Dear authors,

I have now received two reviews of your submitted work.

It may have taken some time to secure these reviews but I hope you will find them helpful as I did myself. I am not an expert on insular biodiversity, but the two reviewers are knowledgeable of biodiversity assessments and insular systems as well. The fact is that your contribution is of interest and it could have a positive impact in biodiversity assessments in practice. However, they both raise issues that I agree with upon my own reading and assessment of your work.

RESPONSE: We are thankful to the reviewers and the editor for taking the time to assess the ms, and we believe the revised version of the ms is much improved thanks to the comments and suggestions.

In sum, the main concern raised is that the work even if intended to serve as a perspective, it comes a bit thin in making a case for what the authors call a novel framework for insular vulnerability assessments. What I mean is that it was not very clear to me in what sense this framework differs from other approaches already published by some of the co-authors of this work themselves. There are some elements that hint to the peculiarities of insular systems that could modify such generic framework but unfortunately they are not really worked out. In other words, at the moment the piece lacks the rigorousness and novelty to a unique contribution.

RESPONSE: We have now revised the ms according to the reviewer's suggestions and we now better emphasize the novelty of the framework in the introduction. The originality of our framework relies on its specific design for insular biodiversity, with the inclusion of multiple threats, taxa, and dimensions of diversity (e.g., functional and phylogenetic diversity). In this framework, we also give examples of markers for other threats such as biological invasions and land use changes. Following the reviewer's suggestions, we also wrote in bold font the markers specifically selected for insular biota in Figure 2. Moreover, the application of such a framework at different levels of biodiversity besides the « island level », such as the community level, constitutes a very innovative point. Another original contribution is the application of functional and phylogenetic markers in the context of vulnerability assessments (see Table 1).

« Here, we introduce a new framework for quantifying the vulnerability of terrestrial insular biota to multiple threats, which is specifically designed to reflect the challenges associated with the uniqueness of insular biota, enhances their vulnerability to global changes (e.g., island syndrome, isolated nature of islands, high endemism; see also Figure 1A). We define vulnerability across multiple biodiversity dimensions, considering the exposure, sensitivity, and adaptive capacity of insular biota to multiple threats. The originality of our framework is that it is specifically designed for insular biodiversity, with the inclusion of multiple threats, taxa, and dimensions of diversity, such as functional and phylogenetic diversity, as well as the inclusion of vulnerability markers at species, community and assemblages levels of islands. » L113-121

I would thus encourage the authors to revise their work based on the comments of the reviewers.

In addition, I would like to add few other points:

1. as also mentioned by reviewer 2, the 1/3 of studies of insular systems does not look low to me. what would be high? also the geographic, taxonomic, multiple threat biases (or under-

representations) are common in biodiversity studies, so I dont see the special case for insular systems.

RESPONSE: We are sorry if the special case for insular systems was unclear in the initial version of our ms. We have now modified the main text to better explain the specificity of insular systems. In fact, 20% of global terrestrial biodiversity and most of the threatened biodiversity (50% of the threatened species and 75% of the known extinctions, Fernandez-Palacios et al., 2021) occurs on islands (6.7% of land surface area). So, our primary hypothesis is that islands deserve more attention given the relatively high proportion of threatened species therein, especially, in the context of vulnerability assessments of biodiversity. This is now better highlighted and mentioned.

« Although this would be representative of the small land surface area occupied by islands (6.7%), it falls short in terms of biodiversity representativeness, as island's biodiversity represents 20% of biodiversity worldwide, with 50% of threatened and 75% of known extinctions (Fernández-Palacios et al., 2021). *»*

It is true that biases or under-representations are common in biodiversity studies in general, and islands assessments are no exception here, but we believe it is important to demonstrate that those biases also occur within studies on insular ecosystems (i.e., geographic or taxonomic ones). We now acknowledge that those biases are also common in biodiversity studies (L216-218).

