# Chapter-30
# Checklist of Butterflies (Lepidoptera) in Atpadi Conservation Reserve (Dubhai Kuran)

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**Abstract**

Butterflies are important indicators of habitat quality and biodiversity. This chapter presents a baseline assessment of butterfly diversity in the Atpadi Conservation Reserve (locally known as Dubhai Kuran), Atpadi tehsil, Sangli district, Maharashtra. Systematic surveys were conducted using line transect and time-constrained visual encounter methods across representative habitats including dry scrub, rocky outcrops, agricultural edges and riparian strips between 2019 and 2021. A total of 40 butterfly species belonging to five families were recorded. Of these, 18 species belonged to Nymphalidae, 10 to Pieridae, three to Papilionidae, seven to Lycaenidae and two to Hesperiidae. The highest abundance of butterflies was recorded during the summer months (March–June). Species composition, seasonal occurrence, habitat associations and conservation implications are discussed. This checklist provides baseline information for long-term monitoring and conservation planning in the reserve.

**Keywords:** Butterflies, Lepidoptera, checklist, diversity indices, Atpadi Conservation Reserve

## Introduction

Butterflies (Order Lepidoptera: Rhopalocera) are widely recognized as bio-indicators because of their sensitivity to habitat alteration, short life cycles and close associations with host plants. Studies on butterfly assemblages offer rapid insights into habitat quality, ecosystem health and the effectiveness of conservation measures. Globally, Lepidoptera comprise approximately 255,000–265,000 species across 126 families, with butterflies accounting for about 7.5% of this diversity.Despite increasing interest in documenting insect biodiversity in Maharashtra, many protected and semi-protected landscapes still lack detailed inventories. The Atpadi Conservation Reserve (Dubhai Kuran) represents a mosaic of semi-arid habitats embedded within an agricultural matrix. Such landscapes can function as refugia for xeric-adapted and generalist butterfly species. The objectives of the present study were to document species richness, assess relative abundance, examine seasonal patterns and provide baseline data to support future conservation and monitoring efforts.

## Objectives

1. To document the butterfly diversity of Atpadi Conservation Reserve (Dubhai Kuran) by preparing a comprehensive checklist of species belonging to the order Lepidoptera.
2. To record the taxonomic composition of butterflies up to family, subfamily, and species level occurring in the study area.

3. To assess the relative abundance and distribution patterns of butterfly species across different habitats within the conservation reserve.
4. To identify habitat preferences of recorded butterfly species in relation to vegetation types and microhabitats.
5. To note seasonal variations in butterfly occurrence and species richness during different survey periods.
6. To document endemic, rare, and legally protected species, if any, present in the Atpadi Conservation Reserve.
7. To provide baseline data for future ecological monitoring, biodiversity assessments, and conservation planning in the region.
8. To evaluate the role of the conservation reserve in supporting butterfly diversity in a semi-arid ecosystem of Maharashtra.
9. To contribute to regional and national butterfly databases, enhancing knowledge of Lepidopteran fauna of Sangli district and adjoining areas.
10. To promote awareness about butterfly conservation and the ecological importance of butterflies as pollinators and bio-indicators.

**Materials and Methods**

**Study Area**

Atpadi Conservation Reserve (Dubhai Kuran) is situated in Atpadi tehsil of Sangli district, south-western Maharashtra. The area lies at approximately 27°40′ N latitude and 74°89′ E longitude, with an average elevation of about 100 m above mean sea level. The climate is tropical semi-arid, characterized by hot summers (March–May), monsoon rainfall (June–September) and mild winters (November–February).

The landscape includes dry scrub vegetation, rocky outcrops, seasonal streams, open grasslands and agricultural fields dominated by sugarcane, sorghum and pulses. Floristic diversity of the reserve comprises 36 tree species, 116 herbs, 15 shrubs, 14 climbers and one parasitic plant species. Riparian vegetation provides important nectar and larval host resources for butterflies.

