Evaluating the Conservation Regime for Boreal Caribou in Alberta and Ontario, Canada

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

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I. Introduction

Biodiversity, or, biological diversity, is defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" under the Convention on Biological Diversity (CBD, 1992). In simpler terms, it is the diversity of all biotic components of nature, at community, species, and genetic scales. Despite its utmost importance, Earth is in the midst of an unprecedented biodiversity crisis - a trend reflected by the increasingly worrying status of species across the globe. A recent report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) found the global rate of extinction to be tens to hundreds of times higher than the average rate over the past 10 million years (IPBES, 2019). Around 25% of species were threatened with extinction in the majority of plant and animal groups studied, representing a record-level estimation of ~1 million species facing extinction (IPBES, 2019). The Living Planet Index (LPI) tracks global biodiversity status by monitoring the population trends of vertebrate species across terrestrial, freshwater, and marine habitats (WWF & ZSL, 2025). The 2024 LPI Report found that the average size of monitored wildlife populations declined by a staggering 73% between 1970 and 2020 (WWF, 2024). Globally, the top drivers of biodiversity loss include habitat loss and degradation; direct and indirect overexploitation of land, resources, and/or species; climate change; pollution; invasive species and/or genes; and disease (WWF, 2024).

Biodiversity is "the heartbeat of our living planet" (WWF & ZSL, 2025, pg. 19). It is absolutely essential to sustaining all ecological, social, economic, and political systems. Biodiversity loss and ecosystem collapse were ranked the second-highest global risk within a 10-year trajectory by the 2025 World Economic Forum (WEF) Global Risk Report (WEF, 2025). At the species-level, declines and extinction are core drivers of ecosystem function degradation. As populations fall below certain thresholds, species are unable to maintain their role in food chains, seed dispersal, pollination, nutrient cycling, and so forth (WWF, 2024). This has serious, reverberating consequences across ecosystems, landscapes, and the regulating, provisioning, supporting, and cultural services derived from them. Such services include natural resource provision, air and water cleansing, extreme weather mitigation, pharmaceutical production, greenhouse gas (GHG) sequestration, disease control, and countless others (WWF, 2024). The impacts of today's unprecedented biodiversity loss are especially concerning because they occur in tandem with wicked problems such as climate change and environmental injustice (IPBES, 2019; Martin et al., 2016; WWF, 2024). Interactions between these crises cumulatively push socioecological systems toward tipping points which, once surpassed, cause abrupt, harmful, and often irreversible changes (WWF, 2024). All in all, resilient species, ecosystems, and landscapes are the cornerstone of resilient societies.

A) Canadian biodiversity trends

Canada is the world's second largest country, housing 9.98 million km^2 of terrestrial and freshwater ecosystems which comprise nearly 9% of the total global forest area, 24% of the world's boreal forests, 25% of the worlds temperate forests, 25% of the world's wetlands, the world's longest coastline and 2 million lakes (CESCC, 2022; OAG, 2022). Canada is also home an estimated 80,000

species, as well as the second highest remaining area of intact terrestrial and marine ecosystems in the world (Watson et al., 2018; WWF-Canada, 2025). The Canadian Endangered Species Conservation Council's (CESCC) most recent report concluded that 4,883 (20%) of 24,483 data-available native species were critically imperiled, imperiled, or vulnerable (CESCC, 2022). WWF-Canada's *2025 Living Planet Report Canada (LPRC)* presents Canadian Living Planet Index (C-LPI) trends for 910 native vertebrate species. Since 1970, 52% of these 910 species have declined in abundance and the entire group has experienced a net 10% decline (WWF-Canada, 2025). As Canada's plants and wildlife continue to decline despite global and national frameworks for biodiversity conservation, critical examinations of the protections afforded to these species are increasingly necessary.

B) Case Study: Woodland caribou, boreal population (boreal caribou) conservation in Alberta and Ontario

This thesis evaluates the species at risk components of Canada's biodiversity conservation regime through a case study of the boreal population of woodland caribou (boreal caribou) in Alberta and Ontario. Identified as a priority species under the Pan-Canadian Approach to Transforming Species At Risk Conservation in Canada, the boreal caribou is an iconic species of immense social and ecological value (ECCC, 2018b). As such, its conservation has been significantly more researched, funded, and supported in comparison to that of many Canadian species at risk (Boan & Plotkin, 2023). However, in spite of numerous laws, policies, and plans employed over decades, the boreal caribou's status continues to decline (ECCC, 2024c). This fact, in addition to the extensive overlap between boreal caribou habitat and areas of high socioeconomic priority, makes boreal caribou a relevant case study from which to evaluate the performance of federal and provincial species at risk conservation.



Figure 1: Boreal caribou, © John A. Nagy

Caribou (*Rangifer tarandus*) are members of the deer (Cervidae) family and the Artiodactyla order. Canada is currently home to three subspecies of caribou, two of which have different populations: Peary caribou, barren-ground caribou (Dolphin and Union populations), and woodland caribou (boreal and southern mountain populations) (ECCC, 2025c). The focus of this study is the boreal population of woodland caribou, henceforth referred to as boreal caribou, in Alberta and Ontario. Boreal caribou are endemic to Canada, currently residing in 51 ranges across the Yukon, Northwest Territories, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and Newfoundland and Labrador (Fig. 2). This is the broadest distribution of all Canadian caribou (COSEWIC, 2014; ECCC, 2025c). The most recent Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessment estimated that the boreal caribou population was between 33,000 and 34,000 individuals (COSEWIC, 2014).

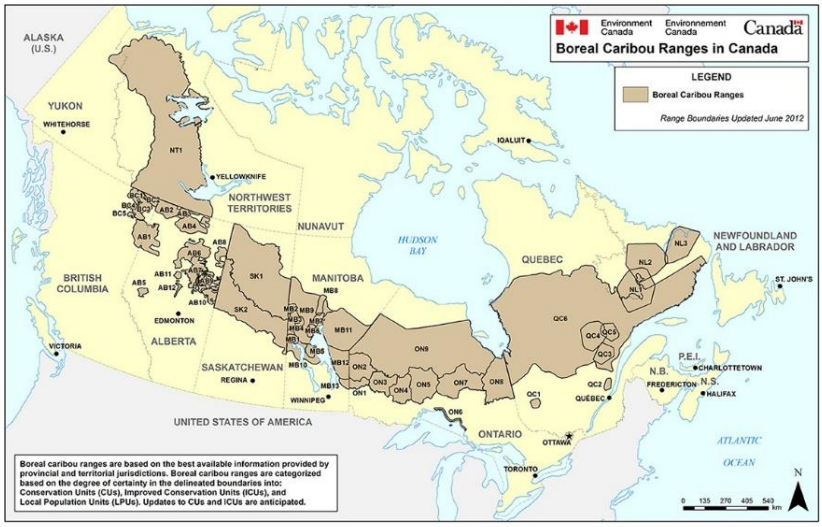


Figure 2: Federal boreal caribou distribution (ECCC, 2012)

i. Biology

Boreal caribou range from 1.0 to 1.2 metres shoulder height and 110 to 210 kg (ECCC, 2024b). Adults have dark brown coats and white necks, manes, shoulder stripes, underbellies, tail undersides, and patches above their hooves (Fig. 1) (ECCC, 2024b). Males often have a lifespan of less than 10 years, and females less than 15 (ECCC, 2024b). Boreal caribou spend all year in the boreal forest, often in groups of under 50 individuals spread out across continuous, undisturbed mature and old-growth coniferous forests (COSEWIC, 2014). While the biophysical attributes of critical habitat vary, this broadly includes jack pine and black spruce forests of ~100 years or older, wetlands, upland or hilly areas, and available lichens, sedges, and mosses (COSEWIC, 2014; ECCC, 2024b). Of particular concern for their conservation, boreal caribou habitat must be continuous and undisturbed in order to support self-sustaining populations (COSEWIC, 2014; ECCC, 2024b). These landscapes allow them to evade predators through the avoidance of areas with recent habitat disturbance which house alternate prey (COSEWIC, 2014; ECCC, 2024b). Habitat connectivity is also crucial for necessary seasonal movements and the mixing of local populations to increase genetic diversity (ECCC, 2020b). In addition to their habitat needs, relatively low birthing and calve survival rates increase boreal caribou vulnerability as

they are often insufficient to compensate for adult mortalities from intensifying predation and habitat disturbance rates (ECCC, 2020b).

ii. Federal status and threats

Boreal caribou have been classified as threatened federally since 2003, and in Alberta and Ontario since 1985 and 2007 respectively (ESA, 2007; SARA, 2002; Wildlife Act, 2000). Under SARA, threatened is defined as "a wildlife species likely to become endangered if limiting factors are not reversed" (SARA, 2002). Endangered is then defined as "a wildlife species facing imminent extirpation or extinction" (COSEWIC, 2014). The most significant threats to boreal caribou in Canada are predation and habitat alteration (ECCC, 2020, ECCC, 2012; COSEWIC, 2014). In this case, habitat alteration is any landscape change that negatively impacts an ecosystem and reduces overall function of habitat, including habitat loss, degradation, and fragmentation (Environment Canada, 2012). Anthropogenic alteration is of particular concern for boreal caribou, primarily due to high rates of forestry, oil and gas activities, mining, and hydro-electric development or exploration within their ranges (ECCC, 2020). Predation and habitat alteration are very closely linked through the process of apparent competition, in which anthropogenic or natural habitat disturbances trigger succession of young boreal ecosystems that attract alternate prey and therefore support larger predator populations (ECCC, 2024b).

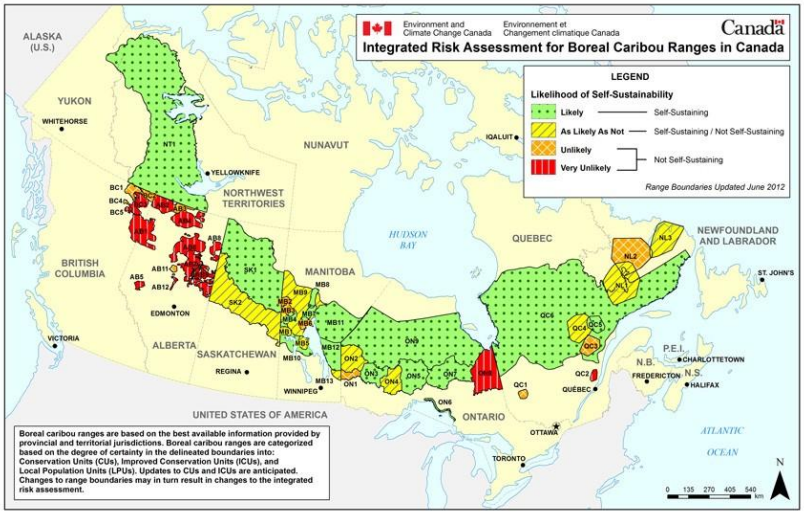


Figure 3: Integrated risk assessment for boreal caribou ranges as of 2012 (ECCC, 2020).

The implications of habitat disturbance for boreal caribou are embodied in the federally identified requirements for their critical habitat, which must maintain "a perpetual state of a minimum of 65% of the area as undisturbed habitat and biophysical attributes required by boreal caribou to carry out life processes" (ECCC, 2011, 2020). At 65% undisturbed critical habitat, there is a 60% measurable probability of the population being self-sustaining (ECCC, 2011, 2020). Self-sustaining boreal caribou populations are those which demonstrate stable or increasing growth over ≤20 years and are "large enough to withstand stochastic events and persist over ≥50 years in the absence of active management intervention" (ECCC, 2011, 2020). Boreal caribou habitat disturbance is defined as areas of footprint and any associated disturbance buffers, as well as areas burned by wildfire within 40 years (ECCC, 2011). As of 2012, 26 of the 51 boreal caribou ranges were classified as "not self-sustaining", 10 as "as likely

as not self-sustaining", and 15 as "self-sustaining" (Appendix A) (Fig. 3) (ECCC, 2020). A 2014 assessment concluded that boreal caribou had lost over 50% of their historic extent across the continent, that 81% of the 37 data-available subpopulations were in decline, and projected a >30% decline in the total boreal caribou population in the "near term" (COSEWIC, 2014). As of 2019, 30 of the 51 ranges have less than the minimum 65% undisturbed threshold for boreal caribou habitat (Appendix A) (Fig. 4) (ECCC, 2024c). In fact, 17 of these 30 ranges are experiencing over 60% disturbance (Appendix A) (ECCC, 2024c).

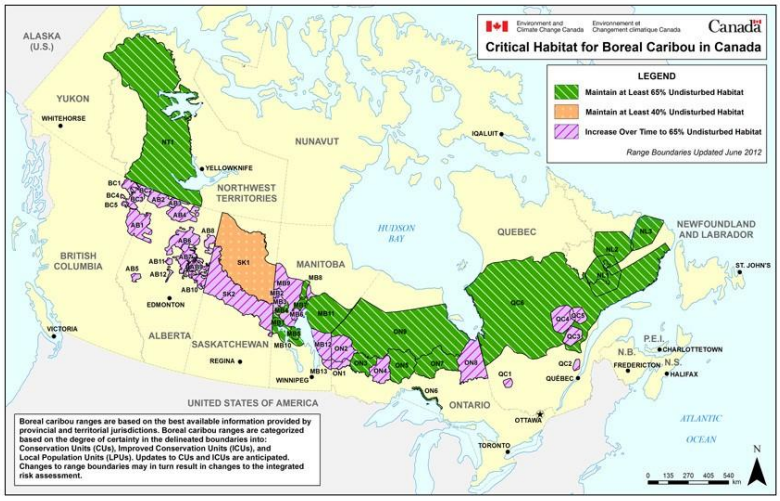


Figure 4: Critical habitat status for boreal caribou ranges as of 2019 (ECCC. 2020).

iii. Boreal caribou in Alberta and Ontario

Two provinces were selected for the sake of time and feasibility, while allowing for comparative analysis of multiple sub-national conservation frameworks. Both Alberta and Ontario have garnered notable media attention from legal, environmental, civil, and media actors regarding the conservation of their boreal caribou. The two provinces are also attempting to conserve boreal caribou within areas of extensive natural resource extraction. As Alberta is the largest producer of oil and gas in Canada, its boreal caribou ranges overlapping with energy operations are rapidly declining while disturbance increases (Hebblewhite, 2017). Ontario's forestry and mining industries have extensive footprints within boreal caribou habitat, with growing northern encroachment (Boan & Plotkin, 2023; Southee et al., 2023). Therefore, Alberta and Ontario were chosen to facilitate a timely, well-informed analysis of the current opportunities and challenges facing boreal caribou. Figures 5 and 6 demonstrate the federally- and provincially-defined boreal caribou ranges in Alberta and Ontario. Ontario has nine federal and 15 provincial ranges, as the province recognizes six separate ranges within the federal ON9 range within their range-based management (Fig 4) (ECCC, 2024d). Ontario's northern ranges, i.e., all but the Lake Superior Coastal Range (LSCR), are referred to as the Continuous Distribution. The space between the LSCR and the Continuous Distribution is referred to as the Discontinuous Distribution (Fig. 4).

