

# LANDSCAPE-LEVEL RESTORATION TRIAL OF SEISMIC LINES IN BOREAL CARIBOU HABITAT IN SOUTHERN NORTHWEST TERRITORIES

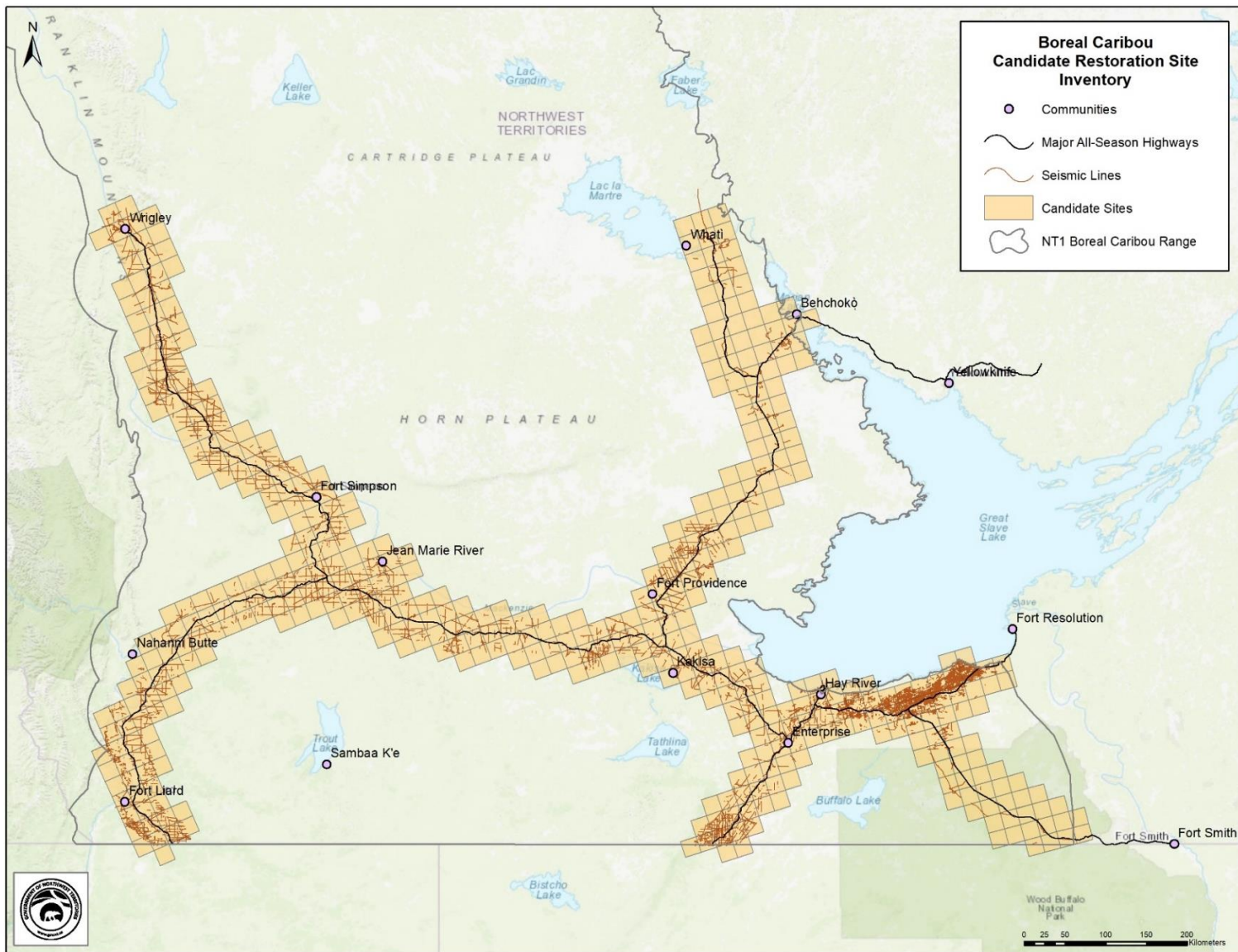


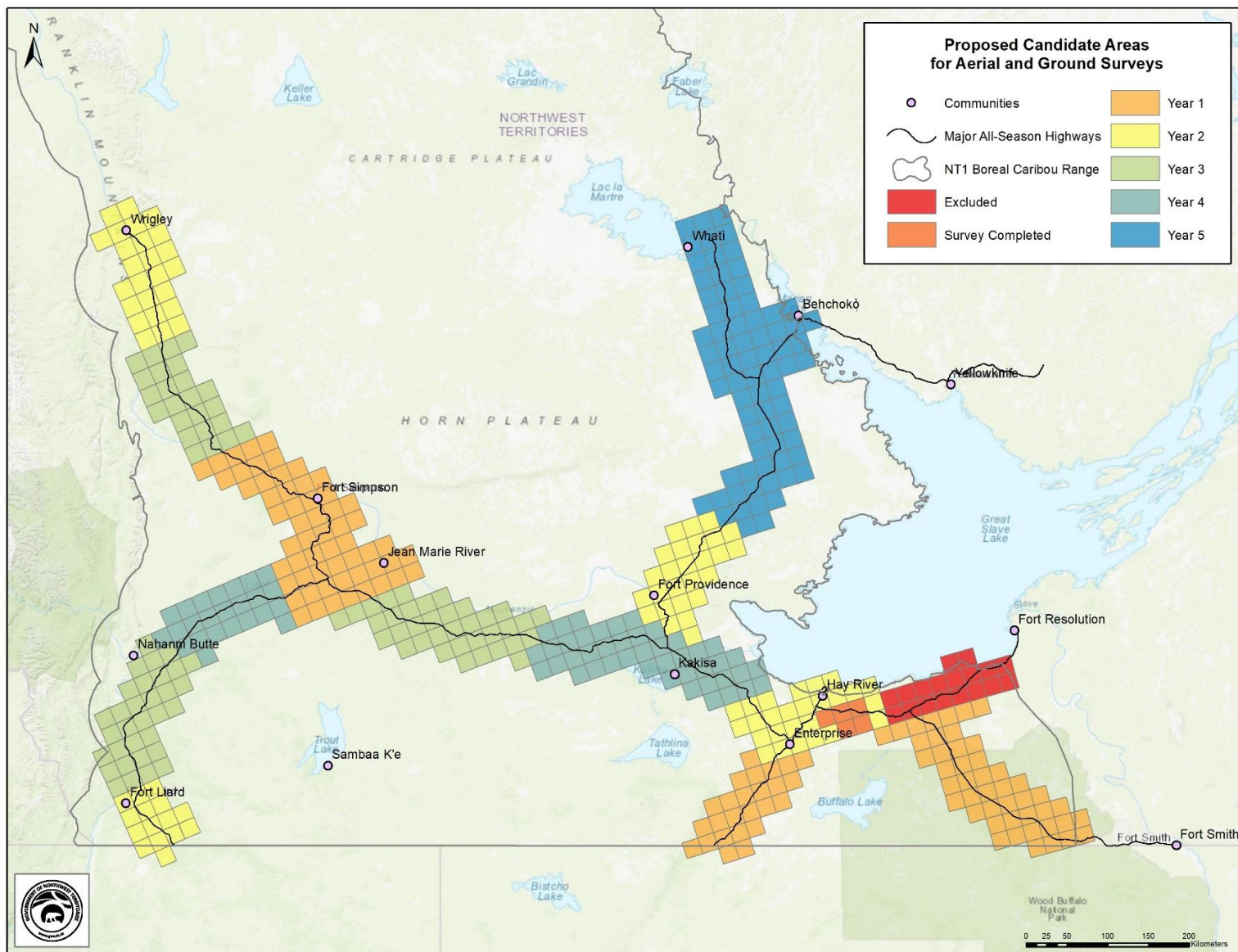
Figure 1. Map of candidate sites (10 x 10 km orange grids) and disturbance features within grid cells of the Boreal Caribou Candidate Restoration Site Inventory.

