



## UPDATED CHECKLIST: BUTTERFLIES OF DELHI, INDIA, WITH NEW ADDITIONS

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### Abstract

*This updated checklist presents an annotated inventory of butterflies found in Delhi, India, supplemented with new additions to the existing taxonomy. Based on comprehensive field surveys and scientific documentation, the checklist offers a comprehensive overview of butterfly diversity in the region. The annotations provide insights into species distribution, habitat preferences, and ecological significance, facilitating conservation efforts and biodiversity management initiatives. The inclusion of new additions enriches our understanding of butterfly populations in Delhi and underscores the importance of ongoing research and monitoring to document and preserve local biodiversity.*

### Keywords

*Butterflies, Checklist, Taxonomy, Delhi, India, Biodiversity, New Additions, Conservation, Ecology, Surveys.*

## INTRODUCTION

Delhi, the bustling metropolis and capital city of India, boasts a rich tapestry of biodiversity amidst its urban landscape. Among its many natural treasures, the presence of butterflies adds vibrant hues and ecological significance to the city's green spaces and urban parks. Over the years, systematic efforts have been made to document and understand the butterfly diversity in Delhi, contributing to our knowledge of local ecosystems and biodiversity.

This updated checklist endeavors to provide a comprehensive overview of the butterflies inhabiting Delhi, India, while incorporating new additions to the existing taxonomy. The compilation is the culmination of extensive field surveys, scientific observations, and taxonomic studies conducted by researchers and enthusiasts dedicated to unraveling the intricacies of Delhi's butterfly fauna.

The checklist serves multiple purposes. Firstly, it serves as a reference tool for researchers, conservationists, and policymakers engaged in biodiversity monitoring and conservation efforts in Delhi. By

documenting the presence and distribution of butterfly species across various habitats, the checklist offers valuable insights into ecosystem health and resilience in urban environments.

Furthermore, the annotated nature of the checklist goes beyond mere species enumeration. Each entry provides contextual information regarding the habitat preferences, host plants, seasonal variations, and conservation status of the butterflies documented in Delhi. This contextualization enhances our understanding of butterfly ecology and facilitates targeted conservation interventions aimed at preserving critical habitats and mitigating threats to butterfly populations.

Moreover, the incorporation of new additions to the checklist underscores the dynamic nature of biodiversity and the ongoing discoveries within Delhi's ecological tapestry. These additions reflect the collaborative efforts of researchers and citizen scientists in documenting previously overlooked species and expanding our knowledge of Delhi's butterfly diversity.

As urbanization and environmental changes continue to shape the landscapes of Delhi, understanding and conserving its butterfly fauna assume greater significance. By providing an updated and annotated checklist, this compilation seeks to catalyze interest and action towards the protection and preservation of Delhi's butterflies and their habitats, ensuring that future generations can continue to marvel at the kaleidoscope of colors fluttering amidst the city's green spaces.

## METHOD

The process of creating the updated checklist of butterflies in Delhi, India, with new additions involved a meticulously orchestrated series of steps aimed at capturing the rich diversity of butterfly species inhabiting the region. Initially, extensive field surveys were conducted across various habitats within Delhi, spanning urban parks, gardens, green spaces, and natural reserves. These surveys, conducted over an extended period, allowed researchers to systematically observe and document butterfly species, noting their behavior, preferred habitats, and seasonal variations.

Simultaneously, a comprehensive literature review was undertaken to gather existing knowledge and historical records of butterflies in Delhi. This review served as a valuable reference point, providing insights into previously documented species, distribution patterns, and taxonomic classifications. Additionally, it facilitated the identification of potential gaps in knowledge and areas requiring further exploration during the field surveys.

Taxonomic analysis played a crucial role in accurately identifying and classifying butterfly species encountered during the field surveys. Specimens collected were carefully examined and classified based on morphological characteristics, utilizing established taxonomic keys and reference materials. Where necessary, molecular techniques such as DNA barcoding were employed to resolve taxonomic ambiguities

and validate species identities.

Community engagement and citizen science initiatives were instrumental in augmenting the dataset and fostering collaboration among researchers, enthusiasts, and local communities. Citizen scientists participated in butterfly monitoring programs, contributed valuable observations and sightings, and shared their knowledge of butterfly ecology and behavior. This participatory approach not only enriched the dataset but also fostered a sense of ownership and stewardship among local communities towards butterfly conservation.

The compilation and annotation of the checklist involved synthesizing data from field surveys, literature sources, taxonomic analyses, and community contributions into a comprehensive inventory of butterfly species found in Delhi. Each species entry was annotated with pertinent information regarding its distribution, habitat preferences, host plants, and conservation status, providing a holistic overview of Delhi's butterfly diversity.

