

Status of butterflies (Insecta: lepidoptera) District Lucknow, Uttar Pradesh, India

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Abstract

Four hundred and twenty three butterflies were observed and 28 species identified in different study sites of Lucknow. Family Nymphalidae was the most common followed by Pieridae, Lycaenidae, Papilionidae and followed by family Hesperidae. 13 species of family Nymphalidae recorded in all selected sites in Lucknow. The survey has been carried out for a period of one years and site visited from 8 A.M. to 10 A.M. Photography of the butterflies was done during the study period, no specimen was collected for this study. Butterflies identified based on standard monographs of Wynter-Blyth (1957)^[15], Kunte (2000)^[10] and Kehimkar (2008)^[4].

Keywords: Butterflies, population, butterfly families, lepidoptera, insecta

Introduction

Butterflies are the most tantalizing and beautiful creatures, among the insect group, they are an often regarded as flagship species. These are perhaps the most studied and well-known insect groups. In terms of indicator organisms for biodiversity studies on butterflies are an excellent choice as they are common almost everywhere, attractive and easy to observe. The butterfly diversity is high in the tropics compared to temperate regions of the world. Their habitat ranges from Arctic to the great deserts of the world. The butterflies are divided into two super families' viz., Papilionoidea constitutes 11,100 species and Hesperioidea constitutes 3,650 species in the world (Scott, 2001)^[12]. Most of the butterflies are found in the tropical rainforest, but also they can live in any climate. Butterflies sometimes migrate to avoid cold weather like most forest dependent animals; they are good ecological indicators of the health of the forest they dwell. Some butterflies have evolved symbiotic and parasitic relationships with social insects such as ants. Chandra *et al.* (2002)^[2] at Pench Tiger Reserve, Madhya Pradesh more than 2000 insect of different groups have been collected from more than 20 localities which included 119 specimens of butterflies, the butterflies' represented 38 species in eight families. Khan *et al.* in 2004^[5, 6] butterflies have been collected from nine localities of district Muzaffarnagar throughout the summer season of (April to October) 2001 the total of 28 species belonging to 7 families have been collected. At Bondla Wildlife Sanctuary of Goa, 91 species belonging to 66 genera representing 12 sub families and five families have been recorded by Borkar and Komarpant in 2004^[1] during the period from July 2001 to June 2002, Nymphalidae dominated the list with 40 species followed by Lycaenidae (19 species), Papilionidae (14), Pieridae (12) and Hesperidae (6), respectively. Barua *et al.* in 2004 during the survey, 29 species and subspecies of swallowtail butterflies belonging to eight genera have been identified in Garbhanga Reserve Forest, Assam. Khan *et al.* in 2004^[5, 6] the adult butterflies have been collected from ten localities of district Poonch and eight localities of district Sudhnoti throughout the summer season of (April to October) 2000, a total of 29 species belonging to 5 families from district Rawalakot and 21 species belonging to 5 families have been collected from district Sudhnoti. A total

of 1857 individuals of butterflies belonging to 40 species and 7 families has been recorded by Joshi in 2007 in Rajaji national park Uttaranchal India, A total of 56 species belonging to five families recorded by Menasagi and Kotikal in 2011^[11] at Bagalkot district Karnataka. In the universe butterfly is regarded as one of the most well taxonomically and ecologically studied group of insect belonging to the order lepidoptera (Kumar and Rana, 2018^[9]; Kumar, 2017^[7], 2020^[8] Sushmita *et al.*, 2021^[13]; 2022^[14]. Nymphalidae were the most dominant family with 21 species followed by Pieridae (18 species), Papilionidae (10 species) and Lycaenidae (4 species) and Hesperidae (only 3 species). Pieridae family individuals popularly known as "white and yellows" due to the wings coloration of its members. All legs functional. Distinct bifid pretarsal claws. Hind wing with convex inner margin and two anal veins of the 1000 species known from the world, 109 are recorded from India. Butterflies of Family Papilionidae They are popularly called "swallow tails" because of the small tail projection found on their hind wings. These are large and showy butterflies, regularly visiting the garden for nectar. Large butterflies with all legs fully developed. Hind wing usually tailed with concave inner margin and only one anal vein.

Members of Family: Lycaenidae are popularly called "blues" due to their bluish coloration on the wing. Five species have been observed in this family. The family Hesperidae is popularly known as "skippers" because of the skipping or bouncing flights exhibited by its members. This family characteristic by hooked antennae is threatened as a link between butterflies and moths. There are about 3500 species so far known from the world, out of which 321 are represented in India.

