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## REVIEWER'S REPORT

Manuscript No.: IJAR- 56179

**Title: Perennial Paths: Mapping Ecological Networks to Enhance Predator Movement and Pest Control in Coffee Landscapes in Lipa, Batangas**

### 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: **ANAPANA GOPAL**

### Reviewer's Comment for Publication.

#### General Comments

This manuscript presents an ambitious landscape-scale ecological planning study that integrates biotope mapping, ecological assessment, and network modeling to enhance predator movement and biological pest control in perennial coffee systems in Lipa, Batangas. The topic is highly relevant, especially within the context of agroecology, sustainable coffee production, and spatial planning for ecosystem services. The study successfully bridges landscape architecture, GIS-based ecological analysis, and agroecological management.

The paper demonstrates strong conceptual understanding of landscape ecology and biological pest regulation. Its most notable strength lies in translating ecological theory into spatially explicit management strategies through ecological network modeling. However, improvements are needed in methodological clarity, analytical rigor, language refinement, and structural conciseness to elevate the manuscript to a publishable scholarly standard.

#### Content and Originality

The study is conceptually original within the Philippine context, particularly in applying ecological network planning to coffee agroecosystems. While ecological connectivity and shade-coffee biodiversity have been extensively studied globally, the integration of:

- biotope-based classification,
- Jarvis & Young ecological evaluation framework,
- resistance surface modeling,
- least-cost path analysis, and
- applied agroecological pest control planning

is innovative for a landscape architecture journal and for a Philippine case study.

The focus on Kapeng Barako landscapes strengthens the cultural and regional relevance. However, the manuscript would benefit from a clearer articulation of:

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- What specifically differentiates this framework from existing agroecological connectivity studies?
- How does this study advance beyond prior least-cost modeling in agricultural landscapes?

Clarifying the theoretical or methodological advancement would strengthen the originality claim.

### Technical Quality

The technical framework is appropriate and well-conceived. The use of:

- DEM-derived watershed delineation,
- GIS overlay for biotope generation,
- ecological value scoring matrix,
- resistance surface modeling,
- least-cost path analysis,
- buffered corridor modeling,

is methodologically sound.

However, several aspects require clarification to strengthen scientific rigor:

#### 1. **Resistance value assignment**

The manuscript does not clearly explain how resistance values were determined (empirical basis? literature-derived? expert judgment?). Providing a table of resistance values with justification would improve transparency.

#### 2. **Least-cost path parameters**

The choice of 100 m buffering requires ecological justification (species-specific movement ranges? literature-based? assumption?).

#### 3. **Predator guild assumptions**

The model aggregates birds, bats, arthropods, and beetles into a single resistance framework. These taxa differ significantly in movement ecology. A brief acknowledgment of this simplification and its implications would strengthen methodological credibility.

#### 4. **Validation limitations**

The study relies primarily on modeled outputs. While a monitoring framework is proposed, no empirical validation of predator presence or pest reduction is presented. This is acceptable for a planning study but should be more explicitly acknowledged as a limitation.

Overall, the technical framework is strong but would benefit from deeper explanation of modeling assumptions and ecological parameter choices.

### Language and Presentation

The manuscript demonstrates strong academic tone but requires substantial editing for clarity and formatting consistency.

Minor issues include:

- Frequent spacing and typographic errors (e.g., missing spaces between words).
- Overly long paragraphs, particularly in the Results section.
- Repetition of journal header text (MUHON header appears multiple times and should be removed from the manuscript body).
- Occasional redundancy in explaining concepts already introduced.
- Some transitions between sections are abrupt.

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The Discussion sections, especially Biotope Mapping and Assessment Mapping, are overly descriptive and could be streamlined. Figures are frequently referenced but require consistent formatting (e.g., "Figure 2" vs "figure 2"). Professional copyediting is strongly recommended.

### Structure and Organization

The overall structure follows a logical academic format:

- Introduction
- Methodology
- Results and Discussion (with subsections)
- Conclusion

Strengths:

- Clear methodological flow.
- Logical progression from mapping → assessment → network modeling.
- Integration of results into planning implications.

Areas for improvement:

- The Introduction is lengthy and could be tightened to focus more sharply on the research gap.
- Results and Discussion are partially merged; clearer separation of findings from interpretation would improve readability.
- Some sections (e.g., ecological assessment criteria) are overly detailed relative to their analytical contribution.
- The conclusion could be more concise and slightly more critical (e.g., include explicit limitations).

### References and Citations

The references are relevant and appropriate for the ecological and agroecological framework. Key works in:

- agroecology,
- landscape ecology,
- biological pest control,
- ecological network modeling,

are cited.

However:

- The reference list is relatively short for a paper of this scope.
- Several cited works appear within text but are not always fully contextualized.
- Formatting inconsistencies exist (spacing issues, line breaks, inconsistent journal styling).
- Some foundational literature in least-cost modeling and connectivity planning could be added for methodological grounding.

Overall, references are adequate but could be slightly expanded and carefully formatted.

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## REVIEWER'S REPORT

### Overall Recommendation

This manuscript presents a strong conceptual and spatial planning contribution. It effectively demonstrates how ecological assessment and network modeling can inform agroecological landscape design for biological pest control. The integration of biotope mapping and ecological network planning is particularly suitable for a landscape architecture journal.

However, improvements in:

- methodological transparency,
- ecological parameter justification,
- language editing,
- structural conciseness,

are necessary before publication.

The study shows strong potential and represents high-quality student-led research, but it requires refinement to meet scholarly journal standards.

### Final Decision:

#### Minor Revision Required

The manuscript should be revised to:

- Clarify modeling assumptions and resistance parameters.
- Improve language, formatting, and remove layout artifacts.
- Tighten discussion and reduce descriptive repetition.
- Strengthen articulation of methodological contribution.

With these revisions, the paper has strong potential for publication in a journal focused on landscape architecture, agroecology, or spatial ecological planning.