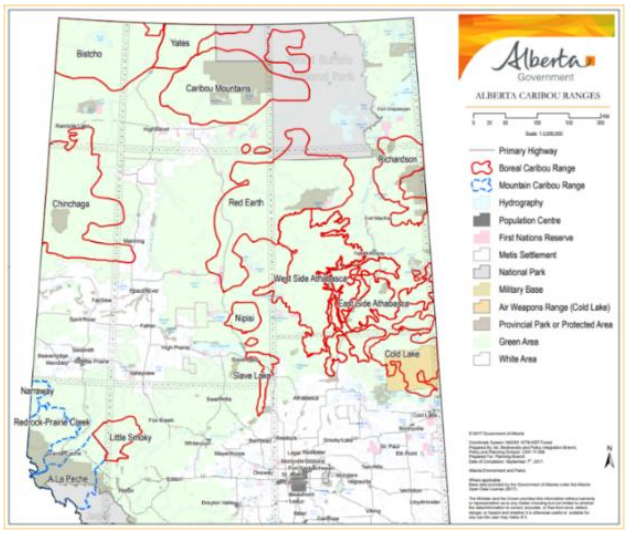


Figure 5: Alberta boreal caribou ranges (Government of Alberta, 2017).

Alberta's woodland caribou are some of the most highly threatened in Canada (ECCC, 2011a, 2024c). As of 2023, none of the 12 Alberta boreal caribou ranges were at 65% undisturbed and most ranges were showing consistent, substantial declines (Appendix C) (ECCC, 2024c; MEPA, 2024e). Four ranges had less than 5% undisturbed habitat, and two less than 10% (MEPA, 2024e). Little Smoky, Slave Lake, and Nipisi ranges are dangerously close to extirpation due to their low population levels, spatial isolation, and increased predation from landscape disturbance (MEPA, 2024e). As of 2024, six ranges had stable population trends, four were increasing, and two (Slave Lake and Nipisi) were declining (Appendix C) (ECCC, 2024c). Stable and increasing population trends are due to intensive wolf culling programs, the primary intervention keeping caribou on the landscape Alberta's most dire ranges (MEPA, 2024). The key anthropogenic land uses contributing to disturbance within Alberta's boreal caribou ranges are industrial development from the energy and forestry sectors (MEPA, 2024b). There are ongoing applications and approvals for forestry, energy, mining, and associated linear (power lines, pipelines, roads) activities across boreal caribou ranges in Alberta (MEPA, 2024e). Furthermore, severe wildfire seasons across Alberta ranges have significantly disturbed boreal caribou habitat and are projected to grow in intensity and frequency (CPAWS Northern Alberta, 2024).

As of 2024, 11 of the 15 provincial Ontario ranges and five of the nine federally defined ranges met the goal of 35% or less disturbed habitat (Appendix D) (ECCC, 2024c). As of 2017, population trends were declining for 13 of the 15 provincially identified ranges, and eight of the nine federal ranges (Appendix A) (ECCC, 2024b). Recent monitoring produced population estimates for five Ontario ranges, four of which had over 100 individuals observed and one which had under 100 (MECP, 2024b, 2025a). Boreal caribou population sizes over 100 indicate a minimum 70% probability of not reaching quasi-extinction thresholds over 50 years of stable habitat conditions (ECCC, 2011). Projected habitat conditions are unknown, recent population size estimates remain unknown for multiple Ontario ranges, and population trends since 2017 remain unknown for all ranges (Appendix A) (ECCC, 2024c). Ontario ranges are not as isolated as those in other provinces, with the exception of the Lake Superior Coastal Range (LSCR) which is being pushed toward extirpation due to its extreme isolation (Boan & Plotkin, 2023). The primary anthropogenic land uses contributing to disturbance within Ontario's boreal caribou

ranges are forestry and mining, which have been subject to increasing mandates for expansion across the boreal landscape (Boan & Plotkin, 2023; Malcolm et al., 2025; Southee et al., 2023).

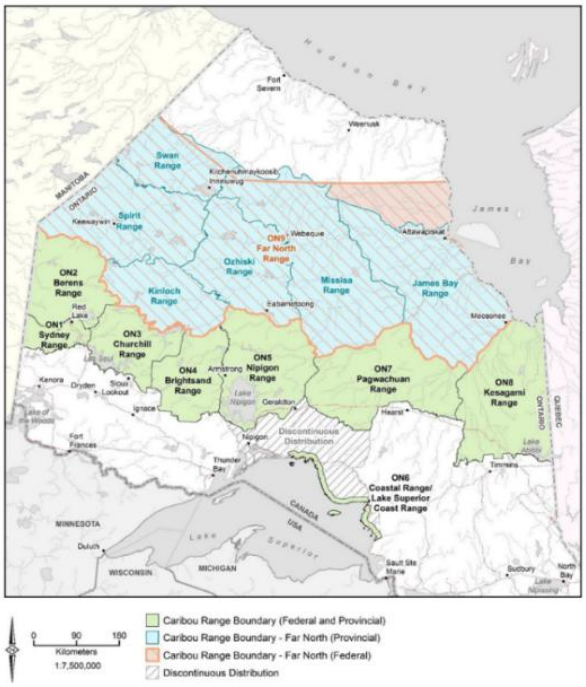


Figure 6: Ontario boreal caribou ranges (ECCC, 2022).

iv. Ecological and social significance of boreal caribou

Boreal caribou hold notable ecological value as an umbrella and indicator species for the boreal region. Boreal caribou habitat requirements align with those of numerous boreal species, as well as the overall health of boreal ecosystems (ECCC, 2020). The protection and recovery of boreal caribou therefore benefits these species and ecosystems (ECCC, 2020). Similarly, as an indicator species, the wellbeing of boreal caribou directly reflects the health of surrounding boreal ecosystems and species (AFN & DSF, 2013). Caribou are also primary food sources for numerous predators and scavengers in the region (COSEWIC, 2014). Protecting and recovering boreal caribou is therefore an integral component of conserving Canada's boreal zone. This is a region of utmost ecological importance, housing the second-largest area of continuous forest left on Earth, the world's third-largest wetland, almost all of Canada's peatland area, and some of the last intact wildlife communities in North America (WCS, 2025a; WCS, 2025b).

Boreal caribou also have significant social value for Indigenous peoples and Canadians. Indigenous peoples have harvested boreal caribou since time immemorial, and northern communities continue to rely on caribou for meat, clothes, and tools (AFN & DSF, 2013). Boreal caribou populations share land with approximately 300 Indigenous communities, and are deeply linked to traditional lifestyles and cultures rooted in reciprocity with the land (AFN & DSF, 2013). The loss of harvesting ability is not only a violation of treaty and Constitutional rights, but is associated with the deterioration of language, kinship, and knowledge sharing, as well as a rise in mental health issues such as alcoholism, self-harm, and even suicide (AFN & DSF, 2013; ECCC, 2020b). Subsistence harvesting is especially important for

the realization of food sovereignty in communities experiencing economic hardship (AFN & DSF, 2013). To protect their rights and traditions, Indigenous communities have identified the need for self-sustaining boreal caribou populations across the entire Canadian distribution (ECCC, 2020b). Boreal caribou are also central to Canadian culture. Featured on the 25-cent coin for almost a century, caribou represent the northern wilderness which comprises so much of the Canadian identity. They are one of Canada's most recognizable, iconic species, and a staple of numerous national, provincial, and territorial parks (Parks Canada Agency, 2025; Vandermeer, 2020).

C) Research question: A legal and policy lens to boreal caribou conservation in Canada

The overarching research question guiding this thesis is …

Is Canada's legislative, regulatory, and policy-based biodiversity conservation regime effectively protecting and recovering boreal caribou in Alberta and Ontario?

This thesis examines the legal and policy components of Canada's biodiversity conservation regime as it applies to boreal caribou in Alberta and Ontario. Conservation research across North America has increasingly taken a legislative and political lens when investigating the drivers biodiversity loss (Beazley & Olive, 2021; Olive et al., 2023; Ray et al., 2021; Swerdfager & Olive, 2023). In Canada, legal and policy instruments are key to overall conservation successes and failures. Swerdfager & Olive (2023) argue that such laws codify conservation priorities, define acceptable conservation behaviour, and drive the establishment of institutions, programs, and governance arrangements comprising the entire Canadian conservation regime. Olive et al. (2023) argue that the politics of biodiversity conservation in Canada is unclear, and needs to be "highlighted, debated, and confronted" (pg. 14). This thesis will therefore focus on Canada's legislative, regulatory, and policy-based biodiversity conservation regime. Specifically, the federal and provincial instruments which directly and indirectly influence boreal caribou conservation in Alberta and Ontario. Efforts led by environmental non-governmental organizations (eNGOs), industry, academia, and civil society are important components of the Canadian biodiversity conservation regime, but will not be within the purview of this study.

II. Methodology

To examine the effectiveness of boreal caribou conservation, a qualitative examination was conducted of the law, regulations, policies, and plans comprising the boreal caribou conservation regimes in Alberta and Ontario, as well as their implementation progress. This was done through three high-level inter-connected steps as displayed in Figure 7.

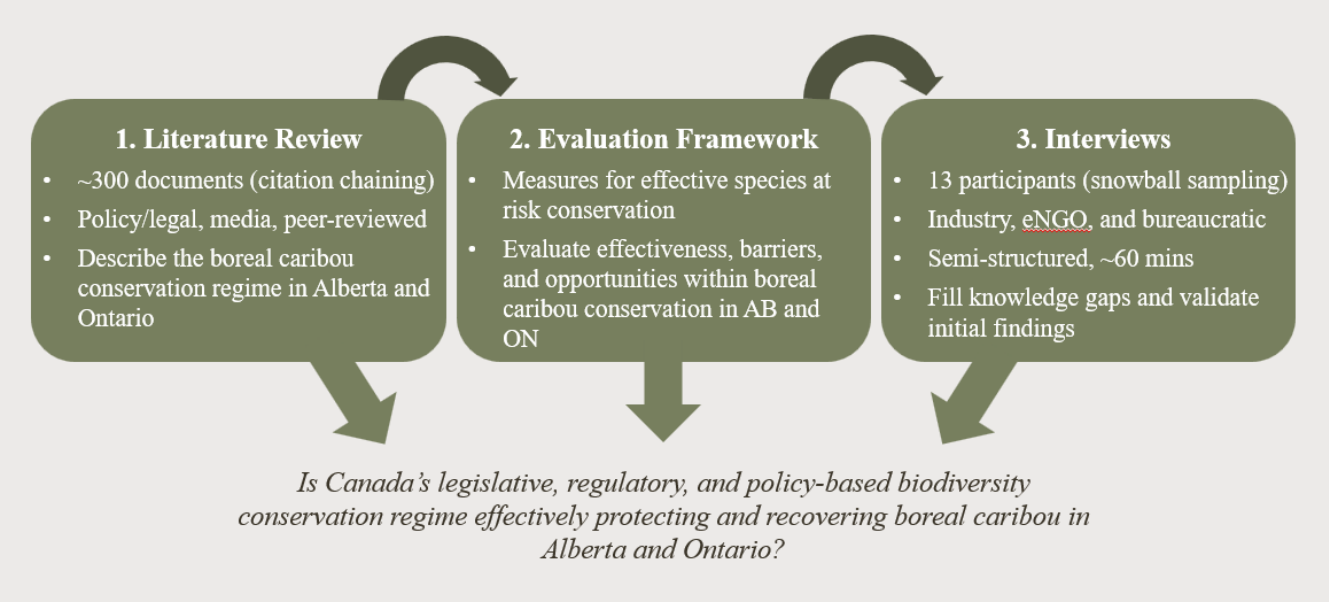


Figure 7: Thesis methodology, created by author.

Final conclusions about the effectiveness of Alberta and Ontario's boreal caribou conservation regimes were formulated based on findings from the literature review, framework, and interview, processes.

A) Literature review

Federal laws, regulations, policies, plans, and other government documents were identified using the Government of Canada's online Species at Risk Public Registry. Provincial laws, regulations, policies, plans, and other government documents were identified through Alberta and Ontario's government websites, the Canadian Conservation and Land Management's (CCLM) online Boreal Caribou Knowledge Portal, as well as some citation chaining. A review of media – i.e., public, organizational, individual opinions – was conduced utilizing the Google News search tool, as well as the websites of major eNGOs within Alberta and Ontario. Peer-reviewed literature was initially identified through broad searches in SCOPUS with key words such as "boreal", "woodland", "caribou", "conservation", "Alberta", and "Ontario". Initial studies were also identified utilizing CCLM's Boreal Caribou Knowledge Portal and the search filter tools. The rest of the studies were identified through backwards and forwards citation chaining. All documents utilized in the literature review were stored in Mendeley Reference Manager. They were reviewed, synthesized, and analyzed in excel sheets, with a focus on key themes and findings. The results of the literature review are discussed in Chapter III, and

informed the creation of the evaluation framework, supported the creation of some interview questions, and enhanced the final findings with empirical evidence.

