June 26th, 2022

Pauline Garnier-Géré
PCI Forest Wood Sci Recommender

Dear Recommender.

I thank you for your valuable comments on the manuscript "Fire and forest loss in the Dominican Republic during the 21st Century". I edited the manuscript to address each point raised in the revision round #2.

I would appreciate comments or suggestions on the revised version.

Sincerely,

José Ramón Martínez Batlle
Researcher at Autonomous University of Santo Domingo (UASD)

Response to Reviews, round #2, on "Fire and forest loss in the Dominican Republic during the 21st Century"

> **Legend:**
>
> Comment from the recommender
> *Response from the author*

Response to Recommender

Dear José Ramon,

Thank you for your revised version,

We are pleased to recommend your manuscript within the PCI for Forest and Wood Science, after you have addressed the few editing comments and typos to correct for the final version of your manuscript:

Organisation of the supplementary information, Figures and tables:

The current numbering of figures is a bit confusing. I suggest that you rename the "Appendix section (usually devoted to mathematical developments or additional raw data at the end of the main text) as a "Supplementary information" section. In this section, please add a supplementary methods section (see below) where you can include the parts of the previous texts that you removed from the original methods (original end of line 94 to line 101 and 104 to 109 which are think are important to include).

Here in the methods, I think at least one of your Fig. A1 or A2 is needed in the main text. This will prevent having to go to supplementary to initially view the original or cleaned data with geographic map details on the case study. It can be renamed Fig. 2 since Fig 1 is the graphical method abstract.

Then the Figure that you did not put back in the main text (A1 or A2) becomes Fig. S1,

Fig. B1, B2 and B3 become Fig. S2, S3 and S4,

Fig. C1 and C2 become Fig. S5 and S6, and Tables C1 and C2 become Tables S1 and S2,

Fig. D1, D2, D3 and D4 become Fig. S7 to S10.

Then rename the figures in the text accordingly.

> *Dear Pauline. Thank you for this comment.*
> *I renamed the Appendix section as "Supplementary Information" section, and used the recommended numbering of figures S1, S2, ... In this section, I included the text I removed from the original methods (sorry for not indicating it in tracking mode), as well as the noise-free version of the MODIS dataset.*
> *Following your suggestion, I decided to move the original Fig. A1 to the main text, to prevent having to go to supplementary section.*

The quality of the figures is rather poor (we can't zoom in to better see the details or text within figures for example), please refer to the formatting requirements of the PCI to make sure the quality is sufficient.

> *Thank you. I guess this issue is due to the fact that the maximum PDF size supported on the PCI FWS website is 5 MB. The full resolution manuscript deposited in bioRxiv, has high quality figures.*

Summary:

About the third point (sentence before last), I suggest to add "in fire and forest loss patterns" after "significant differences" based on your results.

Thank you. I edited the text accordingly.

Introduction:

Line 2: add "(SDG)" since you are using the abbreviation later after "Sustainable Development Goal"

Thank you. I edited the text accordingly.

Lines 5 to 8: can you please cite a reference after "in preserved areas", and another one if possible after "secondary forests".

Thank you. I included two references in the text.

Materials and methods

2.1 part

In Fig. 1: correct "gobal" to "global" in the top left square, replace "stats" by "statistics" the 3 times it is used, it should fit. Change "false positive" to "false positives". In the legend of Figure 1: please add "and see the Data and code availability section for provided scripts." after "details".

Thank you. I corrected these typos.

Lines 70: Change "Fig. A1" to "Fig. S1" or Fig. 2 (depending on which alternative you choose for or of Fig. A1 or A2 to put in the main text, see above).

I appreciate your suggestion. The reference now points to "Fig. 2"

Line 104: Change "Fig. A2" to "Fig. S1" or Fig. 2 (idem).

There are 2 parts of the previous text that you removed in this 2.1 part (without indicating it in tracking mode). This makes the text easier to read but as said above, please put those parts the supplementary section.

I appreciate your suggestions. Since I included the process for generating the noise-free version of the MODIS dataset, as well as the accompanying map in the newly created "Supplementary Information" section, I changed the reference to "See Supplementary Information section and Fig. S1 for details".

Lines 111 and 181: Replace "statistics techniques" by "statistical techniques".

Thank you. I edited the text accordingly.

Lines 127 to 132 should be relocated at the end of part 2.1, since after the consistency check (top of Figure 1), you focus now on the MODIS dataset in this revised version. Thus the VIIRS datasets should not appear in the rest of the sections as it is implicit that you are using similar approaches within the corresponding periods for consistency checks.

Thank you for this comment. I relocated this text to the appropriate position, while ensuring that there is no trace of the VIIRS dataset.

