

Spatial patterns of boreal forest moth diversity

Lead by: [Brett Bodeux](#)

Theme: [Arthropod Diversity](#)

Status: Continuing

Start: 2006

Participants

- [Brett Bodeux](#)
- [Jeremy Fitzpatrick](#)
- [Fangliang He](#)
- [Peter White](#)

Background

Spatial patterns in species diversity play a fundamental role in theoretical ecology and may provide valuable information for the development of sustainable forest management practices. The distance decay in compositional similarity is one such pattern, where the similarity in species composition between two local assemblages decreases as the distance between them increases. This distance decay relationship is a robust phenomenon that has been recognized across a broad range of taxonomical groups and spatial scales. The spatial turnover in species composition, that is inherent to the distance decay phenomenon, is defined as beta-diversity. Research involving beta-diversity is becoming quite common as its theoretical and applied value is being increasingly recognized. However, there have been very few studies focused on identifying and analyzing the spatial patterns of beta-diversity for arthropod species in the boreal forest of Alberta. A greater understanding of the spatial patterns of species diversity will provide forest managers with important information to maintain the natural variation of species diversity and to mitigate the negative effects of habitat loss and fragmentation on boreal forest species diversity.

Objectives

In order to maintain the variation in native species composition it is essential to understand the distribution and underlying mechanisms promoting species diversity across the boreal landscape. Thus, the specific

objectives of my research are threefold: 1) Quantify the species-area relationship and distance decay relationship of a boreal forest moth assemblage. 2) Determine whether specific environmental factors contribute to differences in local moth species diversity. 3) Determine whether biological characteristics of moth species affects the spatial distribution of moth species diversity within a boreal forest stand.

Key Results