To: Brian McGill, Maria Dornelas, and Richard Field,

Editors in Chief, Global Ecology and Biogeography

From: John Harte

Subject: Responses to review comments on GEB-2017-0087

The review comments by Editor in Chief Brian McGill, assigned Editor David Storch, and two anonymous reviewers were thoughtful and constructive. My co-authors, Andrew Rominger and Erica Newman and I have now revised the manuscript in accord with nearly all the suggestions. Below I detail our responses and revisions.

**Editor in Chief’s Comment.**

As suggested, we have added about 400 words of interpretative text and made the discussion section more thorough and more nuanced. We have also added a Supp. Info. that presents the derivation of the metabolic rate distribution.

**Editor’s Comments.**

In response to the suggestion that we provide more discussion of the shape of the predicted metabolic rate distribution, we have inserted text (lines 105-114; 126-130).

We now refer to the Enquist approximate power-law finding (lines 68-69).

Overall we have added about 400 additional words of text that provide more insight into the meaning of the results.

“Minor Comments”

1. The Editor requests more discussion of the “break points” determining the onset of approximate power law behavior and the onset of approximate exponential behavior. This is now provided in the added text within lines 141-149.

2. The Section headings have been changed in conformity with the Editor’s suggestion.

**Referee 1.**

1. The referee suggests we provide more discussion of the role of light or other possibly limiting resources. Lines 176-205 consist largely of added text that addresses this issue.

2. Old line 32: the material under “Evidence” is more about methods. Agreed. We have completely rewritten the Abstract to address this and other problems with the original Abstract.

3. Some references missing titles. Fixed.

4. Old line 90: page number missing. Fixed.

5. Old line 93. The referee suggests we add an Appendix to provide more insight into the derivation of the metabolic rate distribution. This is now done in an added Supp. Info.

6. Explanation of the “white region” in Fig. 1? This is now done in the Figure Caption.

7. Old line 119: reference for preference for rank plots? Fixed in lines 151-153.

8. Provide R code. Added reference (lines 104-106) to online repository with code.

**Referee 2.**

1. Old line 43 (and elsewhere in original ms.). The referee correctly casts doubt on our use of the phrase “casts doubt” in connection with the light-limitation explanation for the BCI results. More generally the referee wishes to see a more nuanced and plausible discussion of mechanism. Agreed. Added text in lines 176-209 now provide what we think is such a discussion.

2. The referee questions our simplistic discussion of “adjustable parameters” in the Farrior model and METE. Agreed. We think it is useful to distinguish two kinds of parameter determination: A. parameters that are adjusted in the process of obtaining fits of model predictions to an empirical distribution, and B. parameters that are pinned down before even examining how well a prediction matches an empirical distribution. Without belaboring the point and giving too much weight to that distinction, in lines 80-85 and 141-145, we discuss this.

3. The referee states that it might be useful to provide some kind of statistical evaluation of the goodness of the predictions. This is the only suggestion by editors and referees that we are not going to act upon, except to expand a little our discussion of why we do not think a statistical comparison is warranted (lines 167-175).