Lines 134 to 140: this paragraph is not edited as requested, according to the MODIS data focus only. Suggestions are to: add "noise-free" after "MODIS", add "the above defined" before "forest", add "cover" after "forest", then remove

"stands with a canopy closure equal to or greater than 25%, which I generated from the year 2000 tree cover raster layer. Then, I"

 since it is redundant with what's explained above and in the Fig. 1, remove also "from both datasets".

Thank you for pointing out this issue. I edited this paragraph following your recommendation.

Also please change "Last, I divided the number of points by the cell area in square kilometers, and then again by the number of years of each of the two periods of analysis, from which I obtained two data fields, one for each period of analysis, containing the average density of fire points per square kilometer per year (hereafter, fire density)." into "Last, I divided the number of points in each cell by its area (in km2) and by the number of years, which resulted in fire density (Fig. 1)."

Thank you. The proposed sentence improves this paragraph because it is more concise.

Lines 141 to 146: these lines can be summarized without loss of information content as follow, if you agree: "I pooled forest loss surface area representing the period 2001 to 2018, then divided it by the corresponding cell size and by 18 years to obtain the average forest loss per unit area per year."

Thank you. I appreciate your suggestion. I changed my text and preferred this wording instead.

2.2 part: some summarizing can be suggested:

Lines 154 to 156: please replace "In particular, I focused on assessing the association between those variables considering the size of the forest clearings, using both a.." just by "with…" in the text, since the details are given afterwards on how the different size of clearings is considered.

Lines 158 to 160 until "source": replace "I generated 18 maps of annual forest loss, one per each year of the study period, using the loss year raster as a source" with "I used the forest loss year raster to generate 18 annual maps".

Lines 162 to 166: replace "Afterwards…1 ha in size" with "Additionnally, annual maps of "small forest clearings" were produced with patches of less than 1 ha in size, and maps of "medium- and large-sized forest clearings" (or large clearings") with patches larger than 1 ha (Fig. 1)".

Lines 176 from "I used a regular grid…": please summarize as "This larger area than for cells used in the long-term approach was chosen to reduce the skewness of variables distributions and improve adherence to normality".

I appreciate these suggestions, which greatly improve the readability of the text. To keep consistency with the active voice, I used the following wording in the replacement suggested for lines 162-166: "Additionally, I produced annual maps of small forest clearings with patches of less than 1 ha in size, and maps of medium- and large-sized forest clearings (or large clearings) with patches larger than 1 ha".

Part 2.3

Line 197: remove "the".

Line 198: remove "method".

Line 204: remove "Afterward".

Thank you. I corrected these typos.

Line 210: please add a reference for the Moran I statistic (suggestion: Sokal, R. R. and Oden, N. L. (1978). Spatial autocorrelation in biology. 1. Methodology. Biol J Linn Soc, 10: 199–228.).

Thank you. I used the suggested reference.

Line 233: remove "The final stage was to produce"

Line 234: add "were produced for" after "graphics" and remove "in" before "QGIS"

Thank you. I edited the text accordingly.

Line 239: add "; see also the Data and code availability section" after 2017

> *Thank you. I included a reference to the "data and code availability" section. However, since BibLaTex controls how citations are parsed within parentheses, I added the text "(see also the Data and code availability section)" after "... 2017)".*

Results

Line 244: replace "quite high" by "close to 1"

Line 249: replace "was good enough" by "highly correlated across time and thus appropriate".

Line 258: add "points" after 11700.

Figure 3 legend: recall what HH and LL mean.

Line 297: replace the "Spatial modelling" subtitle with "Spatial dependence between Forest loss and Fire density".

Lines 298 to 306: these lines are redundant with lines 199-200 and 221 to 223 in the methods, please combine lines 298 to 306 to those previous lines and remove from the results.

Lines : 309-310: please remove "The relevant statistics of the spatial error models fitted are summarized in Table 2" and add "; Table 2" after "(p<<<0.01".

> *Thank you. I edited the text as suggested.*

Also please refer to the formatting requirement for reporting probability for a recommended PCI manuscript format.

> *Thank you. I searched for information on formatting requirement for probability reporting, but did not find anything useful. I kindly ask you to please advise me on this subject.*

Line 312: add "the" before "spatial error model".

Line 335: replace "originated" with "originating"

Lines 340 and 344: remove "see" before "Figs"

Line 357: please change "analysis" to "patterns" and remove "spatial modelling" from the subtitle.

Figure 8 and Figure 9 legends: please change "Same legend as in Figure 7" with "See Figure 7 for colour legend of hexagons".

Line 426: add "was" before "significantly"

> *Thank you for these suggestions. I edited the text accordingly.*

Discussion

Line 468: please replace "All in all" with "Overall"

> *Thank you. Edited as suggested.*