« Note that these geographic, taxonomic, or conceptual biases occur in both mainland and insular assessments (see also (de los Ríos et al., 2018). »

2. I really struggle of how the metrics chosen in the three parts of vulnerability (or risk, huge confusion as well of names/components of such frameworks but that is another story) are scaled. Are they weighted? how do they become comparable? Just by normalising and ranking?
I know this is an issue treated differently across studies but I find that such clarifications and specifications for insular systems would make your contribution stronger.
RESPONSE: There are three components of vulnerability (VU) (i.e., exposure, sensitivity, and adaptive capacity). Each of these components could be calculated with multiple markers. Such markers could have very different units, measurements, and ecological meaning even if related to the VU concept. We did not find any methodological studies that assess how to aggregate those multiple markers and how different aggregation methods (e.g. max-min rescaling, normalization and averaging across markers with equal weights, weighting some markers more heavily based on their ecological relevance for the component, etc) may affect the results. However, there is a review on the aggregation method used in climate change vulnerability assessments (CCVA, see Figure from Tonmoy et al 2014), they showed that most of the papers used arithmetic mean. Among the papers that used weighted methods, weights are assigned based on expert judgement.

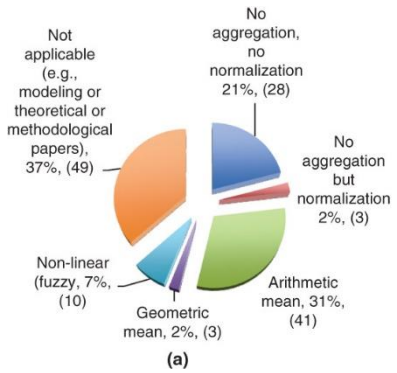

Figure from Tonmoy et al 2014 based on 134 papers on climate change vulnerability assessment

Tonmoy, F.N., El-Zein, A. and Hinkel, J. (2014), Assessment of vulnerability to climate change using indicators: a meta-analysis of the literature. WIREs Clim Change, 5: 775-792. https://doi.org/10.1002/wcc.314

In this framework, we want to emphasize that even if multiple methods of aggregation (or not) through additive, multiplicative rules or other scoring systems exist in the scientific literature, we can create a unit-less metric. Note that readers are less interested in the absolute VU value, but rather on the relative ranking of the different islands/archipelagos based on their relative VU scores. This allows us to highlight islands/archipelagos that can be prioritized for conservation, for example. As an example, each individual variable of exposure, sensitivity, and adaptive capacity was standardized to a 0-1 range to create unitless metrics following 3 types of transformations fully described in Leclerc, Courchamp and Bellard (2020). Then, after standardizing each variable, we calculated the sum of the variables of each component (i.e. exposure, sensitivity, and adaptive capacity) and re-standardized the obtained values of exposure, sensitivity, and adaptive capacity. In this case, the markers are not weighted, and the hypothesis behind is that all markers contribute equivalently to the final measure of vulnerability. Yet, it is perfectly possible to assign more weights to some markers and explore how the relative values of vulnerability would be affected by different combinations of weighted markers and also to test the robustness of our findings to different methodological choices. We have now explicited what are the different steps to implement it in the main text (see Step 3 of the framework.

« A recent review showed that most assessments use arithmetic mean for the aggregation (Tonmoy et al., 2014). In the case of quantitative markers, as here, one possibility is to normalise each marker to a 0-1 range. This transformation, which can be done with multiple methods (e.g. Leclerc et al.2020), creates unitless metrics with equal weight. Then the markers of each component (i.e., exposure, sensitivity, and adaptive capacity) can be summed and re-scaled to obtain normalized values of exposure, sensitivity, and adaptive capacity. This technique has the advantage of clearly identifying which components drive vulnerability, by ensuring that all markers are weighted equally, and can thus effectively guide the implementation of conservation actions at the island level. The different markers could also be weighted differently to put more emphasis on specific markers depending on the current level of island protection policy or biodiversity richness occurring on each island. »

3. In the same lines, I would encourage to make the list of properties not non-exhaustive but highlight the most important for insular systems- otherwise Fig 2 looks relevant for any system.

RESPONSE: In figure 2, we have now highlighted in bold all markers that are particularly relevant for insular ecosystems. We have also added new markers that are particularly important to characterize vulnerability in islands but that were not included in the previous version of the manuscript. Further, we added biological invasions as a main threat to island ecosystems with some associated markers. Note that all markers in bold are related to the inherent properties of insular ecosystems highlighted in Figure 1A or Table 1. For instance, the unique lineages of islands could be characterized by their phylogenetic endemism.

4. Foden ref 2018 and 2019 I think they are the same

RESPONSE: We corrected the references

5. arrows and numbers in box 2 need to be explained

RESPONSE: We have now added a caption to the figure to explain the arrows and numbers. Each number is also colored in the box to facilitate its interpretation.

