



The Ecological Society of America's  
Focus on Ecologists Project Presents:



## 2015 Cooper Award Brown, C.D. & Vellend, M.

The William Skinner Cooper Award is given to honor an outstanding contributor to the fields of geobotany, physiographic ecology, plant succession, or the distribution of plants along environmental gradients, the fields in which W.S. Cooper worked.

### **Brown, C.D., & Vellend, M. Non-climatic constraints on upper elevational plant range expansion under climate change (2014).**

Brown and Vellend (2014) tackle a question of fundamental interest: what limits plant establishment at the upper elevation edge of species distributions? They present a unique combination of observations and experiments demonstrating that seed predation and soil properties strongly limit regeneration beyond the upper elevational range limit of sugar maple, a tree species of major economic importance. Most strikingly, regeneration beyond the range limit occurred almost exclusively when seeds were experimentally protected from predators. Regeneration from seed was depressed on soil from beyond the range edge when this soil was transplanted to sites within the range, with indirect evidence suggesting that fungal pathogens play a role. Non-climatic factors are clearly in need of careful attention when attempting to predict the biotic consequences of climate change. At minimum, we can expect non-climatic factors to create substantial time lags between the creation of more favorable climatic conditions and range expansion.