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Diversity of Butterflies at Tatapani Village, Balrampur District, Chhattisgarh, India

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***Abstract*:** *Butterflies are regarded as one of the prominent bio indicators of the environment and have the second largest number of scaly insects; therefore they must be conserved for the betterment of the health of the habitats. During a 3 month study (August 2016 – October 2016), a total of 306 individuals belonged to 22 species, 19 genera and 5 families of butterflies were recorded (Table 1),of these 8 species belonged to the family Nymphalidae with a total of 149 individuals, 5 species belonged to the family Lycaenidae having a total of 47 individuals, 4 species belonged to the family Papilionidae comprising a total of 18 individuals, 3 species belonged to the family Pieridae with 72 individuals and 2 species belonged to the family Hesperiidae having a total of 20 individuals at Tatapani village, Balrampur District, Chhattisgarh. The butterflies were categorized into 3 groups, Very common-5 species (23%) , Common-8 species (36%) , and Rare- 9 species (41%) . During the study period the Shannon Wiener Index for Nymphalidae (1.924), Lycaenidae (1.594), Papilionidae (1.162), Peridae (0.879) and Hesperidae (0.673). Simpson index for Nymphalidae(0.16),Lycaenidae(0.18), Papilionidae (0.32), Pieridae(0.48), Hesperidae(0.49). Dominance Index for Nymphalidae(0.84), Lycaenidae(0.81), Papilionidae(0.67), Pieridae(0.51) and Hesperidae(0.50). Margalef Richness Index for Nymphalidae(1.39), Lycaenidae(1.03), Papilionidae(1.03), Peridae(0.46) and Hesperidae(0.33).*

***Keywords*:** *Butterflies, indicators, environment,Nymphalidae,Lycaenidae, Papilionidae, Peridae, Hesperidae, Shannon Wiener Index, Simpson index, Dominance Index and Margalef Richness Index.*

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I. Introduction

Beautiful scaly Butterflies are mostly plant dependent among other groups of insects. These wonderful charming flowers and sun lovers belong to the order Lepidoptera have been evolved 35 million years ago (New, 1991). They are moreover, agents of pollination activity, silk producers, indicators of any environmental habitat and they are appreciated for elegant look (Kunte,2000). Among insects lepidopterns are the second largest order, consisting of more or less 1, 50,000 species in the world. Even though they are great in number the decline of the species have been seen through some decades, the reason behind it, the destruction of habitats, logging of trees, clearance of forest in the name of development and building up of roads (Groombridge, 1992; John, 1997; Laurance and Bierregaard, 1997). Although butterflies are considered as the effective way of environmental quality detectors, have no due respect and appreciation in the nature now (Vershney et al., 1983) and are facing decline of numbers, species richness and diversity, it is due to increased urbanization (Blair and Launer, 1997; Clark et al., 2007). In spiteof veracious feeding habits of butterfly caterpillars to delicate crop plants and damage doneto the shoots, their feces are highly nutritious to the crops for higher yield production.

II. Materials and Methods

Butterfly observation and recording was done for 3 months from August 2016- October 2016 at Tatapani Village, Balrampur District. Obsrvation was done from 8 a.m to 1 p.m. in the morning and from 3.00 p.m. to 6.00 p.m. in the evening for a period of 3 months and data on butterfly was recorded on data sheets. Butterfly collection was strictly forbidden but observation was done followed by taking photographs with the help of Cannon 1200D with 55-250mm zoom lenses. Identification keys were followed Evans (1932), Wynter-Blyth (1957) and Kunte (1997).

III. Study area

Study was carried out in Tatapani village, Balrampur District, Chhattisgarh from August 2016- October 2016.Latitude 26.05, Longitude 74.02. Altitude: 619 meters (MSL). It is situated 15km away from sub-district headquarter Balrampur which is the nearest town to Tatapani village and 95km away from Surguja district,

headquarter Ambikapur. Tatapani village is also a gram panchayat. The total geographical area of village is 221.87 hectares. Tatapani has a totalpopulation of 879 peoples. There are about 215 houses in Tatapani village. Balrampur is nearest town to Tatapani which is approximately 15km away.

