidae	Bush Hopper	<i>Ampittia dioscorides</i> (Fabricius)
58	Hesperiidae	Common Grass Dart	<i>Taractrocerma maevius</i> (Fabricius)
59	Hesperiidae	Common Redeye	<i>Matapa aria</i> (Moore)
60	Hesperiidae	Indian Palm Bob	<i>Suastus gremius</i> Fabricius
61	Hesperiidae	Indian Skipper	<i>Spialia galba</i> Fabricius
62	Hesperiidae	Rice Swift	<i>Borbo cinnara</i> Wallace
63	Hesperiidae	Straight Swift	<i>Parnara guttatus</i> (Bremer & Grey)

*=Schedule I, **=Schedule II, ***= Schedule III under Wildlife (Protection) Act, 1972.

institutional estates as a preferred habitat for butterflies.

Discussion

Butterflies are valuable pollinators (Psychophily), important food chain components for the birds, reptiles, spiders and predatory insects. Due to their cold-blooded nature, high dispersal ability and rapid reproductive rates, they are sensitive to changes in environment. Thus they have been considered as indicators of environmental quality and the health of the ecosystem (Kremen 1992, Pearson 1995).

Unfortunately, butterflies are threatened by habitat destruction and fragmentation almost everywhere (Mathew, 2001). In the present study these butterfly species are recorded in various kinds of plantations of trees and shrubs in the home gardens, public gardens, avenues etc. inside the Utkal University campus. The areas under greatest human impact are the plantation sites around buildings inside the university campus and grasslands. The distribution of larval and nectar host plants have a distinct impact on the status of butterfly diversity (Solman Raju, 2004). The destruction of naturally growing nectar and larval host plants harbouring eggs, larvae, and pupae of butterflies by human activity has a great impact on richness, abundance and diversity of butterfly species (Tiple *et al.*, 2007).

The management of wilderness areas as well as their food plants may help to maintain and increase the butterfly diversity of the campus. This requires planned landscaping and maintenance of gardens with an aim of butterfly conservation.

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