

Responses to reviewer A

Reviewer A: I suggested the authors to rethink the "conservation status" part of the title.

Authors: Thank you for all suggestions. We removed "conservation status" from the title, as we did not evaluate the status of the species in terms of how endangered it is. However, we believe that our results do have important conservation implications for *Euterpe edulis*, by showing how much of its distribution has been lost by deforestation, and by indicating priority areas for conservation and restoration. Therefore, we updated the title to "GEOGRAPHIC DISTRIBUTION OF THE THREATENED PALM *Euterpe edulis* Mart. IN THE ATLANTIC FOREST: IMPLICATIONS FOR CONSERVATION"

Reviewer A: The abstract needs reordering of information. Also, it needs direct information about their results rather than the indication that they got results.

Authors: We reordered two sentences of the abstract as suggested (lines 9-14), and modified the concluding sentence (lines 23-25). Please note that we also expanded the abstract, as reviewer B suggested changing the manuscript from a short communication to a full article.

Reviewer A: The authors assumed a premise that SDM overestimate geographical distributions in fragmented landscapes. This is a methodologically imprecise statement. First, the model was constructed with climatic variables, so the inference will be on the geographic display of climate analogous, that, for sure, overpass forest patches. Second, if the authors are aware that species is present only inside forest fragments, so they mistakenly defined the geographic space (extent of analysis or projection). They need to fix it in the introduction section and abstract.

Authors: We agree that our premise was imprecise and, actually, unnecessary. Accordingly, we modified the first sentence of the abstract (lines 7-9), and one sentence of the introduction (33-36), thus removing any mention to "overestimation" by SDM. Regarding the second point, we disagree that the geographic space was incorrectly defined. We deliberately chose to adopt a two-stage approach, which produced valuable information for *E. edulis*. The first stage was based simply on climatic variables, and informed how climatic suitability for this species varies across the Atlantic Forest. The second stage was to overlay the map of climatic suitability with the map of forest remnants. We added a sentence to the text to explain this choice (lines 100-102): "Forest cover was not included as a layer in the models, which were based on climatic variables alone. By analyzing forest cover only *a posteriori*, we were able to assess more directly how deforestation reduced the climatically suitable areas for *E. edulis*, and how climatic suitability varied both within and outside forest remnants".

Reviewer A: Methods section needs some detailed information. For example, it is not clear how they handled with the results of all algorithms; it is not clear which is the threshold value of binary maps.

Authors: We reformulated the paragraph describing the implementation of the algorithms (lines 105-122). The revised version of this paragraph explains in more detail the steps used to evaluate the models and to combine results from different algorithms. Regarding the threshold value, please note that there is no single value to be reported, but a total of 50 values – as each of the five algorithms was run 10 times. The correspondent threshold was applied to convert each of the 50 continuous maps into binary maps. This point was not properly explained in the previous version (due to word limits), but it should be clearer now in the revised version (please see lines 114-117).

Reviewer A: Figure 3 is dispensable.

Authors: Figure 3 is complementary to Figures 1 and 2, and shows clearly one of the central results of the manuscript, i.e. that *Euterpe edulis* has suffered a dramatic loss of potential distribution area in the Atlantic Forest. Therefore, we believe it should be maintained in the paper. The original legend of the figure has probably confused reviewer A, leading him/her to believe that map A was simply the limits of the Atlantic Forest (as can be inferred from the comments made by the reviewer directly in the word file). To better explain and to highlight the importance of Figure 3, we reformulated the legend of this figure (see lines 264-267).

Reviewer A: This is a fair scientific contribution, but it requires improvement in communicating.

Authors: Thank you for all suggestions. We considered all comments and attempted to clarify and complement sentences throughout the manuscript, to improve communication. Please note that we also considered - and incorporated in the manuscript - all comments that you made directly in the attached word file.

Responses to reviewer B

Reviewer B: I am not completely sure that this manuscript is a short communication. I would suggest changing it to a full article.

Authors: Thank you for all suggestions. We would be glad if the manuscript was published as a full article. To this aim, we have expanded the Abstract and reformatted the file to match author guidelines for an Original Article. However, we lead this decision to the Editors of *Oecologia Australis*; we can submit another version with a different format, if necessary.

Reviewer B: Authors say they used a matrix correlation to choose the bioclimatic variables (that's ok), and then they say they chose those variables because they are following previous studies. To me these are two different "methods". Maybe it is just the writing, and the second part is only reassuring the first part, but in anyway, this needs to be clarified.

Authors: Thank you. Both methods were congruent in our study; therefore, we used both. To make this clearer, we inverted the sentence (please see lines 87-94).

Reviewer B: I found weird and unusual to extract pseudo-absence values chosen from pixels located within the study area but outside the potential distribution area of *E. edulis*, as estimated from BIOCLIM. Why not simply to take random points from the background area and make sure the pseudo-absences do not include presences? Also, are you not biasing the pseudo-absences when you use an estimated Bioclim model to draw pseudo-absences? Furthermore, in my experience, Bioclim predictions are quite poor (AUC<0.8).

Authors: Both methods to select pseudo-absences are acceptable and provide similar results, as clearly shown by Lobo & Tognelli (2011; "*Exploring the effects of quantity and location of pseudo-absences and sampling biases on the performance of distribution models with limited point occurrence data*" - DOI: 10.1016/j.jnc.2010.03.002). In this study, authors compared the two approaches for selecting pseudo-absences: "Pseudo-absences were selected in two different ways: (1) randomly across the whole study area; or (2) outside the environmental domain previously defined by the available presence points". Method (2) corresponds exactly to the method we chose, i.e. using BIOCLIM "[...] to define the range outside of which pseudo-absences were selected". Authors conclude that "[...] the method applied to select pseudo-

absences does not affect model performance”, and that the method we chose is preferable depending on the number of pseudo-absences: “[...] when a small number of pseudo-absences are used, they should be selected in areas falling outside the environmental envelope defined by presence localities”.

To better justify and make our choice clearer, we included a citation to Lobo & Tognelli (2011) and slightly rephrased the sentence, which now reads “[...] we used 1110 pseudo-absence values (10 for each presence record), chosen from pixels located within the study area but outside the climatic domain favorable for *E. edulis* as estimated from BIOCLIM (following Lobo & Tognelli 2011)” (lines 109-111).

Reviewer B: “For model evaluation, we used the area under the curve metric (AUC)”. Which threshold was considered to assign a model as “acceptable”?

Authors: We included this information in the methods (i.e. TSS > 0.7), and also explained in more detail how models were evaluated and ensembled (lines 114-122).