



A study on butterfly diversity in Singur, West Bengal, India

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ABSTRACT

The present study was carried out to understand the butterfly diversity in Singur, West Bengal, India from March 2015 to November 2016. A total of 69 species of butterflies belonging to 54 genera and five families were recorded from the present study. From the observed butterflies, family Nymphalidae was the most dominant among the five families with 22 species, followed by Lycaenidae comprising of 19 species, Hesperidae with composition of 12 species, Pieridae with 8 species and Papilionidae with 7 species. Among these 69 species, five species were found to be protected under the Indian Wildlife (Protection) Act, (1972). The present study added valuable information on diversity of butterfly fauna and will contribute in developing effective conservation measures in Hooghly district of West Bengal.

Key Words: Butterfly, diversity, conservation, Singur, Hooghly

INTRODUCTION

Butterflies are one of the most-known groups of insects. They are also very popular among nature-lovers for their fascinating beauty and attractive colors. Butterflies are known to be good pollinators and very sensible to environmental factors such as temperature, humidity, rainfall, solar radiation, air temperature, wind speed and significantly availability of larval host plants (Ribeiro and Freitas, 2012; Hill et al., 2002). Both the adults and caterpillars are highly reliable on specific plants for their life cycle and therefore, they also have been used as models to monitor temporal changes in plant-insect interactions (Padhey et al., 2006; Kunte, 1997). Due to their high sensitivity to environmental changes, abundance and advanced taxonomy, butterflies are identified as ideal indicator taxa of habitat disturbance (Kocher and Williams, 2000; Bonebrake et al., 2010; Castro and Espinosa, 2015). It is found that any minor changes in their natural habitat due to anthropogenic factors can lead to their migration or local population extinction (Blair, 1999; Menecheze et al., 2003). In the field of conservation

planning and management, they are also considered as an umbrella species (Betrus et al., 2005).

However, butterfly fauna is not always reported from many parts of the Indian sub-continent. Although, there are some several checklists available on butterfly diversity, no study was conducted in Singur situated in Hooghly district in West Bengal, India. Hence, an attempt was made to understand the butterfly diversity in Singur through the present investigation.

MATERIALS AND METHODS

Study Area

Singur (N 22°48'33" E 88°13'46") is a block comes under Hooghly district in West Bengal (Fig. 1). This block covers 155 km² area of Hooghly at an elevation of 16 m. Average temperature is 26.8°C with monthly variations of 16°C to 33°C. Summer is very hot and strongly dominated by the south-westerly winds where summer easily cross 40°C. peak Average rainfall is around 115mm, with minimum of 7.34mm

