July 8, 2017

Review of Gawel et al. (RSOS-170151.R1): *Contrasting ecological roles of non-native ungulates in a novel ecoystem*

I reviewed the first version of this manuscript several months ago. In that review, I found the article to be well-written and concise, to address an important question (role of nonnative ungulates as seed dispersers vs. herbivores in novel tropical ecosystems), and to largely be sound. I had suggestions for revisions that centered around: (a) lack of information on study sites (vegetation and soil characteristics); (b) interpretation of results (in a native vs. nonnative context, instead of a novel ecosystem context); and (c) over interpretation of results (primarily of feral pigs playing a beneficial role vs. not having a negative impact).

In general, I feel like the authors did a good job of addressing these concerns and suggested revisions. I still feel like too much importance is placed on native vs. nonnative in the Discussion, but the authors do eventually provide text and discussion placing the results in a novel ecosystem context.

The one area where I feel the authors still need to improve is on details of the study site, specifically information on vegetation composition and importance in the 8 study sites (fenced vs. unfenced). I originally wrote:

The article is concise, and I appreciate that. However, I feel like there is some pretty important information missing, largely from the Methods (although at 4x the length of the Introduction, I found the Methods section to already be long compared to other sections). First, I feel like the authors need to provide a fair bit more information on the species composition of the "novel ecosystem" within which they are working. For example, it would be very informative to know the average densities and importance (e.g., via basal area) of the dominant species, both the native and the nonnative components of the overall community. Also, what proportion of the forest do the selected study species make up? As currently written there is a lot of attention on this being a novel ecosystem, but zero information to support that and zero information to support the importance of the selected study species. In addition to information on the overall study site species composition, I feel that the authors need to do the same for the small fenced exclosures they studied. As written, they simply say on lines 79-81 that the fenced and unfenced plots "had similar canopy cover, rockiness, and forest structure", but provide no data to support this. A table of the dominant species with densities and some estimate of importance (e.g., basal area, biomass, etc.) is warranted at a minimum, but it should also be pretty easy to run some analyses to see just how similar they were (t-test of species composition in paired fenced vs. unfenced sites?). Second, the authors should provide a lot more information on the soils in the study site, particularly to help couch the results about feral pigs. It strikes me that these are very unique soils (karst; "calcareous rock – the brittle, fossilized remains of ancient marine organisms"), and the primary way in which feral pigs impact other ecosystems is via rooting and wallowing. If they are unable to root in these soils, it likely has a huge impact on the results seen (and potential comparisons to other studies). Finally, the authors provide no information on ungulate densities for deer and pigs in the study area. It is very difficult to interpret the results (and compare to other studies) without this information. Also for feral pigs, what are the

animals on Guam descendant from (e.g., are they true feral pigs that escaped from domestication, wild boar introduced, or something else?). All three of these items are basic aspects that you would expect to find in the Methods section of any scientific paper, such that the absence from this one is quite striking.

I feel that the authors did an adequate job addressing lack of information on soils (although soil taxonomy for the study sites, if it exists (?), remains conspicuously lacking) and ungulate densities (although I encourage the authors to include the information (and caveats) on ungulate density estimates from the one study in Guam that estimated deer and pig densities that was included in the response to reviewers, but not the actual manuscript). In contrast, I feel the authors still do not provide adequate information on vegetation composition in the study plots. So I repeat that I feel that the authors need to provide more information on the vegetation of *the small fenced exclosures they studied. As written, they simply say on lines* 94-96 *that the fenced and unfenced plots "had similar canopy cover, rockiness, and forest structure", but provide no data to support this* (i.e., the same text provided in the original version, still with no data to support it). *A table of the dominant species with densities and some estimate of importance (e.g., basal area, biomass, etc.) is warranted at a minimum, but it should also be pretty easy to run some analyses to see just how similar they were (t-test of species composition in paired fenced vs. unfenced sites?).* I feel this needs to be done to be able to interpret these data.