Diversity Of Different Butterfly Species In Akola Region, M.S., India

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Abstract

Lepidoptera is an order of insect that includes butterflies and Moth about 180,000 Species of the Lepidoptera are described, in 126 families and 46 Super families, 10% of the total described species of living organism. Among insect, butterflies are the most beautiful and colourful creatures on the earth. Butterflies are very sensitive group to environment and are directly affected by changes in the habitats, atmospheric temperature, and weather conditions. They can be good indicators of environment changes. The present study was started comparatively to examine the diversity of butterflies from Akola city and Natural habitat around Akola. Collected butterflies were photographed. Morphological characters were noted down. Further identification with the help of field guides was done. The total of 20 species of butterflies belonging to five families were recorded during the study period from both the parts of study area. Most of the species were noticeably absent in the disturbed and human impacted sites and there was no occurrence of unique species in moderately disturbed areas comparable to those of less disturbed wild areas.

Key-words: *Butterflies, environment, morphological, habitat, human impacted.*

Introduction

Lepidoptera is an order of insect that includes butterflies and Moth about 180,000 Species of the Lepidoptera are described, in 126 families and 46 Super families, 10% of the total described species of living organism. The Lepidoptera show many variations of the basic body structure that have evolved to gain advantage in life style and distribution. The word Lepidoptera derives from the Latin word for "Scaly wing" and from the Ancient Greek (lepis) meaning scale and (pteron) meaning wing sometimes the term Rhopalocera is used to group the species that are butterflies. Lepidoptera are morphologically distinguished from other orders principally by the presence of scales on the external part of the body and appendages, especially the wings. The scales are modified, flattened "hairs'' and give butterflies and moths their wide variety of colours and patterns. Butterflies play an important role in the natural ecosystem as pollinators and as food in the food chain; conversely their larvae are considered very problematic to vegetation in agriculture , as their main source of food is often live plant matter.

Among insect, butterflies are the most beautiful and colourful creatures on the earth, have a great aesthetic value and are called the flying jewels or winged jewels of nature. Butterflies are generally regarded as one of the best and most taxonomically studied groups of insects. The butterflies are a very important unit of ecosystem due to the inter-relationship with plants diversity (Kunte, 2000). Butterflies are very sensitive group to environment and are directly affected by changes in the habitats, atmospheric temperature, and weather conditions. They can be good indicators of environment changes (Tiple et al., 2006). In Central India, the butterfly diversity was reported earlier by Forsayeth (1884) and Betham (1890, 1891). The present study was started comparatively to examine the diversity of butterflies from Akola city and Natural habitat around Akola, since there was no known published checklist of butterflies in the study area.

Methodology:

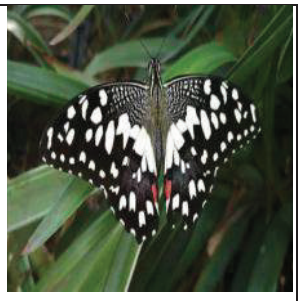
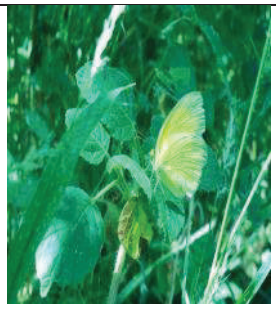
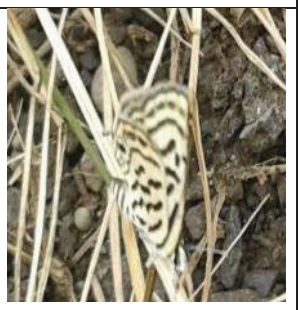
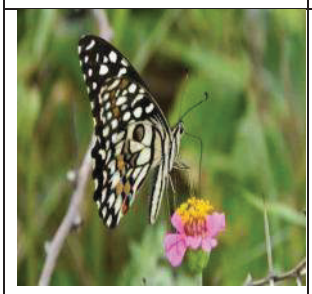
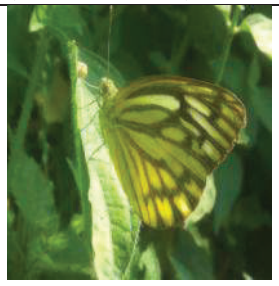
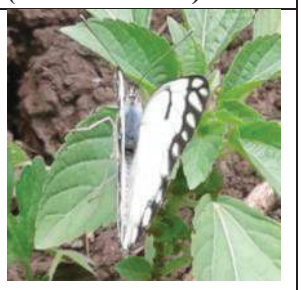
The study area was divided into two phases as, the natural and green area with trees and flowering plants for nectar and food availability around Akola and the 2nd phase was urban area, the Akola city. The collection of specimens was done from the different habitats of the Akola city as well as natural habitat around Akola city like farms from Patur village, Katepurna Sanctuary, PDKV University and the lakes, dams and rivers during the monsoon and post monsoon seasons. During the study period January 2019 and December 2019 the collection of butterflies belonging to the different families were done. Butterflies were collected from the different Akola regions. Identification of the butterflies observed was mostly made directly in the field. Collection of butterflies will be carried out by visual search in the study area. Specimens were collected with