**Methodology**

Butterfly sampling was carried out in four major habitat types: (1) dry scrub and rocky outcrops, (2) riparian vegetation, (3) agricultural edges and field margins and (4) degraded grassland patches. Five study sites were randomly selected across different vegetation types.Transect walks were conducted between 09:00–12:00 hrs and 15:00–17:00 hrs under suitable weather conditions (sunny to partly cloudy, low wind). Each transect was surveyed for 30 minutes, recording butterflies within a three-metre radius of the observer. Identification was based on direct field observations and photographs using standard field guides and online databases such as *Butterflies of India*. As per the Wildlife (Protection) Act, 1972, no specimens were collected.

**Data Analysis**

Species checklists were prepared and relative abundance percentages were calculated. Family-wise composition was analysed and interpreted in relation to habitat characteristics and seasonal patterns.

## Results and Discussion

A total of 40 butterfly species belonging to five families were recorded from the Atpadi Conservation Reserve. The family Nymphalidae was the most dominant, contributing 18 species, followed by Pieridae (10 species), Lycaenidae (7 species), Papilionidae (3 species) and Hesperiidae (2 species).

Dominance of Nymphalidae may be attributed to their broad ecological tolerance, diverse larval host plants and strong dispersal abilities. Similar patterns have been reported from other semi-arid and agricultural landscapes. Butterfly diversity and abundance were highest during summer (March–June), coinciding with increased flowering and availability of nectar resources.

The study also indicates that anthropogenic disturbances, habitat fragmentation and seasonal fires negatively influence butterfly diversity. Since butterflies function as ecological indicators, fluctuations in their populations may reflect broader habitat changes. The floristic richness of the reserve supports diverse butterfly assemblages, emphasizing the conservation value of this landscape.

## Checklist of Butterflies Recorded

Table 1. List of butterfly species recorded from Atpadi Conservation Reserve

| Family | Sub-family | Tribes | ScientificName | CommonName | Relative Abundance% |
|---|---|---|---|---|---|
| I). Nymphalidae | Biblidinae | Biblidini | *Ariadne merione* | Common Castor | 3.38 |
| | Danainae | Danaini | *Danaus genutia* | Striped Tiger | 1.88 |
| | | | *Danaus chrysippus* | Plain Tiger | 3.76 |
| | | | *Euploea core* | Indian Common Crow | 1.50 |
| | Heliconiinae | Acraeini | *Acraea terpsicore* | Tawny Coster | 1.50 |
| | | Vagrantini | *Phalanta phalantha* | Common Leopard | 3.57 |
| | Limenitidinae | Neptini | *Neptis hylas* | Common Sailer | 0.94 |
| | Nymphalinae | Junoniini | *Junonia lemonias* | Lemon Pansy | 2.44 |
| | | | *Junonia almana* | Peacock Pansy | 3.95 |
| | | | *Junonia atlites atlites* | Oriental Grey Pansy | 1.12 |
| | | | *Junonia iphita* | Chocolate Pansy | 0.94 |
| | | | *Hypolimnas anomala* | Anomalous Egg fly | 0.75 |
| | | | *Vanessa cardui* | Painted Lady | 0.75 |
| | | | *Hypolimnas misippus* | Danaid Egg fly | 1.31 |
| | | | *Hypolimnas bolina* | Great Egg fly | 2.63 |
| | | | *Junonia hierta* | Yellow Pansy | 0.75 |
| | Satyrinae | Elymniini | *Elymnias hypermnestra* | Common Palm fly | 0.94 |

