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A preliminary list of butterflies from Tensa Nature Camp and Khandadhar Eco-Tourism Resort, Sundargarh District, Odisha

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Abstract
A rapid assessment of butterfly diversity was carried out at two ecotourism sites-Tensa Nature Camp and Khandadhar Ecotourism Resort, in Sundargarh District, Odisha, during the monsoon season of 2025. Surveys were conducted over three consecutive days at each location using opportunistic visual observations along forest trails and open clearings during cloudy and rainy weather conditions. A total of 22 butterfly species belonging to five families – Nympahlidae, Pieridae, Lycaenidae, Papilionidae and Hesperiidae were recorded. The family Nymphalidae exhibited the highest representation, followed by Papilionidae, Pieridae and Hesperiidae. Habitats around Tensa were characterized by moist deciduous forest with dense canopy cover, while Khandahar comprised mixed woodland and open grassland near waterfalls. Several generalist species such as *Papilio polytes*, *Catopsilla pomona* and *Papilio crino* were commonly encountered, whereas forest specialists like *Papilio (agenor) polymnestor* were restricted to shaded areas. This study provides the first observational list of butterflies from these two ecotourism sites, emphasizing their ecological and conservation significance within Western Odisha. The findings highlight the presence of species such as *Papilio(agenor) polymnestor*, *Papilio crino* and *Athyma selenophora* as protected species since these are enlisted under Schedule I of Wildlife Protection Act, Amendment 2022. It leads to the potential of community-based ecoturism zones as refuges for butterfly diversity and underscore the need for long-term, seasonal monitoring to document population dynamics and habitat associations in this unexplored landscape.

Keywords: Butterfly list, biodiversity, Eco-tourism, Lepidoptera, Odisha

Introduction

Butterflies belonging to the Order Lepidoptera are among the most charismatic and ecologically important insect groups, widely recognized as reliable bioindicators of environmental quality and habitat integrity. Their sensitivity to microclimatic variations, vegetation structure, and seasonal changes makes them useful tools for assessing ecosystem health and guiding conservation priorities (Bonebrake *et al*., 2010) [1]. In India, over 1,500 species of butterflies have been recorded, exhibiting remarkable diversity across the Himalayan, Western Ghats, and Eastern Ghats regions (Kunte *et al*., 2021) [6]. However, information on butterfly assemblages from Western Odisha, particularly Sundargarh District, remains scarce despite the region's mosaic of forests, hills, and ecotourism zones that support rich biodiversity.

The Tensa Nature Camp and Khandadhar Ecotourism Resort represent two of the most prominent nature-based tourism sites in Sundargarh, located within the Bonai Forest Division. The area encompasses mixed moist deciduous forests, lateritic plateaus, and grassland patches influenced by monsoonal rainfall. These habitats harbor potential diversity for Lepidopteran fauna, yet no published data on butterflies from these sites exist to date.

The present study aims to document and provide the first preliminary checklist of butterfly species from Tensa and Khandadhar during the monsoon season. Short-term surveys were conducted to record species occurrence, identify dominant families, and highlight habitat associations. This study not only contributes to filling the existing knowledge gap in regional butterfly diversity but also emphasizes the ecological value of ecotourism landscapes as potential efuges for insect biodiversity in Western Odisha. The generated baseline data will serve as a foundation for future long-term monitoring and conservation management initiatives in this underexplored region.

Materials and Methods

Study Area

The present study was conducted at two ecotourism sites — Tensa Nature Camp (21.882°N, 85.093°E; ~750 m a.s.l.) and Khandadhar Ecotourism Resort (21.759°N, 85.117°E; ~650 m a.s.l.) — located within the Bonai Forest Division of Sundargarh District, Odisha, India (Fig 1). The region experiences a tropical monsoon climate with mean annual rainfall of 1,600–1,800 mm. Vegetation is dominated by moist deciduous forest, interspersed with lateritic hill slopes, grassland patches, and riparian vegetation. Both sites form part of an ecologically important corridor supporting a variety of floral and faunal species, including butterflies.

