

**National Workshop on
Biodiversity – Butterfly Biology and Conservation
Management**

(BBBCM – 2024) 14th March 2024



**Organized by
Department of Zoology
Yogi Vemana University
Kadapa – 516 003 – Andhra Pradesh - India**

SOUVENIR OF ABSTRACT

National Workshop on

**Biodiversity – Butterfly Biology and
Conservation Management**

14th March, 2024



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Department of Zoology

Yogi Vemana University

Kadapa, A. P., INDIA

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ABSTRACTS OF ORAL/POSTER PRESENTATIONS

The Role of Butterfly Biology in Ecosystem Health and Restoration: a review

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Butterflies, as key components of ecosystems, play crucial roles in maintaining ecological balance and promoting biodiversity. This review explores the multifaceted contributions of butterfly biology to ecosystem health and restoration efforts. Firstly, the review examines the role of butterflies as pollinators, highlighting their importance in facilitating the reproduction of flowering plants and sustaining various plant communities. Additionally, butterflies serve as indicators of ecosystem health, with their population dynamics reflecting changes in habitat quality, climate conditions, and environmental disturbances. Furthermore, the unique life cycle of butterflies, including their dependence on specific host plants for oviposition and larval development, influences plant-insect interactions and shapes community dynamics. Understanding these complex relationships is essential for effective ecosystem management and restoration. It is also investigating the significance of butterflies in food webs, serving as prey for various predators and contributing to the stability and functioning of ecosystems. Their interactions with other organisms, such as parasitoids and symbiotic microbes, further highlight their ecological importance. Moreover, this review discusses how butterfly conservation efforts can contribute to broader ecosystem restoration goals. By restoring butterfly habitats, conserving native plant species, and reducing pesticide use can enhance habitat quality for butterflies and promote overall ecosystem strength. In conclusion, this review highlights the invaluable role of butterfly biology in assessing ecosystem health and guiding restoration practices. Recognizing and preserving the ecological functions of butterflies can foster healthier, biodiverse ecosystems for the benefit of both wildlife and humanity.

Key words: Butterfly biology, Ecosystem health, Ecosystem restoration.

Butterfly Conservation: Integrating Genetics, Ecology, and Management

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Butterflies, with their delicate beauty and ecological significance, have captured the attention of scientists and conservationists worldwide. Efforts to conserve these charismatic insects necessitate a multidisciplinary approach that integrates genetics, ecology, and management strategies. In this review article, we synthesize recent advancements in butterfly conservation, highlighting the crucial role of genetic insights in informing effective conservation practices. Genetic studies have provided invaluable insights into the population structure, gene flow patterns, and adaptive potential of butterfly populations. Through techniques such as population genomics and landscape genetics, researchers have elucidated the underlying factors driving genetic diversity and differentiation within and among butterfly species. Such knowledge is fundamental for identifying priority conservation areas, designing corridors, and implementing translocation programs to enhance genetic connectivity and resilience. Furthermore, understanding the ecological requirements of butterflies is paramount for developing habitat management strategies that cater to their specific needs. Integrating ecological principles into conservation planning facilitates the restoration and creation of suitable habitats, thereby supporting butterfly populations across their entire life cycle. Moreover, the incorporation of citizen science initiatives and community engagement fosters broader participation in butterfly conservation efforts while generating valuable data for monitoring population trends and habitat preferences. Effective butterfly conservation also relies on adaptive management strategies that encompass ongoing monitoring, evaluation, and adaptation based on new scientific findings and changing environmental conditions. By embracing a holistic approach that integrates genetics, ecology, and management, conservation practitioners can enhance the long-term viability of butterfly populations while promoting biodiversity conservation at large.

Key words: Butterfly Conservation, Integrating genetics, Ecology, Management.