B) Conservation evaluation framework

i. Framework creation

The evaluation framework was built based on peer-reviewed literature which fell under three categories: (1) studies aimed at assessing biodiversity conservation; (2) studies identifying gaps and recommendations for biodiversity conservation; and (3) studies related to boreal caribou conservation. Scope was limited to Canada-oriented studies between 2010 and 2026. The methodology for evaluation was adapted from analyses conducted by Bogetti & Mason (2025), Gordon et al. (2024), (Kraus et al., 2021), Nixon et al. (2012), and J. C. Ray et al. (2021). Criteria were also structured to emulate the species at risk conservation lifecycle (ECCC, 2024c). The sources guiding definitions for criteria and sub-criteria are outlined in the detailed framework description in Chapter 3.

ii. Framework application

The framework was applied to the core federal and provincial instruments which comprise the boreal caribou conservations regimes applicable within Alberta and Ontario (Fig. 6). This primarily included analysis of government documents (i.e., laws, regulations, policies, plans and reporting), with some use of peer-reviewed literature where necessary. Empirical evidence from non-governmental sources is utilized to strengthen framework and interview findings. Sub-criteria were assessed across two categories – legal/policy basis and implementation progress. Legal/policy basis refers to the existence of the criteria codified in laws, regulations, policies, and/or boreal caribou conservation planning. Implementation progress refers to the tangible application of the criteria, as well as its measurable outcomes.

The conservation instruments included in analysis were those that had been implemented, including the conservation agreements in Alberta which had recently expired (Table 1). This excluded any draft plans or legislation, as well as those which acted as recommendation documents. Excluded documents included the recommendation reports for the Bistcho Lake and Cold Lake sub-regional plans, draft regulatory details for the Bistcho Lake and Cold Lake sub-regional plans, the Ontario Recovery Strategy, and Ontario's incoming *Species Conservation Act*. Furthermore, the Accord for the Protection of Species At Risk, the Pan-Canadian Approach To Transforming Species At Risk Conservation In Canada, and the 2030 Nature Strategy are considered guiding instruments within the boreal caribou regime and were thus not subject to assessment (Fig. 8).

Table 1: Included and excluded documents for framework application.

Legal/policy basis		
Federal	Alberta	Ontario
• *Species At Risk Act* • Federal Recovery Strategy • Federal Action Plan	• *Wildlife Act* • Alberta Recovery Plan • Alberta Caribou Policy	• *Endangered Species Act* • Ontario Conservation Plan • Ontario Range Management Policy

• Other relevant laws, regulations, policies pertaining to land use management and natural resources	• Bistcho Lake Sub-Regional Plan • Cold Lake Sub-Regional Plan • Alberta-Canada Conservation Agreement • CLFN-Canada Conservation Agreement • MCFN-ACFN-Canada Conservation Agreement • Other relevant laws, regulations, policies pertaining to land use management and natural resources	• Ontario-Canada Conservation Agreement • Multi-species Action Plan for Pukaskwa National Park of Canada • Other relevant laws, regulations, policies pertaining to land use management and natural resources
Implementation progress		
Federal	Alberta	Ontario
• Report on the Progress of Recovery Strategy Implementation for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada for the period 2012-2017 • Report on the Progress of the Recovery Strategy Implementation (period 2017-2022) and the Action Plan Implementation (period 2018-2023) for Caribou (Rangifer tarandus), Boreal Population, in Canada • Progress report on unprotected critical habitat for the woodland caribou (Rangifer tarandus caribou), boreal population, in Canada • Progress report on steps taken to protect critical habitat for the woodland caribou (Rangifer tarandus caribou), boreal population, in Canada • Progress report on steps taken to protect critical habitat for the woodland caribou (Rangifer tarandus caribou), boreal population, in Canada (2019)	• First Report on the Implementation of the Section 11 Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta • Report on the Implementation of the Section 11 Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta • Federal progress reports to the left	• State of the Woodland Caribou Resource Report • 2023–2024 Annual Report on the Status and Implementation of the Canada-Ontario Agreement for the Conservation of Caribou, Boreal Population in Ontario • Implementation report: Multi-species action plan for Pukaskwa National Park of Canada (2017 to 2022) • Federal progress reports to the left

As the federal regime is applicable to both provinces, assessment of its legal/policy basis and relevant implementation progress (i.e., that which would apply to boreal caribou conservation within the provinces) is discussed in the first analysis section. Province-scale framework assessments for Alberta

and Ontario then include comprehensive tables of the federal and province-scale laws, policies, plans, and progress under each sub-criteria. Although the Pukaskwa Action Plan is administered by Parks Canada, it was described under Ontario's regime as it applies within the province only, not on the national level. Qualitative analysis was employed to elicit specific, detailed investigation within the framework's application (Gordon et al., 2024), in comparison to numerical or letter-grade scoring (Bogetti & Mason, 2025; Nixon et al., 2012). Note that, due to the significant amount of information reported on for both provinces, assessments for legal/policy basis and implementation progress reflect key information and complete details can be found in the appendices or the referenced sources.

a) A note on Indigenous rights, governance, and conservation

In Alberta, the boreal caribou regime includes conservation agreements between First Nations and the federal government. This is the extent to which Indigenous-led conservation instruments are assessed, a notable research gap borne from time and capacity constraints. It must be highlighted that under the outdated and historically problematic *Indian Act*, a diverse range of environment-related by-laws created by First Nations governments to apply on their reserve lands (Indian Act, 1985). This has resulted in a wide range of Indigenous conservation regimes across the country. However, limited time and resources would not allow for a proper, ethical, collaborative analysis of Indigenous laws, governance, experiences and knowledge within this honours thesis. Therefore, analysis will focus on laws, regulations, policies, and plans primarily under settler governments, including how these instruments consider Indigenous rights based on observations from the literature. The author is in no way presuming to know the impacts of boreal caribou conservation on Indigenous peoples, as this is something only to be shared by Indigenous peoples themselves. The implications for Indigenous rights and governance within boreal caribou conservation is extremely important and warrants its own, detailed, long-term study. This is most definitely a gap for future investigation, and such studies should empower the capacity of Indigenous communities to lead boreal caribou conservation planning and implementation.

C) Semi-structured interviews

i. Interviews

Following the framework-led analysis of Ontario and Alberta's conservation regimes, 14 experts across eNGO, natural resource, and bureaucratic organizations were interviewed to fill knowledge gaps and validate findings. Prior to contacting participants, approval was derived from the University of Waterloo's Office of Research Ethics (approval #47972). Research and treatment of interviewees therefore complied with the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2), the University of Waterloo Statement on Human Research, and the University's Office of Research Ethics guidelines and policies. Interviewees were identified through scoping research and snowball sampling. They were contact utilizing approved recruitment materials, and verbal consent was obtained during interviews. Interviews were semi-structured, led by a predetermined set of seven questions with follow-up questions based on interviewee responses (Appendix M). They were all around 60 minutes and conducted over Microsoft Teams using the audio-recording and automatic transcription

tools. Appreciation and feedback letters, along with interview transcripts were emailed to each interviewee once their transcripts had been anonymously saved and de-identified.

Interview participants were skewed towards the eNGO field, who were experts in biology and environmental law (Table 2). Bureaucratic participants were those from departments involved in species at risk conservation in federal and provincial governments (Table 2). Those from industry were from Ontario's forestry sector (Table 2).

Table 2: Interview participant groups.

Group	Number of participants	Participant codenames
eNGO	7	eNGO_1; eNGO_2; eNGO_3; eNGO_4; eNGO_5; eNGO_6; eNGO_7
Bureaucratic	5	Federal_1; Federal_2; Federal_3; Alberta_1; Ontario_1
Forestry	2	Forestry_1; Forestry_2

ii. Interview analysis

Transcripts for each interview were transferred into Microsoft Word documents and saved using coded file names comprised of sector groupings and interview number, e.g., "eNGO_1" or "Forestry_2". Highly technical analysis methods such as qualitative coding were not deemed necessary due to the relatively low number of interviews and their semi-structured nature. Rather, analysis was done through multiple rounds of synthesis, theme identification, and further analysis of segments based on identified themes in Microsoft Word tables. Final synthesis of interview results were presented as initial results and utilized to build final findings in combination with the framework assessments and empirical evidence from the literature review.

D) Limitations

This thesis was done for an undergraduate honours program, and thus was conducted over eight months with no funding. Limitations on time and resources constrained the scope of research, particularly the inability to collaborate with Indigenous peoples in order to adequately examine the role of Indigenous rights and governance within boreal caribou conservation. Interviews were disproportionately conducted with those from eNGOs versus bureaucratic or natural resource entities (Table 2). However, perspectives of those from smaller interview groups were able to be validated by literature. Furthermore, due to the high amount of information and materials associated with boreal caribou conservation in Alberta and Ontario, results are general for both provinces, rather than specific to individual ranges. Each range, especially in Alberta due to their fragmented nature, is comprised of diverse geographies, ecosystems, and disturbance regimes. There is precedent for range-level analysis of conservation regime implementation, however this was out of scope for this thesis. Lastly, the focus on laws and policies is a limited snapshot of the complete conservation regime for boreal caribou, which includes programs led by actors from Indigenous, eNGO, industry, civil society, and other entities.

III. Literature Review

A) Canada's biodiversity conservation regime

In this case, the biodiversity conservation regime refers to the policy, regulatory, and legislative instruments and actors which manage and govern Canada's biodiversity. Canada's conservation regime exists within the context of multiple international agreements and instruments. The UN Convention for Biological Diversity (CBD) was the first biodiversity-focused global agreement and came into force in 1993 (UN CBD). A product of the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, the CBD set out to promote the conservation, sustainable use, and equitable benefit distribution of Earth's biodiversity (UN CBD). Canada was one of the first nations to sign and ratify the CBD, with each signatory required to create a National Biodiversity Strategy and Action Plan (NBSAP) to implement the CBD. The Canadian Biodiversity Strategy was developed in 1995 (Government of Canada, 1995), and was followed by the 1996 Accord for the Protection of Species at Risk in which the federal, provincial, and territorial governments - except for Quebec and Nunavut - agreed to create species at risk legislation under the Strategy (Government of Canada, 1996). The Accord established the Canadian Endangered Species Conservation Council (CESCC) between federal, provincial, and territorial governments, and solidified the role of the Committee on the Status of Endangered Species in Canada (COSEWIC) in providing independent assessments and advice regarding species at risk (Government of Canada, 1996). Following the Accord, and in support of the Biodiversity Strategy, the federal government enacted the *Species At Risk Act* in 2002 (SARA, 2002), and some provinces passed or amended legislation to enact wildlife protections.

During the tenth CBD Conference of the Parties (COP 10), the Aichi Biodiversity Targets were introduced in the Strategic Plan for Biodiversity 2011-2020 (UN CBD, 2010). Parties were to integrate these updates into their NBSAPs by 2015. In 2015, Canada released the 2020 Biodiversity Goals and Targets for Canada to align with COP 10 requirements (Government of Canada, 2016). In 2018, Canada implemented the Pan-Canadian Approach To Transforming Species At Risk Conservation In Canada (Pan-Canadian Approach) to strengthen the 1996 Accord for the Protection of Species at Risk (ECCC, 2018b). The Pan-Canadian Approach, led by the federal government in partnership with provinces and territories, identified priority areas, species, and threats which were crucial targets for conservation and recovery efforts (ECCC, 2018b). During the fifteenth CBD Conference of the Parties (COP 15) in 2022, the Kunming-Montreal Global Biodiversity Framework (KMGBF) was adopted, building on previous CBD Strategic Plans and the UN Sustainable Development Goals (SDGs) (UN CBD, 2022). The KMGBF aims to achieve global harmony with nature by 2050 through 23 targets for 2030 and four goals for 2050, with all Parties committed to setting complementary national targets. In 2024, the federal government released Canada's 2030 Nature Strategy: Halting and Reversing Biodiversity Loss in Canada as a pathway to achieving KMGBF 2030 targets (Government of Canada, 2024). To support the 2030 Nature Strategy, the *Nature Accountability Act* (Bill C-73) was introduced in Parliament in 2024 but died on prorogation in January of 2025 (ECCC, 2025b).

Table 3: International context for Canada's biodiversity conservation regime.

International and national agreements	Status
1993 UN Convention for Biological Diversity (CBD)	
Canadian Biodiversity Strategy (1995)	Updated in 2030 Nature Strategy.
Accord for the Protection of Species at Risk (1996)	Unfulfilled, not all provinces have species at risk legislation.
2011 UN CBD Aichi Biodiversity Targets	
Canada's 2020 Biodiversity Goals and Targets	Not fulfilled, especially lagging in halting species decline.
2015 UN CBD Kunming-Montreal Global Biodiversity Framework (KMGBF)	
Pan-Canadian Approach To Transforming Species At Risk Conservation (2018)	In progress.
Canada's 2030 Nature Strategy	In progress.

Table 4: Key federal components of Canada's biodiversity conservation regime.

Federal legislation	Admin	Contribution to biodiversity conservation
Canada Wildlife Act (1985)	CWS-ECCC	Authorizes the creation of National Wildlife Areas (NWAs).
Fisheries Act (1985)	DFO and ECCC	Governs commercial harvesting in all marine waters. Protects fish habitat and waters.
Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (1992)	ECCC	Implements terms Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to address international and domestic wildlife trade.
Migratory Birds Convention Act (1994)	CWS-ECCC	Implements terms of 1916 Migratory Birds Convention (1916). Governs migratory bird harvesting, protects migratory birds from harm and possession.
Oceans Act (1996)	DFO	Foundation for integrated oceans management and marine spatial planning, enables establishment of MPAs.
Canadian Environmental Protection Act (1999)	ECCC	Prohibits and manages pollution for the health of humans and the environment.
Canadian National Parks Act (2000)	PCA	Foundation for Canada's system of national parks and their operations.
National Marine Conservation Areas Act (2002)	PCA	Foundation for Canada's system marine protected areas (MPAs) and their operations.
Species At Risk Act (2002)	ECCC, DFO, PCA	Governs the identification, listing, management, monitoring, recovery, and protection of species at risk in Canada.