Sampling Period and Method

Field surveys were carried out during the monsoon season of 2025, covering three consecutive days at each site (28th–30th September at Tensa; 1st–3rd October 2025 at Khandadhar). Sampling was performed between 08:00 hrs and 14:00 hrs, coinciding with peak butterfly activity. The visual encounter survey method (Pollard, 1977) [8] was adopted along predefined forest trails, grasslands, and open clearings. Butterflies were recorded through direct observation and photography, ensuring minimal disturbance to natural behavior.

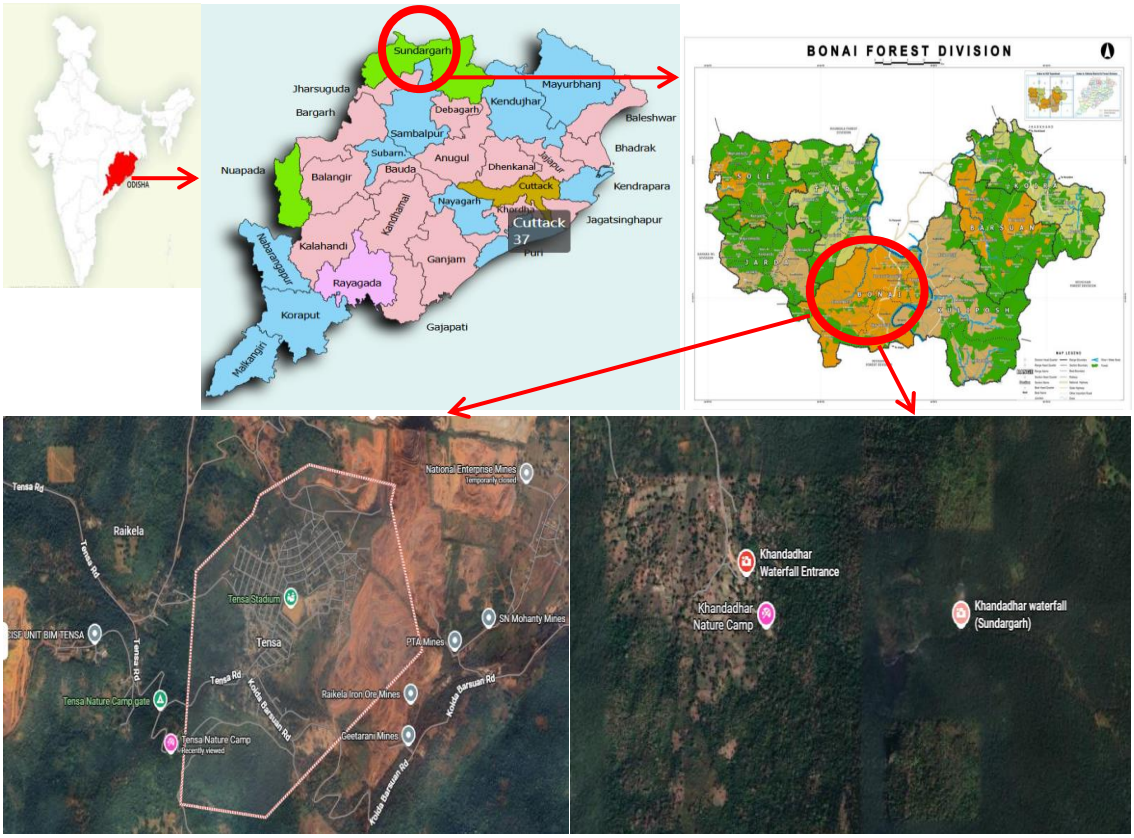

Fig 1: Map showing Tensa Nature Camp and Khandadhar Eco-tourism Resort (Nature Camp) under Bonai Forest Division of Sundargarh district of Odisha

Identification and Classification

Species identification was based on field photographs and morphological features using standard guides — Evans (1932) [2], Kunte (2000) [4], and Kehimkar (2011) [3] and validated with online resources from the Butterflies of India database (Kunte *et al*., 2021) [6]. Only confirmed species were included in the list. Habitat characteristics and sighting frequency (common, rare, occasional) were noted qualitatively.

