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A Study on Butterfly Diversity in Mukthi Vanam Forest Park, Telangana, India

Rega Ramesh[1]*, E. Narayana[2] and G. Mamatha[3]

[1-3] *Environmental Biology Research Lab, Department of Zoology, Kakatiya University, Warangal, 500 6009, TS, India*

**Email:* rameshrega666@gmail.com

ABSTRACT

The Mukthi vanam Forest Park is located in kalleshwarm village Mahadevpur mandal, Jayashankar Bhupalpally District, Telangana and bordered to the Maharasta.It consist of near Godavari River and rich flora and fauna. A study on the diversity of butterflies was carried out over a period of one year from June 2019 to May 2020.A total of 35 species were identified belonging to 4 families, Nymphalidae was recorded as the most dominant family with (13 species) followed by Pieridae(11 species),Lycaenidae(6 species) and Papailionidae(5) species respectively.

Keywords: Butterfly, Diversity, Forest, Species, Mukthi vanam

INTRODUCTION

Butterflies are colorful and winged flying insect. They are approximately 20,000 species of butterflies in the world. They are important natural resource and provide economic and ecological benefits of plant. Butterflies have aesthetic value as they are charming. Butterflies provide economic and ecological value to the human society (Bubesh *et al*., 2012). Butterflies have most ecological significance among all the insects. Butterflies mediate pollination, which helps to increase heterozygosity in flora or brings variations through kinds of pollen dispersion from one place to another place (Mahendra et al., 2013). Biodiversity is generally considered an important intrinsic and extrinsic value to be preserved (CBD, 1992), several studies have suggested that butterflies are key for biodiversity monitoring because (Beaumont and Hughes, 2002) as well as seasonal and other ecological changes (Kunte, 1997) and they are indicators of disturbance and habitat (Bergman et al., 2008; Bonebrake et al., 2010).

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MATERIALS AND METHODS

The present study was carried out in Mukthi vanam forest park. It was developed on around 50 acres land at kalleshwarm in Mahadevpur mandal in the district Jayashankar Bhupalpally. And the famous kalleshwarm temple located on banks of river Godavari is frequented by thousands of pilgrims every year. The field survey on Butterfly species were carried out from June 2019 – May 2020. The study was surveyed thrice wise every month from morning 9:00 till 5:00pm. The butterfly species were collected by using aerial insect sweeping nets and hand picking methods. And photographs' were taken with a digital camera and other wise using mobile camera (OOPO A17). The collected specimens were places in the wide mouthed bottle consists a cotton piece soaked in ethyl acetate or chloroform(killing Jar) for 1hour the killed species were properly preserved in a envelop and made using fixed on the spreading board using entomological pins.

The collected butterflies species were identified with the available literature by following standard keys illustration picture guides of zoological survey of Indian and Bombay Natural History Society Mumbai and standard guides (Kunte2000; Hussain 2008; Kehimaker 2008) And all scientific name used in the present study are in accordance with Varshney (1983), Wynter- Blyth (1957) And field guides. the observed butterflies were categorized under