/by **Vasilis Dakos*
<https://ecology.peercommunityin.org/public/user_public_page?userId=592>*, 31 Jul 2024 12:36/
Manuscript: *https://hal.science/hal-04550966* <https://hal.science/hal-04550966>
version: 1

Review by T Johnson, 19 Jun 2024 14:28

I enjoyed reading 'A framework to quantify the vulnerability of insular biota to global change'. The work is well grounded in the literature and presents a compelling argument for increased effort to protect insular biota. The framework offers a practical, scalable (largely) and evidence-based solution to vulnerabiltiy assessment. Overall, the work is of high quality and should have impact within science and policy. There are only a few small features I believe authors should consider more generally to improve the framework and manuscript:

1) Within the framework, you allow users to essentially define the spatial/taxonomic/temporal extent, and you argue that at broad scales (e.g. Australia?) the framework can help guide policy, whilst at small scales(e.g. St Helena?) it can guide adaptive management. I think it would be good to hear how effective you think the framework will be at these varying scales e.g. at large scales you may have more species at risk of extinction, but the proportion at risk will be lower? That's a terrible example but hopefully you get the point.

RESPONSE: Thanks for raising this issue, it is true that the difference between absolute diversity at risk vs. the relative diversity at risk (controlled by the overall species richness or area) are both important. At large scale, we may have a higher absolute diversity at risk because there are also more species. Note that the vulnerability markers are not linked to biodiversity (i.e. exposure), or they are completely (sensitivity) or partially (adaptive capacity) dependent on the species included in the studied assemblage. In general, to avoid the shortcomings raised by the reviewer, we refrain from suggesting the inclusion of markers that are correlated with species richness. Of course, functional redundancy or phylogenetic endemism are somehow related to species richness, but they only represent two of a large set of markers and are not expected to have a strong weight on the final measure of vulnerability. In summary, when applying such a framework for broad and small scales, one must be aware of which marker is linked to species richness or area and control them accordingly to avoid biased results. We have now added such warnings in the main text. Moreover, regarding the application of such framework to guide policy and adaptive management at a local scale, we addressed this in comment 3).

« Note that in all cases, it is important to control by island area or species richness, to avoid biases towards larger islands when calculating vulnerability metrics. »

2) More generally, can you expand your definition of insular biota. Do you mean islands? Or could the framework also be applied to isolated communities on non-islands

RESPONSE: That's a very good question, to some extent the framework could be applied to island-like systems such as mountain systems, lakes, etc … Yet, the current version of the ms is solely focused on « true islands », fragments of less than 1 ha (because of data availability) that are surrounded by sea-water. We also chose this definition, because of the long-term (i.e. geological time scales) evolutionary context of « true » islands which leads to some specificity (i.e. long-term isolation) that makes true islands particularly vulnerable to global changes (highlighted in bold in Figure 2). We specify this definition in L 232-234. For application to other islands-like systems mentioned above, besides our proposed markers, it would be necessary to think about other alternative markers that are specific of those systems, which is beyond the scope of our perspective.

« Here, we refer to islands as insular systems that have a landmass smaller than Greenland (i.e., < 2.17 million km²) and are surrounded by sea water ».

3) When concluding, you point out that the scalability of this framework is conditional on available data? It would be useful here if you could detail what spatial and taxonomic extents you think the framework could be readily applied to e.g. from your expert opinion, where should we be using this?

RESPONSE: It is true that the first criterion of applicability/scalability is data availability because we cannot apply this framework without data, but this is inherent to any ecological framework. Yet, we agree with the reviewer that some details about how this framework could be applied at different spatial scales could be useful. We extended this part in the main text of the ms:

« For instance, a vulnerability assessment could be conducted at the spatial extent of a national park, within an island of a few hectares only, with a restricted set of species (e.g., Harper et al., (2022), 24 ha in South Africa, 18 amphibian and 41 reptile species). This can inform management priorities at the landscape scale, such as defining park- use zones to help allocate restricted areas acting as corridors for species migration, or creating habitat conditions for breeding (Harper et al., 2022). At this level, an explicit treatment of population genetics and/or population viability analyses could also be conducted, this may become more feasible in the future with the emergence of macrogenetics studies (Leigh et al., 2021). In parallel, studies focusing on the global extent are key to assess vulnerability metrics, identify geographical shortfalls in data coverage, and support the implementation of conservation policies to mitigate biodiversity losses. »