Results

A total of 22 butterfly species belonging to five families and 17 genera were recorded from the two surveyed ecotourism sites (Table 1.) The family Nymphalidae was the dominant, comprising 9 species (43%), followed by Papilionidae (4 species; 19%), Pieridae (3 species; 14%), Hesperiidae (3species; 14%) and Lycaenidae (2 species; 10%) (Fig2.)

Species such as *Udaspes folus* (Grass Demon), *Papilio(agenor) polymnestor* (Blue Mormon), *Papilio crino* (Common Branded Peacock), *Papilio polytes* (Common Mormon) and *Danaus genutia* (Striped Tiger) were observed at both sites and were among the most frequently encountered butterflies. Whereas species such as *Graphium Agamemnon* (Tailed Jay), *Ixias marianne* (White Orange Tip), *Junonia atlites* (Grey Pansy) and *Athyma selenophora* (Staff sergeant) were among the least seen butterflies of the area (Fig 4).

Tensa Nature Camp, with its dense forest cover, yielded slightly lower species richness (10 species) than Khandadhar (16 species), which is characterized by mixed woodland and open grassland (Fig 3). The overlap between sites was moderate, with 5 species shared between the two locations.

Table 1: List of the butterfly species found in the two sampling sites.

Si. No.	Name	Scientific Name	Sightings	Location	Status under WPA, Amendment 2022
	Hesperiidae				
1	Grass Demon	*Udaspes folus* (Cramer,1775)	Common	Tensa, Khandadhar	
2	Small Branded Swift	*Pelopidas mathias* (Fabricius,1798)	Occassional	Khandadhar	
3	Straight Swift	*Parnara guttatus* (Bremer & Grey, 1852)	Common	Tensa	Schedule IV
	Papilionidae				
4	Blue Mormon	*Papilio(agenor) polymnestor* Cramer, 1775	Occassional	Tensa, Khandadhar	Schedule I
5	Common Branded Peacock	*Papilio crino* Fabricius,1793	Common	Tensa, Khandadhar	Schedule I
6	Common Mormon	*Papilio polytes* Linnaeus,1758	Common	Tensa, Khandadhar	

7	Tailed Jay	*Graphium agamemnon* (Linnaeus, 1758)	Rare	Khandadhar	
	Pieridae				
8	Common grass yellow	*Eurema hecabe* (Linnaeus, 1758)	Common	Khandadhar	
9	Common Emigrant	*Catopsilla pomona* (Fabricius, 1775)	Common	Khandadhar	
10	White Orange Tip	*Ixias marianne* (Cramer, 1779)	Rare	Khandadhar	
	Lyacenidae				
11	Red pierrot	*Talicada nyseus* (Guerin-Meneville,1843)	Occassional	Tensa	
12	Tiny Grass Blue	*Zizula hylax* (Fabricius, 1775)	Occassional	Tensa	
	Nymphaildae				
13	Common Crow	*Euploea core* (Cramer, 1780)	Occassional	Khandadhar	Schedule IV
14	Common Evening Brown	*Melanitis leda* (Linnaeus, 1758)	Occassional	Khandadhar	
15	Common Palmfly	*Elymnias hypermnestra* (Linnaeus, 1763)	Rare	Khandadhar	
16	Great Eggfly	*Hypolimnas bolina* (Linnaeus, 1758)	Rare	Tensa	
17	Grey Pansy	*Junonia atlites* (Linnaeus, 1763)	Rare	Khandadhar	
18	Large Three Ring	*Ypthima nareda* (Kollar,1844)	Rare	Tensa	
19	Lime butterfly	*Papilio demoleus* Linnaeus, 1758	Occassional	Khandadhar	
20	Staff Sergeant	*Athyma selenophora* (Kollar,1844)	Rare	Khandadhar	Schedule I
21	Striped Tiger	*Danaus genutia* (Cramer,1779)	Rare	Tensa, Khandadhar	
22	Common castor	*Ariadne merione (Cramer,1777)*	Rare	Tensa	