IV. Result

During the study a total of 306 individuals belonged to 22 species, 19 genera and 5 families of butterflies were recorded (Table 1), of these 8 species belonged to the family Nymphalidae with a total of 149 individuals, 5 species belonged to the family Lycaenidae having a total of 47 individuals, 4 species belonged to the family Papilionidae comprising a total of 18 individuals, 3 species belonged to the family Pieridae with 72 individuals and 2 species belonged to the family Hesperiidae having a total of 20 individuals. The butterflies were categorized into 3 groups, Very common-5 species (23%), Common-8 species (36%) , and Rare- 9 species (41%) . During the study period the Shannon Wiener Index for Nymphalidae (1.924), Lycaenidae (1.594), Papilionidae (1.162), Peridae (0.879) and Hesperidae (0.673). Simpson index for Nymphalidae(0.16),Lycaenidae(0.18), Papilionidae (0.32), Pieridae(0.48), Hesperidae(0.49). Dominance Index for Nymphalidae(0.84), Lycaenidae(0.81), Papilionidae(0.67), Pieridae(0.51) and Hesperidae(0.50). Margalef Richness Index for Nymphalidae(1.39), Lycaenidae(1.03), Papilionidae(1.03), Peridae(0.46) and Hesperidae(0.33).

The result shows the enriched knowledge on availability of butterflies at Tatapani village, Balrampur district, Chhattisgarh,India. Census carried out in Tatapani village is the first diversity study on butterfly faunal availability and gives 22 species of varied butterflies to the tropical area of Balrampur district.

V. Discussion

The above findings have the similar studies in other parts of the globe. R.S.M. Shamsudeen and George Mathew (2010) studied the diversity of butterflies at Shendurny Wildlife Sanctuary, Kerala, India and gave evidence of abundance of family Nymphalidae which was higher than other families during the survey. Earlier Mandal et al.(2002) reported 58 species of butterfly in Tripura region later on Kalaisekar et al.(2008) from the same state,Tripura have given 125 species of butterfly faunal diversity.The present study provides a range of butterfly diversity in Tatapani village and its vicinity areas. The geographical location of this area, its climatic condition and vegetative composition are essential basics for supporting a rich diversity of butterflies, which is highly commendable.

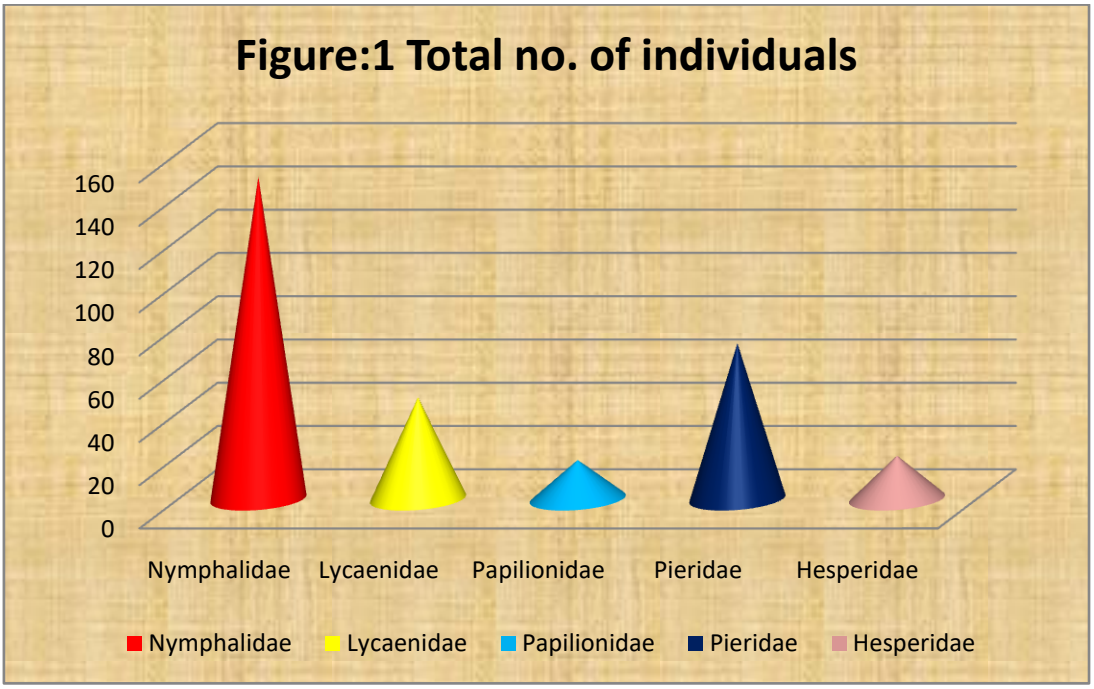
Table: 1 List of Butterflies recorded from the study area.