A Review on Butterfly Diversity: Ecological Significance and Conservation Strategies

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Butterflies, with their vibrant colours and delicate wing patterns, captivate both scientists and enthusiasts alike. Beyond their aesthetic appeal, butterflies play crucial ecological roles as pollinators, indicators of environmental health, and components of food webs. This review examines the ecological significance of butterfly diversity and explores various conservation strategies aimed at preserving these charismatic insects. Firstly, we explore the importance of butterflies as pollinators, highlighting their role in maintaining plant diversity and ecosystem stability. Additionally, butterflies serve as bioindicators, their population trends reflecting broader environmental changes, including habitat loss, climate change, and pollution. Understanding these indicators is vital for monitoring ecosystem health and implementing effective conservation measures. The review also addresses the threats facing butterfly populations, such as habitat destruction, fragmentation, and pesticide use. Climate change poses an additional challenge, altering butterfly distributions and phenology. Conservation efforts must consider these complex interactions and adapt strategies accordingly. We then evaluate conservation strategies aimed at mitigating these threats and promoting butterfly conservation. Habitat restoration and creation initiatives, supported by community engagement and citizen science, have shown promising results in enhancing butterfly populations. Furthermore, the importance of protected areas and landscape-level conservation approaches are discussed, emphasizing the need for collaborative efforts across different sectors. Finally, it is concluded that, the importance of research in informing conservation practices and the role of education and outreach in raising awareness about butterfly conservation. By integrating scientific knowledge with practical conservation actions, we can work towards ensuring the continued survival and diversity of butterflies in our ecosystems.

Key words: Butterfly Diversity, Ecological Significance, Conservation Strategies.

Climate Change Impacts on Butterfly Biodiversity and Conservation Efforts: A Comprehensive Review

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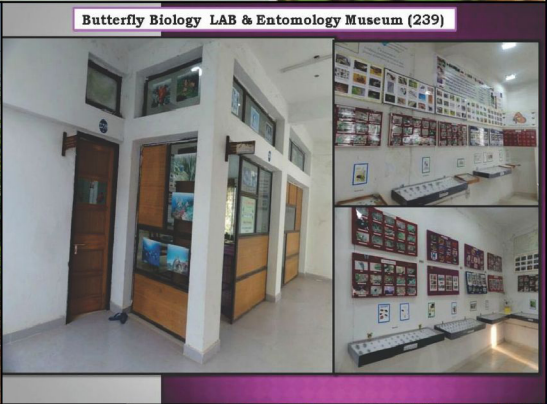
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Climate change presents significant challenges to butterfly biodiversity and complicates conservation efforts aimed at preserving these delicate insects. This review examines the diverse impacts of climate change on butterfly populations and assesses the effectiveness of conservation strategies in mitigating these threats. Rising temperatures, altered precipitation patterns, and extreme weather events directly influence butterfly behavior, phenology, and distribution. Climate-induced habitat modifications disrupt critical life cycle stages, such as breeding, migration, and overwintering, leading to shifts in species ranges and community compositions. The indirect effects of climate change including altered plant-insect interactions, changes in host plant availability, and increased susceptibility to diseases and parasites. These cascading impacts further exacerbate the vulnerability of butterfly populations, especially in already fragmented or degraded habitats. This review analyses the efficacy of various conservation approaches in addressing climate-related challenges to butterfly biodiversity. Habitat restoration, landscape connectivity enhancement, and adaptive management strategies emerge as crucial tools for building resilience and facilitating species' range shifts in response to climate change. Moreover, it is highlight the importance of integrating climate change considerations into broader conservation planning frameworks and fostering collaboration between scientists, policymakers, land managers, and local communities. By adopting proactive and adaptive approaches, we can enhance the capacity of butterfly populations to withstand and adapt to changing environmental conditions. In conclusion, this review reminded the urgent need for coordinated action to address the impacts of climate change on butterfly biodiversity. By implementing science-based conservation measures and fostering climate-resilient landscapes, we can safeguard these iconic insects and the ecosystems they inhabit for future generations.

Key words: Climate change, Butterfly biodiversity, Conservation Efforts.



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