## Methods

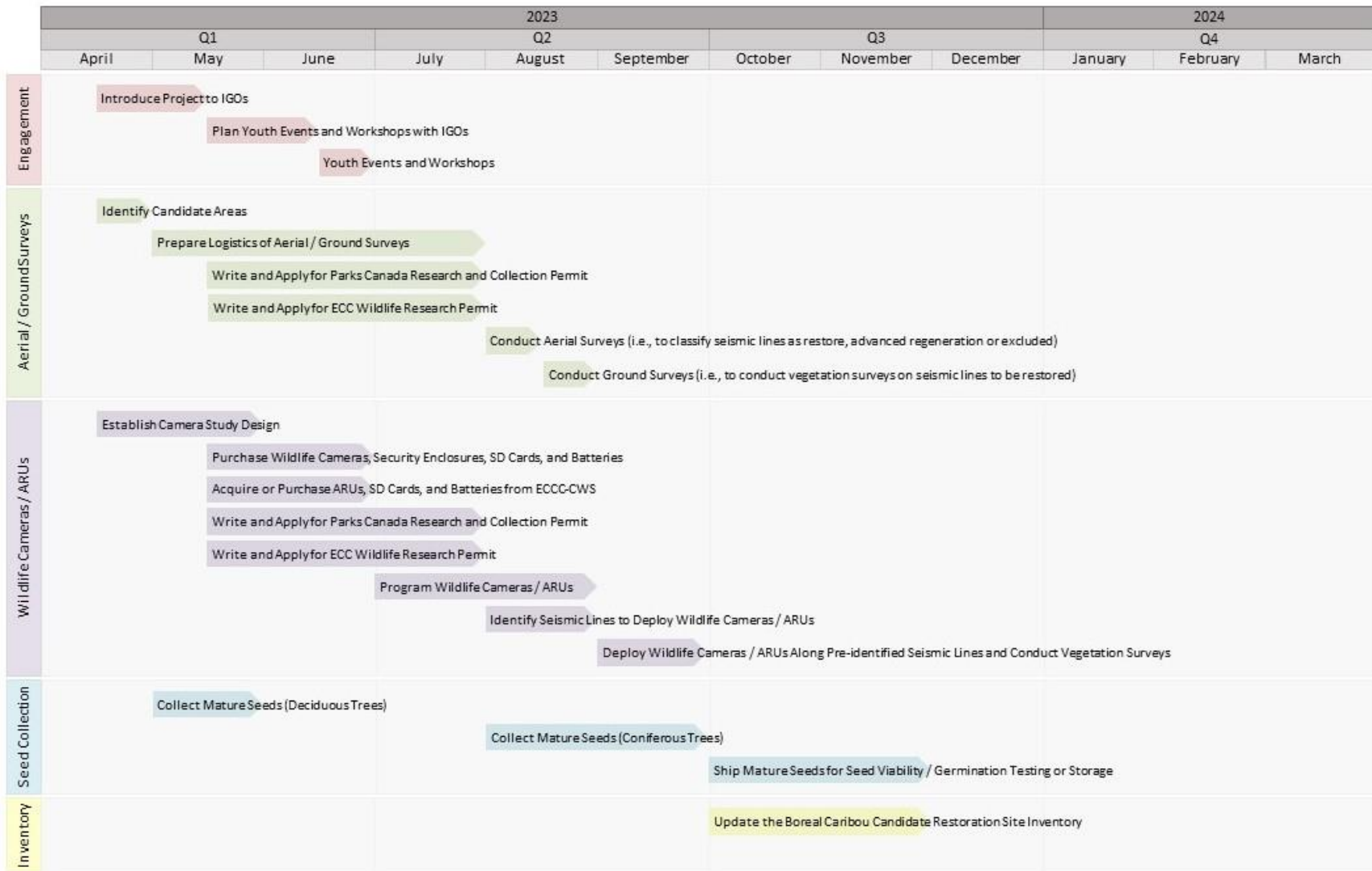
**Table 1.** Detailed description of the activities to be conducted for each component of the project. These activities are repeated every year at each candidate area identified in Figure 2.

