

Stand-Level Response of Boreal Forest Songbirds to Experimental Partial-Cut Harvest in Northwestern Alberta

Lead by: Bruce Harrison

Theme: Avian Diversity

Status: Completed

Start: 1999

End: 2001

Participants

- Bruce Harrison
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Background

We spent three field seasons (1998-2000) studying bird communities at EMEND. Research was focussed on the short-term, stand-level response of breeding boreal forest songbirds to the various levels of partial cutting, as detected by point count sampling. In the final year of the study, we also investigated the utility of two alternative sampling methods in supplementing or replacing the point count technique. Many researchers have found that bird density (as determined via point counts) may not be an accurate indicator of habitat quality. Because the alternative sampling methods incorporated more direct measures of reproductive success, we anticipated they would help to more accurately link habitat quality to harvesting level.

Objectives

1) To monitor the immediate response of forest birds (at the community, guild and species levels) to varying levels of harvest; 2) To investigate whether a call playback technique could be used to effectively increase the bird observation rate; 3) To monitor breeding behaviours to test whether density measures derived from

point count surveys accurately reflected reproductive activity. 4) To explore potential mechanisms responsible for observed bird responses, using data from other EMEND researchers.

Key Results

Partial cuts were typically intermediate between clearcuts and controls for community and species-level measures, and point count sampling detected linear trends in these measures across treatments in most cover types. Species data were highly variable, but species that declined in the lower residuals were typically dependent on shrubs/trees for nesting and foraging, and most losses persisted through both years, in all cover types. Behaviour monitoring detected a significant difference in post-harvest Swainson's Thrush abundance between the controls and all other treatments, and all harvesting treatments supported relatively low densities (see figure). In contrast, the point count surveys failed to reveal any significant differences in Swainson's Thrush abundance between treatments. Though in-depth analyses of reproductive activity were precluded by a lack of data, results suggest that the call playback technique provided significant additional visual information relating to productivity, across cover and treatment types.