Review of: "Comparison of Vegetation Community Diversity, Biomass, and Sediment Properties among Constructed and Reference Salt Marshes at Deer Island, Mississippi, U.S.A."

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Potential competing interests: No potential competing interests to declare.

Review to “Comparison of Vegetation Community Diversity, Biomass, and Sediment Properties among Constructed and Reference Salt Marshes at Deer Island, Mississippi, U.S.A.”
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This is a very good paper that presents how the restoration of wetland are meaningful. The authors explored the progress of salt marshes restoration at Deer Island, Mississippi, USA. The vegetation community diversity, biomass, and sediment properties at the nearly pristine site (less disturbed for more than 100 years), the formerly restored site (constructed since 2004), and the recently restored site (constructed since 2015) were compared.
In order to improve the paper, I think it will be worthy if the authors can enhance the discussions by providing some practical remarks related to the results, for example by translating technical/statistical interpretations to some plain languages. Moreover, I do think that it will be sensible if the authors also publish the research data (soil, topography, camera captured data, etc.), for example by adding the doi link of the open access uploaded data.
I also have some detail comments that hopefully will be beneficial to the improvement of the paper:

1. Whole: Please use a single format for species naming

The authors usually write the species name in a full form, such as:
Imperata cylindrica (L.) P. Beauv. (cogon grass)
If the author want to mention the local name, please make it clearer, for example:
Imperata cylindrica (L.) P. Beauv. or cogon grass

2. Whole: Please ensure that the name of any state is written in full as early as possible before using its abbreviation later in the document, e.g.: Mississippi (MS), Alabama (AL), etc. Please also consider to write it in full whenever necessary.

3. Whole: Please stated directly whenever referring to the data in the appendix, e.g.: Table S1 in the Appendix.

4. Abstract: Please add some quantitative data to the abstract whenever mentioning comparative words (lower, higher, etc.). The authors can add mean (with standard deviation or standard error).

5. Abstract: Please consider to remove “as expected” from the last sentence in the abstract. Please add practical recommendation to the salt marsh manager related to the conclusion of this research.

6. Introduction: “Salt marshes in the U.S. are expected to be reduced by 20-45% by the end of the 21st century.” Please add citation.

7. Introduction: Consider “… using the principles of the US Army Corps of Engineers in the Engineering with Nature® (EWN) program (Bridges et al. 2021).”

8. Introduction: Research objective number 3 and number 4 can be merged bearing in mind their similarities.

9. Study sites: “… from the maintenance dredging of navigational channels in the nearby area.” Please provide citation about this project or explain more about it. Please add the coordinates of the dredging locations, if it is possible.

10. Study sites: Please mention any report or more detail information related to this statement: “Sediments were tested for pollutants and toxicity prior to reuse; only those meeting state-mandated thresholds were used in construction.”

11. Table 1: Is “Transects” a parameter? Please explain more. Do the authors mean that the transects were checked every monitoring event?

12. Figure 1: Please mention some coordinates that are related to the presented study locations. It is important to mention at least one coordinate for each transect.
Please add north arrow and scale to the image.

13. Study sites: Please consider to provide more detail information before mentioning “a nearby navigational channel” or “multiple nearby sources”, etc.

14. Study sites: Drainage ditches (0.6-1.2 m deep) needs to be more clearly shown. It will be great if the author can present the pictures of the ditches.

15. Study sites: “… a Trimble R8 GNSS receiver in April 2017 and August 2018 (Tables 1,2).”
I think Table 2 contains results and will be confusing if it is referred in the method section.
Please provide details of the 165 randomly placed points in the shared datasets.

16. Study sites: “… using the USM Gulf Coast Geospatial Center’s Real Time Network (GCGC RTN, rtn.usm.edu)”
Please provide better citation format for this information and add it in the list of references.

17. Study sites: “ … were mostly groundwater-fed (Lang 2012) …”
Please reassure about this. Given that the average elevation of the site was 0.27 m (see Table 2), I am a bit hesitant whether groundwater plays significant role here. I suppose the area is rainfall water fed.

18. Study sites: “… oriented perpendicular to the shoreline (Figure 1).” My interpretation is that transects in Figure 1 are not 90° to the shoreline.

19. Study sites: Please give more detail justification that is used to define the zones “(low-, mid-, and high marsh)”. Is it based on elevation only or is it also considering distance to the shore, changes in vegetation, etc.?

20. Study sites: “Transects were grouped by site to calculate species richness, … ANOSIM and nMDS.” Please consider this:
“Transects were grouped by site to be statistically analysed”
The statistical methods will be mentioned more detail in the statistical subsection.

21. Figure 2: Will it be possible to add into the figure about the sampling or about the collected samples?
Please correct me if I am wrong, do the authors mean that the term “deep” is measured from surface?
It is because it is common to use sample “height” to define the dimension of the sample.
The term sample “deep” might infer the location of the sample from the surface.
Please refer to the text where the authors will explain more detail about the definition of shallow and deep sediments (are they comparable in depth across sampling points?).

22. Vegetation Biomass: “… oven dry at 70°C … before the dry mass was recorded.”
Will it be possible to add some journal references that implement this methods too?
Are there any more specific term about the dry mass? Is it “partially dry” or “constant weight dry”? As an example, if we use 100°C to 105°C and all of the water content is evaporated, we can use the term of “oven dry” to the sample.

23. Sediment Characteristics: Please offer some literatures that use 50 cc of sample for BD and grain size analyses. Otherwise, please make some justification to the used method wherever appropriate. As an example, if there is some limitation induced by the method, the authors can discuss it more.