Currently, the Pan-Canadian Approach and 2030 Nature Strategy are Canada's primary national frameworks guiding the implementation of global biodiversity agreements. There are multiple federal laws which directly and indirectly contribute to the national biodiversity conservation regime (Table 2); however, Canada continues to lack a comprehensive, biodiversity or nature-related parliamentary act and its biodiversity continues to decline (WWF-Canada, 2025). Studies such as Beazley & Olive (2021), Ray et al. (2021), Swerdfager & Olive (2023), and Whitehorn et al. (2019) have concluded that Canada's

legislative biodiversity conservation regime is sub-optimal in its structure, effectiveness, and ability to fulfill the national biodiversity strategy under the UN CBD. This thesis will investigate these claims as they apply to boreal caribou conservation in Alberta and Ontario.

i. The *Species At Risk Act (2002)*

The *Species At Risk Act*, *Migratory Birds Convention Act*, and *Fisheries Act* are the core components of Canada's biodiversity conservation regime, each mandating direct interventions for species and habitat protection. In the case of boreal caribou, the *Species At Risk Act* (SARA) is the central federal legislation for all protection and recovery efforts. Enacted in 2002, SARA leads the federal listing, protection, and recovery processes for Canada's species at risk. It is primarily overseen by the Minister of Environment and Climate Change Canada (ECCC) (the Minister), with case-dependent leadership from the Minister of Fisheries and Oceans and the Minister responsible for the Parks Canada Agency. Under the Act, species thought to be at risk are assessed by COSEWIC as extirpated, endangered, threatened, special concern, data deficient, or not at risk. The Minister receives the assessment and must respond within 90 days with a report of intent (SARA, 2002). Within 9 months, the Minister must make a recommendation to the Governor in Council about listing the species (SARA, 2002). The Governor in Council can then recommend listing the species under Schedule 1 of SARA, not listing the species, or that the assessment be referred back to COSEWIC (SARA, 2002). If the Governor in Council and/or Minister decides on the latter two, they must explain their decision in a public report (SARA, 2002).

Species at risk are subject to mandatory recovery strategies and corresponding action plans, as well as automatic protections under SARA. The Minister must propose a recovery strategy for endangered species within one year after they are listed, and after two years for extirpated or threatened species (SARA, 2002). The Minister must propose an action plan for the implementation of the recovery strategy within a timeline that is specified in said strategy. Both the recovery strategy and action plan must be available for public comment prior to publication, and subject to progress reports every five years (SARA, 2002). Critical habitat must be protected 180 days after the recovery strategy or action plan that identified critical habitat is published. Extirpated, endangered, and threatened species are automatically subject to prohibitions on physical harm and capture, as well as the damage and destruction of their residences under sections (SARA, 2002). Optional avenues for SaR protection include measures to support province- and territory-led interventions, such as conservation agreements between Canada and subnational governments (s.11). As well as those which enforce protection on provincial or territorial lands such as safety net orders (s.61), imminent threat assessments (s.28), emergency listings (s.29), and emergency protection orders (EPOs) (s.80) (SARA, 2002).

Related instruments include the Indigenous Partnerships for Species at Risk (IPSAR) program, administered by ECCC (ECCC, 2025d). Since 2004, IPSAR has provided funding for Indigenous leadership within the conservation of species at risk and culturally significant species, and their habitats within Indigenous lands or territories (ECCC, 2025a).

C) Canada's boreal caribou conservation regime

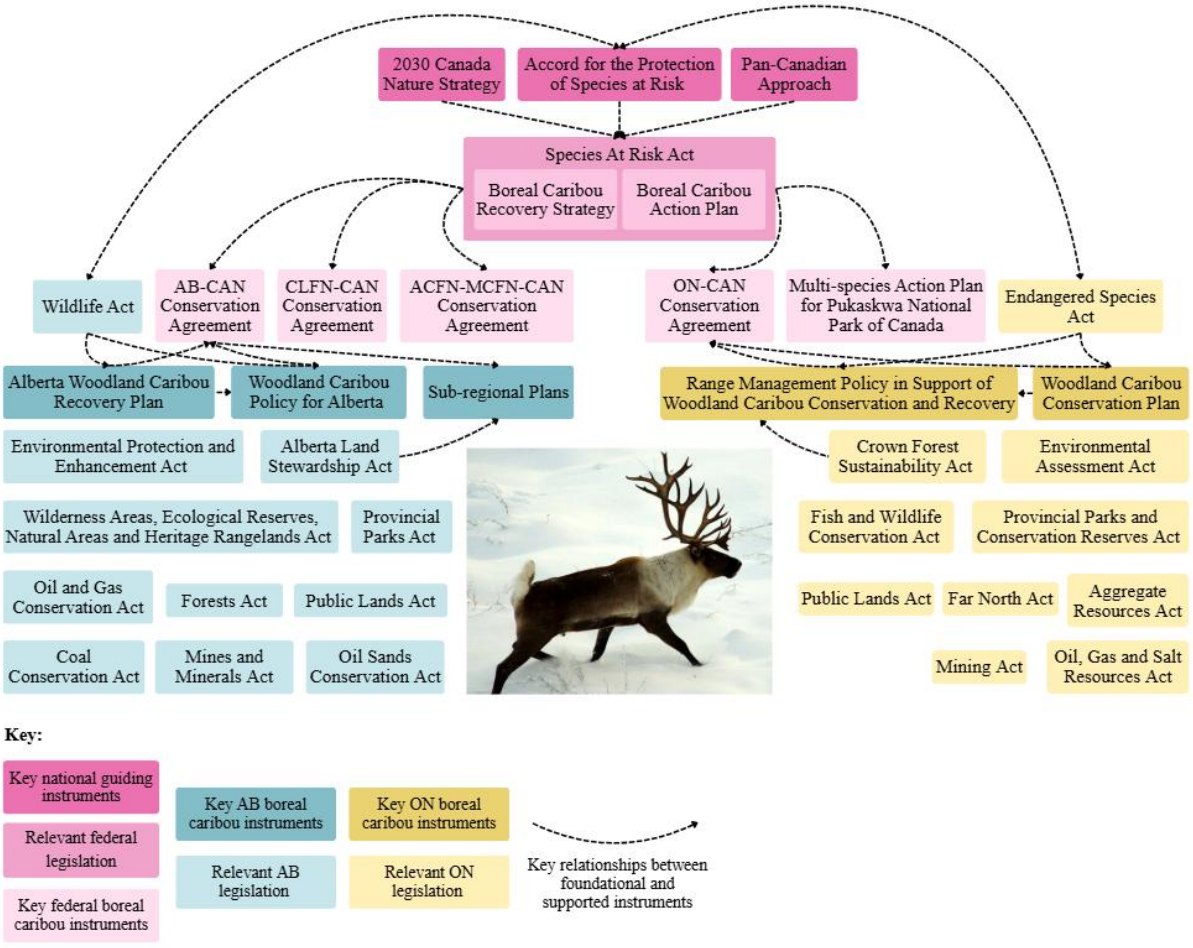


Figure 8: Boreal caribou conservation regime applicable in Alberta and Ontario, created by author.

i. Federal regime

As a terrestrial mammal, the federal boreal caribou conservation regime is governed by SARA under the Accord for the Protection of Species At Risk, the Pan-Canadian Approach, and the 2030 Nature Strategy. Boreal caribou were listed as threatened under Schedule 1 of SARA in 2003, reassessed as threatened by COSEWIC in 2014, and are due for a 10-year COSEWIC assessment (COSEWIC, 2014; SARA, 2002). Throughout 2007 to 2011, scientific reviews were conducted by ECCC to create a scientific basis for boreal caribou critical habitat identification (ECCC, 2011a). In 2012, ECCC published the *Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal population, in Canada* (Federal Recovery Strategy), which was amended in 2020 (ECCC, 2012, 2020b). The *Action Plan for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada* (Federal Action Plan) was published in 2018, alongside Parks Canada Agency action plans such as the *Multi-species Action Plan for Pukaskwa National Park of Canada* (Pukaskwa Action Plan) in Ontario (ECCC, 2018a; Parks Canada, 2017). An action plan for Wood Buffalo National Park is yet to be released, despite it overlapping with boreal caribou ranges in Alberta. However, Parks Canada provided legal protection

to the boreal caribou habitat within the park as of 2018 (ECCC, 2018a). There have been reports on the progress of the Federal Recovery Strategy for 2012 to 2017 and 2017 to 2022, as well as the Federal Action Plan for 2018 to 2023 (ECCC, 2018, 2024b). As of 2023, the federal government committed a total of $117 million to support boreal caribou recovery, and partners committed $209 million in matching funds (ECCC, 2024c).

The Federal Recovery Strategy mandates the overarching goal of achieving self-sustaining status across all 51 boreal caribou ranges (ECCC, 2012, 2020b). This would entail maintaining the status of 15 self-sustaining ranges and achieving self-sustaining status for 36 not self-sustaining ranges (ECCC, 2020). Self-sustaining status is closely linked with the 65% undisturbed critical habitat threshold (ECCC, 2011, 2020). These population and habitat disturbance goals govern boreal caribou conservation on federal lands in Alberta and Ontario, and to be internalized by provincial boreal caribou protection and recovery efforts. In the case of boreal caribou, provinces are responsible for the majority of boreal caribou conservation. The Federal Recovery Strategy and Federal Action Plan spell out high-level approaches to be implemented by provincial governments in order to achieve these population and habitat goals. These approaches are to be employed within provincial boreal caribou range planning (ECCC, 2018a, 2020b).

ii. Alberta's boreal caribou conservation regime

a) Provincial instruments

Boreal caribou have been listed as threatened under Alberta's *Wildlife Act (2000)* since 1985. The *Wildlife Act* primarily regulates the hunting of wildlife. While it prohibits the destruction of houses, nests, or dens of species at risk, boreal caribou do not use permanent residences and thus are not afforded these protections (Wildlife Act, 2000). Under the Act, the Minister of Environment and Parks may decide to create recovery plans for species at risk. The Alberta Woodland Caribou Recovery Team published the *Alberta Woodland Caribou Recovery Plan 2004/5 – 2013/14* (Alberta Recovery Plan) in 2005 (AWCRT, 2005), and the Alberta government published the *Woodland Caribou Policy for Alberta* (Alberta Caribou Policy) in 2011 (Government of Alberta, 2011). The Caribou Recovery Plan called for the establishment of Range Teams to produce range-specific caribou plans (AWCRT, 2005). In 2019, this system was replaced by Caribou Sub-regional Task Forces comprised of representatives from municipalities, Indigenous groups, the energy and forestry sectors, trappers, eNGOs, and other stakeholders (MEPA, 2025). The Task Forces are responsible for advising government on land-use planning for six sub-regions, with three recommendation reports complete and three on the way (MEPA, 2025). Currently, two of the sub-regions have active plans informed by the recommendation reports, the Cold Lake sub-regional plan (MEP, 2022) and Bitscho Lake sub-regional plan (MEP, 2022a). The sub-regional plans describe how critical habitat will be conserved, managed, and recovered in alignment with Alberta's Recovery Plan and Caribou Policy as well as the Federal Recovery Strategy (MEPA, 2022a, 2022c). The regulatory details for the two sub-regional plans are in the process of being implemented through amendments to the Lower Athabasca Regional Plan under the *Alberta Land Stewardship Act*, public feedback has been gathered and is under review (MEPA, 2024c, 2024a).

b) Provincial-federal instruments

In 2020, Alberta and Canada signed the *Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta* (Alberta-Canada Conservation Agreement), a five-year agreement under section 11 of SARA for southern mountain caribou and boreal caribou (ECCC, 2020a). The Parties committed to a series of targets to achieve and maintain the minimum 65% undisturbed habitat for boreal caribou subpopulations as outlined in the federal recovery strategy (ECCC, 2020a, 2020b). These targets to be achieved through 10 conservation measures across landscape planning; habitat conservation, management, and recovery; mortality and population management; and population and habitat monitoring strategies (ECCC, 2020a). There have been progress reports on the Alberta-Canada conservation agreement for the year of 2021 (MEPA, 2024e) and the years 2022-2023 (MEPA, 2024d). Highlighted advancements include the Caribou Habitat Recovery Program, the draft Provincial Restoration and Establishment Framework for Legacy Seismic Lines, and extensive predator management programs in seven ranges (MEPA, 2024e). Lethal wolf reduction has had the most positive impact on population declines thus far (MEPA, 2024b). As of 2023, ECCC committed $33 million for caribou-related projects in Alberta and partners committed $117 million in matching funds (ECCC, 2024c). As of January 2026, this agreement has expired and a cumulative progress report or plans for renewal are unavailable.

c) Indigenous-led instruments

In 2019, Cold Lake First Nation (CLFN) and the federal government signed the *Agreement for the conservation of the Woodland Caribou, Boreal population with Cold Lake First Nations* (CLFN-Canada Conservation Agreement) under section 11 of SARA (ECCC, 2019a). The agreement applied to the Cold Lake boreal caribou range, including areas which overlap with the Cold Lake Air Weapons Range (CLAWR). It acknowledged that the Denesoun'lini people of the CLFN were excluded from their land during the development of the CLAWR in the 1950s, and that they have the right to use the lands for traditional ways of life (ECCC, 2019a). The agreement aimed to align with the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Commission's (TRC) Calls to Action (ECCC, 2019a). The Alberta-Canada agreement was a separate instrument, while the CLFN-Canada Conservation Agreement was to act as an Indigenous-led framework for nation-to-nation cooperation (ECCC, 2019a). The overarching goal of the agreement was to support the achievement self-sustaining populations in Cold Lake aligned with the Federal Recovery Strategy (ECCC, 2019a). It spelled out nine conservation measures across four years and five broad strategies: landscape-level planning and habitat management; community capacity development, knowledge braiding and governance; population management; and population monitoring (ECCC, 2019a). As of January 2026, the agreement has expired and does not have public progress reporting.

