

BUTTERFLY DIVERSITY OF JAYDEV VATIKA, BHUBANESWAR, ODISHA, INDIA

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Abstract: A study was undertaken to assess the butterfly diversity of Jaydev Vatika, Bhubaneswar, Odisha regulating under Odisha Forest Development Corporation. This place is adjacent to historical site Khandagiri and Udayagiri cave expanding up to 7 to 8kms and the survey was under taken to assess the butterfly diversity of this particular place. After the survey from November, 2018 to March, 2019 according to estimated data, it was observed that, this place is acting as a healthy resident for Lepidoptera butterflies, dominated by family Nymphalidae with 12 species, followed by Pieridae with 4 species, Lycaenidae with 3 species, Papilionidae and Hersperiidae with 1species each. Among 21 species, 3 species were found to be protected under the Indian Wildlife Protection Act, 1972. This present study will help to add valuable information on butterfly diversity and accordingly the conservation measures can be taken place to make the environment for healthier and suitable.

Key words: Butterfly, Diversity, Family, Jaydev Vatika.

I. INTRODUCTION

Butterflies has been one of the most efficient insects, act as pollinator and indicator of healthy environment, maintains food chain, supports other predator and parasite serving as prey, shows mimicry, maintains biodiversity, population dynamics, act as natural pest controller etc. There are about 18, 000 species of butterflies in the world, and around 750 species in the United States. Butterfly diversity expresses overall floral diversity as well as plant diversity which are the basics of a healthy ecosystem. According to the work done by Bashar 2010, maintenance of a good ecosystem depends upon insect diversity and they are the best mediators in making it successful, because in the process of pollination and exchanging characters insect population carries a major responsibility. Brown, 1992 stated that as these organisms are so sensitive to all the environmental fluctuations which directly or indirectly affecting the population of plant species. Butterflies can be used a model organism for the geographical studies as well as development of plants and their interaction with insects. These can be regarded as potent indicators because of the sensitivity towards the changes.

II. STUDY AREA

Jaydev Vatika (27.2054° N, 77.9924E) is an extended region of Cave Khandagiri located at Bhubaneswar city Khordha district in Odisha (fig.1). This area covers almost 12acres of land under Odisha Forest Development Corporation, most regions are covered with dense forest and a small patch has been developed as an ex-situ site for the purpose of entertainment. This area is one of the busiest sites of Bhubaneswar because of its mesmerizing beauty and mostly considered as good picnic spot. Average temperature was 24.9°, average humidity was around 63.5%, average rainfall was 37.5mm and average sunshine was around 7.3hours. During summer this region becomes too hot and during winter it is very pleasant environment to spend time with family and friends. A short patch is fully decorated with lots of different flowering plants and other small decorative plants which facilitates its natural beauty at a different level.



Fig 1: Geographic location of Odisha and Khordha



Fig 2: Location of Jaydev Vatika

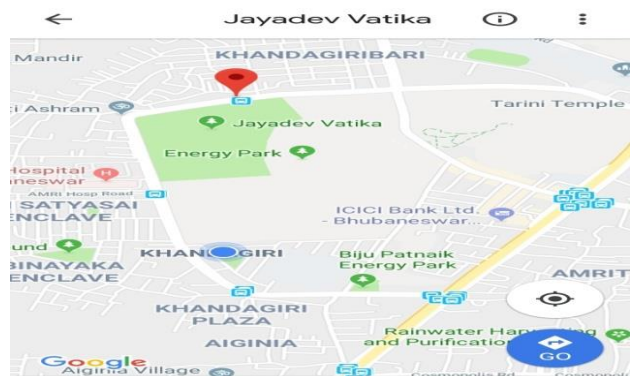


Fig 3 : Location of Jaydev Vatika, Bhubaneswar



Fig 4: Main entrance of Jaydev Vatika

III. DATA COLLECTION

Observation was conducted from November 2018 to February 2019. It was done during morning 8.30am to 12.00noon and evening 4.00pm to 6.00pm. All the observations has been done by randomly just by walking at the flowering regions. Study was done by direct visual method. For much specification digital camera of 3X and 4X optical zoom were used. Cameras used were Samsung 6.0 mega pixels with 3X optical zoom and digital control. Flash was mostly kept off to capture natural colors. Animals were identified by following data available on Indian Foundation for Butterflies (IFB).

Based on the frequency of sighting, butterflies are divided into three categories, such as a) Common, no of organism within 10-20 , b) Uncommon, no of organism within 5-10, c) Rare., no of organism within 1-5.