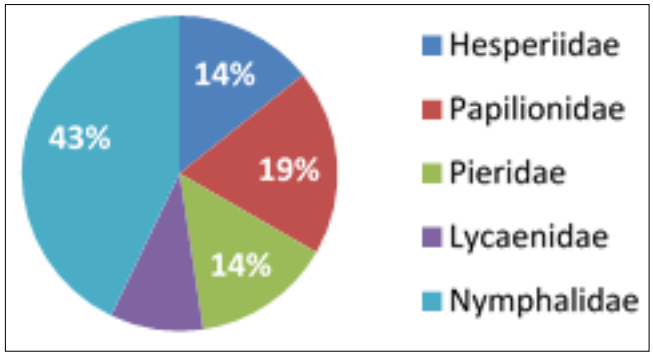

Fig 2: Number of spices present in each family at two study sites.

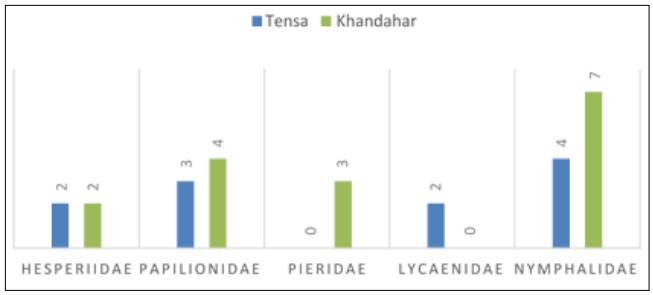

Fig 3: Percentage composition of butterfly species present in each of the five families.

Discussion

The present study represents the first systematic documentation of butterfly fauna from Tensa and Khandadhar ecotourism zones in Sundargarh District, Odisha. The observed richness (22 species) is modest compared to larger, long-term inventories from other parts of the state such as Similipal Biosphere Reserve (124 species) (Mitra *et al*., 2017) [7] and Debrugrah Wildlife Sanctuary (67 species) (Sahoo *et al*., 2020) [9]. However, considering the brief sampling duration and monsoon timing, the diversity recorded is notable and indicative of favourable habitat heterogeneity.

The dominance of Nymaphalidae is consistent with patterns reported across tropical Indian landscapes (Kunte, 2000; Sreekumar & Balakrishnan, 2001) [4, 11]. Members of this family are highly adaptive and abundant in moist forested environments. The occurrence of Blue Mormon, Common Branded Peacock and Staff Sergeant, Schedule I species under the Indian Wildlife (Protection) Act, Amendment 2022, underscores the conservation significance of these ecotourism zones. The presence of both forest specialist and generalist butterflies reflects the mosaic habitat structure of the sites, which include dense canopy areas, open meadows and riparian stretches.

Seasonally, the monsoon period concides with high nectar availability and emergence of fresh broods (Kunte, 2006) [5], explaining the moderate diversity observed. Continued surveys across other seasons could reveal a more complete species assemblage, including rare and migratory taxa (Singh *et al*., 2019) [10].

