



Butterfly diversity in and around Sakoli, dist. Bhandara (Maharashtra)

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Abstract

Butterflies are the most important group of insects which are called nature's gardener. They are diverse in habitat so they represent 50% of terrestrial biodiversity. It acts as a biodiversity indicator so for the sustainable development of any region protection and conservation of butterflies is needed. A study about diversities of butterflies was carried out in a selected site of Sakoli Taluka Dist Bhandara. There are five villages selected for this study namely Sasara, Sangadi, Shivnibandh, Ukara, Sundari belonging to Sakoli Taluka. During this study, A total 21 species are recorded which belong to 5 families. Nymphalidae was the richest amongst families that comprised (9 species and 42.85%) of the total species of butterfly recorded in the study area which was followed by Lycaenidae (5 species and 23.80%), Papilioninae (3 species and 14.28%), Pieridae (2 species and 9.52%) and Hesperidae (2 species and 9.52%). The present rapid assessment attempts to prepare a checklist of butterflies. Present study shows that the study area is rich in butterfly diversity and further research could be conducted to obtain more details and documentation on butterfly diversity for the assessment and development of conservation planning to sustenance of butterflies.

Keywords: Butterfly, diversity, indicator, sakoli, conservation

Introduction

Butterflies are regarded as one of the most taxonomically studied groups of insects. Butterflies are a masterpiece of art and beauty of Nature. They are the source of happiness to everyone due to their marvelous bright attractive colors. Butterflies play a vital role as pollinators. Butterflies are considered as ecosystem engineers. Butterflies being one of the most studied groups of insects have been systematically documented since the 18th century (Heppner, 1998) [4]. Butterflies are the best model organism for study due to their short life cycle time and being very sensitive to environmental conditions. Insect is the largest class in the animal kingdom; more than half of the diversity of faunal species is constituted by the insect. (May, 1992) [7].

Butterflies make up a large group of insects belonging to the order Lepidoptera Class Insecta of Arthropoda Phylum. Origin of Lepidoptera word is Greek Language, In Greek language Lepido means scale and Ptera means wings. The butterflies are well known for their beauty as they bear beautiful wings of various colors, shapes, sizes. During feeding these mainly suck the flower nectar with the help of proboscis. During evolution the diversification in angiosperms can be correlated with the butterflies diversity in context with their host plants (Menken *et al.* 2012) [8]. More than 28,000 species of butterflies occur worldwide, with about 80% found in tropical regions (Robbins and Opler, 1997) [12].

Butterflies are found everywhere because of its habitat adaptation, in India about 1,504 species are harbored which constitute 8.74% of the world's butterfly but by modern urbanization and habitat destruction butterfly diversity decline in recent years, of which 177 species reported from Central India, 351 and 334 species reported from Peninsular India and Western ghats respectively (Smetacek, 1992 [14]; Gaonkar, 1996 [3]; Roy *et al.*, 2010 [13]; Tiple, 2011 [15];

Kunte *et al.*, 2012;) [6]. D'Abreu (1931) Changes in temperature, parameter, rainfall patterns and heat waves prolonged drought or extreme rainfall and defoliation of the host plant directly causes death and induces migratory behavior. Although butterflies play environmental vital activities such as pollination, nutrient cycling; it is a good indicator of climatic conditions, ecological changes. Butterflies shows the complete metamorphosis that begins with egg stage. These eggs after incubation hatches into first instar larva, that eventually moults periodically. After some time, the larva turns into a pupa while it is in pupal stage where metabolic changes occur to become an adult and the adult lays the eggs.

Material & Method

The present study was carried out in Sakoli taluka District Bhandara (MS) India. District Bhandara is well known as a district of lakes. Taluka Sakoli city is nearest to the Nagzira wildlife sanctuary and Navegaon national Park which is surrounded by ponds, lakes, river and shrub forest. The current study was conducted from November 2022 to March 2023. for this study five different villages have been selected namely Sasara, Sangadi, Shivnibandh, Ukara, Sundari belonging to Sakoli Taluka. The study area is represented in fig.1.