insect-nets. Collected butterflies were photographed and morphological characters were noted down. Further identification with the help of field guides was done.

Sampling Techniques:

The butterflies were observed in the sampling sites for a period of 1 year between January 2019 and December 2019. Each study site was visited once a month and transects ware observed from early morning 7:00 a.m. to 11:00 a.m. during good weather periods. The butterflies were observed and recorded directly in the field and photographs were taken and preserved for further identification. In critical conditions, they were captured by hand net following Tiple (2012) and were identified using suitable keys (Evans1932; Wynter-Blyth 1957; Haribal 1992; Kunte 2000; Kehimkar 2008) and released in the same habitat from where they were captured with least disturbance. Appropriate precautions were undertaken to guarantee that the scales present on the wings of the butterflies were minimally affected. Photographs of all the butterflies were taken using camera. (Nikon Inc.) during the present survey and preserved for taxonomic documentation.

Observation & Results:

			
1.Crimson rose (Pachliopta hector)	**2.Common mormon (Papilio polytes)**	**3. Common emigrant (Catopsilia Pomona)**	**16.Lime Swallowtail (*Papilio demoleus)***
			
4.White orange tip (Ixias Marianne	**5.Crimson tip (Colotis danae)**	**6.Common grass yellow (Eurema hecabe)**	**17.Common Pierrot (*Castalius rosimon)***
			
7.Common Lime (Papilio demoleus)	**8.Common gull (Cepora nerissa)**	**9.Pioneer (Belenois aurota)**	**18.Striped Albatross (*Appias libythea)***

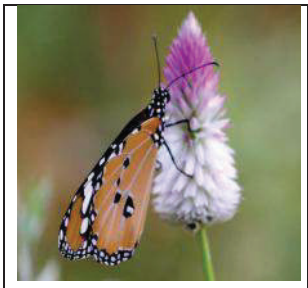
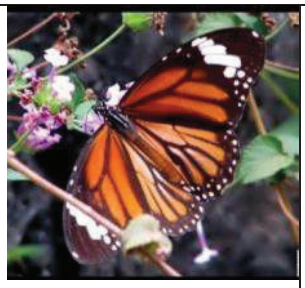
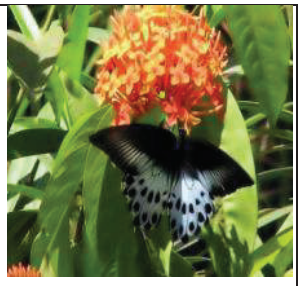
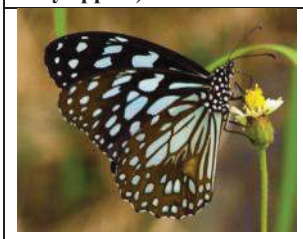
			