In 2022, the Athabasca Chipewyan First Nation (ACFN), Mikisew Cree First Nation (MCFN), and federal government signed the *Agreement for the Conservation of the Woodland Caribou, Boreal Population with Athabasca Chipewyan First Nation and Mikisew Cree First Nation* (ACFN-MCFN-Canada Conservation Agreement) under section 11 of SARA (ECCC, 2022b). The agreement applied to the Red Earth, West Side Athabasca, Richardson, and East Side Athabasca River boreal caribou ranges (ECCC, 2022b). Like the CLFN-Canada Conservation Agreement, it recognized the importance of boreal

caribou to the ACFN and MCFN, and was guided by UNDRIP and the TRC's Calls to Action (ECCC, 2022b). The overarching goal of the agreement was to support the achievement self-sustaining populations in the specified ranges aligned with the Federal Recovery Strategy (ECCC, 2022b). This goal is to be achieved through five conservation measures across stewardship planning; caribou stewardship areas; restoration; and community awareness, education, and training strategies (ECCC, 2019a). According to ACFN and MCFN, they signed the agreement to further the implementation of their existing *Tâdzié-Sagow Atihk Stewardship Plan* and hold Canada accountable to recovering woodland caribou (Chamberlain, 2025). As of January 2026, the agreement has expired and is lacking any progress reporting. Other instances of Indigenous collaboration within boreal caribou conservation in Alberta will be discussed in the framework application.

d) Relevant provincial instruments

The *Environmental Protection and Enhancement Act (2000)* is the primary tool for managing regulatory requirements for air, water, land, and biodiversity in Alberta (EPEA, 2000). This includes environmental assessments and other provisions for projects which may harm boreal caribou habitat in Alberta (EPEA, 2000). The *Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act* prohibits the degradation or harm of ecosystems and wildlife in wilderness areas, ecological reserves, natural areas and heritage rangelands – some of which overlap with Alberta boreal caribou ranges (WAA, 2000). The *Alberta Land Stewardship Act 2009* enables the provincial government to guide land-use objectives and decisions, including conservation and stewardship goals (ALSA, 2009). The *Public Lands Act (2000)* enables the Alberta government to manage public lands and sets out requirements for industrial land uses (PLA, 2000). The *Provincial Parks Act (2000)* enables the designation, management, and protection of lands within provincial parks, wildland provincial parks, or recreation areas, some of which overlap with Alberta's boreal caribou ranges (PPA, 2000). The governance of extractive land uses through legislation such as the *Forests Act* (Forests Act, 2000), *Mines and Minerals Act (MMA, 2000)*, the *Oil Sands Conservation Act (2000)* (OSCA, 2000), the *Oil and Gas Conservation Act (2000)* (OGCA, 2000), and the *Coal Conservation Act (2000)* (CCA, 2000), as well as associated entities such as the Forest Resource Improvement Association of Alberta (FRIAA) and Canada Energy Regulator (CER), impact boreal caribou through mitigation, protection, and recovery provisions - or lack thereof. The direct and indirect role of natural resource governance in supporting or inhibiting boreal caribou conservation will be discussed in Analysis.

iii. Ontario's boreal caribou conservation regime

a) Provincial instruments

Boreal caribou have been listed as threatened under Ontario's *Endangered Species Act (2007)* since 2008 (ESA, 2007). They were reassessed as threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO) in 2015 (COSSARO, 2015). The ESA prohibits boreal caribou from being killed, harmed, captured, taken, possessed, transported, collected, bought, sold, leased, and traded. It also protects boreal caribou habitat from damage or destruction (ESA, 2007). It must be noted that the ESA is to be repealed and replaced by the *Species Conservation Act (2025)* under the recently passed *Protect Ontario by Unleashing Our Economy Act (2025)* (POUEA, 2025; SCA, 2025). Boreal caribou

are not proposed to be removed from the SCA (MECP, 2025c), however the differences between the CSA and ESA are significant. The SCA removes recovery and stewardship as explicit goals, emphasizes economic growth considerations, narrows the definition for habitat, and gives Cabinet the authority to define key terms such as "adverse effect" and "alternative habitat" when deciding on permissible activities (SCA, 2025). Additionally, projects will no longer require permits from the Environment Ministry prior to beginning a project which could harm species at risk (SCA, 2025). The new definition of habitat will only include a "dwelling place, such as a den, nest or other similar place, that is occupied or habitually occupied by one or more members of a species" and the area immediately around the dwelling place (SCA, 2025). Outside of calving sites, boreal caribou do not have stationary habitats aligned with these incoming requirements. Meaning that they will likely not receive habitat protection under the SCA for the majority of their life cycles (Norris et al., 2025).

Ontario released the *Woodland Caribou Conservation Plan* (Ontario Conservation Plan) 2009, based on recommendations in the Ontario Woodland Caribou Recovery Team's 2008 *Woodland Caribou Recovery Strategy* (Ontario Recovery Strategy) (MNR, 2009b; OWCRT, 2008). Ontario's Recovery Strategy and Conservation Plan seek to achieve self-sustaining, genetically connected subpopulations; strengthen security and connectivity among isolated subpopulations; and facilitate the return of boreal caribou in strategic areas. The Ontario Conservation Plan outlines the actions Ontario intends to take in alignment these goals and the Ontario Recovery Strategy recommendations. It also calls for the adoption of a Range Management Approach to boreal caribou recovery in alignment with the Federal Recovery Strategy and Action Plan (MNR, 2009b) This approach is then further outlined in the *Range Management Policy in Support of Woodland Caribou Conservation and Recovery* (Ontario Range Management Policy) (MNRF, 2014).

b) Provincial-federal instruments

In 2022, Ontario and Canada signed the *Agreement for the Conservation of Caribou, Boreal Population in Ontario* (Ontario-Canada Conservation Agreement), a five-year conservation agreement under section 11 of SARA (ECCC, 2022a). Under the agreement, Parties are to work toward self-sustaining populations in alignment with the Ontario Conservation Plan and in the Federal Recovery Strategy (ECCC, 2022). To achieve these goals, the agreement outlines 13 conservation measures across five general strategies: monitoring and science; habitat protection and restoration; planning and management; updates to Boreal Caribou Conservation Frameworks; and stewardship collaborations and funding (ECCC, 2022a). As of 2023, ECCC committed $9 million for caribou-related projects in Ontario, and partners committed $12 million in matching funds (ECCC, 2024c). Conservation agreement progress was most recently reported in 2024 (MECP, 2024a). Highlighted accomplishments include Ontario's Caribou Conservation Stewardship Program, which provides funding for conservation activities done by Indigenous communities, non-profits, and other groups, as well as the implementation of the 2023 and 2024 Boreal Caribou Monitoring Program and drafting of the Boreal Caribou Knowledge Plan (MECP, 2024a).

c) Indigenous-led instruments

As of January 2026, there has been no nation-to-nation conservation agreements between the federal government and First Nations within Ontario. Additional instances of Indigenous collaboration within boreal caribou conservation in Ontario will be discussed in the framework application.

d) Relevant provincial instruments

The *Crown Forest Sustainability Act (1994)* governs Ontario's Crown forests, except for those in provincial parks and conservation reserves under the *Provincial Parks and Conservation Reserves Act (2006)* (CFSA, 1994). Under the CFSA, the *Forest Management Guide for Boreal Landscapes* complements Ontario's Range Management Policy (MNR, 2014l) The guide requires forest activities to manage for natural levels of boreal caribou habitat and develop boreal caribou habitat plans (MNR, 2014b). The *Fish and Wildlife Conservation Act (1997)* restricts the hunting of boreal caribou, and outlines authority to manage wildlife species which influence boreal caribou such as predators and alternate prey (FWCA, 1997). The *Provincial Parks and Conservation Reserves Act (2006)* restricts forestry, mining, and other industrial uses within provincial parks and conservation reserves, which overlap with some of Ontario's critical boreal caribou habitat (PPCRA, 2006). The *Far North Act* (2010) is the legislative framework for community-based land use planning in the Far North of Ontario. It includes provisions for protecting cultural and ecological values and overlaps with the boreal caribou ranges (FNA, 2010). The *Public Lands Act (1990)* contains area-specific policies for planning units which produce protection measures for caribou habitat (PLA, 1990). More general legal instruments such as the *Environmental Assessment Act (1990)*, *Mining Act (1990)*, and *Oil, Gas and Salt Resources Act (1990)* also impact boreal caribou through their governance of industrial projects which may harm critical habitat (EAA, 1990; Mining Act, 1990). The direct and indirect role of natural resource governance in supporting or inhibiting boreal caribou conservation will be discussed in analysis.

The *Special Economic Zones Act (2025)* was passed in June 2025 under the same Bill as the CSA, the *Protect Ontario by Unleashing Our Economy Act (2025)* (SEZA, 2025). The SEZA allows the Lieutenant Governor in Council to designate special economic zones (SEZ), designated projects, and trusted proponents, based on criteria chosen by the Lieutenant (SEZA, 2025). In a SEZ, the Lieutenant can exempt the designated project and/or trusted proponent from provisions of any Act, instrument, regulation, or by-law which would otherwise apply in the area (SEZA, 2025). If a SEZ overlaps with boreal caribou ranges and/or habitat, development in that area could be exempt from boreal caribou protection measures. The *Protect Ontario by Unleashing Our Economy Act (2025)* also made changes to the *Mining Act (1990)* and the *Environmental Assessment Act (1990)* to expedite mining activities in the Eagle's Nest Mine located in Northern Ontario's 'Ring of Fire' which directly overlaps with boreal caribou ranges (POUEA, 2025). Exploration, development, and extraction in the Ring of Fire presents significant conservation risk for the boreal region and will directly impact boreal caribou recovery in Ontario (Farrell, 2021; WCS Canada, 2025).

D) Campaigns against federal and provincial governments

Environmental, legal, and other organizations have consistently accused the federal and provincial governments of failing to properly implement boreal caribou protection and recovery efforts as is required under SARA and the Accord for Protection of Species At Risk. This has occurred through legal actions, petitions, and other public campaigns to bring attention to boreal caribou conservation.

i. Alberta

There have been multiple efforts by Indigenous groups, eNGOs, and legal organizations to compel governments to implement emergency protections in Alberta. This includes a 2019 lawsuit filed by Ecojustice on behalf of the ACFN, MCFN, Alberta Wilderness Association (AWA), and the David Suzuki Foundation (DSF) to compel the Minister of ECCC to recommend a safety net order (section 61 of SARA) to protect five highly threatened boreal caribou herds (Ecojustice, 2019). The Minister made the recommendation, which was rejected by the federal government in lieu of the Alberta-Canada and ACFN-MCFN-Canada conservation agreements. However, those behind the lawsuit condemned the lack of immediate action spelled out under the agreement (Ecojustice, 2020). A previous 2017 petition against the Minister was led Ecojustice on behalf of the Alberta Wilderness Association, CLFN, and David Suzuki Foundation to make the same recommendation under section 61 of SARA (Ecojustice, 2017). Alberta's progress since these legal petitions, continue to be highlighted as insufficient and harmful to boreal caribou conservation by environmental groups, experts, and civil society (AWA, 2024; AWA et al., 2025; CPAWS Northern Alberta, 2024; Weber, 2024). In addition to legal actions, organizations such as the AWA, CPAWS Northern Alberta, and DSF have led advocacy campaigns for improved boreal caribou protections in Alberta for years (see CPAWS Northern Alberta, 2026; DSF, 2026; Narváez-Torres, 2025).

ii. Ontario

Like Alberta, the concerning nature of Ontario's boreal caribou status is echoed in the positions of environmental organizations and the discourse in media (Boan, 2023; CBC News, 2018; DSF, 2017; Lewis, 2022; Romano, 2024; The Canadian Press, 2020). In 2018, Ecojustice on behalf of the David Suzuki Foundation, Ontario Nature, and the Wildlands League, petitioned the Minister of ECCC to recommend a safety net order for two Ontario ranges under section 61 of SARA (Ecojustice, 2018). The Minister made the recommendation, however the federal government rejected it and entered into the Ontario-Canada Conservation Agreement instead. The draft conservation agreement was met with further pushback, with Ecojustice, the David Suzuki Foundation, Ontario Nature, and the Wildlands League threatening legal action if improvements were not made (Ecojustice, 2022). Since then, groups have also condemned amendments to the provincial environmental protections which further threaten boreal caribou, such as exemptions for forestry operations in and around critical habitat (Boan, 2020; Swift, 2018). In 2023, the Minister recommended a habitat protection order under section 61 of SARA be implemented in Ontario based on a federal report concluding that boreal caribou were inadequately protected by current legislation (ECCC, 2023a, 2023b). However, the federal government rejected the Minister's recommendation, instead giving Ontario until April 2024 to strengthen provincial measures aligned with federal boreal caribou protections (Ecojustice, 2023). Environmental groups have since

argued that protections for boreal caribou have not improved and are instead weakened (DSF, 2024a, 2024b; Norris et al., 2025; Reder et al., 2024). In addition to legal actions, organizations such as the DSF, Wildlands League, and Ontario Nature have led advocacy campaigns for boreal caribou in Ontario for years (see DSF, 2026; Ontario Nature, 2026; Wildlands League, 2026).

E) Socioeconomic concerns

Due to the overlap between boreal caribou ranges and important anthropogenic activities, conservation measures have been perceived as inhibiting industrial operations, threatening local livelihoods, being too costly, and having other negative socioeconomic implications. This primarily appears in media discourse and peer-reviewed studies which advocate for more strategic conservation planning to support natural resource extraction and reduce the significant economic costs of boreal caribou recovery. Contrastingly, studies have also shown that some arguments against boreal caribou conservation are disproven, manufactured claims seeking to impede limits or constraints for unsustainable economic development.

i. Alberta

It has been a contentious topic for politicians, organizations, companies, and communities involved in Alberta's natural resource industry (Snyder, 2018). Caribou protection policies, specifically the 65% undisturbed caribou habitat objective, are perceived as a significant threat to productivity, profitability, and northern ways of life (Snyder, 2018). Critics argue that the disturbance thresholds are misaligned with the current operations of northern industries and could even unintentionally exacerbate environmental impacts (Snyder, 2018). These actors also fear federal intervention through section 61 or 80 orders under SARA, which are perceived as catastrophic and ineffective by industry actors (Snyder, 2018). Industry representatives from Alberta have instead advocated for an industry-led, collaborative approach in which oil and forestry companies continue to expand with reduced footprints (Snyder, 2018). Furthermore, sources such as Hebblewhite (2017) and Schneider et al. (2012) argue that SARA's mandate for the recovery of all woodland caribou subpopulations is too costly, especially when factoring in opportunity costs for the oil and gas sector in energy-producing provinces like Alberta. Conservation triage is proposed as a solution for improving the efficiency of federal and provincial resource allocation whilst facilitating energy development (Hebblewhite, 2017; Schneider et al., 2010, 2011, 2012).

ii. Ontario

Caribou conservation in Ontario has also been perceived as a threat to socioeconomic wellbeing, specifically by northern natural resource sectors and the communities which depend on them (Kaufman, 2023; Ross, 2023). Industry actors have voiced concern that habitat protections will result in job loss, financial devastation, and the closure of operations for both forestry and mining in northern Ontario (Kaufman, 2023; Ross, 2023). Some have even claimed that there is no boreal caribou crisis in Ontario, and that populations remain intact and well protected (Northern Ontario Business Staff, 2015). Instead, they argue that environmental organizations are using the boreal caribou to promote an anti-industrial agenda (Snyder, 2018). Some northern First Nations have voiced their concerns for caribou protection and recovery plans, accusing the Ontario government of not consulting them on such policies and

jeopardizing essential economic activities (Ross, 2019). Interestingly, Boan et al. (2018) utilize northern Ontario as a case study for demonstrating how scientific uncertainty is exploited to create false claims and campaigns against boreal caribou conservation. Sources such as Boan et al. (2018) and Fortin et al. (2020) argue that declines in forestry operations and jobs are not related to caribou conservation, but rather factors such as forest product demand, labour and energy costs, net investment in the forestry sector, and the economies of foreign nations.

