

Ecobiodiversity of Butterflies in Satpuda Ranges of Dhule and Nandurbar District of Maharashtra, India.

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ABSTRACT:- Ecobiodiversity means the effect of environment which plays an important role in the life of plants and animals like butterflies and moths too.

According to role played by the Nature in the form of living and non-living factors which occurring during their life span, when butterflies species are working in search of food and other day today activities in their life span. Seasonal changes like, summer, winter, monsoon causing them various activities, during unfavorable conditions they may undergo diapause.

So taking this fact, I have observed the species of butterflies from Dhule district during June 2015 to January 2019. In this biodiversity study we observed various species of 09 Nymphalidae, 04 Papilionidae, 09 Pieridae and 02 Theclinae Species etc. out of these 6 Species are rare Species.

Key – Words :- Eco – biodiversity, butterflies, Lepidoptera Satpuda ranges Dhule, North Maharashtra Region (NMR).

I. INTRODUCTION :-

Butterflies are belong to order Lepidoptera with a global distribution. These are located in different parts of globe and therefore, according to environmental conditions they differ from each other for purposes, they can be classified as a taxonomically, geographical distribution also have some variations on the butterflies species. The study of Butterflies and their interrelationship with the environment in which they are living is known to be Ecobiodiversity of the butterflies species. Butterflies are very beautiful, attractive insects doing work of pollination. Order Lepidoptera counts the faunas of this semi-arid tropical region of the Satpuda ranges gives information about the region secondly. It is also gaining importance in butterfly farming business and it is international trade. It also increases crop yields by pollination between the various plants. Due to this there is incredible increase in various crop yields. According to the role played by the butterflies species in the field as

pest in a developmental stages of the larval/caterpillar leading to wear and tear up of plant parts like leaves, stems, fruits and roots. During unfavorable conditions they may undergo diapause or secrete cocoons around themselves. On coming monsoon/ during favourable conditions they may come out from cocoons. (11) *The butterflies species are good biological indicators in the environment. /habitat quality, they are very sensitive to habitat degradation and changing habitats. (11) *

II. REVIEW OF LITERATURE:-

Keeping above view such work was carried out. The review of literature was Marshall and Niceville (1886). Niceville (1886 and 1889) Lefroy (1908) Lewis (1974). Smart (1975). Dilabrera (1975), Sathe et al. (1986-87), Kunte (2000). Bhoje and Sathe (2002) etc. Poonam Kumari and Arvind Kumar (2004). Magare, S. R. (2007) etc. contributed from Nandurbar District on Indian Butterflies. (1*), (2) *(3) *, (4) *(5) *(6) *(7) *

Butterflies are important aspects of the ecosystem services and results in the pollination of the plants and as well as feeding as herbivore pest during larval developmental stages. (Tiple 2006) Diversity of butterflies at Laling Sanctuary Reserve Forest of Dhule district, Maharashtra state, (Mahale, Patil, Ahirrao), determine the richness of butterfly species. For Twelve months (July 2015—June 2016). (8)*. The area falls in hill ranges of Laling sanctuary forest with 08 km² square area, undulating terrain. The reserve area has major habitats such as shrubs jungle, open forest, grasslands and dense forest. A total of 31 species under 5 families were recorded. Among which Nymphalidae was the most dominant family represented by 11 (35.48%) species, followed by Lycaenidae with 07 (22.58%) species. Pieridae with 05 (16.12%) species, Hesperidae with 05 (16.12%) species, Papilionidae with 03 (9.67%). The butterflies were categorised as Very Common (V), Common (C), Occasional (O) and Rare (R).

Study area:-

Dhule and Nandurbar district of Maharashtra state are located in North, eastern ranges of Satpuda region. Study Area that was so much different from the other district of Maharashtra state.

The Satpuda mountain ranges are located in the northern part of Maharashtra state, bordered with Gujarat state on its western side and Madhya Pradesh on its northern side. These chain of mountain is an extension of the species rich Western Ghats and spread in three districts namely Nandurbar, Dhule and Jalgaon. The Satpuda mountain lies approximately between 20°38'-22°30' N and 72°30'E and covers an area of 12143 sq. kms. Though the entire mountainous region is not as high as the other parts of the Western Ghats, at least some of the peaks, such as Boksa, Nandan peak, Asthambadongar etc. reach a height of about 1208-1325m. above M. S. L. The climate of Satpuda mountain is generally dry except in the rainy season. The average precipitation is about 647 mm. where as the mean maximum and minimum temperature of the area are 41°C and 25°C respectively. Satpuda mountain is rich in vegetation due to its geographical location. The sub-humid and sub-arid nature of the region allow many plants from the Indus plain and Western Ghats region to penetrate well into the territory of Satpuda mountain.

Nandurbar district lies in the rivers Narmada and Tapti forms the Northern and Southern boundaries of the study areas which comprises of the major part of Nandurbar district. The area lies between 73° 46' 42" to 74°22'33" east longitude and 21°29'50" to 21°43'53" north latitude.

