Review of: "Peat Mass Change and Water Level Influence on Regenerated Melaleuca Forest After a Fire in U Minh Thuong National Park, Vietnam"

Nguyen Thi Hai Ly[1]

1 Dong Thap University

Potential competing interests: No potential competing interests to declare.

This manuscript provides an exploration interested in the significance of peat soil conservation and Melaleuca Forest restoration in U Minh Thượng National Park, Viet Nam, after a major forest fire. However, it is necessary to improve several aspects of the organization of information and scientific writing to improve the quality of the article. Some my views such as:

1. A major forest fire in what year? In 2003?

2. In abstract

In theoretical framework: What is the need to clarify the scientific gaps in forest regeneration research in U Minh Thuong (UMT) National Park? Do forest restoration solutions consider the ecological environment, specifically peat soil thickness and water level? From there, the authors should give the hypothesis is whether peat thickness and water level affect the ability to regenerate Melaleuca forests after a large fire in U Minh Thuong National Park, Vietnam.

In method: When is the study period?? What basis determines the fired area in UMT National Park? Size of plots? And these plots posited in areas how peat soil thickness? Summary of parameters to measure and evaluate the growth of Melaleuca trees.

In results and conclusion: suggest rewrite to highlight research results. For example, the status and chemical characteristics of peat soil, and the status growth of Melaleuca Forest on peat soil. The influence of soil chemical components on the growth of Melaleuca through correlation analysis. The inundation regime affects the growth of Melaleuca.

3. Some keywords suggested: Melaleuca, peat soil, U Minh Thuong National Park, inundation regime, forest restoration.

4. In Introduction: The article should introduce other research, and analyze scientific gaps related to the author's research content. Authors should also state scientific hypotheses; From there, it leads to the objective and content of the article.

5. In method:

The method should be organized following the sequence in which the study was carried out.

- When is the study period?? The results are presented on seasonal changes in peat soil, but the method does not specifically show the seasonal survey period.

- What basis determines the fired area in UMT National Park (map, satellite, …?). Fig 1, the map should show the location of UMT (Tioman Island, Malaysia ???). UMT location should be described in the overall map of the Mekong Delta region, in Vietnam.

- Method for identifying peat soil. How are soil samples taken to be representative for each survey plot of 500 m^2 (20 m x 25 m).

- Describes analytical methods for humic acid, SO_4^{2-}, NH_4^+, K_2O, Fe^{2+}.

- How was groundwater level data collected and monitored?

6. In results and discussion:

- The result should describe clearly what depths of water level correspond to inundation regimes. What types of inundation regimes in this research?

- Fig 2, 5 is not appropriate with the title "Changes in peat volume due to the inundation regime". Sugesste

- Fig 1, 3, image quality should be improved.

- Why %C average and average density like in thickness of peat layer 30 – 70 cm, 100 – 120 cm, 120 – 130 cm. Average density or average bulk density??

- The author is requested to explain further why there is no data for peat soil thicknesses of 5 - 12 cm, 20 - 60 cm, and 60 - 90 cm in 2002; in 2003, 5 – 12 cm, 20 – 60 cm again no data; and 90 – 100 cm, 100 – 120 cm, 120 – 130 cm have no data in 2022.

- “Peat change after water level decreases (2012 - 2022)”? Please clarify whether it is the flood water level or the underground water level.

- “inundation regime” is understood as inundation by flood water, not groundwater.

- What is “peat water”? Please clarify the way to survey “peat water” in the method.

7. Conclusions should be consistent with the research objectives and content.

How does peat volume change due to flooding?

How does the chemical composition of peat soil change according to flooding regime?

What is the effect of peat soil thickness on the growth of Melaleuca forests?

Which chemical factors of peat soil clearly affect the growth indicators of Melaleuca trees?

How do changes in peat volume and water level affect the ability to regenerate Melaleuca forests?

Additional recommendations and suggestions of the author based on research results.