F) Assessments of conservation regimes

The effectiveness of overarching frameworks for species at risk conservation federally and in Alberta and Ontario have been subject to evaluations within grey and peer-reviewed literature. Whilst there are components of each regime that have been received well, the general consensus for all three is that they lack effectiveness in their structure and implementation.

i. Federal species at risk regime, with a focus on SARA

As a landmark component of Canada's legal biodiversity conservation regime, SARA has been subject to numerous assessments in peer-reviewed and grey literature. It is labelled the most powerful federal tool for the protection of Canadian species and habitats, and is a key component of Canada's 2030 Nature Strategy (ECCC, 2024a; Gordon et al., 2024). The use of an independent scientific body for species status evaluations, and the automatic recovery planning and protection provisions for listed species have been received well (Nixon et al., 2012). However, these points are overshadowed by criticisms of its limited legal jurisdiction and inconsistent implementation. Due to the constitutional separation of power, SARA only applies to migratory birds, aquatic species, and species residing on federally administered lands - which make up ~4% of Canada (Gordon et al., 2024). Bolliger et al. (2020) concluded that federal lands provide protection within an average of 8.1% of listed species' ranges, with 63.1% of terrestrial listed species protected within less than 5% of their range and 18 listed species receiving protection in 0% in their ranges. While it has mechanisms to enforce federal protections outside of these jurisdictions, these are rarely employed (Gordon et al., 2024). Turcotte et al. (2021) argued that legislative inconsistencies, subjective prioritization of species, overall reluctance of federal actors, a lack of Indigenous recognition within species protection, and a number of other shortcomings made SARA largely ineffective on non-federal lands (Turcotte et al., 2021).

In a 2023 report, the Office of the Auditor General (OAG) concluded that the federal government was falling short in their efforts to recover species at risk under SARA (OAG, 2023). The report concluded that the ECCC, DFO, and Parks Canada had not sufficiently completed the key documents and steps for the 640 SaR listed under SARA (OAG, 2023). Most endangered and threatened species had a recovery strategy, but over half of the action plans for these strategies had not been developed (OAG, 2023). ECCC was responsible for most of the overdue action plans, having only completed 1 out of 399 progress reports required under SARA (OAG, 2023). A 2025 OAG report concluded that only 32% of SaR had their critical habitat fully identified by a recovery strategy or action plan, and found notable issues with overdue critical habitat studies and a lack of conservation action monitoring (OAG, 2025). ECCC, DFO, and Parks Canada agreed with all of the recommendations made by these two Auditor General reports, committing to remediating the identified issues (OAG, 2023, 2025).

ii. Alberta's species at risk regime

Alberta's *Wildlife Act* has been criticized as being too vague and discretionary to be effective (Fluker & Stacey, 2012; Gordon et al., 2024; Nixon et al., 2012). Specifically, sources have highlighted the discretionary nature of listing criteria definitions, species listing, recovery planning, critical habitat identification, as well as the lack of explicit protections for species at risk habitats (Gordon et al., 2024; Nixon et al., 2012). Its prohibitions also do not apply to fish, plant, invertebrate, or fungi species, and there are exemptions and permits which compromise its lacking protections (Gordon et al., 2024). Fluker & Stacey (2012) conclude that Alberta's legal framework for species at risk is insufficient to fill SARA's jurisdictional gaps, leading to a lack of tangible, effective interventions across the province.

iii. Ontario's species at risk regime

Upon implementation, the ESA garnered praise and support as the leading framework for species protection within Canada (Nixon et al., 2012). It was commended for its use of independent science, mandatory listing and recovery planning, and automatic habitat protections (Nixon et al., 2012). However in the years since, the ESA has been criticized for its lack of implementation and the multiple amendments which have weakened its protections (Bethlenfalvy & Olive, 2021; Gordon et al., 2024; Nixon et al., 2012). Legislation such as the 2019 *More Homes, More Choice Act* have further watered down listing processes and allowed more exemptions for harming species and their habitat (Bethlenfalvy & Olive, 2021; Gordon et al., 2024; MHMCA, 2019). The incoming *Species Conservation Act* (SCA) has garnered a wealth of backlash from experts for its sweeping changes to the provincial protection and recovery framework. Numerous legal and environmental groups have condemned the negative impacts this new act will have on species at risk conservation in Ontario (CELA, 2025; Ecojustice, 2025; GPO, 2025; Peiman, 2025).

G) Efficacy of the boreal caribou conservation regime

i. National scale

On the national scale, boreal caribou conservation has been subject to numerous peer-reviewed and grey studies. Those such as Hebblewhite & Fortin (2017), Herbert et al. (2017), Murray et al. (2015), and Festa-Bianchet et al. (2011) criticize the lack of habitat protection, habitat restoration, tangible implementation of conservation measures, and timeline consistency within the federal boreal caribou conservation regime. Collard et al. (2020) found that 64 of 65 projects in British Columbia with significant potential adverse impacts on caribou were approved by federal and provincial environmental assessments on the basis of mitigation planning. However, mitigation effectiveness was largely unknown and several projects were approved with insufficient mitigation measures (Collard et al., 2020). Papers such as DeMars et al. (2025) and Ray (2014) examine strategies for improving the restoration of boreal caribou habitat. Ray (2014) argues that the Federal Recovery Strategy can adequately support range-scale habitat restoration and cumulative disturbance monitoring. However, ranges across Canada lack consistent delineation and monitoring of populations, cumulative disturbance, and recovery (Ray, 2014). Furthermore, the governance of natural resource industries in boreal caribou habitat was highlighted as focused on restoring productive land, and thus misaligned with habitat recovery (Ray, 2014).

Many studies validate or enhance the science behind federal objectives, particularly the relationship between anthropogenic disturbance, habitat alteration, predation, and population declines. Those which argue for the efficacy of measures such as predator and alternate prey population management emphasize that they must be implemented with caution and in conjunction with habitat protection and restoration (DeMars et al., 2023, 2025; Johnson et al., 2022a; Serrouya et al., 2021). However, studies also argue that such interim measures with negative ethical implications, particularly wolf culling, is being over-utilized whilst long-term solutions are being delayed (Johnson et al., 2022a). Some studies also point to research gaps within the federal regime, suggesting that the 35% maximum disturbance threshold is uncertain across the distribution and that boreal caribou habitat recovery criteria do not properly account for climate change uncertainty, continued predator dynamics, and disturbance-mediated processes (DeMars et al., 2023, 2025; Wilson, 2025).

ii. Alberta

The conservation of boreal caribou in Alberta has been subject to considerable analyses in published research. Notable themes throughout these studies include delays in legislative protection; a lack of caribou-specific protections across Alberta's legal framework; continuous declines in subpopulations and increases in habitat-disturbing activities (i.e., oil and gas drilling); as well as the short-term nature of Alberta's effective strategies (i.e., wolf termination) and the high costs of long-term habitat restoration (Hauer et al., 2018; Hebblewhite, 2017; Hill et al., 2021). The lack of government guidelines for supporting alternative conservation efforts such as biodiversity offsets and large-scale reclamation guides is also discussed (Bentham & Coupal, 2015; Robichaud & Knopff, 2015). Sources highlight how the protection and recovery of boreal caribou in Alberta is often outweighed by the economic potential of untapped resources overlapping with subpopulation ranges (Hebblewhite, 2017). Studies argue that self-sustaining ranges will not be possible with the current mitigation efforts and resource extraction levels (Robichaud & Knopff, 2015). Many conclude that conservation triage will likely be the best avenue for boreal caribou in Alberta (Hebblewhite, 2017; Schneider et al., 2010, 2012). Triage occurs when a species is in immediate peril, and protection of all individuals is infeasible (financially, ecologically, etc.). It involves the prioritization of healthier groups of a species, while essentially abandoning hope for others (Hebblewhite, 2017; Schneider et al., 2010, 2012).

iii. Ontario

The academic literature about boreal caribou conservation in Ontario is overwhelmingly critical of the current regime. Boan & Plotkin (2023) define several political barriers to boreal caribou recovery, including inadequate responses to cumulative impacts, a lack of local support due to misinformation and/or incomplete narratives, weak political will, and insufficient lobbying resources. Boan & Plotkin (2023) also highlight that the provinces' mandate to 'balance' natural resource development and biodiversity conservation almost always results in losses for conservation. Boan (2018) argues that caribou conservation has been impeded by campaigns of manufactured uncertainty similar to those seen in climate change denial. Studies evaluating current forest management strategies have argued that they are insufficient for achieving boreal caribou objectives and broader ecological targets (Mackey et al., 2023; Malcolm et al., 2025; Yemshanov et al., 2024). As uncertainty surrounds the efficacy of boreal caribou habitat restoration in logged areas and commercial forestry continues to expand, intensive

strategies such as wolf culling and moose harvest are recommended as interim measures (Fryxell et al., 2020a; Malcolm et al., 2025; Wilkinson, 2010). There is an abundance of research in Ontario regarding boreal caribou biology which confirms the current science behind federal and provincial conservation objectives. Notably, the relationship between anthropogenic disturbance, habitat unsuitability, increased predation, and population declines has been observed my numerous studies (Avgar et al., 2015; Fryxell et al., 2020b; Mallon et al., 2016; McGreer et al., 2015; Viejou et al., 2018; Walker et al., 2021).

H) Evaluating effective species at risk conservation

i. Defining "effective" conservation

As the field of conservation has changed, so has its purpose and objectives (Mace, 2014; Redford et al., 2011). Historic approaches to conservation separated ecological and human systems (Mace, 2014), while recent variations have been accused of employing overly utilitarian, anthropocentric valuations of nature and species (Soule, 2013). Proponents of "new conservation" argue that socioeconomic realities must be married with conservation solutions in order to eliminate nature-human dichotomies (Kareiva, 2014; Kirby, 2014; Marvier, 2014). The recently proposed "convivial" conservation connects new conservation to the rejection of capitalism, instead advocating for post-neoliberal political systems built to address interconnected socioecological needs (Büscher & Fletcher, 2019). Across these many iterations, it is clear that species conservation which neglects relevant social and economic variables will be highly limited within increasingly complex human-environment contexts, like that in which boreal caribou exist. That being said, varying perspectives on conservation weigh ecological and socioeconomic objectives differently. In this case, the success of conservation will be measured first and foremost based on its impact on boreal caribou. Relevant socioeconomic variables and their relationship with the conservation regime will be investigated, but not the core focus of the evaluation. Social and economic alignment will be measured by assessing the extent to which the conservation process integrates and impacts relevant social and economic factors (Table 3).

While differing perspectives on the field of conservation necessitate differing measurements of success (Mace, 2014), it is widely accepted that effective conservation has transitioned away from the avoidance of extinction to the recovery of the species (Redford et al., 2011). When assessing species at risk conservation, both the product, i.e., protection and recovery, (McCune et al., 2013; Pawluk et al., 2019) as well as the process of conservation under its legislative, regulatory, and policy regime must be analyzed (Bogetti & Mason, 2025; Gordon et al., 2024; Nixon et al., 2012; J. C. Ray et al., 2021; Turcotte et al., 2021). This analysis therefore defines effective conservation regimes as those which employ inclusive, empirically-sound knowledge bases, protection measures, recovery measures, and transparent monitoring to achieve science-based, ambitious recovery objective(s) (Table 3). In this case, effective conservation also seeks to integrate relevant socioeconomic considerations without significantly inhibiting conservation progress.

ii. Creation of the evaluation framework

Studies assessing species at risk laws and policies often focus on the strength of their content (Bogetti & Mason, 2025; Gordon et al., 2024; Nixon et al., 2012). Assessing such conservation regimes within a species-specific case study warrants an equal or stronger emphasis on implementation. This is especially true for boreal caribou, which have been listed as threatened for decades and subject to multiple laws and policies, however, remain in decline (Boan & Plotkin, 2023). Measurements of conservation success must also consider the relationship between the species and human interventions (Redford et al., 2011). Sub-criteria were thus created to be applicable to species reliant on immediate and long-term intervention, as well as to investigate the implications of habitat overlap with natural resource extraction. Lastly, although there is precedent to evaluate conservation success over time (Akçakaya et

al., 2018), the history and future of Alberta and Ontario's boreal caribou conservation regime will be discussed but not the subject of evaluation.

Whilst Indigenous rights are included under the same criterion as socioeconomic and ecological landscape-wide considerations (Table 3), they are of more importance in this analysis due to the significance of caribou to northern Indigenous communities and the importance of Indigenous rights within Canadian biodiversity conservation (Hill et al., 2019). As will be discussed, this honours thesis did not have the capacity to include a comprehensive, collaborative, equitable analysis of the implications of boreal caribou conservation for Indigenous peoples. However, an examination of considerations for Indigenous rights within Alberta and Ontario's boreal caribou conservation regime will be conducted based on public reporting and empirical evidence.

Table 5: Evaluation framework for species at risk conservation.

Criteria	Sub-criteria	Legal/Policy Basis	Implementation
1. Scientific Basis	1.1 Population trends		
	1.2 Critical habitat		
	1.3 Threats		
2. Protecting Individuals and Habitat	2.1 Individuals are protected		
	2.2 Habitat is protected		
	2.3 Permits and assessments of activities		
	2.4 Protection within anthropogenic activities		
	2.5 Habitat loss is offset when necessary		
3. Recovery	3.1 Recovery objectives		
	3.2 Short-term recovery outcomes		
	3.3 Long-term recovery outcomes		
	3.4 Recovery within anthropogenic activities		
4. Monitoring and Transparency	4.1 Regular, transparent monitoring of recovery progress		
	4.2 Adaptive management		
5. General Considerations	5.1 Indigenous rights		
	5.2 Socioeconomic considerations		
	5.3 Environmental considerations		

1. Knowledge Base

1.1 Population trends: The status of subpopulations – including abundance, growth trends, genetic diversity, resilience, and so forth – should be transparently identified, assessed, and monitored by independent bodies and be based on empirical evidence rather than political bias (Gordon et al., 2024; Nixon et al., 2012; OAG, 2024). However, the lack of full scientific certainty should not delay conservation measures (ECCC, 2024d; Government of Canada, 1996; Westwood et al., 2019).