Harper, J. R. M., van Wilgen, N. J., Turner, A. A., Tolley, K. A., Maritz, B., Clusella-Trullas, S., da Silva, J. M., Cunningham, S. J., Cheney, C., de Villiers, A. L., Measey, J., & Foden, W. (2022). Application of a trait-based climate change vulnerability assessment to determine management priorities at protected area scale. Conservation Science and Practice, 4(8), e12756. https://doi.org/10.1111/csp2.12756

4) Would you expect the community markers for function and phylgoeny to be correlated between the sensitivity and adaptive capacity groups e.g.is funtional rarity not related to redundancy? Any correlation here could mean you end up locked into a certain part of the vulnerability parameter space, which would be interesting and worth acknowledging as communities with high rarity could be more inclined to have low redundancy and so are just naturally more vulnerable.

RESPONSE: We agree that the functional and phylogenetic metrics are inherently interconnected, however they refer to distinct concepts, both in terms of what they measure and their implications for conservation. The functional redundancy showed the degree of functional similarity among distinct species, which is important to get a functional insurance (related to the adaptive capacity) against the potential loss of ecosystem processes, while functional rarity is more a low probability to encounter a species with specific functional characteristics (high sensitivity of those communities; Ricotta, Pavoine, et al., preprint: https://doi.org/10.32942/X2F32F*). While both metrics might be correlated to some extent, each of them have very different implications for the vulnerability of the ecosystems and can contribute distinctively to the concept of vulnerability. Moreover, authors undertaking vulnerability assessments can either test the collinearity of the markers before including them in the framework to avoid any redundant information (as we did in Leclerc et al., 2020) or keep those different markers to highlight how interconnected are the components of vulnerability, for instance by weighting each marker according to its correlation with the others to account for their degree of dependence (see for example Silva Rocha et al., 2024). Finally, the authors can decide which markers they want to include based on the questions they want to address. For instance, one could conduct a vulnerability assessment on functional diversity only, thus selecting the appropriate markers for this specific case. This*

highlights also the flexibility of the vulnerability framework we are providing here, which can be tailored to different conservation and research purposes.

Barbbara Silva Rocha, Aurélien Jamoneau, Maxime Logez, Christophe Laplace-Treyture, Nathalie Reynaud, Christine Argillier,Measuring biodiversity vulnerability in French lakes – The IVCLA index, (2024) Science of The Total Environment, 908

5) My main (friendly) critique with the framework would be how to acknowledge and capture uncertainty in these vulnerability estimates. This uncertainty could be in the underlying traits. Or introduced by alternative apporaches to estimate vulnerability. Or just in how well your estimated vulnerability aligns with true vulnerability. It would be nice to hear some dicussion about this.

RESPONSE: The reviewer raised a very important point. We have now expanded our discussion on this issue to illustrate the different uncertainties that may arise from the applications of this framework. Moreover, we added a new 4th step to the framework with a dedicated uncertainty section, thus totalling 5 steps in our revised framework instead of the initial 4 steps. The Figure 2 is now updated accordingly, as well as the main text on step 4 : « From uncertainty assessments to the improvement of vulnerability assessments and policy recommendations. »

6) Related to the above, I think you are missing a step 5 in the framework, when you update the vulnaraibility estimates when confronted with new information e.g. perhaps a island/species you considered highly vulnerable has been very resilient, you are presented with an opportunity to adjust the weightings to acknowledge your imprefect calculations i.e. an itetation and review step

RESPONSE: We thank the reviewer for this suggestion and we fully agree that an iteration and review step showing that the vulnerability assessment should be revised and updated when confronted with new data, information, robustness analyses or detected bias is very important, especially when one of the applications of vulnerability assessments is to inform policy measures. We have thus decided to add this "update with new datasets" within step 4 in Fig 2 and in the description of step 4. We believe this strengthens the framework.

Does the title clearly reflect the content of the article? */Yes/*
Does the abstract present the main findings of the study? */Yes/*
Does the introduction build on relevant research in the field? */Yes/*
Are the methods and analyses sufficiently detailed to allow replication by other researchers? /Yes, but a reproducible code workflow would be a very nice addition so readers could begin applying this framework. However, I apprecaite this is not a small amount of work and will probably be completed as part of another publication/

RESPONSE: Indeed, the next step of this collaborative project is to provide a clear example of how this framework could be applied in a conservation context with the code and the data to test the framework with new data, alternative techniques of aggregation, etc. Hopefully it will be submitted next year as a follow-up study and illustrative application of the perspective paper we intend to publish here.

