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

Editors in Chief, Global Ecology and Biogeography

From: John Harte, June 8, 2017

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

The second round review comments by Editor David Storch are helpful. Erica Newman, Andrew Rominger, and I have now revised the manuscript in accord with the Editor’s suggestion. Below I detail our responses and revisions.

There were two suggestions.

**1. Avoid suggesting that the light limitation model is capable of predicting other metrics of macroecology, beyond the size distribution, such as the species abundance distribution.**

We agree with the Editor and have deleted the sentence that implied the light limitation model had that capability. But we have retained the more general idea suggested by McGill in two recent publications that there is merit in trying to extend the reach of models. To replace the deleted sentence that the Editor found misleading, we have added (lines 199-202) a sentence that makes no reference to the Farrior et al. model:

“Further insight into the relative merits of mechanistic models and statistical theories might arise if models that assume one or a small number of mechanistic drivers of particular macroecological metrics, such as the size distribution or the species-area relationship, can be extended to predict the shapes of many such metrics (McGill, 2003; McGill *et al*., 2007). “

2.  **There are two issues here. First, the Editor states that it is confusing that Figure 1 plots probability density versus metabolic rate, whereas Figure 2 plots predicted and observed metabolic rate versus rank (all plots on log-log axes).**

**Second, the Editor is concerned by the use of log-log axes for rank-variable graphs.**

We agree with the Editor about the confusion and we have now included an additional figure (1B) that plots the same three domains of functional behavior as in Figure 1A (the original figure 1) but using the same variables as in figures 2. This allows a direct comparison of the graphs in Figures 1 and 2.

With respect to the second issue, the reason we plotted on log-log axes is simply because the more widely used rank, as opposed to log rank, graphs, particularly for the BCI data, obscure the major highlights of the functional behavior of the size distribution that we have highlighted in the text. Log of rank graphs are widely used to display distributions that exhibit exponential or Zipf behavior and we wish to stick with our original decision.