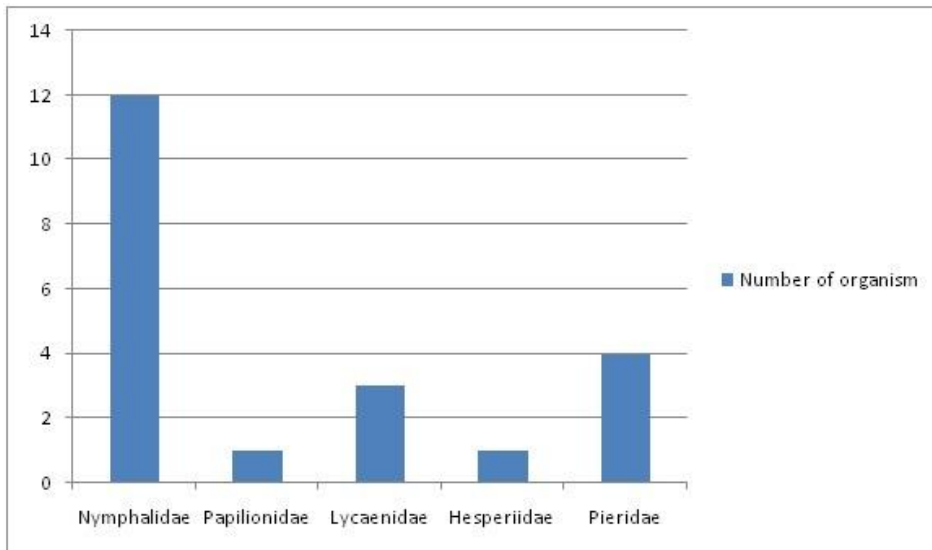
IV. RESULTS AND DISCUSSION

A total of 21 Species has been identified during the survey. This area strongly dominated by order Lepidoptera comprising of 5 different families. Out of 5 families, Nymphalidae is the most dominated with 12(57.14%) organisms belonging 10 genus and 12 species. The next available family is Pieridae with 04(19.04%) organisms with 2 genus and 3 species. Lycaenidae 03(14.21%) of total population with 3 genus and 3 species. Hesperidae and Papilionidae, each with 01(4%) organism. Out of 21 organisms, 3(14.28%) butterflies belongs to Least concern (LC) group as per IUCN status and scheduled under protected category according to WPA, 1972.

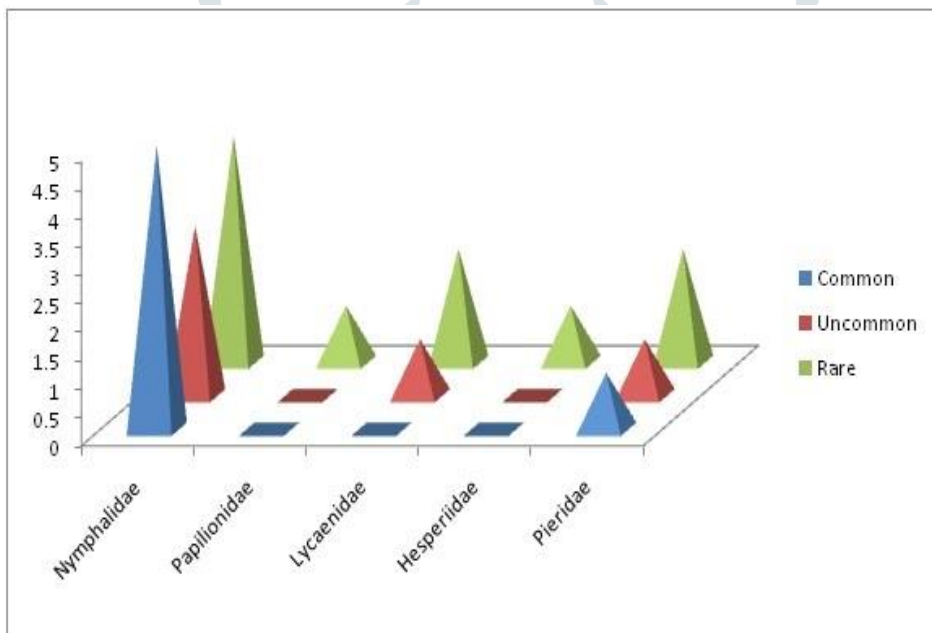
Table 1: Check List of butterflies found at the study area representing local status, WPA status and IUCN status