Are the methods and statistical analyses appropriate and well described? */Yes, but see earlier point about estimating vulnerability/*

RESPONSE: See my response above.

In the case of negative results, is there a statistical power analysis (or an adequate Bayesian analysis or equivalence testing)? */NA/*
Are the results described and interpreted correctly? */NA/*
Have the authors appropriately emphasized the strengths and limitations of their study/theory/methods/argument? */Yes/*
Are the conclusions adequately supported by the results (without overstating the implications of the findings)? */Yes/*

Review by anonymous reviewer 1, 17 Jul 2024 17:51

I must say have mixed feelings about this paper. This could be a much needed perspective, highlighting the need of including islands in vulnerability assessments, and providing ways forward to do it. But as you will see, I find the text too thin for that purpose. What I mean is that in my opinión it lacks the necessary depth so as to make a strong impact in the community; in many senses looks like a first product that precedes something – like an extended grant proposal. Certainly 1) nothing is too novel, as conversations along the theme of adapting large-scale vulnerability assessments have been held for long in the island biology community, and 2) the treatment of most topics is too light. Currently looks a bit like space was at stake, and therefore lacks depth. So after reading the paper I end up with the sensation of "having eaten fast food" after a day of fieldwork… I may need to feed, but I would have certainly enjoyed a more nutritious meal. I'm sorry I can't find a better way of saying it, and perhaps I'm being unfair for a text that is meant to be a perspective… but my feeling is that a clear development of specific ways forward that provide clear guidelines or examples about how to conduct the assessments would have resulted in a much more effective vehicle for the needs highlighted above. Without them, the figures and schematic framework look like excerpts from a general policy assessment manual.

RESPONSE: We thank the reviewer for their honest feeling about the paper, and hope they will feel satiated with this revised version. As already emphasized by the reviewer, this is a perspective, not a full quantitative review or meta-analysis of the vulnerability of islands. A lot of papers have already been published on the vulnerability of islands (see de los Ríos et al., 2018)), and we already published an example of the premise of such a framework, by focusing only on climate change impacts on 340 insular endemic mammals,(Leclerc et al., 2020), with no consideration of other threats, taxa or biological levels of analysis. That being said, we attempted to be clearer about how to apply our proposed framework by (i) developing how this framework could be useful at different scales, (ii) adding an uncertainty step 4 to improve the framework, (iii) explaining how to aggregate the markers into one synthetic and standardised vulnerability measure. Also note that we understand the need to provide clear examples of the vulnerability measures but if we did so, at a global extent, or for specific islands, this would completely change the focus of the paper. This would considerably reduce the methods section, main steps of the framework and recommendations. Plus, we couldn't have emphasized on the main steps that should be undertaken in these vulnerability assessments, why those markers are related to the inherent vulnerability of island ecosystem, or the main underlying questions that any readers should think about before starting such assessments. We understand that this paper reads like an introduction to a much larger project and the beginning of a long story on island vulnerability, but applying this framework without explaining why it is needed, what are the main questions, limits, implications with policies would be premature. Future papers which will apply this framework on a specific set of islands and at a global scale with test of the vulnerability

aggregation techniques, choice of markers, etc. will fill this gap, but this was not our intention with this perspective, which is already quite long (4100 words + 2 box ca. 800 words).

All that said, as I commented I concur it may be unfair given the need of giving more attention to islands in vulnerability assessments. And the truth is that besides such deepening and development of general ideas, I'm only missing two main áreas that require a bit more of attention:

1. I miss an explicit treatment of population genetics and population viability analyses, which are certainly important at the island level. There are many classical Works for that, such as Brook et al J Appl Ecol 1998 or Bakker et al Ecol Mon 2009

RESPONSE: We agree that the genetic diversity and thus population genetics and population viability analyses are very important at the island level to ensure local species' survival for certain populations. However, dynamic population data at the level of multiple populations or genetic information over large geographical areas or, in the case of small scale, island level applications, across a large number of species is almost impossible to obtain. Detailed Population Viability Analyses (PVA) and population genetics analyses are better suited for single species, and would probably be amenable for a few highly vulnerable species that could be prioritized using our framework. In addition, the aim of this framework is to be applied on multiple islands and thus to have comparable markers that could be used to conduct a relative ranking of insular biota.