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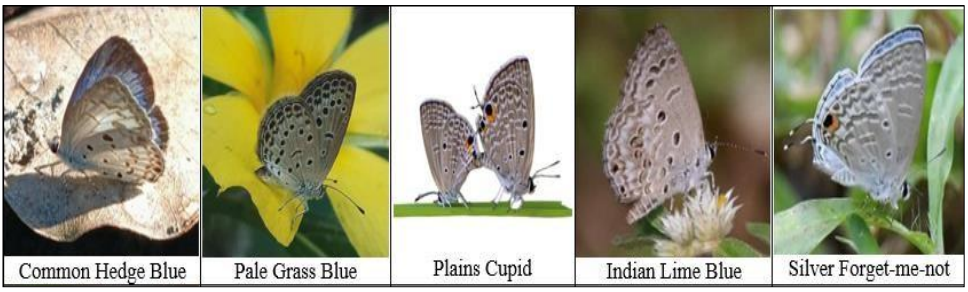
|---|---|---|---|---|---|
| | | Melanitini | *Melanitis leda* | Common Evening Brown | 2.07 |
| II).Pieridae | Coliadinae | | *Catopsi liapomona* | Lemon Emigrant | 2.63 |
| | | | *Eurema hecabe* | Common Grass Yellow | 6.96 |
| | Pierinae | Nepheroniini | *Pareronia hippia* | Indian Wanderer | 3.20 |
| | | Pierini | *Cepora nerissa* | Common Gull | 8.47 |
| | | | *Pieris brassicae* | Large Cabbage White | 1.31 |
| | | | *Pieris canidia* | Asian Cabbage White | 8.47 |
| | | | *Delias eucharis* | Indian Jezebel | 1.88 |
| | | Teracolini | *Colotis fausta* | Large Salmon Arab | 0.56 |
| | | | *Colotis vestalis* | White Arab | 0.75 |
| | | | *Colotis amata* | Small Salmon Arab | 1.69 |
| III).Papilionidae | Papilioninae | Leptocircini | *Graphium doson* | Common Jay | 2.07 |
| | | Papilionini | *Papilio polytes* | Common Mormon | 1.88 |
| | | | *Papilio demoleus* | Lime Swallowtail | 7.15 |
| IV). Lycaenidae | Polyommatinae | Polyommatini | *Acyto lepispuspa* | Common Hedge Blue | 0.56 |
| | | | *Pseudozizeeria maha* | Pale Grass Blue | 3.38 |
| | | | *Chilades pandava* | Plains Cupid | 3.76 |
| | | | *Chilades lajus* | Indian Lime Blue | 3.38 |
| | | | *Catochrysops panormus* | Silver Forget-me-not | 0.56 |
| | | | *Leptotes plinius* | Zebra Blue | 1.88 |
| | | | *Zizeeria karsandra* | Dark Grass Blue | 3.01 |
| V). Hesperiidae | Hesperiinae | Taractrocerini | *Potanthus omaha* | Lesser Dart Skipper | 0.56 |
| | Pyrginae | Carcharodini | *Spialia galba* | Asian Grizzled Skipper | 1.50 |

*(Family-wise checklist with scientific name, common name and relative abundance as documented during the study.)*


Common Castor
Striped Tiger
Plain Tiger
Indian Common Crow
Tawny Coster
Common Leopard
Common Sailer
Lemon Pansy
Peacock Pansy
Oriental Grey Pansy
Chocolate Pansy
Anomalous Egg fly
Painted Lady
Danaid Egg fly
Great Egg fly
Common Palm fly
Common Evening Brown
Lemon Emigrant
Common Grass Yellow
Indian Wanderer
Common Gull
Large Cabbage White
Asian Cabbage White
Indian Jezebel
Large Salmon Arab
White Arab
Small Salmon Arab
Common Jay
Common Mormon
Lime Swallowtail





**Management Recommendations**

- Protection of riparian habitats: Maintain and restore native riparian vegetation which
- supports high butterfly diversity.
- Butterfly-friendly agriculture: Promote reduced pesticide use and conservation strips with native nectar plants along agricultural margins.
- Community participation: Encourage local community involvement and citizen science initiatives for butterfly monitoring.
- Long-term monitoring: Establish permanent transects for seasonal and long-term population assessment.
- Documentation and outreach: Develop a photographic field guide with local (Marathi) names to enhance awareness.

**Conclusion**

The present checklist provides baseline information on butterfly diversity in the Atpadi Conservation Reserve. Although not exhaustive, it highlights the ecological importance of semi-arid and riparian habitats in sustaining lepidopteran diversity. Continued monitoring and habitat-sensitive management are essential for conserving butterfly populations in this human-influenced landscape.

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