

## Species Risk to Global Change

**Award Year:**

2015

**Principal Investigator:**

Noelle Beckman, SESYNC

**Associated Program:**

[Postdoctoral Socio-Environmental Immersion Program 2015](#) [1]

Global change affects the ecology and evolution of dispersal, limiting the ability of species to move or adapt to global change events. Due to the long-term and spatially-complex dynamics of plant populations, understanding and predicting their responses to global change is empirically and mathematically challenging. Integrating empirical and quantitative approaches, my research contributes to an understanding of the mechanisms limiting plant populations and the influence of global change on these processes. With Prof. James Bullock (UK Centre for Ecology and Hydrology), I propose to apply recent advances in the study of species' movement and develop a general classification scheme to assess species' risk to climate change in fragmented landscapes within the U.S.A and Europe. This proposal will focus on plants, but can be generalized to all taxa. I will synthesize existing data on dispersal and analyze relationships with plant functional traits to enable prediction for unstudied species. Combining this with existing demographic data (COMPADRE), I will generate virtual species to examine the sensitivity of plant species to habitat fragmentation using recently developed mathematical models that incorporate environmental heterogeneity. This research will help identify species at greatest risk and aid the development of conservation strategies to ensure their persistence under global change. At SESYNC, I would like to work with policymakers to develop a classification scheme that would be utilized in assessing risk of species with inexpensive metrics and aid in the design of nature reserves that would enable species identified as at risk to track changing climates.

**Associated SESYNC Researcher(s):**

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