However, we agree with the reviewer that we can mention this as an opportunity in the future, with the emergence of macrogenetics studies :

« At this level, an explicit treatment of population genetics and/or population viability analyses could also be conducted, this may become more feasible in the future with the emergence of macrogenetics studies (Leigh et al., 2021). »

Leigh, D.M., van Rees, C.B., Millette, K.L. *et al.* Opportunities and challenges of macrogenetic studies. *Nat Rev Genet* **22**, 791–807 (2021). https://doi.org/10.1038/s41576-021-00394-0

2. A deeper treatment of the trait-based and phylogenetic assessments you make. For the traits, I would take a look to two complementary aspects:

2a. for within-species effects you have classical examples in paleontology, such as Jersey red deer or even Homo floresiensis… there is plenty of literature about trait evolution across enviromental and island changes, including some models that account for climate or island size variation… I think this approach could be extrapolable to long-term series for extant fauna and flora

RESPONSE: We agree with the reviewer that trait evolution across environmental and island changes is particularly interesting but we do not think that this approach could fit in the current framework. The timeline of our framework is about a few decades or a century (given the data required to apply such a framework), while dwarfism for both Jersey red deer or Homo floresiensis are processes that occur over millions of years (see this Figure from Van der Geer, but see also Rozzi & Lomolino 2017). Moreover, these syndromes actually improve the life conditions of island dwellers, but of course in the absence of humans and the species introduced by them. Other syndromes (traits evolution) may not need that much time (dioecy, flightlessness, diminution of clutch size), but for sure several hundreds or thousands of generations, making this useless for our approach (pers. comm. Fernandez-Palacios). To

conclude, this might be used in our framework if applied to past fossil data as a mean to assess past vulnerability, but this is out of the scope and purpose of the current framework that we chiefly developed within the current context of rapid global change.

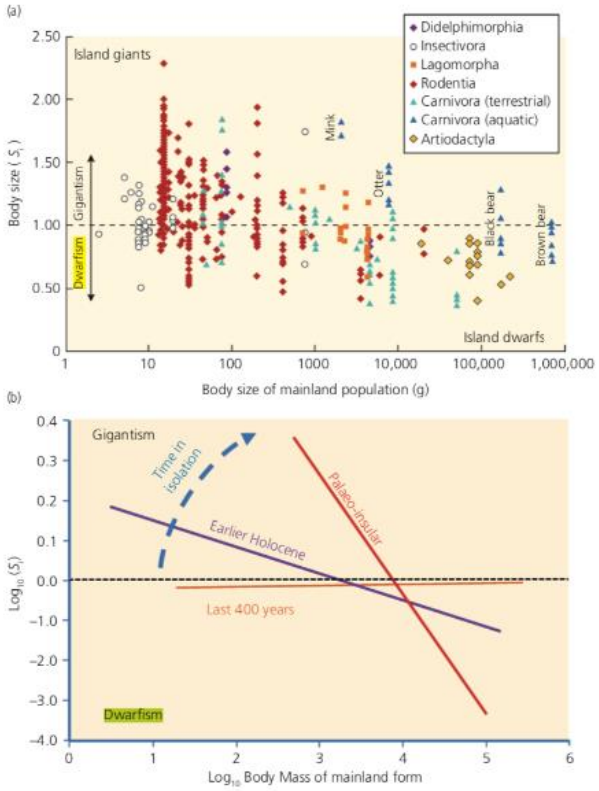

Figure 10.2 The island body-size rule in mammals. (a) Differences in body size between island mammal populations and those of their mainland relative or ancestor, expressed as S_i (the proportion of the mainland body size exhibited by the insular form). (b) Trend lines showing the increasing departure of relative insular body size (S_i) from that of the average mainland population body size with increased insular residence time. The lines of fit are for mammal species that: (i) were introduced within the last 400 years (not significant, but included for visual purposes); (ii) those established earlier in the Holocene; and (iii) those occurring before the Holocene and recovered from fossil data (palaeo-insular). The horizontal dashed line (black) indicates no change. The arrow indicates the expected change in the line of fit over time that generates the island body-size rule; that is, the graded trend from smaller species gaining body size to larger ones decreasing in size.
(a) Lomolino et al. (2017), their figure 13.46; (b) compiled from Lomolino et al. (2013), their figure 1 and van der Geer et al. (2018a), their figure 2.