The survey carried out on study at one site every Sunday visit to different sites during 8:00 AM to 11:00 AM. Photographs of butterflies in agriculture, forest and garden areas were carried out using cameras and mobile phones in the study area at selected sites.

A conventional butterfly identification method is based on their different morphological characters namely wing-venation, color, shape, size pattern, as well as designs that were considered in identification of the species of butterfly with help of standard literature.

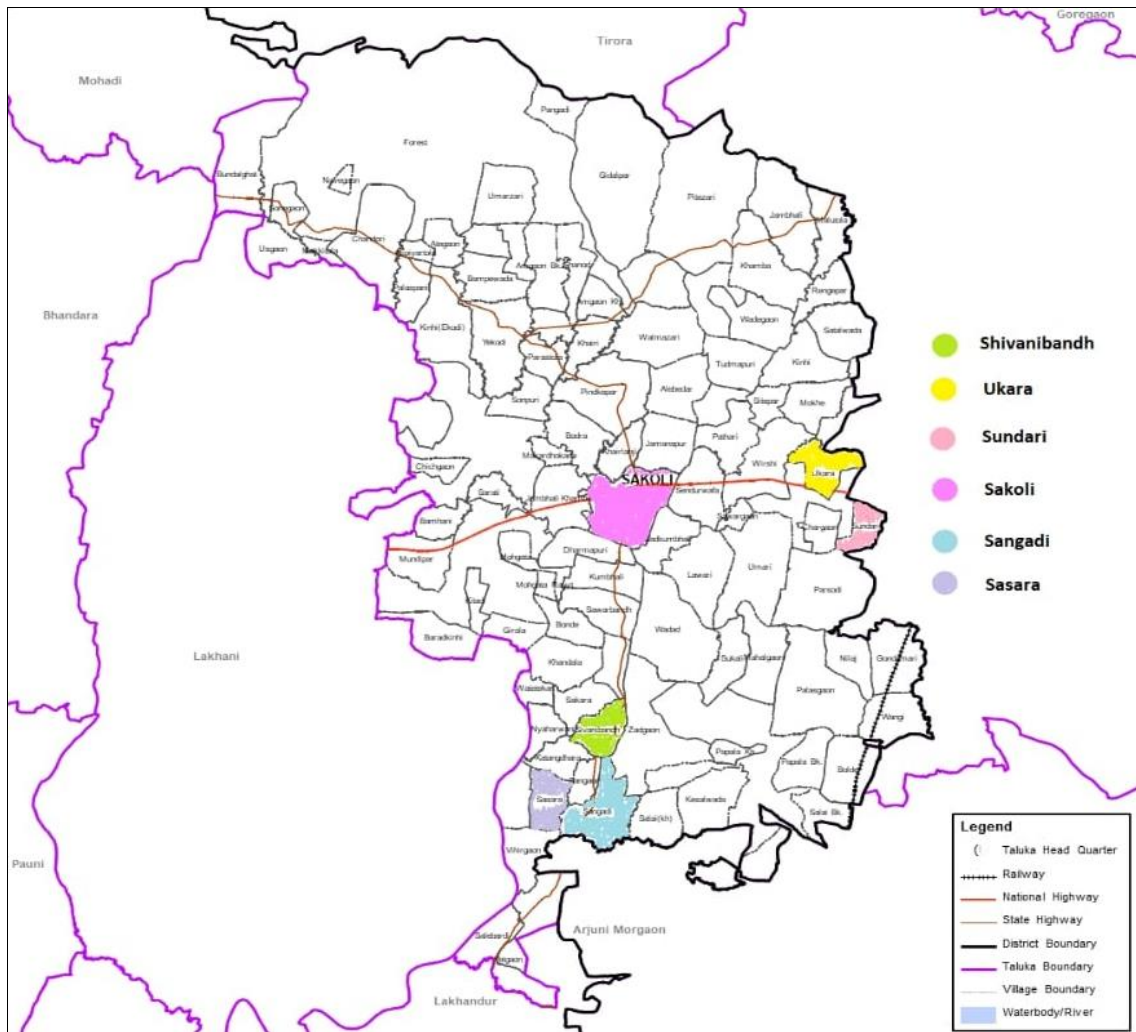


Fig 1: Showing the study area in Sakoli Tahasil, Dist- Bhandara

Result

During present investigation 21 species of butterfly were observed from the study area. These 21 species are belong to 5 families, that are Nymphalidae, Lycaenidae,

Papilionidae, Pieridae and Hesperidae represented in Table.1. Family wise percentage distribution of the species of butterflies is shown in figure 2.

Table 1: Showing species diversity of butterfly in villages near Sakoli.

| Sr. No. | Family | Scientific name | Common name |
