

The paper entitled «*How citizen science could improve Species Distribution Models and their independent assessment for conservation*» (M Florence, J Baudry, G Pain, M Sineau and J Pithon) tests various ways of using data originated from a citizen science project in a French region to generate spatial distribution models (SDM). The paper, which is mostly methodological, is well structured, understandable and focused, and the bibliography is quite updated. My main concern, which does not invalidate the approach nor the whole work, is the way data have been selected, filtered, or how some thresholds have been decided. Here are my suggestions/comments (that include the previous comment), that will hopefully help you improve the manuscript:

1. I do not see how the authors develop the second part of the title «.... *and their independent assessment for conservation*». The species used as biological models belong to an endangered taxonomic group, but the paper is clearly focused on the «HOW citizen science....» part. SDM and maps are used for conservation, but they also have other applications. The authors could have used non-endangered species in the same way. In the discussion there is not much about this second half as well, so if they do not work on this (probably in the discussion), I would just take it out.
2. Where does the «Opportunistic presence data» data set come from? This information does not appear neither in the main text nor in the Appendix. The only reference is «from a regional database for the period 2013-2019» in L147.
3. The data set for «Standardized detection-nondetection data (external validation data-sets)» is the same as the Opportunistic? The explanation is exactly the same: «we firstly extracted detection-nondetection amphibian data from a regional citizen science database for the period 2013-2019». I understand it should not, and that this comes from «Un dragon dans mon jardin», but as it's explained now is quite confusing.
4. When in the paper the authors cite the supplementary material, the reference is only «Appendix X». This is clearly not enough, because the 3 files have various figures and/or tables. The table or the Figure in the Appendix should also be mentioned to make the reading easier.
5. Data from CS.0 «Un dragon dans mon jardin». The data that the web page shows (<https://www.undragon.org>) does not seem to match with the data you say you use. For example, the web page shows only 12 observations of *Bufo spinosus* in Pays de Loire, whereas in your Table 2 of Appendix 1, there are 79 cells with detection of the species. It may be the number of years (I have not found the way to filter by year), quality-related filters, or any other reason, but this difference (which may occur with other species as well) should be explained.
6. L182-193. Criteria 2 to set the threshold to validate non-detection as absence data. The way of setting the thresholds is relevant, because it excludes or includes presence data. It should be very clearly specified, and it seems it's not. As explained it seems it's been manually/graphically-driven carried out. Has it? An alternative, although it represents a whole change of the statistical approach, would be using hierarchical models, which also take into

account detectability. It's not that I think that you MUST use this approach, but if you do not, the way thresholds have been set must be clearly explained.

7. Background data and pseudo-absence selection (L240-L253). Is this only for the Opportunistic data-set? It's not specified, but I understand that the data-set from the «Un dragon dans mon jardin» and the data coming from PRO and VOL has also real absences, right?
8. There is no much detail on how “s3: random pseudo-absence selection constrained to take sampling effort into account.” has been done. This should be clearly specified, at least in the Supplementary.
9. I think that the section «Involved stakeholders and citizens in the research process» must be shortened and changed. In my opinion, most of the paragraph is too much generic and common for most CS projects. I would highlight, though, this sentence: «*Involving citizens at different stage of the mapping process may make action easier to implement, through both better shared knowledge and stronger personal involvement.*». This sentence fits well with the whole work, and making suggestions **how** citizens may be involved in **which stage** will be a value in this paper, instead (or in addition to) these more generic sentences that do not really add much to the paper.

Some minor comments:

- Some axis titles do not start with capitals. Please correct
- Figure 1, Table 3 (in Appendix 1) Missing the description of the acronym «ABS» in the caption
- Figure 1 Appendix 1, missing units of the Y-axis
- L264: indicate that (1) is the internal model validation
- L303: change «specie» by «species»
- L412: change «Bibliographie» by «Bibliography»