Rozzi, R., & Lomolino, M. V. (2017). Rapid dwarfing of an insular mammal–The feral cattle of Amsterdam Island. Scientific Reports, 7(1), 8820.

2b. for across-species (community) effects you have the very recent trait-based global assessment of island mammals by Lorente-Culebras et al, which you may have not been aware of while writing the paper. I think it fits perfectly with your Functional Redundancy metrics, and provides a good analytical framework already in place for your suggestion. Check Llorente-Culebras, S., Carmona, C. P., Carvalho, W. D., Menegotto, A., Molina-Venegas, R., Ladle, R. J., & Santos, A. M. C. (2024). Island biodiversity in peril: Anticipating a loss of mammals' functional diversity with future species extinctions. Global Change Biology, 30, e17375. https://doi.org/10.1111/gcb.17375

RESPONSE: We thank the reviewer for this ref, we have now added in the main text that extinctions scenarios measuring functional diversity that might disappear and/or remain could also be used as a marker of sensitivity within the framework.

These are just my “obvious pieces of missing information”, but there may be other aspects that could be included and sharpened based on a deeper discussion. Besides them I have a few of relatively minor comments:

The text looks often unpolished, like a rushed submission. I guess part of it (the Split of Box 1 in several 1-line pages) is due to format changes while making the PDF or something like that, but Table 1 looks like a rushed submission, with many typos, open question marks… it would be good to revise it and sharpen the text.

RESPONSE: We apologize for the formatting issue, it seems that the conversion from word to pdf had some issues, we ensure this would not happen this time. Regarding Table 1 we revised it accordingly to polish the text.

The three reasons in lines 92-100 are not sufficiently developed; reasoning why, say, the body sizes favored by something as inherently diffuse as the island syndrome make species more sensitive needs some deeper explanation, and further support than a handful of papers documenting the syndrome itself. You explain this in more detail below, so I would refer to the text below rather than to these references, which are empty here.

RESPONSE: We agree it was important in the introduction to state that islands are disproportionately vulnerable but it was not the place to develop why and how, so this is further extended in the main text. We also now rephrased this sentence to refer to our main text : *Lastly, the physiography of islands, specifically in the case of isolated, small-sized ones, renders their biota more exposed to threats and also less able to escape compared to their mainland counterparts(Fernández-Palacios et al., 2021; see also the “uniqueness of insular biota” section for a more complete description of those inherent vulnerabilities).*

L114-5. Here mention challenges in the sentence (e.g. ¡describe the challenging chatacteristics!, or “which results in challenges that need”), so this summary can be easily linked to the corresponding section

RESPONSE: We have now added a sentence to make the transition with the challenges section.

Fig 1A. island biotas, check number concordance

RESPONSE : We thank the reviewer for pointing out the mistake with number concordance and now revised it.

L162. Check gramar and meaning of this sence, currently is a mess

RESPONSE: We have now improved the sentence.

L187-96. 231 our of 741 studies involving islands is not too bad at all given the land Surface that islands occupy, compared to the continents… I may concur that islands deserve special attention, but I would tone down a bit the text here, especially when you say majority (which is true) and ignoring (which is obviously untrue)

RESPONSE: We have now removed the « ignoring islands » part of the sentence. Also note that we added a sentence to emphasize why we believe that more vulnerability assessments should be underaken on island ecosystems: “Although this would be representative of the small land surface area occupied by islands (6.7%), it falls short in terms of biodiversity representativeness, as island’s

biodiversity represents 20% of biodiversity worldwide, with 50% of threatened and 75% of known extinctions (Fernández-Palacios, Otto, et al., 2021). »

L246. Sea-level rise is particularly important for islands, and there is a large-scale assessment that you could cite here to stress that (Weigelt et al Nature 2016)

RESPONSE: We agree sea-level rise is particularly important for islands. We thank reviewer #2 for the reference, but this reference focuses on how present and Last Glacial Maximum island area (which strongly affect sea levels) have influenced current endemic plant diversity on islands. While the sentence in our revised text discusses the vulnerability to land use and climate change including sea-level rise require markers, so we do not feel this reference is appropriate here and we added another one instead which we think is more appropriate.

L343 these papers are about effects of uncertainty, but as far as I know none are about communicating uncertainty… check McInerny et al TREE 2014 for a paper discussing exactly that

RESPONSE: We thank the referee for this reference, that we cited now in our study in the new section related to the uncertainty.