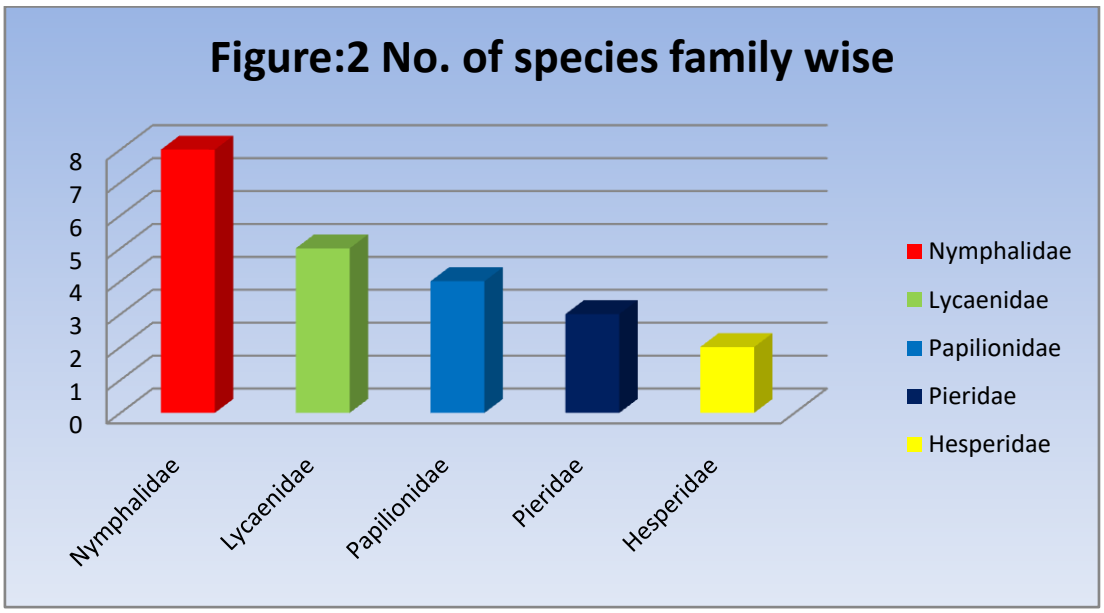
S.No.	Family	Genus	Species	Nomenclature	Common name	Status
1	Nymphalidae	Melanitis	leda	Linnaeus,1758	Common evening brown	VC
	Nymphalidae	Junonia	almana	Linnaeus,1758	Peacock pansy	C
	Nymphalidae	Junonia	atlatis	Linnaeus,1763	Grey pansy	R
	Nymphalidae	Ariadne	merione	Cramer,1777	Common costor	C
	Nymphalidae	Euploea	core	Cramer,1780	Common crow	VC
	Nymphalidae	Hypolimnas	bolina	Linnaeus,1758	Great eggfly	R
	Nymphalidae	Danaus	chrysipus	Linnaeus,1758	Plain tiger	VC
	Nymphalidae	Danaus	genutia	Cramer,1779	Striped tiger	C
2	Lycaenidae	Catochrysops	strabo	Fabricius,1793	Forget-me-not	C
	Lycaenidae	Castalius	rosimon	Fabricius,1775	Common pierrot	R
	Lycaenidae	Zizina	otis	Fabricius, 1787	Lesser grass blue	C
	Lycaenidae	Lampides	boeticus	Linnaeus,1767	Pea blue	C
	Lycaenidae	Jamides	celeno	Cramer,1775	Common cerulean	R
3	Papilionidae	Papilio	polytes	Linnaeus,1758	Common Mormon	R
	Papilionidae	Papilio	demoleus	Linnaeus,1758	Lime swallowtail	R
	Papilionidae	Graphium	doson	Felder&felder,1864	Common jay	R
	Papilionidae	Pachiopta	hector	Linnaeus,1758	Crimson rose	R
4	Pieridae	Eurema	hecabe	Linnaeus,1758	Common grass yellow	VC
	Pieridae	Cepora	nerissa	Fabricius,1775	Common gull	C
	Pieridae	Catopsilia	pomona	Fabricius,1775	Lemon emigrant	VC
5	Hesperidae	Udaspes	folus	Cramer,1775	Grass demon	R
	Hesperidae	Borbo	cinnara	Wallace,1866	Rice swift	C

