Butterflies and Moths of Dungarpur District: A Pictorial and Ecological Study

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Abstract

Lepidopterans, comprising butterflies and moths, play a critical role in ecosystem functioning as pollinators, bioindicators, and components of the food web. This study presents a photographic documentation and preliminary survey of lepidopteran species observed in a semi-urban environment in India. A total of eleven distinct species were recorded through field photography, including members of both butterflies and moths. The visual records provide an essential baseline for future biodiversity research, ecological education, and conservation awareness.

Keywords

Lepidoptera, Butterfly, Moth, Biodiversity, India, Citizen Science, Pollinators, Photographic Survey

Introduction

Lepidoptera, one of the most diverse insect orders, includes butterflies and moths, which are important components of terrestrial ecosystems. Butterflies are generally diurnal and vibrant, while moths are mostly nocturnal and cryptic. They contribute significantly to pollination and serve as ecological indicators of environmental health. Documenting their diversity in varied habitats is crucial for understanding ecological patterns and informing conservation strategies.

Urbanization and habitat fragmentation pose major threats to lepidopteran diversity. However, even semi-urban and suburban regions often harbor rich biodiversity, which remains underexplored. This study documents the diversity of butterfly and moth species from a semi-urban location using non-invasive photographic techniques.

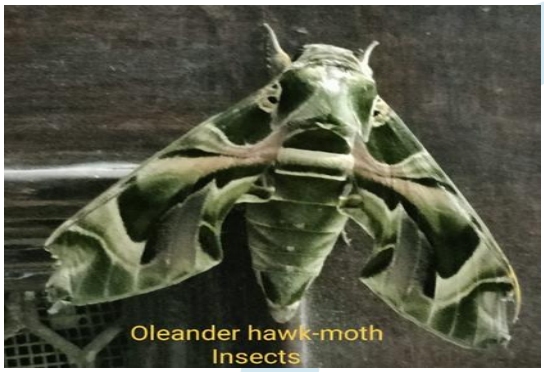
Materials and Methods

Study Area:

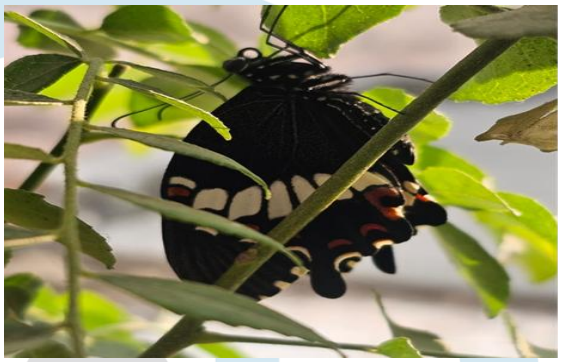
The photographic records were collected from a semi-urban zone characterized by garden plants, flowering shrubs, and moderate human activity. The site included open green patches, boundary vegetation, and ornamental plants, creating a suitable habitat for lepidopteran fauna.

Data Collection:

Photographs were taken using a smartphone camera during daylight hours (for butterflies) and at dusk or night (for moths). Identification was done using standard field guides and verified using online platforms such as Butterfly Identification India and Moths of India.



