

Project Name:

Bird communities of coniferous forests in the Acadian region; their habitat associations and responses to forest management

Project Manager/Primary Contact:

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Project Location:

Study sites are located on Nulhegan Basin Division of Silvio O Conte NFWR, Umbagog NWR, Moosehorn NWR, Arrostook NWR, and at University of Maine study sites in the Baxter State Park Scientific Forestry Study Area and Telos and Clayton Lake regions of northern Maine.

Project Goal:

The goal of this study is to examine effects of forest harvest practices used in northern coniferous-dominated and mixed coniferous/deciduous stands across the Northern Forest region on diversity and abundance of the bird community, with an emphasis on selected species of conservation interest. The study will quantify bird communities in manipulated stands compared to reference stands and within the larger landscape context. Time since harvest will range from > 60 years (i.e., mature residual stands) to 17-40 years in regenerating clearcuts, and 14-18 years since initial harvest entry in selection harvest, shelterwood establishment, shelterwood overstory removal stands, with a gradient of harvest intensity from clearcut with herbicide to selection, to shelterwood establishment, to shelterwood overstory removal. Specific objectives of the study are to:

- 1) Relate avian diversity and abundance to stand quality (indicated by stand vegetation structure and composition) in forests that have been harvested with a range of intensities along a temporal gradient within multiple landscapes across the Northern Forest region. These relationships will inform efforts to assess regional habitat capacity for forest birds in the Northern Forest region and will inform descriptions of suitable forest conditions for sustaining priority species at desired population levels.
- 2) Quantify relationships between avian community composition and forest harvest pattern in the landscape. These relationships will inform efforts to assess regional habitat capacity for forest birds in the Northern Forest region based on landscape-scale habitat components and patterns.

- 3) Examine trends in regional and national surveys of USFWS priority bird species and relationships observed between avian species and forest conditions documented during this study to assess the degree to which forest conditions might be limiting habitat availability for these birds.
- 4) Assess the role that refuges in the Northern Forest region can play in providing habitat for priority forest birds and serve as demonstration areas for forest management practices that benefit these species.

Expected Conservation Outcome of the Project:

The results of the project will yield a clear and measurable association of bird communities and their habitat conditions in harvested forests. This information will allow resource managers to better evaluate effects of forest management on bird communities, including species of conservation concern, with respect to achieving regional conservation goals for these species.

Project Measureable Objectives:

1. Annual project progress updates (oral and written) have been provided to USFWS beginning December 2013.
2. Project field research began with a study area reconnaissance visit during fall 2012; field sampling began in summer 2013 and continued during summer 2014 and 2015. Field work was completed by September 2015.
3. GIS data layers of survey locations and summary information about the bird and vegetation datasets have been provided to the project sponsor. Additional analyses will be shared upon project completion.
4. The project final report (as a PhD dissertation) will be completed by December 2017. Anticipated topics include assessing relationships between forest stand structure, forest harvest practices, and the avian communities and description of similarities and contrasts in bird distribution, abundance, and habitat relationships across the study areas. At least one manuscript for journal publication, co-authored by the PhD student and co-PIs, will be developed from the dissertation chapters.

Assessment of Short-term Performance (Year 1-3):

- 90% or more of project measureable objectives achieved

Project Status:

Fieldwork was completed and annual reports and updates were delivered on schedule during 2013, 2014, and 2015. Given the large volume of point-count data for birds and vegetation data

for survey points and study stands, additional time was required for data entry and management. Analyses are ongoing and a final report in the form of a manuscript submission is on schedule and will satisfy goal #1. Manuscripts addressing goals 2-4, as well as the complete final report in the form of a doctoral dissertation will be delivered by December 2017. A no-cost extension has been approved and the contract amended to address that change in timeline (from December 2016 to December 2017)