**Dear Dr. McEwan,**

**Once again, I appreciate the opportunity to revise and resubmit my manuscript, *Observations of extended lag phase of non-native invasive* Frangula alnus (Rhamnaceae) *may be spatial-scale dependent*. You will find below and in the revised manuscript that I have addressed the comments from the Associate Editor, as well as those of the two reviewers as per the Associate Editor’s guidance. I look forward to the Editor in Chief’s final decision on this manuscript.**

**Sincerely,**

**Matthew E. Aiello-Lammens**

The authors have made a substantial improvement to this manuscript. At this point, very minor revision only is needed. While I appreciate the second reviewer's point about population growth not being the only driver of range expansion, the data do show differences in the rates of spatial increase over time, and most of the language of the manuscript focuses on spatial extent rather than population size. To make this even clearer, I would suggest the following text edits:

1. In the introduction, line 26, I would suggest not using "population growth in number and area" but rather "growth in population size and extent"

2. Introduction, Line 46 change "extended lags in growth of population size in the number of individuals and in range size" to "extended lags in the growth of population size or spatial extent"

3. First page of results -"exponential growth" - change to "exponential increase" to help avoid confusion about direct links to population growth models.

**RESPONSE: I greatly appreciate the associate editors input on this language. I have adopted the suggestions in the text.**

One minor point "Glossy Buckthorn" and other species common names generally should not be capitalized. Please also address the very minor editorial suggestions of the two reviewers.

**RESPONSE: I have edited the common species names accordingly, and added Family names as per the Editor in Chiefs note.**

Reviewer #1: Two minor editorial comments:

page 25, line 1: change "influence" to "influenced"

page 29, line 26, change "studey" to "study"

**RESPONSE: Thank you for pointing out these mistakes. I have corrected them in the revised manuscript.**

Reviewer #2: I agree with the author that the manuscript has been improved, and a lot of new work has been conducted to begin addressing my comments from the initial review. The inclusion of a null model does adequately provide evidence for the conclusions that F. alnus herbarium specimens were more sparsely collected than would be expected given sampling effort. It is indeed interesting that the spatial spread of F. alnus was delayed in the 60 or so years after its first record in North America.

I still respectfully disagree with the lag time framing, and contend that population- and continental-scale patterns of spatial spread are not necessarily linked by population growth as tightly as is presented in this manuscript. Indeed, the Merow et al. (2011) paper cited to address this issue concludes that population growth is only one component that is needed to explain spatial and temporal dynamics at the regional-scale. The other two critical components are local and long distance dispersal. Spatial spread for a bird-dispersed species could be decoupled from its population growth. It would not be unexpected for a fleshy-fruited plant population to be large, but not disperse across the landscape, if its dispersal vectors were absent (i.e., birds have not yet incorporated the novel fruit into their diets).

An alternative framework that asks questions about range expansion and species distributions would, to me, shed more insights than the population-level perspective currently being used. In fact, the author concludes that the methods used can contribute to answering "important standing questions regarding species range expansions." This suggests that this alternate set of biological questions are already being considered by the author, and could perhaps instead be articulated to motivate the work.

**RESPONSE: While I understand the reviewer’s perspective here, I maintain that the link between population level processes and landscape patterns is quite strong. Following the associate editors advice, I have adjusted language regarding population growth throughout the paper.**

Minor comments

Page 22, line 53. "The ratio of…is similar to the actual ratio." This statement is perhaps over-interpreting the result. If I understand it correctly, Fig. 6B shows that there is more uncertainty before 1900 compared to after 1900, as the gray lines are spread over a wider y-extent. The mean of the ratios may be curving downward slightly before 1900, but not to the same magnitude as the observed data. Toning down the interpretation would be appropriate (e.g., "Unlike the observed data, the mean of the ratio over all permutations only declines slightly until 1875(??)…etc." This does not change the overall point that the observed pattern deviates from the null expectation based on sampling effort.

**RESPONSE: I agree with the reviewers comment and have used the suggested language in this revision.**

Some additional proofing could be done for typos and word choice. For example, page 31, line 29:  "desperate" sources is probably "disparate" sources.

**RESPONSE: I have fixed this error and have reviewed the document throughout for typos and word choice errors.**