Table-1. The list of butterflies recorded from Mukthi Vanam forest park

Si.No	Family	Common Name	Scientific Name	Status	Flight Period
I					
01	Papilionidae (5)	Spot swordtail	*Graphiumnomius(Esper,1793)*	C	S,R
02		Common lime	*Papilio demoleus(Linnaeus,1758)*	VC	R,W,S
03		Common rose	*Pachlio ptaaristolochiae(Fabricius,1775)*	NR	R,W,S
04		Crimson rose	*Pachiliopta hector(Linnaeus,1758)*	R	R,W
05		Blue Mormon	*Papilio polymnester(Cramer,1775)*	NR	R,W,S
II					
06	Nymphalidae (13)	Common Indian crow	*Euplioea core(cramer,1780)*	VC	R,W,S
07		Plain Tiger	*Danaus chrysippus((Linnaeus,1758)*	VC	R,W,S
08		Common Tiger	*Danaus geutia(Cramer,1779)*	C	R,W,S
09		Blue Tiger	*Tirumala limniace(Linnaeus,1775)*	C	W
10		Common leopard	*Phalanta phalantha(Dury,1773)*	C	R,W,
11		Tawny Costar	*Acraea terpscore(Linnaeus,1758)*	VC	R,W,S
12		Common sailor	*Neptis hylas*	C	R,W
13		Baronet	*Ethalia nails(Forster,1774)*	C	R,W
14		Lemon pansy	*Junonia lemonias(Linnaeus,1758)*	C	R,W
15		Blue pansy	*Junonia orithya*	NR	R,W
16		Pecock pansy	*Junonia almona*	NR	W
17		Chocolate pansy	*Junonia iphita*	NR	R,W
18		Gray pansy	*Junonia atlites*	VR	W
20	Pieridae (11)	Small grass yellow	*Eurema brigtta*	VC	R,W,S
21		Grass yellow	*Eurema andersoni Rubbela*	VC	R,W,S
22		Spotless grass yellow	*Eurema laeta(Bioduval)*	VC	R,W,S
23		Pioneer(Copperwhite)	*Anaphaeis aurota*	C	R,W,S
24		Common Jezebel	*Delias eucharis(Drury,1773)*	C	W
25		Common Emmigrant	*Catopsilia*	VC	R,W,S
26		Molted Emmigrant	*Catopsilia pyranthe(Latreille,1758)*	VC	R,W
27		Cloudless sulpher	*Phoebis sennae*	C	R.W
28		*Small orange tip*	*Catotis etrida*	NR	R,W,S
29		*Crimsontip*	*Colotisdanae*	VR	R,W,S
30		*Yellow orange tip*	*Ixiaspyrene*	NR	W
31	Lycaenidae (6)	Guava blue	*Dendorix isocrotes((Fabricus)*	R	W
32		Tailess line blue	*Prosotasdubiosa*	C	R,W
33		Common pierrot	*Castalius rosimon*	R	W
34		Dark judy	*Abissarafylla(westwood)*	VR	W
35		Common blue	*(Pollymmatus icarus(Rottemburg,1775)*	NR	R,W
36		Gram blue	*Eucrysops cnejus(Fabricus)*	C	R,W,S

Note: In the above table-1: *Listed in Indian Wildlife (Protection) Act, 1972. VC- Very common (>100 sightings), C-Common (50-100 sightings), O- Occasional (15-50 sightings), R-Rare (2-5 sightings), VR- Very rare (1-2 sightings). R- Rain season, W-winter, S-summer season.*

five groups on the basis of their abundance in the study area as followings VC- Very common (>100 sightings), C-Common (50-100 sightings), O- Occasional (15-50 sightings), R-Rare (2-5 sightings), VR- Very rare (1-2 sightings).

RESULTS & DISCUSSION

Thirty five species of butterflies' represting five families and Genera Twenty five genera have recorded during the study (Table-1). The Photographs of the observed butterflies are given in plate -1 family Nymphalidae was the dominant among the five families with 13 (37%) species belonging to 42% genera followed by 11 Pieridae comprising 11 (32%) species from 29% genera, Lycaenidae with composition of 6 species (17%) belonging to 19% genera and papailionidae with the 5 species (14%) from 3

Figure-1. Photographs of the Butterflies observed at Mukthi vanam forest park (Table for corresponding names with scientific names)

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genera 10% (Figures 2 & 3). Nymphalidae and Pieridae were the most frequently sighted groups during this survey, Among these species 7 (11%) were very rare, 3 (9%) were rare species, 12 (20%) were occasional species, 12 (34%) were commonly occurring and 9 (26%) were very common (Figure-3, 4). It was also noted that (725) species were present in all seasons. Highest number (435) of species was seen during rainy season. Total of 166 species were observed was during winter season and least number of species 124 was observed during the summer season. Among 35 species common lime, common Indian crow and common leopard were found in high frequencies in the park.