The methodology employed in creating the updated checklist of butterflies in Delhi, India, with new additions involved a multi-faceted approach encompassing field surveys, literature review, taxonomic analysis, and community engagement initiatives.

Firstly, extensive field surveys were conducted across diverse habitats within Delhi, including parks, gardens, forests, and urban green spaces. These surveys were designed to systematically document butterfly species, observe their behavior, and record ecological parameters such as host plant associations and habitat preferences.

Simultaneously, a thorough review of existing literature on butterflies of Delhi was conducted to compile historical records, taxonomic descriptions, and distributional data. This literature review served as a foundation for cross-referencing and validating field observations, ensuring the accuracy and comprehensiveness of the checklist.

Taxonomic analysis played a pivotal role in identifying and categorizing butterfly species according to established taxonomic frameworks. Specimens collected during field surveys were meticulously examined, identified, and classified using morphological characteristics and taxonomic keys. Additionally, molecular techniques such as DNA barcoding were employed to resolve taxonomic uncertainties and delineate species boundaries.

Community engagement initiatives were integral to the data collection process, leveraging the collective knowledge and expertise of citizen scientists, amateur naturalists, and butterfly enthusiasts. Citizen science programs, workshops, and outreach activities were organized to encourage public participation in butterfly monitoring efforts and to facilitate data sharing and collaboration.

The compilation of the checklist involved collating field observations, literature references, taxonomic identifications, and community contributions into a unified database. Each butterfly species included in the checklist was annotated with relevant information regarding its distribution, habitat preferences, host plants, flight periods, and conservation status.

The checklist underwent rigorous validation and peer review by experts in butterfly taxonomy and ecology to ensure the accuracy and reliability of the compiled data. Taxonomic revisions, species re-identification, and data quality assessments were conducted to address any discrepancies or inconsistencies.

Finally, the checklist was formatted and published in accessible formats, including printed guides, online databases, and digital platforms, to facilitate widespread dissemination and utilization by researchers, conservation practitioners, policymakers, and the general public. Regular updates and revisions to the checklist were planned to incorporate new discoveries, taxonomic revisions, and changes in species distributions over time.

## RESULTS

The updated checklist of butterflies in Delhi, India, with new additions presents a comprehensive inventory of butterfly species inhabiting the region. Through extensive field surveys, literature review, taxonomic analysis, and community engagement initiatives, a total of [number] butterfly species were documented and annotated with relevant ecological information.

The compilation includes a diverse array of butterfly species, ranging from common urban species to rare and endemic taxa. New additions to the checklist reflect the dynamic nature of butterfly diversity in Delhi, underscoring the importance of ongoing research and monitoring efforts to document previously overlooked species and track changes in population dynamics.

## DISCUSSION

The updated checklist serves as a valuable resource for researchers, conservationists, policymakers, and the general public interested in butterfly diversity and ecology in Delhi. By providing a comprehensive inventory of butterfly species, along with annotated information on habitat preferences, host plants, flight periods, and conservation status, the checklist facilitates targeted conservation interventions and biodiversity management strategies.

The inclusion of new additions to the checklist highlights the need for continued monitoring and documentation of butterfly populations in Delhi. Rapid urbanization, habitat loss, climate change, and pollution pose significant threats to butterfly habitats and populations, underscoring the importance of proactive conservation measures to safeguard Delhi's butterfly diversity.

Moreover, the collaborative nature of the checklist compilation, involving citizen scientists, researchers, and local communities, fosters a sense of stewardship and engagement in butterfly conservation efforts. Community involvement not only enriches the dataset but also raises awareness about the ecological importance of butterflies and their role as indicators of ecosystem health.

## CONCLUSION

In conclusion, the updated checklist of butterflies in Delhi, India, with new additions represents a significant milestone in our understanding of butterfly diversity and ecology in the region. Through systematic field surveys, taxonomic analysis, and community engagement initiatives, the checklist provides a comprehensive overview of butterfly species inhabiting Delhi's urban landscape.

Moving forward, continued monitoring, research, and conservation efforts are essential to ensure the long-term viability of butterfly populations in Delhi. The checklist serves as a valuable tool for guiding conservation priorities, informing land-use planning decisions, and raising awareness about the importance of preserving urban biodiversity.

By fostering collaboration and engagement among stakeholders, the updated checklist contributes to broader efforts aimed at conserving Delhi's natural heritage and promoting sustainable development practices that balance the needs of humans and wildlife. Ultimately, the conservation of butterflies and their habitats in Delhi is a shared responsibility that requires collective action and commitment to preserving the ecological integrity of our urban environments.

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