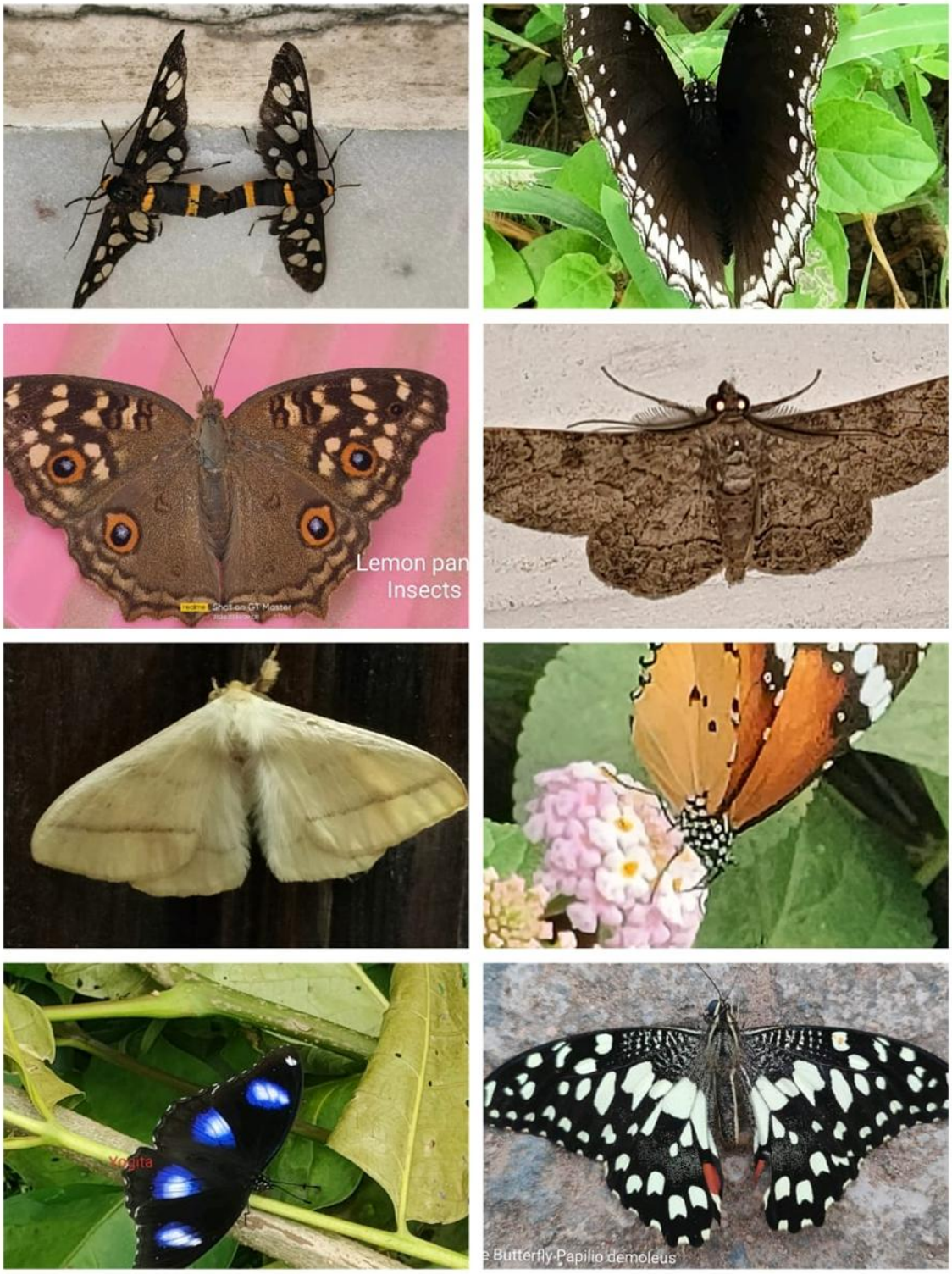
1. Oleander hawk-moth



2. Common Mormon

3. Danaid eggfly

4. dark evening brown



5.Handmaiden moth 6. Great Eggfly (female) 7. Lemon Pansy 8. pale oak beauty 9. Silk moth 10. Plain Tiger 11. Blue moon butterfly (male) 12. Lime Butterfly

13. Tobacco cutworm

14. pioneer white

15. Gregson's Dart

16. brown-striped semiloope

Results

S.No.	Common Name	Scientific Name	Type	Notable Features
1.	Oleander hawk-moth	Daphnis nerii,	army green moth	greenish head, a triangular grey patch on the vertex
2.	Common Mormon	Papilio polytes	Butterfly	Sexual dimorphism; black with white patterns
3.	Danaid eggfly	Hypolimnas misippus	Butterfly	Black with two large white spots; iridescent blue/violet sheen in males
4.	Dark evening brown	Melanitis phedima	butterfly	Upper side dusky fuliginous-brown, the outer borders palest; cilia brown.
5.	Handmaiden Moth	Amata sp.	Moth	Black wings with white spots; observed mating
6.	The great eggfly (female)	Hypolimnas bolina	Butterfly	dorsal surface, with morphs varying in the presence of white, orange, and blue markings

7.	Lemon Pansy	Junonia lemonias	Butterfly	Brown wings with bright eyespots and wavy margins
8.	Pale oak beauty	Hypomecis punctinalis	Moth	forewings have a grey-white ground colour with a brownish tinge and are fine blackish dusted.
9.	White Woolly Moth	Spilosoma sp.	Moth	Fluffy white appearance
10.	Plain Tiger	Danaus chrysippus	Butterfly	Orange-black; common near flowering plants
11.	Blue moon butterfly (male)	Hypolimnas bolina	Butterfly	Iridescent blue spots on black wings (male)
12.	Lime Butterfly	Papilio demoleus	Butterfly	Black and white with red-orange hindwing spots
13.	Tobacco cutworm	Spodoptera litura	cotton leafworm moth	Forewings brown colour with wavy white marking. Hindwings white colour with a brown patch, nocturnal
14.	Pioneer white	Belenois aurota	butterfly	forewing white, markings similar, Hindwing: yellowish white,
15.	Gregson's Dart	Agrotis spinifera	moth	brown forewings with distinct dark markings and a white body and hindwings. The larvae feeds on plants e.g. Allium, Beta vulgaris, and Medicago sativa.
16.	Brown-striped semiloope	Mocis undata	moth	The male has a mid and hind tibia and is clothed with long hair. Body pale red-brown. Abdomen pale fuscous, the anal tuft ochreous.

Discussion

The photographic documentation highlights the richness of Lepidoptera even in semi-urban zones. The presence of Papilio demoleus, Danaus chrysippus, and Hypolimnas bolina suggests a healthy floral diversity and availability of larval host plants like citrus, milkweed, and herbaceous plants. The observation of moth species like Amata sp., Erebus sp., and Dysgonia sp. points to nocturnal insect activity and habitat variety, possibly supported by artificial lighting and backyard vegetation. Such studies help bridge the gap between citizen observations and scientific research. Encouraging photographic documentation through community involvement can serve as a valuable tool for biodiversity monitoring, especially in underrepresented regions.

Conclusion

This study reveals the diversity of butterflies and moths inhabiting a semi-urban environment in India. Through simple photographic methods, eleven species were recorded, representing ecological variety and adaptation. These findings emphasize the need for biodiversity conservation even in non-protected, human-dominated landscapes. The study encourages the use of photography as a low-cost, educational method for biodiversity assessment and public awareness.

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