|---------|--------------|----------------------------|-------------------------|
| 1. | Nymphalidae | <i>Junonia almana</i> | Peacock pansy |
| | | <i>Junonia atlites</i> | Grey pansy |
| | | <i>Junonia lemonias</i> | Lemon pansy |
| | | <i>Danaus chrysippus</i> | Plain tiger |
| | | <i>Hypolimnas bolina</i> | Great eggfly |
| | | <i>Melanitis phedima</i> | Dark evening brown |
| | | <i>Charaxes solon</i> | Black raja |
| | | <i>Tirumla liminiace</i> | Blue tiger |
| | | <i>Euploea care</i> | Common crow |
| 2. | Lycaenidae | <i>Castalius rosimon</i> | Common pierrot |
| | | <i>Abisara echerius</i> | Plum Judy |
| | | <i>Catochrysops strobo</i> | Forgot me not |
| | | <i>Janides celeno</i> | Common cerulean |
| 3. | Papilionidae | <i>Cupido amyntala</i> | Western tailed blue |
| | | <i>Papilio demoleus</i> | Lime butterfly |
| | | <i>Papilio polytes</i> | Common mormon |
| 4. | Pieridae | <i>Graphium agamemnon</i> | Tailed jay |
| | | <i>Eurema hecabe</i> | Common grass yellow |
| 5. | Hesperidae | <i>Cepora nerissa</i> | Common gull |
| | | <i>Borbo cinnara</i> | Rice swift |
| | | <i>Spialia golba</i> | Indian grizzled skipper |

