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Reply to Recommender

Berlin, 11 September 2018

Dear Recommender,

We believe that we have addressed all your comments. Please find an accompanying version of the Word document with tracked, and below our response to your questions or for the tracked changes that were not accepted. The revised manuscript (RM) was also posted on Biorxiv (http://biorxiv.org/cgi/content/short/318121v3).

On behalf of both co-authors,
Eli Amson

Abstract, last edit: "Several challenges preventing the attribution of one of the extant xenarthran lifestyles to the sampled extinct sloths' lifestyle were identified."

We do not consider that the edit was justified, because one does not attribute a lifestyle to a lifestyle (but to a taxon).

L431: Question "One concern is: why don't you rather use CSA and Tb.Th??"

We did argue that these parameters correlate with size. However, one should not simply use Tb.Th as a body size proxy, because it is known to be affected by allometry (e.g., Doube et al, 2011). For CSA, one could argue for it, it is true. But for this analysis for mid-diaphyseal bone distribution varies quite a lot across the sampled taxa (from tubular organisation to medulla filled with spongy bone), we favoured Warea to represent size.

L479: Question What is this reference?

Flynn & Swisher (1995) is cited as a reference in Kay et al. (1998). "in" was italicized to make it clearer.

L740: "Better is always a bit subjective"

In the case of a discrimination provided by a discriminant analysis, we believe that it is common to refer to "good/better" "bad/worse" discrimination. By this, one refers to the misclassification error, which is "objective". The text was revised to make it clearer.

L801: "But also if data were normalized first [...]"

The problem we are discussing here is not about variables presenting a greater variance, but performing an accurate size correction using residuals of a regression against a body size proxy. The overall variance of a size-corrected variable might actually not be greater than the un-corrected one (but just biased for some taxa). We clarified the sentence in the RM.

L1076: Some issues with reference orders when multiple references with the same first author. Please check.

We checked everything, and found one issue: Owen (1861).

L1442 Su & Carlson (2017) not found in the text

It is cited at the end of the first paragraph of the Intro (within brackets with other refs).

Fig legend 3: Why is "Hapa" written on the fig? C&D

"Hapa" is the abbreviation used for *Hapalops* (as given in the list of abbreviations of the figure legend).

On several instances, it is suggested to use a singular after "no" (e.g., "no units" in the footnotes of tables).

We believe that it is standard English to use a plural in such a case.