

Retention Areas as Sources or Sinks for Biodiversity

Lead by: John Spence

Theme: Arthropod Diversity

Status: Continuing

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Participants

- David Shorthouse
- John Spence
- Timothy Work

Background

Retention of small patches of live trees following forest harvest is the main tactic being implemented by forest companies to maintain biodiversity on the landscape. However, it is yet undetermined whether such retention areas are sources from which native species can recolonize regenerating forests or well-intentioned graveyards for declining species. To evaluate their long-term effectiveness, it is necessary to determine which species use these areas and estimate the net flux of species in or out of retention areas. Species diversity within remnant patches of forest are altered by edge-effects and loss of connectivity with surrounding forests (Didham et al. 1998), although the actual movement of species between forest remnants is rarely documented (Haddad 1999). As a consequence, species loss in forest remnants may be accelerated by only small losses in forest habitat (With and King 1999).

Objectives

Understanding of the success of retention areas in maintaining biodiversity is hinged on our ability to describe patterns of movement in and out of retention areas as well as the changes in the densities of species within these areas over time (Pulliam 1998). To forge this ecological link, I will test the following specific hypotheses which directly evaluate the effectiveness of retention areas: 1) Rates of emigration away from retention areas are lower than rates of immigration into retention areas for resident species. 2) Absolute densities of species within retention areas do not decline over two years.

Key Results

n/a