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REVIEWER'S REPORT

Manuscript No.: IJAR- 50476 Date: 28/02/2025

Title: "Butterflies and Their Contribution in Agroforestry"

Recommendation:
✓ Accept as it is .....
Accept after minor revision.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Name: Dr. S. K. Nath **Date:** 02/03/2025

Reviewer's Comment for Publication:
This research provides a detailed overview of the ecological and economic importance of butterflies in agroforestry systems, emphasizing their role in pollination, biodiversity conservation, and environmental health monitoring. The study successfully links butterfly conservation with sustainable agroforestry practices, advocating for habitat preservation, butterfly-friendly farming methods, and awareness programs.

However, future studies should incorporate field-based research, climate impact assessments, and comparative analyses with other pollinators to further validate and strengthen the findings. Additionally, integrating policy recommendations and conservation strategies would enhance the practical applicability of the research.

This paper is a valuable resource for ecologists, conservationists, and agroforestry practitioners, offering insights into how butterfly-friendly landscapes can support both biodiversity and agricultural productivity. By promoting butterfly conservation and sustainable agroforestry, we can ensure ecological balance, improve crop yields, and enhance environmental resilience for future generations.

Reviewer's Comment / Report

This research paper explores the ecological role of butterflies in agroforestry systems, highlighting their contributions to pollination, biodiversity conservation, genetic variation, and ecosystem health. Butterflies are described as natural indicators of environmental balance, key pollinators, biological pest controllers, and components of the food chain.

The study emphasizes how agroforestry ecosystems provide suitable habitats for butterflies, fostering biodiversity and enhancing pollination. It discusses how butterflies contribute to cross-pollination in various crops, medicinal plants, and forest species, thereby improving crop yields, genetic diversity, and resilience to environmental stressors. Additionally, the research highlights butterfly parks as conservation and education tools, promoting awareness of their ecological and economic benefits.

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Key Strengths of the Study

1. **Comprehensive Discussion on Butterfly Ecosystem Services**: The paper effectively explains pollination mechanisms, detailing how butterflies contribute to fruit and seed formation in agricultural and forest crops. It lists key butterfly-pollinated crops and plant species, backed by scientific references and ecological studies.

2. **Linking Agroforestry with Butterfly Conservation**: The research highlights how agroforestry systems support butterfly habitats, ensuring the survival of pollinator species. It proposes the integration of butterfly conservation into agroforestry management, benefiting both farmers and ecosystems.

3. **Insightful Discussion on Genetic Variation and Co-Evolution**: The paper discusses long-distance pollen transfer by butterflies, which enhances genetic diversity and species survival. It references scientific studies on co-evolution between butterflies and flowering plants, reinforcing the ecological importance of butterflies.

4. **Butterflies as Ecological Indicators and Components of the Food Chain**: The study describes how butterfly populations signal environmental health, as their decline often indicates habitat degradation and climate change effects. It also highlights butterflies' role in the food web, serving as prey for birds, reptiles, and other species, as well as biological pest controllers.

5. **Economic and Aesthetic Contributions of Butterflies**: The paper discusses the importance of butterfly tourism, butterfly gardens, and conservatories as revenue-generating attractions and conservation tools. It details major butterfly parks in India, showcasing their biodiversity and conservation efforts.

Limitations of the Study

1. **Lack of Empirical Data and Experimental Validation**: The study relies heavily on literature reviews and theoretical discussions without providing empirical data or field research. Future research should include experimental studies, such as pollination efficiency trials, butterfly population assessments, and biodiversity surveys in agroforestry systems.

2. **Limited Focus on Climate Change and Habitat Destruction**: While the paper discusses butterfly conservation, it does not delve deeply into the impact of deforestation, climate change, and pesticide use on butterfly populations. Including mitigation strategies, conservation policies, and adaptive measures would strengthen its findings.

3. **Need for More Comparative Analysis with Other Pollinators**: The study highlights the role of butterflies but does not compare their effectiveness with other major pollinators like bees, wasps, and birds. A comparative approach would provide a broader understanding of their relative contributions to pollination and biodiversity conservation.