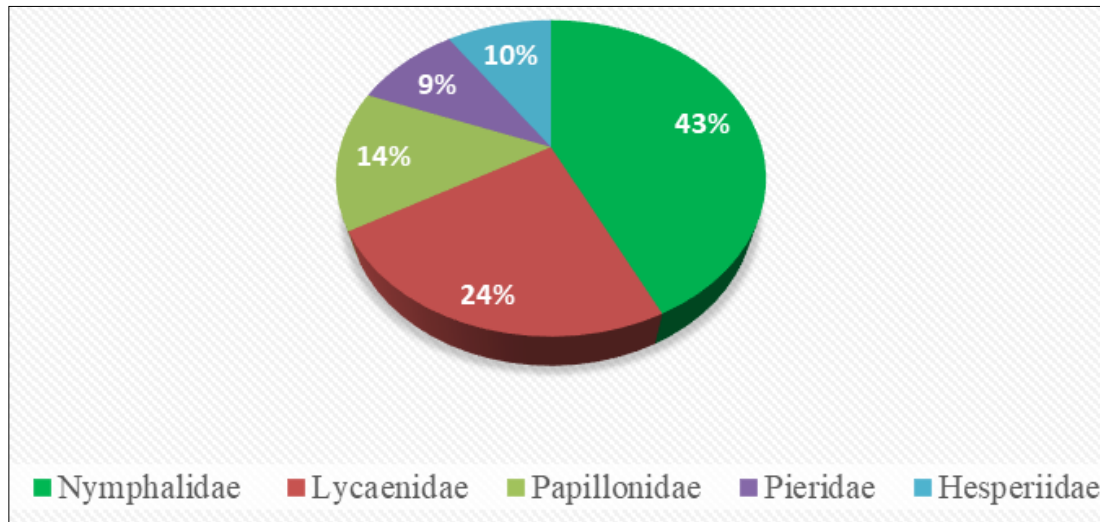


Fig 2: Showing family wise distribution of butterfly species

Discussion

During the survey, the following 21 species of butterfly are observed. *Junonia almanac*, *Junonia atlites*, *Junonia lemonias*, *Danaus chrysippus*, *Hypolimnas bolina*, *Melanitis phedima*, *Charaxes solon*, *Tirumla liminiace*, *Euploea care*, *Castalius rosimon*, *Abisara echerius*, *Catochrysops strobe*, *Janides celeno*, *Cupido amyntala*, *Papilio demoleus*, *Papilio polytes*, *Graphium agamemnon*, *Eurema hecabe*, *Cepora nerissa*, *Borbo cinnara*, *Spialia golba*.

Based on the family wise composition of the check list of butterfly species observed in the study area, 21 species of butterfly belong to 5 families Nymphalidae, Lycaenidae, Papilionidae, Pieridae and Hesperidae.

Highest percentage of the species of butterfly from Nymphalidae family with 42.85% (9 species) followed by Lycaenidae 23.80% (5 species), Papilionidae 14.28% (3 species), Pieridae 9.52% (2 species) and Hesperidae 9.52% (2 species).

The Nymphalidae family was found to have the highest number of percentages of the species of butterflies; our finding is in agreement with the findings of others. Tiple (2012) [16] done the study in Tropical Forest Research Institute, Jabalpur Madhya Pradesh, Central India has found the Nymphalidae dominance with 25 species. Koneri and Nangoy (2019) [5] investigate the butterfly community in sangihe islands, north sulawesi, Indonesia and found that number of species from Nymphalidae family (53.81%) followed by Papilionidae (22.67%), Pieridae (15.57%), Lycaenidae (7.31%) and Hesperidae (0.64%). Abdullahi *et al.* (2019) [4] study on butterfly diversity in Prayagraj district of Uttar Pradesh, India reported Nymphalidae family (43%), Pieridae (29%), Papilionidae (14%), Lycaenidae (14%). Raut and Bhandarkar (2021) [11] studied the butterfly diversity in and around Sakoli, District Bhandara shows dominance of Nymphalidae family with 33 species, Murudkar and Jagtap (2022) [9] studied the butterfly diversity in Nandgaon Village and Gulmohar park in Khed Tehsil Dist- Ratnagiri has result show that the most of the species belong in the Nymphalidae (42%) family followed by Lycaenidae(28%), Pieridae(14%), Papilioninae(14%), Riordinidae(3%).

Prakash *et al.* (2022) [10] studied butterfly diversity of Jawaharlal Nehru University Campus, Delhi – India shows the dominance of Lycaenidae family but in our finding Lycaenidae family is the second dominance.

The species were abundant i.e. large numbers of population of the species was frequently noticed in study area these are Common grass yellow, Common mormon, Lemon pansy, Common crow. Out of these most common butterfly species is Common grass yellow which is abundantly present and more in number. The species population varies with habitat. Most of the butterfly diversity is observed in the Gardens, farming, forest, Grassy areas; many free varieties of butterflies frequently found near the water body which is necessary ground for their feeding, resting, planting and breeding. The species of Tailed jay, Blue tiger, is very rare throughout the investigation and it is observed only once all the study.

On the basis of study, we can conclude that the study area is rich in butterfly diversity and further research should be done to obtain details and documentation on butterfly diversity for the conservation planning.

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