Diversity of butterflies on Rajaram College Campus, Kolhapur, Maharashtra, India

Abstract

The present study was carried out to understand the butterfly diversity and abundance in Rajaram College, Campus from November 2022 to March 2023 and November 2023 to March 2024. A total 28 species of butterflies belonging to 24 genera and four families were recorded from the present study. From the observed butterflies, the family Nymphalidae was the most dominant among the four families with 14 species, followed by Lycaenidae (07), Papilionidae (04) and Pieridae (03). The present study added valuable information on the diversity of butterfly fauna and will contribute to developing effective conservation.

Key Words: Butterfly, Diversity, habitat, abundance, indicator

Introduction

“Butterflies fall under the group of insects and phylum Arthropoda. They exhibit different colours and patterns. Some butterflies act as charismatic species or flagship species” (Gowda et al., 2011). “Butterflies play an important role in maintaining the food chain and in pollination” (Dwari et al., 2017). “The presence of these creatures indicates that the ecosystem is in good condition. Butterflies are good biological indicators of habitat and environmental health” (Larsen, 1988; Kocher and Williams, 2000; Sawchik and Dufrence, 2005). “Even a small change in their habitat also disturbed their occurrence, and hence, these insects work as ecological indicators” (Chakravarthy et al., 1997). “It consists of a total of six families, namely Nymphalidae, Papilionidae, Pieridae, Hesperidae, Lycaenidae, and Libytheidae. Butterflies are one of the most conspicuous species of Earth’s biodiversity. Butterflies are extremely responsive to any changes in their environment, namely; temperature, humidity, light, and rainfall patterns” (Murphy and Weiss, 1988; Sparrow et al., 1994; Spitzer et. al., 1997; Brereton et al., 2011)

“Adult butterflies have large, often brightly coloured wings, and conspicuous, fluttering flight. Butterflies have the typical four-stage insect life cycle. Winged adults lay eggs on the food plant on which their larvae, known as caterpillars, will feed. The caterpillars grow, sometimes very rapidly, and when fully developed pupate in a chrysalis. When metamorphosis is complete, the pupal skin splits, and the adult insect climbs out and expands
their wings and dries for flight. Some butterflies, especially in the tropics, have several
generations in a year, while others have a single generation, and a few in cold locations may
take several years to pass through their whole life cycle. Butterflies are often polymorphic,
and many species make use of camouflage, mimicry and aposematism to evade their
predators. Some species are pests because in their larval stages, they can damage domestic
crops or trees; other species are agents of pollination of some plants, and caterpillars of a few
butterflies (e.g., harvesters) eat harmful insects” (Khyade and Jagtap; 2017, 17-20).

In the present study diversity of butterflies on Rajaram College, Kolhapur campus
was studied. Rajaram College, Kolhapur is situated in Karveer taluka from Kolhapur district.
The college campus has rich diversity with flora, therefore the diversity of butterflies was
studied.

Material and Method

Rajaram College is located at Karveer taluka in Kolhapur district, Maharashtra
India. This college campus falls in 60 acres of area, having different pollinating areas here.
The study period was 2022-23 to 2023-24. During the present study butterfly photography
was done in their natural habitat during morning and evening hours with the help of three
different mobile camera:

1. Vivo y73 64-megapixel (f/1.79) primary camera; a 2-megapixel (f/2.4) camera, and
a 2-megapixel (f/2.4) camera.
Aperture: f/1.8.
3. Vivo y20, 13-megapixel (f/2.2) primary camera; a 2-megapixel (f/2.2) camera, and a
2-megapixel (f/2.2) camera.

Recorded butterfly species were identified with the help of photographs by using
manual books (Bhakare and Ogale, 2018), available research papers, articles and with the
help of experts Dabhadkar and Prajapati (2020); Khyade, and Jagtap, (2017).
Table 1 indicates the total number of species observed during the study period. Total 28 species belonging to four families were observed in college campus area. The family Nymphalidae shows the highest number of species (14), followed by Lycaenidae (07), Papilionidae (04) and Pieridae (03) (Plate I to IV). In the present study maximum number of butterfly species was observed belonging to Nymphalidae family 50% of the total butterfly species. While the Lycaenidae 14%, Papilionidae 14.28% and Pieridae 10.71%. More or less similar results were observed by Dhakane et al. (2020) who recorded a total of 51 species of butterflies belonging to the five families by random observation in the Ghodegaon region, Maharashtra, India. The observations show that the Nymphalidae were the richest family, including 47.05%, followed by the Pieridae and Lycaenidae, with 17.65% in both families and the lowest 3.92% observed in the Hesperiidae family. More or less similar results on butterfly diversity by Pardhi and Havale (2024) in three selected sites in Ghodegaon, Maharashtra, India. They observed Nymphalidae was the richest family, including 47.05%, followed by the Pieridae and Lycaenidae, with 17.65% in both families and the lowest 3.92% observed in the Hesperiidae family.