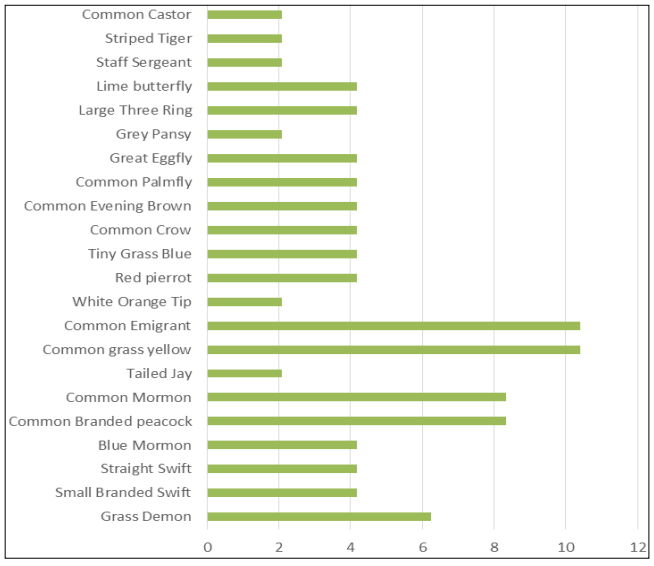

Fig 4: Relative abundance of butterflies found during the study

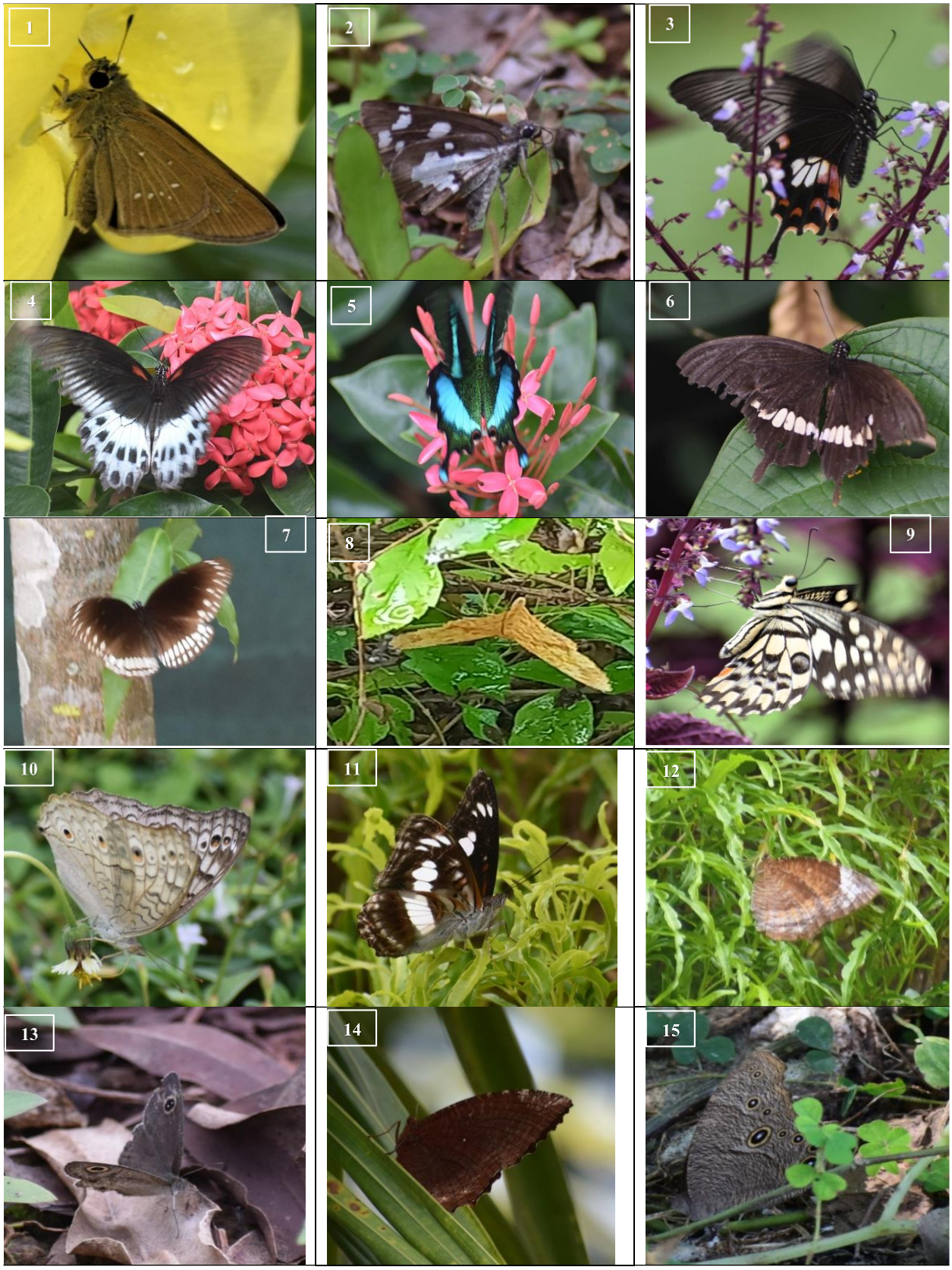

Fig 4: List of few butterfly species found during the study in Tensa Nature Camp and Khandadhar Eco-tourism

Resort 1. Straight swift 2. Grass Demon 3. Common Mormon (female-stichius form) 4. Blue Mormon 5. Common Branded Peacock 6. Common Mormon (male) 7. Common Crow 8. Common Castor 9. Lime Butterfly 10. Grey Pansy 11. Staff Sergeant 12. Striped Tiger 13. Large Three ring 14. Common Palmfly 15. Common Evening Brown 16. Common Grass yellow 17. Red Pierrot 18. Tiny Grass blue.

The findings further highlight the ecoturism potential of Western Odisha, where butterfly diversity can be integrated into community based conservation initiatives, environment al education and nature interpretation programs.

Conclusion

This study provides the first preliminary list of butterflies from Tensa Nature Camp and Khandadhar Ecotourism Resort, documenting 21 species across five families. The results confirm that these sites, though small in area, support a diverse assemblage of butterflies' representative of moist deciduous ecosystems in Western Odisha. The data serve as a baseline for long-term biodiversity monitoring of these areas. Regular monitoring, habitat management and awareness programs can further enhance their role as important refuges for insect diversity in eastern India.

References