24. Statistical Analyses: Please mention all the used statistical methods in this subsection, accompanied by its practical usage aims specific to this research.
Please write any abbreviations in full before it is used later in the document, e.g., Confidence Interval (CI), Standard Error (SE), etc.

25. Result, Elevation: The authors defined DIMR1, DIMR2, and Reference Site here. Nevertheless, in most part of the article, the authors use 2+ yr, 10+ yr, and 100+ yr.
Will it be better that the authors simplifying the index of sites? Shall the authors use:
Early Site instead of the 2+ yr Site and DIMR1 Site.
Later Site instead of the 10+ yr Site and DIMR2 Site.
Reference Site instead of the 100+ yr Site.

26. Table 2: Will it be useful and possible if the authors add Standard Error to accompany the mean of the elevation data?
Will it be possible to add more explanation about the result of the Turkey Post Hoc test? What specifically mean by introducing the a,b,c?

27. Vegetation density and cover: “The quadrats from the 10+ yr constructed site increased from 69% in spring 2018 to 83% in spring 2019. Finally, the quadrats from the 100+ yr reference site increased from 64% in spring 2017 to 75% in spring 2019.”
Please add the proper unit which is “% of the total cover”.

28. Vegetation density and cover: “The mean coverage increase in the sampling quadrats was 21% per year in the constructed sites compared to only 5.5% in the natural marsh.”
Please add the proper unit which is “% per year”.

29. Figure 3: Please add the unit of the Richness Axis, is it (number of species)?
Referring to Table 1 about the time of sampling, possibly the unit of the x-axis should be “sampling time” or “sampling event” instead of “season”, should not it?
Bring Figure 3 as close as possible to subsection Vegetation diversity and cover.

30. Table 3: Will it be better if the authors add “-” in the cell that has no value?
Please mention the monitoring time in the table title, which was Spring 2017 to Fall 2019.

31. Figure 4: Mention in the caption the abbreviation of nMDS.
Bring Figure 3 as close as possible to subsection Vegetation diversity and cover.

32. Table 5: Will it be possible to add more explanation about the result of the Turkey Post Hoc test? What specifically mean by introducing the a,b,ab?

33. Figure 5: Will it be possible to add more explanation about the result of the Turkey Post Hoc test? What specifically mean by introducing the a,b,ab?
There are repetitions of legend (Site 2+ yr, etc.).
Shall the x-axis titles of the figure are placed at the bottom of the figure (currently are at the top)?
Please see my previous comment about using the axis title “season”.
Will it be ok to write (A) alive above-, (B) dead above-, (C) below-ground directly in the figure?

34. Table 6: Please see my previous comment about the compatibility use of 50cc sample.
Please see my previous comment about the Turkey’s test explanation.

35. Figure 6: Please see my previous comment on Figure 5.

36. Discussion: “Constructed wetlands are … and wildlife habitat.”
In my opinion this is a statement that is not directly resulted from this research. Therefore, please either add citations or rephrase it to contain broad discussion about the results.

37. Discussion: “Other coordinated studies … and abundance (Weitzel et al. 2021)”.
Please do not just mentioning abut other studies but bring the relevance to this study. Are the results of this study relevant compared to the mentioned previous studies?

38. Discussion: "… up to five years if a site is left to naturally recruit vegetation …"

Do you think this statements are different to the one resulted in this research? Will you explain what might cause those differences?

39. Discussion: "Zonation in northern GoM salt marshes is … relative to NAVD88 in the study area."

I think this information must be placed in the methodology.

We need to read this information that is related to marsh zonation before the result and discussion sections.

40. Discussion: "The construction design …in other studies (Klijn and Witte 1999; Zedler 2000)."

In my opinion, we need to be very careful when suggesting for channel constructions in the marsh land. The reasons are (1) the authors did not measure the effect of channels in this research; and (2) the authors have not explored whether the channel might drain the water table in the marsh land during the low tide.

In my opinion, it would be better to highlight the important of hydrological restoration in the constructed marshes so that the hydrological pattern might be as comparable to the natural one, e.g. by considering the landscape (contours, etc.) and soil properties of the reference site in comparison to the constructed ones.

41. Discussion: "The biomass fractions … marshes of MS and AL"

Please be careful to use the term "reference site" while bringing other literatures. The reader might be confused whether the mentioned reference site is the one analysed in this paper or it is totally different.

42. Discussion: "To date, LaSalle (1996) … 30+ years after construction."

I am so sorry if I am wrong, but I think the authors do not need to just report again the results from other literatures. It is important to bring other results in to the context of this paper, e.g. by creating common conclusions or new perspective about marsh land restoration.

43. Sediment composition: "The SOC was comparable … Dutta et al. 2021)"

I would suggest the authors to rethink about and improve this paragraph, if I may please.

We know that the constructed sites were created from non organic soils or even soils that have same properties with the reference site.

Will it be possible to revalidate that the SOC of constructed site will be comparable to the natural site in 1 or 2 decades? (given that the vegetation diversity itself do not recover that fast).

44. Figure 7: Previously we discuss that the SOC and the BGM of the constructed sites are different to the reference site. Will it be proper if we mixed all the data together to create a regression line? If it is still acceptable, please discuss the limitation of the regression line if it will be referred by other researchers.

45. Appendix: Please mention the number of sample that is incorporated in each table.

Please mention the hypothesis for the ANOVA in each table.

Please mention the hypothesis for the ANOSIM in Table 2.

Please mention the full name of the abbreviations of each column in the table, repeat it whenever necessary.

Thank you very much for your concerns.

Reviewer,

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Indonesia