<b>Inventory</b>	<p>Update the Boreal Caribou Candidate Restoration Site Inventory geodatabase with information collected throughout the project.</p> <p>Work with the NWT Centre for Geomatics to include the Boreal Caribou Candidate Restoration Site Inventory geodatabase to the online NWT Species and Habitat Viewer found at <a href="https://www.maps.geomatics.gov.nt.ca/Html5Viewer/index.html?viewer=NWT_SHV">https://www.maps.geomatics.gov.nt.ca/Html5Viewer/index.html?viewer=NWT_SHV</a>.</p>	Wildlife Management Division, GNWT-ECC	<b>Lead Organization</b>
<b>Engagement</b>	<p>Hold a half-day event with youth (age 13-17) from each respective community to talk about boreal caribou habitat restoration, the importance of restoration on caribou, and how youth can be involved in the project.</p> <p>Hold a 1-day workshop with land-users from each respective First Nation and Métis.</p> <ul style="list-style-type: none"> <li>• GNWT-ECC will provide an overview of the project and its importance for boreal caribou conservation.</li> <li>• Land-users will be asked to:               <ol style="list-style-type: none"> <li>1) Identify seismic lines that are actively used by community members (i.e., unsuitable for restoration);</li> <li>2) Identify seismic lines that are suitable for restoration and should be prioritized during the restoration trial; and</li> <li>3) Identify how they would like to contribute to the project (e.g., deploy and maintain wildlife cameras, collect mature seeds, participate in restoration trial, etc.).</li> </ol> </li> <li>• Land-users will also learn how to identify mature seeds/cones for the restoration trial.</li> </ul>	Wildlife Management Division, GNWT-ECC	
<b>Surveys</b>	<p>Conduct aerial and ground surveys of seismic lines within candidate areas to classify seismic lines into three categories: restore, advanced regeneration or excluded. Seismic lines deemed appropriate for restoration will be selected for the restoration trial in Year 3 or Year 5.</p>	Wildlife Management Division, GNWT-ECC	

Wildlife Cameras / ARUs	<p>Identify a set of a priori seismic lines to deploy wildlife cameras and ARUs.</p> <p>Deploy and retrieve wildlife cameras/ARUs along pre-identified seismic lines. Each deployment will be accompanied with a site survey to determine abiotic and biotic factors affecting restoration outcomes on the line (e.g., vegetation, height, stem density, soil condition, and species composition).</p> <p>Identify wildlife that was captured by wildlife cameras using WildTrax. Create a metadatabase of wildlife occurrence to be used in the analysis of wolf and ungulate use of seismic lines across the southern NWT.</p> <p>Hire a consultant or collaborate with a university to conduct an analysis, which aims to investigate the response of wolf and ungulate use of seismic lines (derived from wildlife cameras) across a gradient of vegetation height, density, and composition. This analysis will be completed in Year 6 (2028-2029) and will provide the necessary threshold for determining successful ecological restoration of seismic lines in southern NWT (i.e., relevant studies have only been conducted in Alberta).</p>	Wildlife Management Division, GNWT-ECC	
Seed Collection	<p>Collect mature seeds of tree species found adjacent to the seismic lines (e.g., jack pine, black spruce).</p> <p>Ship a subset of the mature seeds collected to be assessed for seed viability and germination. The remaining mature seeds will be sent to the Smoky Lake Forest Nursery for storage and will later be used to create seed pucks or seedlings for the restoration trial in Year 3 and 5.</p>	Forest Management Division, GNWT-ECC	
Restoration Trial	<p>Hire a consultant to 1) prescribe a restoration treatment (e.g., tree planting, seed pucks, mounding, tree bending) for each of the seismic lines identified as appropriate for restoration during the aerial and ground surveys, 2) design a site-specific restoration trial (i.e., Boreal Caribou Restoration Trial) with cost estimates for its implementation in Year 3 or Year 5, 3) design a follow-up monitoring program to evaluate the success of the restoration treatments with cost estimates for implementing the program, and 4) write a report.</p> <p>Communicate with a developer that is required to offset in the NWT to collaborate on implementing the Boreal Caribou Restoration Trial.</p> <p>Assist the developer in hiring a contractor to implement the Boreal Caribou Restoration Trial.</p> <p>Assist the developer in conducting quality control assessment of treated seismic lines to confirm the treatments were delivered to a high standard of quality and have been applied to address the unique limiting factors of the site.</p>	Wildlife Management Division, GNWT-ECC	



**Figure 2.** Map of proposed candidate areas (clusters of 10 x 10 km grids) of the Boreal Caribou Candidate Restoration Site Inventory that activities will be focused on during the 5-year project.



**Figure 3.** Workplan for the 2023-24 fiscal year (Year 1). These activities will be repeated every year during the 5-year project at each candidate area identified in Figure 2.