Material and Methods

The study was carried out in six chosen area of Lucknow namely PDDP-Pt. Deen Dyal Park, VKJP- Vasant Kunj Joggers Park, BBAU- Baba Sahib Ambedkar University, VS20 - Vrindavan Sector20, SGPGI- Sanjay Gandhi Post Graduate Institute, GBP- Gautam Budha Park. The survey has been carried out for a period of one years February 2018-January 2019 and site visited from 8 A.M. to 10 A.M. Photography of the butterflies was done during the study

period. No specimen was collected for this study. Butterflies were photographed from different angles as often as possible to obtain sufficient photographs to enable positive identification of species. Photographs were taken with a camera (Nikon 7000). Butterflies identified based on standard monographs of Wynter-Blyth (1957) [15], Kunte (2000) [10] and Kehimkar (2008) [4]. The present work provided the updated comprehensive checklist of butterflies in the study areas with their Population Butterflies were categorized in the groups based on their occurrence.

Results and Discussion

A total of 423 butterflies were observed and 28 species identified in different study sites of Lucknow. 70 individuals of 20 species were recorded in Pt. Deen Dyal Park,, 64 individuals of 19 species were recorded in Vasant Kunj Joggers Park, 59 individuals of 17 species were recorded in Baba Sahib Ambedkar University, 65 individuals of 22 species were recorded in Vrindavan Sector20, 75 individuals of 21 species were recorded in Sanjay Gandhi Post Graduate Institute 90 individuals of 20 species were recorded in Gautam Budha Park. Butterflies are one of the cute and marvelous creations of nature, which are also indicators of ecological changes in their surroundings. The present work mainly concentrated on butterflies of District Lucknow during the survey a total of 28 species of butterflies are recorded from the 6 sites. These species belong to the 5 families. The population of butterfly species belonging to family Nymphalidae (13 species) was found to

be predominant followed by that of family Pieridae (5 species) and Lycaenidae (5 species) followed by family Papilionidae (4 species) followed by family Hesperidae (1 species) (Table 1)

Members of family Nymphalidae are popularly known as "Brush footed butterflies" because of their brush like forelegs. Front legs useless for walking. Comprising of about 6000 species, this is the largest family of butterflies in the world, India has 522 species. The species of this family that is most abundant species recorded from all study sited were *Junonia lemonias* (Lemon Pansy) with 105 individuals. the *Danaus chrysippus* (Plain tiger) with 82 individuals were also recorded in many numbers from the Ujjain city. During the survey 423 butterflies of 28 species belong to five families recorded from all selected sites of Lucknow. Family Nymphalidae was the most common followed by Pieridae, Lycaenidae, Papilionidae and followed by family Hesperidae. 13 species of family Nymphalidae recorded in all selected sites in Lucknow. These species are *Junonia lemonias* (Lemon pansy), *Junonia orithya* (Blue pansy), *Junonia hierta* (Yellow pansy), *Junonia almana* (Peacock pansy), *Danaus chrysippus* (Plain tiger), *Danaus genutia* (striped tiger), *Hypolimnas misippus* (Danaid eggfly), *Hypolimnas bolina* (Great eggfly) *Euploea core* (Common crow), *Tirumala limniace* (Blue tiger), *Melanitis leda* (Common evening brown), *Ariadne merione* (common castor), *Phalantha phalantha* (common leopard). (Table 1, Figure 1&2)

Table 1: Taxonomic composition and number of individuals of butterflies recorded from different study sites in Lucknow

S.No.	Species /family	PDDP	VKJP	BBAU	VS20	SGPGI	GBP
	Family- Nymphalidae						
1	<i>Junonia lemonias</i>	4	5	6	3	3	6
2	<i>Junonia orithya</i>	2	2	-	3	2	3
3	<i>Junonia hierta</i>	2	2	2	-	-	3
4	<i>Junonia almana</i>	-	2	-	2	1	3
5	<i>Danaus chrysippus</i>	4	3	3	3	3	5
6	<i>Danaus genutia</i>	2	1	-	3	1	1
7	<i>Hypolimnas misippus</i>	1	-	-	-	-	3
8	<i>Hypolimnas bolina</i>	1	3	3	-	3	1
9	<i>Euploea core</i>	1	1	-	4	-	3
10	<i>Tirumala limniace</i>	1	-	2	2	2	3
11	<i>Melanitis leda</i>	1	1	1	1	1	3
12	<i>Ariadne merione</i>	2	2	-	1	-	-
13	<i>Phalantha phalantha</i>	2	-	1	1	2	2
	Family- Pieridae						
14	<i>Belenois aurota</i>	1	1	1	1	-	-
15	<i>Eurema hecabe</i>	27	21	22	23	29	32
16	<i>Catopsilia pyranthe</i>	11	10	9	7	13	10
17	<i>Ixias marriane</i>	-	1	2	1	3	2
18	<i>Cepora nerissa</i>	-	1	-	1	2	1
	Family- Papilionidae						
19	<i>Papilio demoleus</i>	2	2	-	1	1	2
20	<i>Papilio polytes</i>	-	-	-	-	-	-
21	<i>Graphium doson</i>	-	2	1	-	1	-
22	<i>Graphium agamemnon</i>	-	-	1	1	2	-
	Family- Lycaenidae						
23	<i>Chilades parrhassius</i>	2	2	1	1	2	3
24	<i>Tarucus nara</i>	2	2	1	2	1	2
25	<i>Zizina otis</i>	-	-	1	1	1	-
26	<i>Freyeria putli</i>	1	-	-	-	1	-
27	<i>Arthropala bazalus</i>	-	-	-	1	-	-
	Family- Hesperidae						
28	<i>Hasora chromus</i>	1	-	2	2	1	2

