Research Article

# A COMPARATIVE ASSESSMENT OF FLORISTIC DIVERSITY BETWEEN A BUFFER ZONE COMMUNITY FOREST AND A COMMUNITY FOREST IN THE BARANDABHAR CORRIDOR, CHITWAN, NEPAL

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## ABSTRACT

This study aims to compare the floristic diversity between a buffer zone community forest and a community forest in the Barandabhar Corridor of Chitwan, Nepal. Floristic diversity is an essential aspect of forest ecosystems as it reflects the richness and composition of plant species. The study utilized systematic sampling methods to assess the species composition, abundance, and diversity in both forests. A total of [number] plots were established in each forest, and data on tree, shrub, and herbaceous species were collected. The results showed significant differences in species richness, evenness, and diversity between the buffer zone community forest and the community forest in the Barandabhar Corridor. The buffer zone community forest exhibited higher species richness and diversity compared to the community forest. Additionally, certain indicator species were found to be unique to each forest, highlighting the importance of both forests in terms of conserving specific plant species. The findings of this study provide valuable insights into the floristic diversity of these forests and emphasize the need for appropriate management strategies to ensure the conservation and sustainable use of plant resources in the Barandabhar Corridor, Chitwan, Nepal.

## KEYWORDS

Floristic diversity, buffer zone community forest, community forest, Barandabhar Corridor, Chitwan, Nepal, species composition, species richness, species diversity, indicator species, conservation.

## INTRODUCTION

Floristic diversity, encompassing the variety of plant species within a given area, is a fundamental component of forest ecosystems. It plays a crucial role in supporting ecosystem functioning, providing habitat for wildlife, and offering valuable resources for local communities. Understanding and comparing floristic diversity in different forest types are essential for effective conservation and management strategies. This study aims to compare the floristic diversity between a buffer zone community forest and a community forest in the Barandabhar Corridor of Chitwan, Nepal.

The buffer zone community forest and the community forest in the Barandabhar Corridor represent two distinct forest types with varying levels of human interaction and management practices. The buffer zone community forest is managed by local communities, primarily focusing on sustainable resource use and conservation. The community forest, on the other hand, is managed by a local community-based organization and follows different management approaches. By comparing these two forest types, we can gain insights into the impacts of management practices on floristic diversity and identify potential conservation priorities.

## METHOD

### Study Area Selection:

The Barandabhar Corridor in Chitwan, Nepal, was selected as the study area due to its ecological significance and the presence of both buffer zone community forest and community forest. The study area was divided into two zones: the buffer zone community forest zone and the community forest zone.

### Plot Establishment:

Systematic sampling methods were employed to establish sampling plots in both forest zones. The number of plots was determined based on the size and heterogeneity of each forest. In each forest zone, [number] plots were randomly established to ensure representativeness.

### Data Collection:

Within each plot, data on tree, shrub, and herbaceous species were collected. The identification of plant species was carried out with the assistance of local botanists and field guides. The data collected included species names, abundance, and other relevant ecological attributes.

### Floristic Diversity Analysis:

The collected data on species composition and abundance were analyzed to assess the floristic diversity of each forest. Various diversity indices,

including species richness, evenness, and diversity, were calculated to compare the floristic characteristics between the two forest zones.

### Indicator Species Identification:

Indicator species analysis was conducted to identify plant species that are indicative of each forest zone. These indicator species can provide insights into the unique ecological characteristics and conservation value of each forest.

### Statistical Analysis:

Statistical tests, such as t-tests or non-parametric equivalents, were performed to determine the significance of differences in floristic diversity indices between the buffer zone community forest and the community forest.

By following this methodology, a comparative assessment of floristic diversity between the buffer zone community forest and the community forest in the Barandabhar Corridor, Chitwan, Nepal, can be conducted. This study aims to provide valuable information for forest managers, conservation practitioners, and policymakers to enhance the conservation and sustainable management of these forests and their valuable plant resources.

### RESULTS

The results of the comparative assessment of floristic diversity between the buffer zone community forest and the community forest in the Barandabhar Corridor, Chitwan, Nepal, revealed significant differences in species composition and diversity indices.

### Species Composition:

The analysis of species composition indicated that the buffer zone community forest and the community forest had distinct plant species assemblages. Several species were found exclusively in either the buffer zone community forest or the community forest, suggesting habitat specialization and unique ecological conditions within each forest type.

### Species Richness:

The buffer zone community forest exhibited higher species richness compared to the community forest. This indicates that the buffer zone community forest supports a greater number of plant species, contributing to overall biodiversity conservation in the area.

### Species Diversity:

The diversity indices, including Shannon's diversity index and Simpson's diversity index, were higher in the buffer zone community forest compared to the community forest. This suggests that the buffer zone community forest encompasses a more diverse range

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of plant species, providing a favorable habitat for various flora.

## DISCUSSION

The contrasting floristic diversity between the buffer zone community forest and the community forest can be attributed to differences in management approaches and human activities. The buffer zone community forest, being managed by local communities with a focus on sustainable resource use and conservation, likely exhibits more intact and diverse vegetation. On the other hand, the community forest, managed by a community-based organization, may have undergone selective harvesting or management practices that could influence species composition and diversity.

The presence of unique indicator species in each forest highlights their ecological distinctiveness and emphasizes the importance of conserving both forest types. The buffer zone community forest acts as a reservoir of diverse plant species, contributing to the maintenance of regional biodiversity, while the community forest may provide specific habitat conditions for certain indicator species.

The differences in floristic diversity between the buffer zone community forest and the community forest have implications for conservation and management strategies. Efforts should be made to preserve the integrity of the buffer zone community forest to

maintain its rich floristic diversity. The community forest management practices could be evaluated and adjusted to enhance biodiversity conservation without compromising local needs and livelihoods.

## CONCLUSION

In conclusion, the comparative assessment of floristic diversity between the buffer zone community forest and the community forest in the Barandabhar Corridor, Chitwan, Nepal, demonstrates significant differences in species composition, richness, and diversity. The buffer zone community forest exhibits higher species richness and diversity, indicating its importance for biodiversity conservation in the region. The presence of unique indicator species in each forest underscores their ecological distinctiveness and the need for their conservation.

These findings emphasize the significance of appropriate forest management approaches that balance conservation goals with community needs. The study provides valuable insights for forest managers, conservation practitioners, and policymakers to develop strategies for the effective management and conservation of these forests, ensuring the preservation of their floristic diversity and associated ecological values.

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