III. MATERIAL AND METHODS :-

I have observed reported and photographed number of species of butterflies from order Lepidoptera during June 2015 to Jan. 2019 Nymphalidae, Papilionidae, Pieridae and Theclinae families of butterflies of order – Lepidoptera in Dhule district of Maharashtra, India.

IV. RESULTS AND DISCUSSION:-

Different reports from all over India and globe are there, but I have taken reports from India. During the study, period different varieties of butterflies have been observed in the Dhule and Nandurbar district of Maharashtra region of Satpuda ranges. A survey has been conducted by myself and my friends /colleagues of Dhule and Nandurbar district areas are already discussed above in this paper. The butterfly fauna of India is more than 1500 species. This is the 12 th bioresevoir of the globe. A survey of butterflies in the Satpuda mountain of Nandurbar district reported 25 species by (Magare, 2007). 06 species of butterflies reported from Jijamata College, Campus, Nandurbar district by (Deore C. R. ;

And Ahirrao, I.S. (2003-2004). Sathe. et. al (2004). also reported 25 species from Kolhapur City. Another report from Nandurbar district (2014 ; Patil R. D. & R.D.) reported 52, species belonging to 8 families and 12 genera from Dara dam (Unapdev) and Ranipur Dam of Shahadataluka region of Nandurbar district. In Dhule district of Laling sanctuary Reserve Forest my colleagues and myself reported 31 species of butterflies.. But before that during my research work I have reported 25 species from Nandurbar and Dhule district, with their Common name, Scientific name and Status/ Occurrence of the species, also with Very Common, Common, Occasional and Rare appearance.

I have made following observation and results from Dhule district.

With the help of identification keys of “Butterflies of Peninsular India” by Krishnmegh Kunte, Gadgil . The species of different families identified as below:-

Table – 1 :- Butterflies from Satpuda mountain Dhule district (North Maharashtra Region) India.

Sr. No.	Common Name	Biological Name	Family	Status / Occurrence	Symbol
1	Plane –tiger	Danus Chryssypus (Lin.)	Nymphalidae	Common	(C)
2	Common India crow	Eupleracorecore (cra.)	Nymphalidae	Very Common	(Vc)
3	Picock Paney	Precisalmanoalmena (Lin.)	Nymphalidae	Occasional	(O)
4	Blue – Pancy	Jnnonicorithya (Lin.)	Nymphalidae	Occasional	(O)
5	Lemon Pancy	JnnonicLemon (Lin.)	Nymphalidae	Rare	(R)

6	Common Saifer	Neptishylas (Moore)	Nymphalidae	Common	(C)
7	Rice butterfly	Melanitisisene	Nymphalidae	Common	(C)
8	Danaid – egg fly	Hypolimnashissippus (Lin.)	Nymphalidae	Rare	(R)
9	Glossy tiger	Paranticaalgae	Nymphalidae	Common	(C)
10	Common mermon	Papiliopolytes (Lin.)	Papillionidae	Common	(C)
11	Red Helen	Papiliohelenus (Lin.)	Papillionidae	Occasional	(O)
12	Common mime	Papilioebaues	Papillionidae	Rare	(R)
13	Tailed Jay	Graphiumagememneon (Lin.)	Papillionidae	Common	(C)
14	Crimson rose	Pachlioptahector (Lin.)	Papillionidae	Very Common	(Vc)
15	Large White	Pierisaerapae (Lin.)	Pieridae	Very Common	(Vc)
16	Large Cabbage	Pierisbrassicae (Lin.)	Pieridae	Common	(C)
17	Common grass yellow	Euremahecabe (Lin.)	Pieridae	Rare	(R)
18	Yellow Orange – tip	Ixiaspyrene (Lin.)	Pieridae	Common	(C)
19	White Orange-tip	Ixiasmarione (Lin.)	Pieridae	Rare	(R)
20	Yellow Orange – tip	Colitistrida (Boi.)	Pieridae	Common	(C)
21	Plane Orange – tip	Colotiscucharos (Cra)	Pieridae	Common	(C)
22	Common Emigrant	Cotopsilacrocale (Cra)	Pieridae	Common	(C)
23	Great Orangetip	Hebomoeaglaucippe (Lin.)	Pieridae	Common	(C)
24	Common Silver Line	Spindesisvulcamus (Feb)	Theclinae	Occasional	(O)
25	Zebrablue	Teptoepplininus (Feb.)	Theclinae	Rare	(R)

V. CONCLUSION /SUMMARY:-

This survey gives information/summary of different species having occurrence in Dhule district Satpuda Ranges of North Maharashtra Region. (NMR),are of types, of very common 03 - (Vc),12-Common (C),04 -Occasional (O) and06-Rare (R). 06,Species are the most Rare (R) Species,09-- Nymphalidae, 04-Papilionidae, 09-- Pieridae and 02-- are Theclinae Species.

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