1. Bonebrake TC, Ponisio LC, Boggs CL, Ehrlich PR. More than just indicators a review of tropical butterfly ecology and conservation. Biological Conservation,2010:143(8):1831–1841.
2. Evans WH. The Identification of Indian Butterflies. Bombay Natural History Society, Mumbai, 1932.
3. Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, Mumbai, 2011.
4. Kunte K. Butterflies of Peninsular India.Universities Press, Hyderabad, 2000.
5. Kunte K. India A Lifescape, Butterflies of Peninsular India, Published by Univ. Press Priv. Ltd. India, 2006, 55.
6. Kunte K, Sondhi S, Roy P. Butterflies of India, v3.15.Indian Foundation for Butterflies, 2021. https://www.ifoundbutterflies.orghttps://www.ifoundbutterflies.org
7. Mitra B, Kar T, Mohapatra, A. Butterfly diversity of Similipal Biosphere Reserve, Odisha, India.Journal of Entomology Zoology Studies,2017:5(4):1551–1560.
8. Pollard E. A method for assessing changes in the abundance of butterflies. Biological Conservation,1977: 12(2):115–134.
9. Sahoo DK, Behera PK, Rout SD. A preliminary study on butterfly diversity of Debrigarh Wildlife Sanctuary, Odisha.Journal of Threatened Taxa,2020:12(11):16489 –16496.
10. Singh AP, Chandra K, Nair MV. Seasonal variation in butterfly diversity in tropical deciduous forest of Central India. Journal of Asia-Pacific Entomology,2019:22(2):474–482.
11. Sreekumar, P. G., Balakrishnan, M. Habitat and altitudinal preferences of butterflies in the Parambikula m Wildlife Sanctuary, Kerala. Journal of the Bombay Natural History Society,2001:98(2):183–190