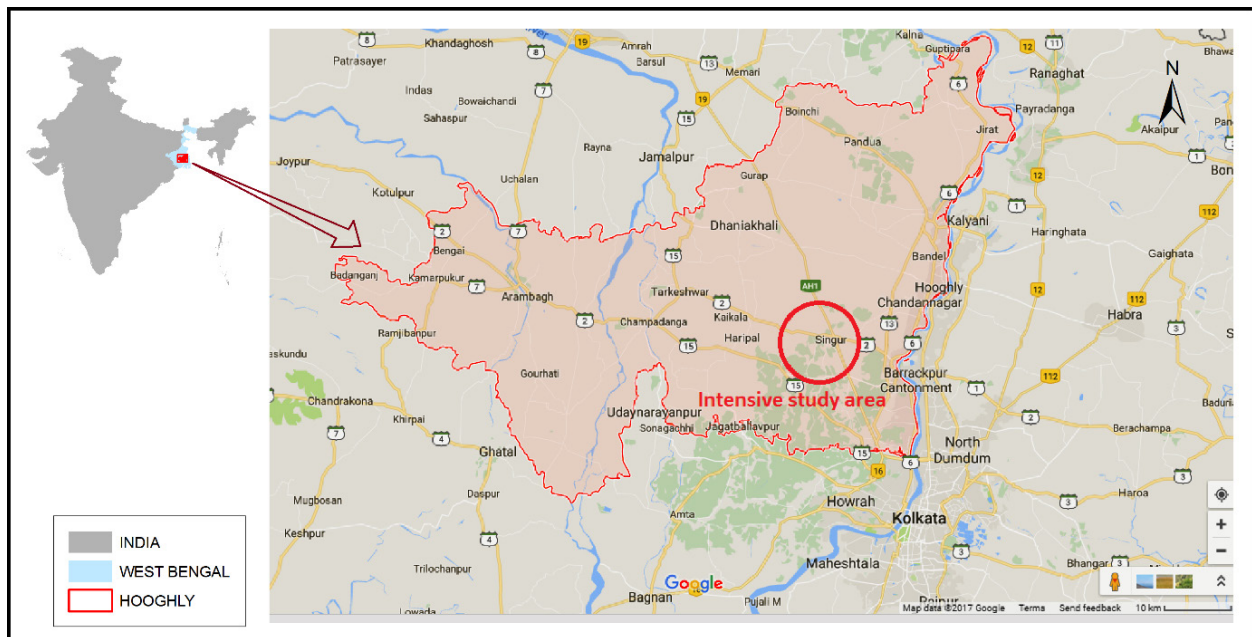


Fig. 1. Location of Singur, Hooghly district, West Bengal

from December to February and maximum of 245.5mm from July to September. Winter is very pleasant with an average temperature of 16°C but sometimes it drops below 10°C with strong north-easterly wind. Excellent soil quality results a dominated land cover of cultivated land followed by residential and forest areas. Forests are mainly dominated by the human planted trees and bushy shrubs.

Field data collection

The survey was carried out between March 2015 and November 2016 to suitably access the butterfly diversity of the region. Most of the observations were recorded in the mornings (8 am to 12 am) and sometimes surveys were conducted between 4.30 pm to 6 pm for shade loving butterflies. Every habitat in Singur Block was covered by random observations as well as opportunistic sampling during walking through the roads, village path, agricultural lands, both sides of the railway tracks, flowering garden, residential vegetation etc. In the field, photographs of the specimens were taken with Nikon L310. The specimens were identified with the help of available literature (Evans, 1932.; Talbot, 1939/ 1947; Moore, 1890-1905; Wynter-Blyth, 1957; Kehimkar, 2008; Haribal 1992).

Based on the frequency of sightings, butterfly species were divided into three categories, they were a) common, b) uncommon and c) rare. Any species with count more than 50 times were placed in common category, count within 20-50 were placed in uncommon, count within 1-20 were categorised as rare.

RESULTS AND DISCUSSION

A total of 69 species of butterflies belonging to 54 genera and five families were recorded from the study area (Table 1). Family Nymphalidae was the dominant among the five families with 22 (31.88%) species belonging to 17 (31.48%) genera, followed by Lycaenidae comprising of 19 (27.53%) species from 17 (31.48%) genera, Hesperidae with composition of 12 species (17.39%) belonging to 11 Genera (20.37%), Pieridae with eight species (11.59%) from seven Genera (12.96%) and Papilionidae with seven species (10.14%) from three genera (5.55%) (Fig. 2 - 33). Nymphalidae and Lycaenidae were the most frequently sighted groups during this survey. Status of all species are categorized depending on the direct sightings during the survey, which showed 27 species out of 69 species (39.13%) were common, 29 (42.02%) species were uncommon and 13 species (18.84%) were

rare. Of these, eighteen (11%) species are of special concern and are listed in Wildlife (Protection) Act, 1972. Among the 69 recorded species, two species (*Lampides boeticus* and *Hypolimnas misippus*) are in schedule II (part II) and three species (*Hyarotis adrastus*, *Appias libythea* and *Euploea core*) are listed

in schedule IV of Wildlife (Protection) Act, 1972.

Although, the present study is short in nature, but added valuable information on diversity of butterfly fauna and will contribute in developing effective conservation measures in Hooghly district of West Bengal.

