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REVIEWER'S REPORT

Manuscript No.: IJAR-54053 **Date: 26-09-2025**

Title: DIVERSITY AND ECOLOGICAL CHARACTERISATION OF SPECIES WITH SPECIAL STATUS IN THE YAPO-ABBÉ CLASSIFIED FOREST (CÔTE D'IVOIRE)

Recommendation:
Accept as it is

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

Reviewer Name: Dr. Manju M **Date:** 26-09-2025

Reviewer's Comment for Publication:

1. The Yapo-Abbé Forest and FCYA host a rich diversity of rare and special-status species, emphasizing their ecological importance.
2. Low species diversity and dominance of pioneer species indicate ecological fragility and potential degradation.
3. Secondary forests show higher species richness than reforested or fallow areas, highlighting their conservation value.
4. High similarity in species composition across forest blocks suggests ecological pressure and habitat homogenization.
5. Urgent conservation measures like seed tree protection and population monitoring are critical to safeguard vulnerable species.

Detailed Reviewer's Report

1. Objective of the work

To identify and assess the floristic richness, ecological status, and conservation needs of special-status plant species in the Yapo-Abbé Classified Forest (FCYA), in order to inform and support effective strategies for sustainable management and biodiversity conservation of this important forest ecosystem.

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2. **Exceptional Floristic Richness**

   The FCYA hosts 44 special-status plant species distributed across 41 genera and 23 families, making it a critical site for floristic conservation in Côte d'Ivoire.

3. **Forest Blocks and Species Richness**

   The secondary forest block holds the greatest species richness with 41 species, surpassing the reforested area (27 species) and fallow land (21 species), highlighting its ecological importance.

4. **Dominant Plant Families**

   Meliaceae, Fabaceae, and Malvaceae are the most represented families, consistent with trends observed in other protected forest areas like Mabi-Yaya.

5. **Growth Forms and Biogeography**

   Megaphanerophytes constitute 52% of the flora, indicating a mature forest structure, and 98% of species belong to the Guineo-Congolian phytogeographic region, characteristic of West African humid forests.

6. **Low but Homogeneous Species Diversity**

   Shannon diversity indices range between 2.33 and 2.81, indicating relatively low species diversity; however, Sørensen similarity indices (>57%) show high floristic homogeneity across forest blocks.

7. **High Proportion of Rare Species**

   About 75% of the species are rare in occurrence, while only 7% are frequent species like Heritiera utilis, Vitex micrantha, and Strephonema pseudocola, signaling ecological fragility.

8. **Dominance of Pioneer Species**

   The dominance of a few pioneer species (exceeding 50% frequency) points to ongoing forest disturbance and recolonization, with a decline in sensitive species.

9. **Anthropogenic Pressures and Threats**

   Selective logging, deforestation, agricultural expansion, and medicinal plant harvesting have contributed to the depletion of conservation-important species, similar to pressures seen in Parc National du Banco.

10. **Consequences of Habitat Fragmentation**

    Fragmentation restricts seed dispersal and natural regeneration, threatening the persistence of sensitive species and forest ecosystem stability.

11. **Ecological Role of Secondary Forests**

    Secondary forests exhibit significantly higher species richness than reforested or fallow areas, underscoring their key role in maintaining biodiversity.

12. **Vulnerability and Conservation Status**

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Over half the recorded species are classified as vulnerable, with a small proportion endangered, highlighting the urgent need for conservation actions.

13. Management and Conservation Recommendations

Protect seed trees, enrich degraded forest blocks with rare species, conduct regular ecological monitoring, and draw on successful conservation models such as those implemented in Bossématié and Banco National Park.

14. Une collaboration scientifique a été établie entre les Universités Félix Houphouët-Boigny, Jean Lorougnon Guédé et la SODEFOR pour appuyer la recherche sur la conservation forestière.Elle a permis la collecte de données écologiques dans la forêt classée de Yapo-Abbé, contribuant à une meilleure gestion durable des ressources.

15. Significances of the work

- **Conservation Priority Identification:**

  The study reveals the presence of many rare and vulnerable plant species, establishing the Yapo-Abbé Classified Forest as a key area for biodiversity conservation in Côte d'Ivoire.

- **Guidance for Sustainable Management:**

  It provides crucial ecological data that supports informed decisions on forest protection, restoration, and monitoring, helping to ensure the long-term survival of threatened species and forest health.