10. Plain tiger (Danaus chrysippus)	**11.Striped tiger (Danaus genutia)**	**12. Skipper (Hesperia comma)**	**19.Blue mormon (*Papilio polymnestor)***
			
13.Blue tiger (*Tirumala limniace*)	**14.Common banded awl (*Hasora chromus)***	**15.Tawny Coster(*Acraea terpsicore***	**20.Indian Fritilary Male (*Argynnis hyperbius)***

Table I:

List of butterflies collected from the Natural Habitat around Akola and in Akola city:

Sr. no.	Species	Family	Number of collections from natural habitat in Akola Region	Number of Collection in Akola City
1	Crimson rose (*Pachliopta*)	Papilionidae	9	5
2	Common mormon (*Papilio)*	Papilionidae	12	3
3	Common Emigrant*(Catopsilia)*	Pieridae	16	3
4	White orange tip*(Ixias)*	Pieridae	6	___
5	Crimson tip*(Colotis)*	Pieridae	8	3
6	Common grass yellow (Eurema)	Pieridae	35	5
7	Lime butterfly(*Papilio demoleus*)	Papilionidae	6	___
8	Common gull (*Cepora*)	Pieridae	12	___
9	Pioneer *(Belenois*)	Pieridae	25	2
10	Plain tiger (*Danaus*)	Nymphalidae	30	___
11	Striped tiger(*Danaus genutia*)	Nymphalidae	18	4
12	Skipper (*Hesperia*)	Hesperiidae	3	___
13	Blue tiger (Tirumala)	Nymphalidae	8	2
14	Common banded Awl *(Hasora)*	Hesperiidae	6	4
15	Tawny Coster*(Acraea)*	Nymphalidae	3	___
16	Citrus Swallowtail*(Papilio demodocus)*	Papilionidae	12	___
17	Common pierrot*(Castalius)*	Lycaenidae	4	___
18	Striped Albatross*(Appias)*	Pieridae	5	___
19	Blue mormon *(Papilio polymnester*)	Papilionidae	10	___
20	Indian fritillary male	Nymphalidae	3	___

Summary

The butterflies are important bioindicators, which should be protected to conserve the biodiversity and environment. Different species of plants and habitats of the study area attract wide variety of butterflies reported Tiple & Khurad., (2009). They play a vital role in pollination of various flowering plants besides a key component of food chain. Butterflies Biodiversity generally refers to the variety and variability of butterflies on Earth. It defines it in terms of the variability within species, between species and between ecosystems. It is a measure of the variety of butterflies present in different ecosystems. This can refer to genetic variation, ecosystem variation, or species variation (number of species) within an area, biome, or planet. According to Tiple (2010, 2011) a preliminary attempt on the diversity of butterflies was carried out in the Akola city and its vicinity from August 2018 to Feb 2019. The Katepurna Wildlife Sanctuary Campus is surrounded by lush green

hillocks, trees, Flowering plants, river and the farms. The total of 20 species of butterflies belonging to five families were recorded during the study period from both the parts of study area. It was observed that the family 7 species from family Pieridae, 5 species from Papilionidae, 5 species from Nymphalidae, 2 from Hesperiidae and 1 from Lycaenidae. According to the Table I, family Pieridae is dominant in both the areas of natural habitat surrounding Akola and Akola City followed by Papilionidae and Nymphalidae than Hesperiidae and Lycaenidae. As the area houses 20 species of butterflies distributed throughout the Akola region of Maharashtra, it can be presumed to have a good diversity of butterflies, which may be attributed to the sprawling lawns and well nurtured gardens that provide a suitable nectar source throughout the varying seasons, and especially the eco-forests that serves a breeding habitat to the butterflies. Most of the species were noticeably absent in the disturbed and human impacted sites (gardens, plantation, and grassland) and there was no occurrence of unique species in moderately disturbed areas comparable to those of less disturbed wild areas Tiple (2010, 2011). The present study area and surrounding areas, is always disturbed and impacted by humans, which may be the reason for overall reduction of the uniqueness of the species from disturbed and impacted sites as compared to the other sites.

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