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BEHAVIORAL DIVERSITY OF BUTTERFLY SPECIES IN THE TAHARABAD REGION OF NASHIK, MAHARASHTRA

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ABSTRACT

This study investigates the behavioral patterns of 10 butterfly species in the Taharabad region of Nashik District, Maharashtra, India. The objective is to document and understand specific behaviors such as basking, resting, puddling, and nectaring, as well as to note their habitat preferences. Butterflies, with their remarkable diversity in colors, shapes, and sizes, exhibit a range of adaptive behaviors essential for survival. Many species are seasonal and habitat-specific. The findings reveal species richness and highlight the ecological significance of these behaviors, with potential applications in biodiversity conservation and habitat management.

KEYWORDS: Butterfly, Basking, Resting, Puddling, Nectaring, Taharabad.

INTRODUCTION

Different butterfly species display distinct behavioral patterns shaped by millions of years of evolution. Their activities—ranging from foraging and mating to thermoregulation—are crucial for individual survival and reproductive success, while also influencing ecological processes like pollination and nutrient cycling (Boggs & Watt, 1981).

Common behaviors include

- **Nectar foraging** for energy.
- **Mud-puddling** for mineral acquisition, particularly in males (Arms et al., 1974).

- **Basking** for thermoregulation.
- **Resting or perching** to conserve energy or avoid predators.

Butterflies are considered sensitive bioindicators, and changes in their behavior often reflect habitat quality and environmental health (Thomas, 2005).

The aim of this study is to identify butterfly species in the Taharabad region and record their observed behaviors, contributing to baseline data for local biodiversity monitoring.

MATERIALS AND METHODS

Study Area

Taharabad is a small town in Satana Tehsil, Nashik District, Maharashtra, India. The study was conducted in semi-rural landscapes comprising agricultural fields, open scrub, and roadside vegetation.

Data Collection

Butterflies were photographed using a mobile camera. Identification was based on wing color patterns, size, and markings using standard field guides (Kunte, 2000).

Species Identification Tools

- *Butterflies of Peninsular India* by Kunte (2000).
- Online butterfly identification portals.

Observation Parameters

For each species, observed behaviors were categorized as

- **Basking**
- **Resting/Perching**
- **Puddling**
- **Nectaring**

RESULTS AND DISCUSSION

A total of 11 individuals representing 9 species from 4 families were recorded (Table 1).

Table 1: Checklist of Butterfly Species and Observed Behaviors.

Sr. No.	Common Name	Scientific Name	Family	Observed Behavior(s)
1	Common Mormon	*Papilio polytes*	Papilionidae	Puddling
2	Common Emigrant	*Catopsilia pomona*	Pieridae	Puddling
3	Common Grass Yellow	*Eurema hecabe*	Pieridae	Resting/Perching
4	Common Gull	*Cepora nerissa*	Pieridae	Basking
5	Common Pierrot	*Castalius rosimon*	Lycaenidae	Resting/Basking
6	Tiny Grass Blue	*Zizula hylax*	Lycaenidae	Basking & Nectaring
7	Pea Blue	*Lampides boeticus*	Lycaenidae	Resting
8	Plain Tiger	*Danaus chrysippus*	Nymphalidae	Basking
9	Evening Brown	*Melanitis leda*	Nymphalidae	Resting
10	Lemon Pansy	*Junonia lemonias*	Nymphalidae	Basking
11	Great Eggfly (Mimic)	*Hypolimnas misippus*	Nymphalidae	Basking

Behavioral Observations

- **Puddling** was mainly observed in *Papilio polytes* and *Catopsilia pomona*, likely for mineral uptake essential for reproduction (Arms et al., 1974).
- **Basking** was common in *Danaus chrysippus*, *Junonia lemonias*, and *Cepora nerissa*, likely aiding in thermoregulation.
- **Resting** was noted in shaded or concealed spots by *Melanitis leda* and *Lampides boeticus*, reducing predation risk.
- **Nectaring** was observed in *Zizula hylax*, indicating active foraging behavior.

Family Distribution

Nymphalidae was the most represented family, followed by Pieridae and Lycaenidae. This aligns with similar studies in peninsular India (Kunte, 2000; Eswaran & Pramod, 2005).

Photo 01

Photo - 02

Photo-03

Photo - 04

Photo -05

Photo- 06

Photo- 07

Photo-08

Photo -09

Photo -10

Photo-11

PHOTO-01:Puddling Behavior in the Common Mormon (*Papilio polytes*)

PHOTO-02:Observation of Puddling Activity in *Catopsilia pomona*

PHOTO-03:Resting (Perching) Behavior in the Common Grass Yellow (*Eurema hecabe*)

PHOTO-04:Basking Behavior in the Common Gull (*Cepora nerissa*)

PHOTO-05:Basking and Nectar-Feeding Behavior of the Tiny Grass Blue (*Zizula hylax*)

PHOTO-06:Thermoregulatory Basking in the Plain Tiger Butterfly (*Danaus chrysippus*)

PHOTO-07:Dual Behavior of Resting and Basking in *Castalius rosimon*

PHOTO-08:Perching and Resting Behavior in *Lampides boeticus*

PHOTO-09:Resting Behavior in the Evening Brown (*Melanitis leda*)

PHOTO-10:Basking as a Thermoregulation Strategy in the Lemon Pansy (*Junonia lemonias*)

PHOTO-11:Ground-Based Thermoregulation in the Great Eggfly Butterfly (*Hypolimnas bolina*)

CONCLUSION

The Taharabad region supports diverse butterfly species exhibiting varied behavioral patterns. Nymphalidae was the dominant family. The documented behaviors—particularly basking and puddling—highlight the importance of maintaining microhabitats such as sunny patches, puddling sites, and nectar sources. Conservation strategies should focus on protecting floral diversity and minimizing habitat disturbance.

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