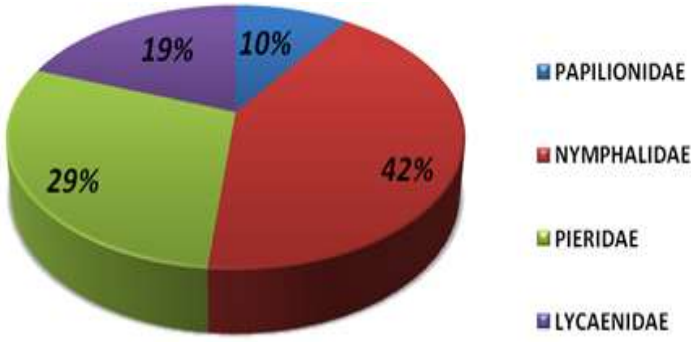

Figure-2. Family-wise composition of butterfly species at Mukthi vanam forest park

Three species of butterflies i.e. Crimson **rose** ***(Pachiliopta hector (Linnaeus, 1758)) of Papailionidae,*** **Common pierrot** ***(Castalius rosimon) and*** **Guava blue** ***(Dendorix isocrotes (Fabricus)*** of Lycaenidae recorded the study period are listed in scheduled IV of wildlife (Protection) Act 1972, they are covered under legal protection violation is punishable with penalty under this category.

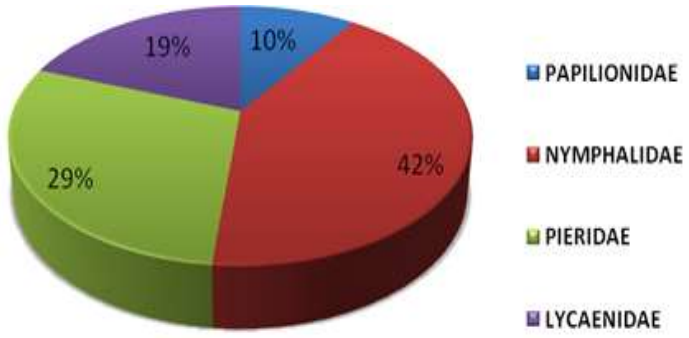

Figure-3. Genera-wise composition of butterfly species at Mukthi vanam forest park

During the present study the number of the butterflies were peaked during the rainy season on (June –Sep) which was similar to the findings of CBD (1997); Gurrapu et al, (2016); Mahendra et al (2013) the species abundance was less during summer (Feb - May) season. Butterfly diversity various Wynter- Blyth (1957) had identified two seasons as peaks March and October for butterfly abundance in India.

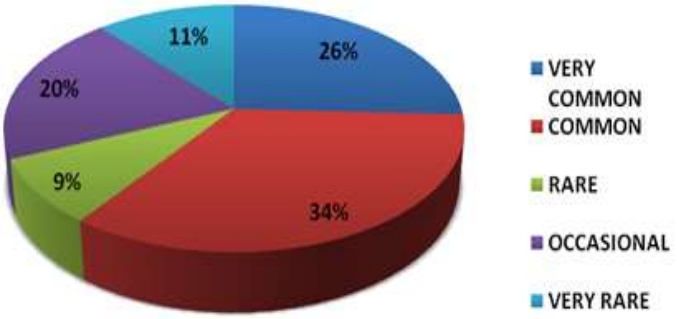

Figure-4. Staut-wise composition of butterfly species at Mukthi vanam foresh park

Although we cannot completely multiply the ill effects of urbanization and development we can at least try to reduce them by planting endemic trees and plants supporting the local wildlife.

Conclusion

During the present study on butterfly diversity Nymphalidae family was found maximum in number and percentage of the species of butterfly among all families therefore it is concluded that the study area is rich in butterfly diversity and butterfly diversity for the conservation and butterfly parks

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Conflicts of Interest

Authors declare that there is no conflict of interests regarding the publication of this paper.

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