

## ***Interactive comment on “Influence of late Quaternary climate on the biogeography of Neotropical aquatic species as reflected by non-marine ostracodes” by Sergio Cohuo et al.***

### **Anonymous Referee #1**

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Applying SDM to fossil ostracod research is important but have been seldom done. This MS is a cool example and recommend publication after moderate level revision.

1. Line 52-53: Cite some broad references such as Yasuhara et al 2017 Biological reviews (<https://doi.org/10.1111/brv.12223>) and Yasuhara et al 2009 PNAS (<https://doi.org/10.1073/pnas.0910935106>).

2 Line 53-55: Late Quaternary climate change was important for extinction only in terrestrial (and freshwater?) system. There ws no much extinction in marine systems (eg Yasuhara et al 2012 Ecology Letters: <https://doi.org/10.1111/j.1461-0248.2012.01828.x>; Yasuhara et al 2009 PNAS:

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<https://doi.org/10.1073/pnas.0910935106>).

3. Introduction can be improved by separating global and regional (Neotropics) things. It will be good to start from global and then go to regional (eg the 1st paragraph and also the 3rd paragraph on ostracods as a model system).

For ostracods, it's good to cite these standard and updated refs:

Mesquita-Joanes, F., Smith, A.J., and Viehberg, F.A., 2012, The ecology of Ostracoda across levels of biological organisation from individual to ecosystem: A review of recent developments and future potential, in Horne, D.J., Holmes, J.A., Rodriguez-Lazaro, J., and Viehberg, F.A., eds., *Ostracoda as Proxies for Quaternary Climate Change*: Amsterdam, Elsevier, p. 15–35.

Rodriguez-Lazaro, J., and Ruiz-Muñoz, F., 2012, A general introduction to ostracods: Morphology, distribution, fossil record and applications, in Horne, D.J., Holmes, J.A., Rodriguez-Lazaro, J., and Viehberg, F.A., eds., *Ostracoda as Proxies for Quaternary Climate Change*: Amsterdam, Elsevier, p. 1–14.

Horne, D.J., Cohen, A., and Martens, K., 2002, Taxonomy, morphology and biology of Quaternary and living Ostracoda, in Holmes, J.A., and Chivas, A.R., eds., *The Ostracoda: Applications in Quaternary Research*, Volume 131: Washington, DC, American Geophysical Union, p. 5–36.

4. Line 156-157: It's good that chronologies and sampling methods are explained here. Especially it's the key to know how the chronology is robust. Dating of out side of 14C dating is often not easy, and resolution/error of the chronology can affect the discussion seriously. Thus details on dating methods/chronology/age depth model are needed here.

5. Lines 465-466: I don't understand. isotope stages are the same between marine and terrestrial, right??

6. Line 553 etc, a space needed between number (155) and unit (ka).

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7. Do these records have enough resolution to discuss abrupt climate change periods like Heinrich events? They are not shown on any figs.

8. Fig 5 says “Holocene” for the last 14 ka

9. Fig 3A, and other figs: too many numbers indicated (83, 85, 87 . . .). “80, 90, 100”, “80, 100, 120” etc will be enough.

10. The authors may like to mention ostracod response to abrupt climate changes are also known in deep sea (eg, Yasuhara et al 2008, 2014):

Yasuhara, M., Okahashi, H., Cronin, T.M., Rasmussen, T.L. and Hunt, G., 2014. Response of deep-sea biodiversity to abrupt deglacial and Holocene climate changes in the North Atlantic Ocean. *Global Ecology and Biogeography*, 23 (9): 957–967.

Yasuhara, M., Cronin, T. M., deMenocal, P., Okahashi, H., Linsley, B. K., 2008. Abrupt climate change and collapse of deep-sea ecosystems. *Proceedings of the National Academy of Sciences of the United States of America* 105, 1556–1560.

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