Sr. No	Common Name	Scientific Name	Family	Local Status	WPA Status	IUCN Status
1	Lemon Pansy	<i>Junonia lemonias</i>	Nymphalidae	C		
2	Chestnut-streaked Sailor	<i>Neptis jumbah</i>	Nymphalidae	C		
3	Grey Pansy	<i>Junonia atlites</i>	Nymphalidae	U		
4	Danaid eggfly	<i>Hypolimnys misippus</i>	Nymphalidae	C	Sch I	LC
5	Dingy bushbrown	<i>Mycalesis perseus</i>	Nymphalidae	R		
6	Common Indian Crow	<i>Euploea core</i>	Nymphalidae	C	Sch IV	LC
7	Common evening Brown	<i>Melanitis leda</i>	Nymphalidae	C		
8	Common Leopard	<i>Phalanta phalanta</i>	Nymphalidae	U		
9	Peacock Pansy	<i>Junonia almana</i>	Nymphalidae	R		LC
10	Tawny Coster	<i>Acraea terpsicore</i>	Nymphalidae	U		
11	Blue Tiger	<i>Tirumala limniace</i>	Nymphalidae	R		
12	Commander butterfly	<i>Moduza Procris</i>	Nymphalidae	R		
13	Tailed Jay	<i>Graphium agamenon</i>	Papilionidae	R		
14	Lesser grass blue	<i>Zizina otis</i>	Lycaenidae	U		
15	Many Tailed oakblue	<i>Thaduka multicaudata</i>	Lycaenidae	R		
16	Indian Sundean	<i>Curetis thetis</i>	Lycaenidae	R		
17	Narrow winged awl	<i>Badamia exclamationis</i>	Hesperidae	R		
18	Clouded Emigrant	<i>Catopsilia pomona</i>	Pieridae	R		
19	Common Jezebel	<i>Delias eucharis</i>	Pieridae	U		
20	Mottled Emigrant	<i>Catopsilia pyranthe pyranthe</i>	Pieridae	C		

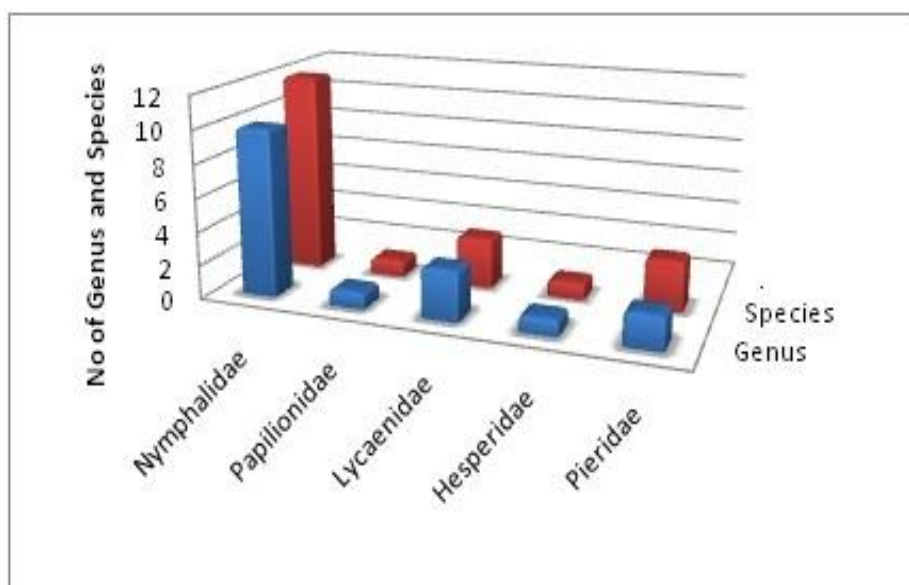
21	Cabbage White	<i>Pieris rapae</i>	Pieridae	R		
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Graph 1: Representing number of organism according to families



Graph 2: Local Status of no. of species according to family
 Status Code: Common (C), Uncommon (U), Rare (R)



Graph 3: Graph representing Genus and Species of respective families

Based on the above study, we suggest that now a day's climate change is one of the major factors for declining of living organisms. Insects are such a beneficial organism whose loss would cost the ecosystem as well as mankind. This area comprises of different kind of butterflies which is a good indication of a healthy environment but as a society that should be maintained and necessary actions should be taken place by the authorities to increase its abundance and richness. Without conservation methods it would be difficult to maintain their number and diversity.

V.RECOMMENDATIONS

This data only describes the work of 5 months, and it's a very short span to channelize everything so further work should be done to understand their behavior, abundance and other aspects. More study would help us to insight other perspectives for overall development. Association of Host and organism is one of the chief factors for their sustainability so conservation should be started in a better way by plantation.

VI.REFERENCES

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