1.3 Critical habitat: Identification of critical habitat based on strong, scientific empirical evidence is paramount to effective protection and recovery of species at risk (OAG, 2025; Westwood et al., 2019). Habitat and habitat trends should be transparently identified, assessed, and monitored by independent bodies and be based on empirical evidence rather than political bias (Gordon et al., 2024; Nixon et al., 2012; OAG, 2024). However, the lack of full scientific certainty should not delay conservation measures (ECCC, 2024d; Government of Canada, 1996; Westwood et al., 2019).

1.2 Threats: Current and incoming threats to species conservation, including their relative severity and strength, must be identified to inform protection and recovery planning. Threats should be transparently identified, assessed, and monitored by independent bodies and be based on empirical evidence rather than political bias (Gordon et al., 2024; Nixon et al., 2012; OAG, 2024). However, the lack of full scientific certainty should not delay conservation measures (ECCC, 2024d; Government of Canada, 1996; Westwood et al., 2019).

2. Protecting individuals and habitat

2.1 Physical protection: Species should be legally protected from physical harm, both direct and indirect **(Bogetti & Mason, 2025; Gordon et al., 2024; Nixon et al., 2012)**. This includes hunting, road mortality, etc., however, traditional Indigenous harvesting in alignment with treaty and Constitutional rights will be an exception.

2.2 Habitat protection: Protecting habitat is essential to address struggling populations and prevent further decline. For umbrella species like boreal caribou, it can also result in wide-ranging biodiversity benefits (Johnson et al., 2022). There should be automatic legal requirements to protect species at risk habitat, and these protections must have strong, empirical basis for supporting recovery objectives (Gordon et al., 2024; OAG, 2025; Nixon et al., 2012).

2.3 Permits and assessments of activities: Permits and assessments of activities which may harm individuals and habitat are made public and do not significantly inhibit recovery. Such processes which allow harm to individuals and habitat should be tightly regulated and transparent **(Bogetti & Mason, 2025; Gordon et al., 2024)**.

2.4 Protection within anthropogenic activities: Provisions for individual protection, habitat protection, and minimization or mitigation of habitat disturbance are incorporated within anthropogenic activities. This must be examined for species whose habitat overlaps with areas of significant extraction and development priorities (Boan & Plotkin, 2023; Gordon et al., 2024; Malcolm et al., 2025).

3. Recovery

3.1 Recovery objectives: Recovery objectives should be clear, quantitative, and ambitious (Pawluk et al., 2021; McCune et al., 2013). Measures of species recovery should be based on scientific population health metrics such as abundance, biodiversity, and connectivity (Westwood et al., 2014). This could include being demographically and ecologically self-sustaining, genetically robust, having healthy and representative populations across historical ranges, and resilience across their ranges (Redford et al., 2011). In this study, the progress towards recovery objectives will also be assessed.

3.2 Short-term recovery outcomes: In this study, short-term recovery measures are those which are essential to halt or slow decline on more immediate timelines. I.e., "short-term" refers to the longevity of recovery benefits, in addition to implementation timelines. These should be implemented where necessary, and their efficacy should have strong empirical evidence. However, These measures should not act alone to simply stave off extinction (Redford et al., 2011). Rather, they should be strategically implemented as interim solutions to fill conservation gaps prior to the benefits of long-term recovery measures coming to fruition (Hauer et al., 2018). In this study, these may include predator and alternate prey population management, as well as interventions for caribou populations such as penning and translocation.

3.3 Long-term recovery outcomes: Long-term recovery measures are those which seek to support habitat and population health permanently, with benefit sustaining for long periods of time. These measures should be simultaneously planned and implemented alongside short-term measures, so that short-term measures are not being wasted and long-term measures can have bolstered efficacy (Festa-Bianchet et al., 2011; Hauer et al., 2018). Although habitat protection supports long-term recovery, for the purpose of this study long-term recovery actions will be interpreted as active measures ensuring long-term positive outcomes, namely habitat restoration.

3.4 Recovery within anthropogenic activities: Provisions for habitat recovery should be integrated into the regulation, planning, development, and operation of relevant natural resource industries. This is especially integral for the survival of species like the boreal caribou, whose recovery has historically conflicted with socioeconomic land uses (Nagy-Reis et al., 2021; Stewart et al., 2020).

4. Monitoring

4.1 Regular, transparent monitoring of recovery progress: Progress of protection and recovery measures should be consistently monitored, based on reliable data, and available to the public (ECCC, 2024d; Westwood et al., 2019). Note that, in this study, monitoring of population, habitat, and threat-related indicators will be assessed under criterion 1 Knowledge Basis. Whereas this sub-criterion refers to the more high-level monitoring of the implementation of conservation measures, as well as the transparency of this monitoring.

4.2 Adaptive management: Results of monitoring should be integrated into future planning, ensuring the use of identified trends, challenges, or opportunities to strengthen subsequent protection and recovery efforts (ECCC, 2024d; Westwood et al., 2019). In this case, this applies to monitoring of population, habitat, and threat-related trends, as well as the monitoring of conservation measure progress.

5. High-level Considerations

5.1 Indigenous rights: Boreal landscape conservation and decision-making has a long history of excluding Indigenous peoples from participation, despite their treaty and constitutional rights to governing their lands (Smith, 2015). Making space for Indigenous Knowledge and leadership across the entire conservation regime is crucial for the effective, equitable species at risk protection and recovery (Hill et al., 2019). This must occur in a way which does not separate and exploit Indigenous Knowledge from its traditional knowledge holders (Hill et al., 2019; Polfus et al., 2014). Additionally, Indigenous

peoples should be able to participate in traditional, sustainable harvesting of the species **(AFN & DSF, 2013; Gordon et al., 2024)**. If this is not feasible, harvesting rights should be a priority of protection and recovery plans and policies. In order for recovery measures to occur equitably, IK and TEK must be integrated into recovery planning through consultation with affected Indigenous peoples (Westwood et al., 2019).

5.2 Socioeconomic considerations: Relevant social and economic factors should be identified and integrated into planning and implementation to the best extent possible, in order to strengthen conservation and reduce negative socioeconomic impacts (Kareiva, 2014; Kirby, 2014). As discussed, this study is primarily concerned with positive outcomes for species at risk but acknowledges the importance of incorporating important socioeconomic factors into conservation regimes.

5.3 Environmental considerations: The ecological impacts of the conservation regime must be identified, monitored, and integrated into planning and implementation in order to avoid unforeseen, negative impacts across ecosystems and/or landscapes. This is especially relevant for umbrella species such as boreal caribou, who are highly interconnected with predator-prey dynamics and whose conservation often requires predator and alternate prey management (DeMars et al., 2019; Johnson et al., 2022b). As part of these considerations, cumulative effects of activities on the landscape should be monitored, in order to adequately quantify habitat disturbance trends (Ray, 2014).

IV. Federal Framework Assessment

This section applies the evaluation framework to the federal boreal caribou regime as it applies to Alberta and Ontario. The following sections will take the federal regime into account, and present comprehensive summaries of how federal and provincial laws, regulations, policies, and plans related to boreal caribou align with the framework. Note that implementation progress was only discussed if it was national-scale progress which involved and/or affected boreal caribou conservation in Alberta and Ontario. Province-specific progress under the federal regime is discussed within the Alberta and Ontario regime assessments. Sub-criteria with no relevant, national-scale progress are denoted as "NA" for not applicable under their implementation progress descriptions.

1. Knowledge Base

1.1 Population demographics

1.1.1 Legal/policy basis

Laws and regulations: Under the federal *Species At Risk Act (2002)* (SARA), the status and general description of a species are to be identified within COSEWIC reports (section 15) and recovery strategies (section 41) (SARA, 2002).

Boreal caribou planning: The Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal population, in Canada (2020) (Federal Recovery Strategy) aims to fill knowledge gaps in population trends, size, structure, distribution as well as health, condition, and sensory disturbance through its Population Monitoring approaches (Appendix B) (ECCC, 2020b). The Action Plan for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada – Federal Actions (Federal Action Plan) calls for enhanced understanding of the relationship between disturbance and population responses as well as the impacts of climate change on population status (Appendix B) (ECCC, 2018a).

1.1.2 Implementation progress

Boreal caribou were designated as threatened by COSEWIC in 2000 and under SARA in 2003 based on a 1985 report and two 2002 reports assessing the status of woodland caribou (COSEWIC, 2002). Population estimates for the boreal caribou were also published in the 2012 and 2020 federal recovery strategies, the 2014 COSEWIC re-assessment, and the 2017 and 2023 federal progress reports (Appendix A) (COSEWIC, 2014; ECCC, 2012, 2017, 2020, 2024). Under the Federal Action Plan, the Boreal Caribou Knowledge Portal was launched in 2018 within the Canadian Conservation and Land Management Knowledge Network through the National Boreal Caribou Knowledge Consortium (NBCKC), a forum of representatives from federal, provincial, territorial, Indigenous, industry, academic, ENGO, community, and wildlife management actors (ECCC, 2017; NBCKC, 2018). Within the NBCKC, there are working groups for general monitoring, habitat restoration, population management, and caribou health (Appendix D) (ECCC, 2024; NBCKC, 2018). The annual North American Caribou Workshop led by ECCC and NRCan has occurred 19 times, with the 20th upcoming

in 2026, and further facilitates collaborative knowledge sharing between federal, provincial, territorial, etc. actors (Appendix D) (ECCC, 2024).

1.2 Critical habitat

1.2.1 Legal/policy basis

Laws and regulations: Under SARA, s.41 requires the National Recovery Strategy to identify critical habitat for listed species at risk (ECCC, 2011a; SARA, 2002). As defined by SARA, critical habitat is "the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species" (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy's approaches for population monitoring aim to revise range delineations based on updated science and Indigenous Knowledge (Appendix B) (ECCC, 2020b). The Action Plan calls for the development of approaches and standards for the identification of local ranges as well as research on space-based observation methods for the mapping and monitoring of habitat quality of undisturbed areas (Appendix B) (ECCC, 2018a).

1.2.2 Implementation progress

The Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou, Boreal Population, in Canada - 2011 Update evaluates and describes the critical habitat for boreal caribou ranges (ECCC, 2011a). The federal review defined total range disturbance as the primary criteria for identifying critical habitat which can facilitate self-sustaining local populations, and identified the standardized range disturbance threshold as 35% (Appendix A) (ECCC, 2011). In the scientific review and the recovery strategies, biophysical attributes were identified for general, calving, post-calving, rutting, winter, travel, and avoidance habitat usages across each relevant ecozone (Appendix A) (ECCC, 2011). The Federal Recovery Strategy identifies the location and quality of critical habitat within each of the 51 boreal caribou ranges (see ECCC, 2020).

Under the Federal Action Plan, the Boreal Caribou Knowledge Portal was launched in 2018 within the Canadian Conservation and Land Management Knowledge Network through the National Boreal Caribou Knowledge Consortium (NBCKC), a forum of representatives from federal, provincial, territorial, Indigenous, industry, academic, eNGO, community, and wildlife management actors (ECCC, 2017; NBCKC, 2018). Within the NBCKC, there are working groups for general monitoring, habitat restoration, population management, and caribou health (Appendix D) (ECCC, 2024; NBCKC, 2018). The annual North American Caribou Workshop led by ECCC and NRCan has occurred 19 times, with the 20th upcoming in 2026, and further facilitates collaborative knowledge sharing between federal, provincial, territorial, etc. actors (Appendix D) (ECCC, 2024).

1.3 Threats

1.3.1 Legal/policy basis

Laws and regulations: Under SARA, threats are to be identified for species at risk as a component of their status designation within COSEWIC reports (s.15) and the recovery strategies (s.41) (SARA, 2002). Specifically, recovery strategies must identify the threats to species survival and threats to its habitat, which are consistent with COSEWIC's findings (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy seeks to monitor disturbance on the landscape and assess impact of natural disturbance such as forest fires (Appendix B) (ECCC, 2020b). The Action Plan seeks enhanced understanding of the relationship between disturbance and population responses, current and predicted impacts of climate change on boreal caribou habitat and populations, and space-based earth observation methods to improve mapping of disturbance (Appendix B) (ECCC, 2018a).

1.3.2 Implementation progress

The 2002 and 2014 COSEWIC assessments, as well as the 2012 and 2020 recovery strategies, consolidate limiting factors and threats for boreal caribou. Under the Federal Action Plan, the Boreal Caribou Knowledge Portal was launched in 2018 within the Canadian Conservation and Land Management Knowledge Network through the National Boreal Caribou Knowledge Consortium (NBCKC), a forum of representatives from federal, provincial, territorial, Indigenous, industry, academic, eNGO, community, and wildlife management actors (ECCC, 2017; NBCKC, 2018). Within the NBCKC, there are working groups for general monitoring, habitat restoration, population management, and caribou health (Appendix D) (ECCC, 2024; NBCKC, 2018). The annual North American Caribou Workshop led by ECCC and NRCan has occurred 19 times, with the 20th upcoming in 2026, and further facilitates collaborative knowledge sharing between federal, provincial, territorial, etc. actors (Appendix D) (ECCC, 2024).

2. Protecting Individuals and Habitat

2.1 Individual protection

2.1.1 Legal/policy basis

Laws and regulations: Under section 32 of SARA, it is automatically illegal to kill, harm, harass, capture, take, possess, collect, buy, sell, and trade species at risk after they are listed in Schedule 1 (SARA, 2002). This only applies to individuals on federal lands, unless the Minister of Environment recommends that the Governor in Council instill such protections on non-federal lands under section 34(2) (SARA, 2002). Section 80 of SARA allows the Governor in Council – on recommendation of the competent minister – to make an emergency order of protection for a listed species and its habitat, both on and off federal land (SARA, 2002). The minister must make this recommendation if they believe the species faces imminent threats to its survival or recovery (SARA, 2002). The emergency order may identify the target habitat necessary for the survival or recovery of the species as well as actions to protect

the species and specified habitat, and provisions prohibiting activities which may adversely affect them (SARA, 2002).