Table 1. Checklist of the butterflies recorded in the study area

Sl. No.	Common Name	Scientific Name	Status	WPA, 1972 status
Family Hesperidae				
1.	Common Snow Flat	<i>Tagiades japetus</i>	U	
2.	Indian Skipper	<i>Spialia galba</i>	U	
3.	Chestnut Bob	<i>Iambrix salsala</i>	C	
4.	Indian Palm Bob	<i>Suastus gremius</i>	C	
5.	Tree Flitter	<i>Hyarotis adrastus</i>	U	Sch IV
6.	Common Redeye	<i>Matapa aria</i>	U	
7.	Dark Palm Dart	<i>Telicota bambusae</i>	R	
8.	Straight Swift	<i>Parnara guttata</i>	U	
9.	Small Branded Swift	<i>Pelopidas mathias</i>	C	
10.	Swift	<i>Pelopidas sp</i>	R	
11.	Forest Hopper	<i>Astictopterus jama</i>	R	
12.	Grass Demon	<i>Udaspes folus</i>	U	
Family Papilionidae				
13.	Common Jay	<i>Graphium doson</i>	U	
14.	Tailed Jay	<i>Graphium agamemnon</i>	C	
15.	Blue Mormon	<i>Papilio polymnestor</i>	U	
16.	Common Banded Peacock	<i>Papilio crino</i>	R	
17.	Common Mormon	<i>Papilio polytes</i>	C	
18.	Lime Butterfly	<i>Papilio demoleus</i>	C	
19.	Common Rose	<i>Atrophaneura aristolochiae</i>	U	
Family Pieridae				
20.	Common Gull	<i>Cepora nerissa</i>	C	
21.	Common Jezebel	<i>Delias eucharis</i>	R	
22.	Striped Albatross	<i>Appias libythea</i>	U	Sch IV
23.	Psyche	<i>Leptosia nina</i>	C	
24.	Common Wanderer	<i>Pareronia hippia</i>	U	
25.	Common Emigrant	<i>Catopsilia pomona</i>	C	
26.	Mottled Emigrant	<i>Catopsilia pyranthe</i>	U	
27.	Common Grass Yellow	<i>Eurema hecabe</i>	C	

Family Lycaenidae				
28.	Apefly	<i>Spalgis epeus</i>	U	
29.	Indian Sunbeam	<i>Curetis thetis</i>	R	
30.	Common Cerulean	<i>Jamides celeno</i>	U	
31.	Dark Cerulean	<i>Jamides bochus</i>	R	
32.	Forgetmenot	<i>Catochrysops strabo</i>	U	
33.	Pea Blue	<i>Lampides boeticus</i>	U	Sch II
34.	Zebra Blue	<i>Leptotes plinius</i>	R	
35.	Common Pierrot	<i>Castalius rosimon</i>	C	
36.	Dark Grass Blue	<i>Zizeeria karsandra</i>	C	
37.	Pale Grass Blue	<i>Zizeeria maha</i>	C	
38.	Lesser Grass Blue	<i>Zizina otis</i>	C	
39.	Quaker	<i>Neopithecops zalmora</i>	C	
40.	Gram Blue	<i>Euchrysops cnejus</i>	C	
41.	Lime Blue	<i>Chilades lajus</i>	C	
42.	Ciliate Blue	<i>Anthene emolus</i>	R	
43.	Common Silverline	<i>Spindasis vulcanus</i>	U	
44.	Yamfly	<i>Loxura atymnus</i>	U	
45.	Monkeypuzzle	<i>Rathinda amor</i>	U	
46.	Slate Flash	<i>Rapala manea</i>	U	
47.	Indian Red Flash	<i>Rapala iarbus</i>	R	
Family Nymphalidae				
48.	Blue Tiger	<i>Tirumala limniace</i>	C	
49.	Common Tiger	<i>Danaus genutia</i>	C	
50.	Plain Tiger	<i>Danaus chrysippus</i>	C	
51.	Common Indian Crow	<i>Euploea core</i>	C	Sch IV
52.	Common Evening Brown	<i>Melanitis leda</i>	C	
53.	Common Palmfly	<i>Elymnias hypermnestra</i>	U	
54.	Bamboo Treebrown	<i>Lethe europa</i>	R	
55.	Common Bushbrown	<i>Mycalesis perseus</i>	U	
56.	Common Fourring	<i>Ypthima huebneri</i>	U	
57.	Angled Castor	<i>Ariadne ariadne</i>	U	
58.	Common Castor	<i>Ariadne merione</i>	U	
59.	Common Leopard	<i>Phalanta phalantha</i>	C	
60.	Lemon Pansy	<i>Junonia lemonias</i>	C	
61.	Peacock Pansy	<i>Junonia almana</i>	C	
62.	Grey Pansy	<i>Junonia atlites</i>	C	
63.	Chocolate Soldier	<i>Junonia iphita</i>	U	

64.	Danaid Eggfly	<i>Hypolimnas misippus</i>	R	Sch II
65.	Great Eggfly	<i>Hypolimnas bolina</i>	U	
66.	Chestnut-streaked Sailer	<i>Neptis jumbah</i>	R	
67.	Commander	<i>Moduza procris</i>	U	
68.	Baron	<i>Euthalia aconthea</i>	U	
69.	Tawny Coster	<i>Acraea violae</i>	C	

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