From the above results, it is concluded that the Rajaram College, Campus is rich with nectar-bearing and host plants. Some regions in college premises show less anthropogenic activity where greater number of butterfly species are observed. Nectar-bearing plants are responsible for the occurrence of many butterfly species (Tiple et al., 2007). The maximum number of secondary vegetation with less predation shows good butterfly diversity. This survey is quite helpful for the documentation and conservation of biological diversity. College campus has a huge diversity of plants and a rich diversity of butterfly species. Hence this study was done to create awareness of pollinators in students and locals.
### Table: 1. Diversity of butterfly species observed on Rajaram College, Campus Kolhapur

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Family</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nymphalidae (Brush Footed)</td>
<td>Lemon pancy</td>
<td>Junonia lemonias</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Common crow</td>
<td>Euploea core</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Painted lady</td>
<td>Vanessa cardui</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Blue tiger</td>
<td>Tirumala limniace</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Glassy tiger</td>
<td>Parantica aglea</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Stiped tiger</td>
<td>Danaus genutia</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Common fivering</td>
<td>Ypthima baldus</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Baby fivering</td>
<td>Ypthima philomela</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Common sailor</td>
<td>Neptis hylas</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Common baron</td>
<td>Euthalia aconthea</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Chocolate pancy</td>
<td>Junonia iphita</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Daniad eggfly</td>
<td>Hypolimnas misippus</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Common evening brown</td>
<td>Melanitis leda</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Great eggfly</td>
<td>Hypolimnas bolina</td>
</tr>
<tr>
<td>15</td>
<td>Lycaenidae (Blues)</td>
<td>Zebra blue</td>
<td>Leptotes plinius</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Common pierrot</td>
<td>Castalius rosimon</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Common Cerulean</td>
<td>Jamides celeno</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>Red pierrot</td>
<td>Talicada nyseus</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>Plains cupid</td>
<td>Chilades pandava</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>Gram blue</td>
<td>Eucrysops cneus</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>Common hedge blue</td>
<td>Acytolepis puspa</td>
</tr>
<tr>
<td>22</td>
<td>Papilionidae (Swallowtails)</td>
<td>Common mormon</td>
<td>Papilio polytes polytes</td>
</tr>
<tr>
<td>23</td>
<td></td>
<td>Blue mormon</td>
<td>Papilio polymnestor</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>Common jay</td>
<td>Graphium dosom</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>Lime butterfly</td>
<td>Papilio demoleus</td>
</tr>
<tr>
<td>26</td>
<td>Pieridae (Whites and Yeallow)</td>
<td>Common grass yellow</td>
<td>Eurema hecabe</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>Common emigrant</td>
<td>Catopsilia pomona pomona</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>Spotless grass yellow</td>
<td>Eurema laeta</td>
</tr>
</tbody>
</table>
Graph 1. Family wise diversity of butterflies in Rajaram College, Campus, Kolhapur
Plate - 1
Family: Nymphalidae

Fig. 1 Junonia lemonias  Fig. 2 Euploea core  Fig. 3 Vanessa cardui  Fig. 4 Junonia iphita

Fig. 5 Parantica aglea  Fig. 6 Danaus genutia  Fig. 7 Ypthima baldus

Fig. 8 Ypthima philomela  Fig. 9 Neptis hylas  Fig. 10 Euthalia aconthea

Fig. 11 Melanitis leda  Fig. 12 Hypolimnas bolina  Fig. 13 Hypolimnas misippus  Fig. 14 Tirumala limniace
Plate- 2
Family: Lycaenidae

Fig. 15 *Leptotes plinius*

Fig. 16 *Castalius rosimon*

Fig. 17 *Jamides celeno*

Fig. 18 *Talicada nyseus*

Fig. 19 *Chilades pandava*

Fig. 20 *Euchrysops cnejus*

Fig. 21 *Acytolepis puspa*
Plate- 3
Family: Papilionidae

Fig. 22 *Papilio polytes*  
Fig. 23 *Graphium dosom*

Fig. 24 *Papilio polymnestor*  
Fig. 25 *Papilio demoleus*

Plate- 4
Family: Pieridae

Fig. 26 *Eurema hecabe*  
Fig. 27 *Catopsilia pomona*
Floral diversity plays an important role in the life cycle of a butterfly. The Rajaram College campus is rich in different flora. Hence, all visited sites are rich in butterfly species. The present study indicates that total of 28 species of butterflies belonging to the four families that were recorded. The highest species were observed in the family Nymphalidae, followed by Lycaenidae, Papilionidae and Pieridae respectively. The occurrence of 28 species of butterflies indicates that the Rajaram College Campus is suitable for butterflies because of the presence of nectar and host plants of butterflies. Hence, there is a scope for documentation and systematic classification of butterfly species for detailed future study.

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1.
2.
3.
References


