Maintain Wildlife Habitat

BERA Project Update

The Response of Boreal Songbird Communities to Energy Sector Linear Features and Edge Effect

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Project Theme Area
Human & Wildlife

Project Code
HW-1

Project Location
North & Northeast Alberta

Working Group
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Why is this study important?

There are many questions about how boreal birds respond to linear features. A key question is do bird communities change as a function of linear feature width? Understanding when linear features cause habitat loss vs habitat gain for different species is important. At the same time understanding whether linear features of different widths have different depth of edge effects is essential for evaluating impacts. Furthermore, whether the amount of regeneration on linear features alters these relationships is fundamental to assessing how effectively we can mitigate any undesirable impacts. Our work will help us understand the specific responses of birds (positive or negative) to forest edge and the threshold linear feature width that can weaken or strengthen the edge effect. This study will improve different ARU-based monitoring techniques like sound triangulation and limited amplitude counts to identify their potential for efficient and accurate monitoring of avian soundscapes.

How was it completed?

Last summer, I spent two months in the field and successfully deployed nearly 300 ARUs in more than 100 different sites with pipelines, seismic lines, roads, well pads and harvest blocks. These sites include different habitats like conifers, aspen and mixed-wood forests, graminoid fens, marshes, and reclaimed sites located in northern and northeastern parts of Alberta. Some of these locations are new sites where collection of ARU data has not been done before. At each site, I deployed multiple (4-7) ARUs (50m spacing) along an edge-to-interior transect and left them for 3 days to collect recordings. This fieldwork also included ARU deployments in reclamation sites based at the Conoco Phillips Surmont project zone. In addition, I deployed single ARUs in fens and other wetland habitats to monitor Yellow Rail which is one of the poorly sampled species in North America.

What are the core management implications to date?

Recognizing the threshold linear feature width that influences the edge effect and causes changes in bird communities will provide insights into management and reclamation of energy sector linear features. Field data of this project is stored and curated through WildTrax, which is the online data platform of the Bayne Lab. This data will be available for scientists, students, industry partners, and other interested parties for their research and conservation purposes. Wildlife monitoring is the key mechanism in recognizing the need and the effectiveness of management and conservation of wildlife. This study will aid to improve and establish accurate, relatively inexpensive, non-invasive monitoring techniques that can collect a large amount of acoustic data. These techniques will be applicable to monitor not only birds but also other wildlife in Alberta and outside as well.

Boreal Ecosystem Recovery & Assessment