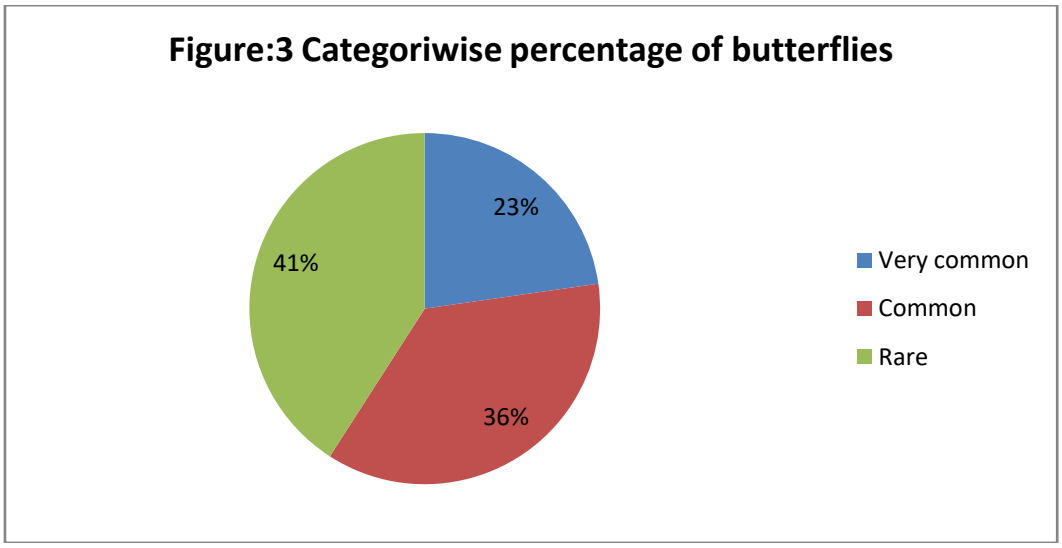
Abbreviations: VC–Very Common, C-common, R-rare)

Table 2 Data Presentation on Composition and Status of Butterflies at Tatapani during the study

S.No.	Family	No. of species	No. of genera	Total No. of individuals	Shannon Wiener Index	Simpson index	Dominance Index	Margalef Richness Index
1	Nymphalidae	8	6	149	1.924	0.16	0.84	1.39
2	Lycaenidae	5	5	47	1.594	0.18	0.81	1.03
3	Papilionidae	4	3	18	1.162	0.32	0.67	1.03
4	Pieridae	3	3	72	0.879	0.48	0.51	0.46
5	Hesperidae	2	2	20	0.673	0.49	0.5	0.33







VI. Conclusions

Butterfly fauna of Tatapanivillage is rich and varied containing several species. To enhance butterfly diversity in Tatapani village, the host plants of butterflies must not be cut down or grazed by cattle's. The conservation of butterflies give many economic benefits therefore, the butterflies should be appreciated by all in fact it is true that the butterflies are graceful to watch among colorful flowers carrying nectars. The study shows that the butterfly species have been increased due to abundance of host as well as nectar plants; hence, they must be conserved and protected from adverse conditions. This short term study on diversity of butterflies at Tatapani village is the stepping stone for research scholars to appreciate the charming flower (butterfly) for its contribution to the dispersion of pollen grains from one flower to another and they are good indicators of the given habitats. Therefore, the diversity of butterflies in Balrampur should be exhausted more to find out the presence of high abundance of butterfly fauna.

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