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To the editor:

I am pleased to submit this manuscript, *Understanding invasions with linked distribution and demographic models*, for review to Biological Invasions. Here I present the development and application of novel modeling techniques to understand the demographic processes resulting in successful species invasions. Specifically, I present a framework for linking demographic and species distribution models, and go through in detail how to apply theses linked models to test invasion hypotheses and generally investigate the factors associated with specific species invasions.

Integrated modeling approaches are increasingly being applied in the field of conservation science, generally to provide predictions of population dynamics of rare, threatened, or endangered species. There are currently even a very small number of examples of using these methods to predict population dynamics, such as population size increases and spread, of non-native invasive species. However, when combined with historical data detailing the patterns of species occurrence and abundance through time, these modeling approaches can provide an effective tool to reconstruct the ecological processes that likely yielded those patterns. In this way, we can use linked models to test numerous invasion hypotheses, such as the impacts of land use change or human mediated long-distance dispersal. This kind of retrospective forecasting is currently underutilized, particularly as it could be applied in the study of species invasions.

As both a demonstration of the utility of these methods and as an investigation into the processes leading to a specific invasion, I applied a linked model approach to study the invasion of *Frangula alnus* throughout northeastern North America over the course of the past ca. 150 years. For this species, I specifically examined the influence of life-history characteristics, land-use change over that time, and long-distance dispersal. I believe that this case study, and the methods there in applied, will be of great interest to the readers of Biological Invasions, and can help increase the awareness of the utility of these modeling approaches.

Sincerely,

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Matthew E. Aiello-Lammens