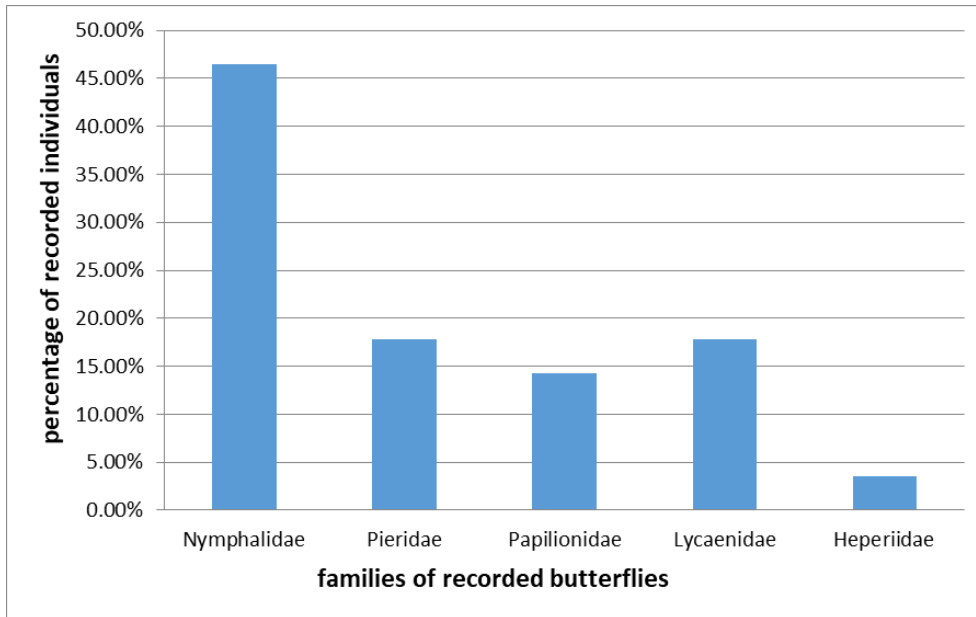


Fig 1: Percentage of individuals recorded in different family in Lucknow

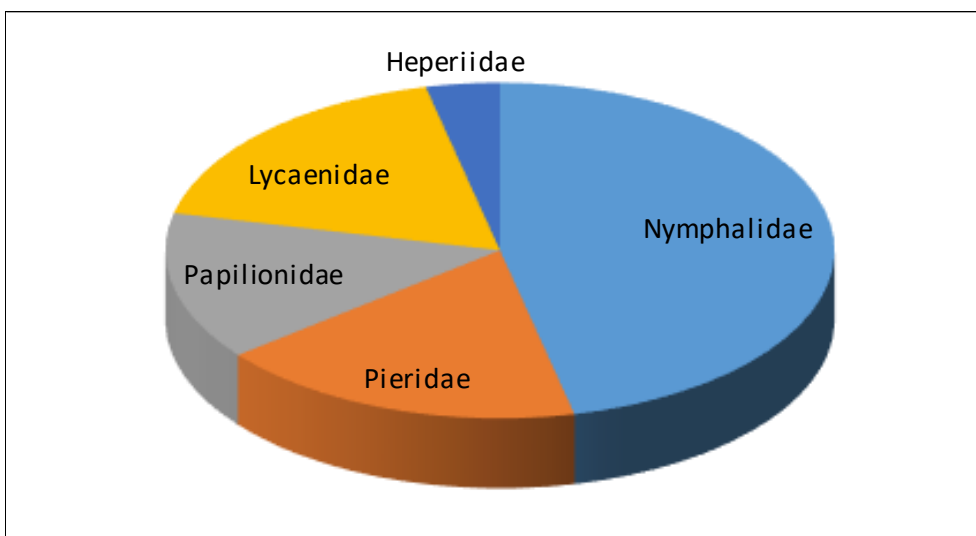


Fig 2: Percentage of species composition recorded under different families in Lucknow

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