Relevant exemptions: Under sections 73, SOR/2013-140, and 74 of SARA, the competent minister may assign an agreement or permit authorizing an activity which affects species at risk and/or their critical habitat, either under SARA or another parliamentary act (SARA, 2002; SOR/2013-140, 2013). Section 76 allows the Governor in Council on recommendation from the competent minister to exempt activities under pre-existing agreements, permits, licences, orders or similar documents from protections, provisions, or regulations under sections 32, 33, 36, 53, 58, 59, 60, 61, or 71 for a year after a species is listed (SARA, 2002) Sections 77 and 78 allow other persons, bodies, or provincial/territorial ministers under other federal, provincial, or territorial acts to approve authorizations for activities which may result in the destruction of critical habitat if the competent minister has been consulted or entered into an agreement with (SARA, 2002). Under section 83, protections under sections 32, 33, 36, 58, 60, and 61 do not apply to activities authorized under sections 73, 74, or 78 and/or activities permitted under a recovery strategy, an action plan or a management plan that are also authorized under a parliamentary act (SARA, 2002). Note that exemptions under sections 73, 77, and 78 are to authorized if the minister believes all reasonable alternatives have been considered and all feasible measures will be taken to minimize impact on critical habitat (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy aims to manage direct, human-caused mortalities of boreal caribou by determining the extent of hunting and its impacts, developing of harvest strategies where required in consultation with Indigenous Peoples, assessing and addressing the impacts of hunting regulations, and reducing illegal hunting through "stewardship, education, and enforcement" (Appendix B) (ECCC, 2020b). The Action Plan mandates that the federal government consults and works with provinces, territories, and Wildlife Management Boards to determine whether boreal caribou individuals are effectively protected on non-federal lands within provinces (Appendix B) (ECCC, 2018a).

2.1.2 Implementation progress

NA.

2.2 Habitat protection

2.2.1 Legal/policy basis

Laws and regulations: Under section 33 of the Species At Risk Act (2002), it is illegal to damage or destroy the residence of listed species at risk (SARA, 2002). Residence is defined as "a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating" (SARA, 2002). To account for critical habitat protection gaps on federal lands, s.58 obligates the competent minister to make an order of protection for critical habitat that is not protected by any provisions or measures under SARA or any other Act of Parliament (SARA, 2002). Section 61 allows the Governor in Council – upon recommendation of the Minister – to administer a habitat protection order on non-federal lands (SARA, 2002). The Minister must recommend the order if

they are of the opinion that no provisions or measures under SARA, any other Act of Parliament, or the laws of the province or territory adequately protect the critical habitat (SARA, 2002). Section 80 of SARA allows the Governor in Council – upon recommendation of the competent minister – to make an emergency order of protection for a listed species and its habitat, both on and off federal land (SARA, 2002). The minister must make this recommendation if they believe the species faces imminent threats to its survival or recovery (SARA, 2002).

Relevant exemptions: Under sections 73, SOR/2013-140, and 74 of SARA, the competent minister may assign an agreement or permit authorizing an activity which affects species at risk and/or their critical habitat, either under SARA or another parliamentary act (SARA, 2002; SOR/2013-140, 2013). Section 76 allows the Governor in Council on recommendation from the competent minister to exempt activities under pre-existing agreements, permits, licences, orders or similar documents from protections, provisions, or regulations under sections 32, 33, 36, 53, 58, 59, 60, 61, or 71 for a year after a species is listed (SARA, 2002) Sections 77 and 78 allow other persons, bodies, or provincial/territorial ministers under other federal, provincial, or territorial acts to approve authorizations for activities which may result in the destruction of critical habitat if the competent minister has been consulted or entered into an agreement with (SARA, 2002). Under section 83, protections under sections 32, 33, 36, 58, 60, and 61 do not apply to activities authorized under sections 73, 74, or 78 and/or activities permitted under a recovery strategy, an action plan or a management plan that are also authorized under a parliamentary act (SARA, 2002). Exemptions under sections 73, 74, 77, and 78 are to occur if the competent minister believes all reasonable alternatives have been considered and the best have been adopted, all feasible measures will be taken to minimize impact on critical habitat, and the activity will not jeopardize the survival or recovery of the species (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy mandates the planning of habitat maintenance between and within ranges for connectivity, managing landscape disturbance to ensure availability of sufficient habitat, integrating considerations for habitat within the management of anthropogenic activities, identifying and protecting "key areas" for boreal caribou, and developing collaborative habitat management approaches (Appendix B) (ECCC, 2020b). Particularly of note, the Recovery Strategy called for range plans from provinces and territories by October of 2017, which outlines how they will protect critical habitat that falls under their jurisdiction (ECCC, 2020b). In 2016, ECCC published the Range Plan Guidance for Woodland Caribou, Boreal Population (Range Plan Guidance) under the SARA Policies and Guidelines Series to assist jurisdictions in their range planning (ECCC, 2016).

The Federal Action Plan mandates specific actions for the protection of critical habitat, including protection assessments of critical habitat on non-federal lands and the establishments of conservation agreements to formalize protection measures (Appendix B) (ECCC, 2018a). If the Minister of Environment determined that critical habitat on federal lands was unprotected, they were required to recommend that s.58 of SARA be used to publish a critical habitat protection order in the Gazette by 2018 (Appendix B) (ECCC, 2018a). For Indian Act lands and lands held by Indigenous Peoples through land claim agreements, the federal government is to work with Indigenous Peoples to create a plan for

critical habitat protection, supported by the First Nations Advisory Committee on Species at Risk (Appendix B) (ECCC, 2018).

2.2.2 Implementation progress

In 2019 the *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* came into force under s.58 of SARA in alignment with the Action Plan (Minister of the Environment, 2019; SARA, 2002). This order proclaimed that portions of boreal caribou critical habitat on federal lands were not being protected by mandatory, enforceable prohibitions as required by SARA (Minister of the Environment, 2019). Specifically, the Order applied to a combined area of more than 14,500 km2 across 300 federally administered lands (Minister of the Environment, 2019). ~14,200 km2 of these lands were located in the Edéhzhíe Protected Area in the Northwest Territories and the remainder of the properties were primarily under 1 km2, meaning that the contribution to boreal caribou recovery was likely to be limited (Minister of the Environment, 2019)

2.3 Permits and assessments of activities

2.3.1 Legal/policy basis

Laws and regulations: Permits and approvals of anthropogenic activities which may impact species at risk are primarily regulated by SARA and the *Impact Assessment Act* (IAA). As discussed, sections 73, 74, 77, and 78 of SARA allow for permits, licenses, or other authorizations to engage in activities which impact or harm species at risk and their habitat **(SOR/2013-140, 2013; SARA, 2002)**. Under section 73, agreements and permits for activities which affect listed species requires the competent minister to believe all reasonable alternatives have been considered and the best have been adopted, all feasible measures will be taken to minimize impact on critical habitat, and the activity will not jeopardize the survival or recovery of the species (SARA, 2002). Under section 79, proponents required under another Act of Parliament to conduct assessments of environmental effects of a project, as well as those who make determinations under paragraph 82(a) or (b) of the IAA, must notify the component minister(s) if the project is likely to affect a listed species and/or its critical habitat without delay (IAA, 2019; SARA, 2002). These actors must identify the negative impacts of the project on the species and/or habitat and ensure that measures are taken to avoid or lessen these impacts, as well as monitor them, if the project is conducted (SARA, 2002). Under the IAA, federal assessments must consider changes to environment, the positive or negative impacts of these changes, their relation to cumulative effects, as well as "the extent to which the effects of [a] designated project hinder or contribute to the Government of Canada's ability to meet its environmental obligations" under sections 22 and 63 (IAA, 2019).

Relevant exemptions: Efforts to streamline the federal project review process may result in lessened oversight and requirements for preventing harm to boreal caribou. The recently passed *Building Canada Act* allows projects deemed as "national interest projects" to be heavily expedited through the review process and potentially bypass both SARA and the IAA (BCA, 2025). Currently, the list of projects under consideration for national interest designation do not overlap with boreal caribou ranges in Alberta and Ontario (Government of Canada, 2025). However, the Government of Canada identified "transformative strategies" of focus for incoming development under the Building Canada Act including

Alberta's Pathways Plus carbon capture project to support the province's expanding energy sector and Ontario's Ring of Fire (Government of Canada, 2025).

Boreal caribou planning: Under the Recovery Strategy, boreal caribou range plans may inform the issuance of permits under SARA or other legislation and range-appropriate cumulative effects assessment approaches should be developed (Appendix B) (ECCC, 2020b). The Action Plan does not include measures or guidance for permits to harm boreal caribou (ECCC, 2018).

2.3.2 Implementation progress

NA.

2.4 Protection within anthropogenic activities

2.4.1 Legal/policy basis

Laws and regulations: As discussed, section 79 of SARA requires project proponents to identify the negative impacts of the project on the species and/or habitat and ensure that measures are taken to avoid or lessen these impacts, as well as monitor them, if the project is conducted (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy mandates that considerations for boreal caribou and their habitat be integrated within the management of anthropogenic activities and land use planning within caribou ranges (Appendix B) (ECCC, 2020b). The Federal Recovery Strategy also recommends specific considerations and mitigation techniques to avoid destruction of critical habitat during development planning (Appendix B) (ECCC, 2020b). In accordance with the Range Plan Guidance, provincial and territorial range plans should identify range-specific activities likely to result in critical habitat destruction and the steps being taken to prevent such destruction, which may or may not include incorporating conservation into land and/or resource management (ECCC, 2016). There are no explicit action plan measures to engage industrial actors within direct individual or critical habitat protections (ECCC, 2018a).

2.4.2 Implementation progress

NA.

3. Recovery

3.1 Recovery objective(s)

3.1.1 Legal/Policy Basis

Laws and regulations: Under section 41 of SARA, recovery strategies must state population and distribution objectives that "will assist the recovery and survival of the species" as well as general descriptions of the research and management activities necessary to meet the objectives (Government of Canada, 1996; SARA, 2002). These objectives will guide the federal recovery framework for each species, including action plans (s.49), conservation agreements (s.11), safety net orders (s.61), and so forth (SARA, 2002).

Boreal caribou planning: The recovery goal for boreal caribou is to "achieve self-sustaining local populations in all boreal caribou ranges throughout their current distribution in Canada, to the extent possible", and was defined by the 2012 Federal Recovery Strategy (ECCC, 2012, 2020). The current overarching population and distribution objectives guiding recovery are defined as: (1) Maintaining the current status of the 15 existing self-sustaining ranges; (2) Stabilizing and achieving self-sustaining status for the 36 not self-sustaining ranges (ECCC, 2020b). The recovery goal is based on the need for multiple local populations across a species' entire range with connectivity in and between ranges, and ranges in in representative ecological settings, with replicate, genetically robust, ecologically functional, resilient self-sustaining populations (ECCC, 2012, 2020).

Maintaining self-sustaining ranges is to be achieved by "maintaining population and range conditions that support their self-sustaining status" (ECCC, 2012, 2020). Recovery for non-self-sustaining ranges is to be achieved using a combination of "coordinated habitat restoration and population management actions applied over time" (ECCC, 2012, 2020). Ranges with small population sizes should recover the population to the minimum of 100 individuals and achieve a stable population trend (ECCC, 2012, 2020). Habitat disturbance should be kept at a minimum of the 65% undisturbed range threshold, except in Saskatchewan's SK1 range (ECCC, 2012, 2020). Reversing the ecological processes threatening boreal caribou, changing management frameworks, and changing land use arrangements will "often require time frames in excess of 50 to 100 years" (ECCC, 2020b).

3.1.2 Implementation progress

NA.

3.2 Short-term recovery outcomes

3.2.1 Legal/policy basis

Boreal caribou planning: The Federal Recovery Strategy mandates that predator, alternative prey, and boreal caribou (e.g., penning) population management approaches be utilized as interim tools in conjunction with other approaches such as habitat restoration (Appendix B) (ECCC, 2020b). Indirect predator management techniques should be considered as an alternative when feasible, and population management should be accompanied by boreal caribou monitoring and considerations for monitoring the effects of other impacted species (Appendix B) (ECCC, 2020b). The Action Plan acknowledges that population management actions such as predator and alternative prey management as interim measures will be necessary for boreal caribou recovery, but planning and implementation is to be range-specific and thus under the purview of provinces and territories (ECCC, 2018a, 2020b).

3.2.2 Implementation progress

NA.

3.3 Long-term recovery outcomes

3.3.1 Legal/policy basis

Boreal caribou planning: The Federal Recovery Strategy calls for the enhancement of habitat connectivity and implementation of habitat restoration and reclamation (Appendix B) (ECCC, 2020b). The Action Plan focuses on protection of habitat and individuals, and research to optimize habitat restoration, rather than the implementation of habitat recovery (Appendix B) (ECCC, 2018a).

3.3.2 Implementation progress

NA.

3.4 Recovery within anthropogenic activities

3.4.1 Legal/Policy Basis

Boreal caribou planning: Range plans mandated by the Federal Recovery Strategy and Action Plan are meant to outline how landscapes within each range will be managed to protect critical habitat in order to recover boreal caribou (ECCC, 2016). These range plans must outline how the jurisdiction seeks to maintain or achieve the minimum 65% undisturbed range habitat (ECCC, 2016b). Range plans should identify range-specific activities likely to result in critical habitat destruction, and the steps being taken to prevent such destruction, this could include incorporating recovery mechanisms into land and/or resource management (ECCC, 2016b). Action Plan mechanisms which seek to enhance the role of industry within boreal caribou recovery focus on enhancing research and collaboration (Appendix B) (ECCC, 2018a).

3.4.2 Implementation progress

NA.

4. Monitoring and Transparency

4.1 Regular, transparent monitoring of recovery progress

4.1.1 Legal/policy basis

Laws and regulations: Section 46 of SARA mandates that the competent minister report on the implementation of the recovery strategy, including the progress towards meeting its objectives, every five years after the strategy is included in the public registry (SARA, 2002). This is to occur until the objectives are met, or the species' recovery is no longer feasible (SARA, 2002). Section 55 mandates that the competent minister also report on the progress of the action plan implementation five years after it comes into effect (SARA, 2002). These reports must be available in the public registry (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy calls for many broad strategies related to the monitoring of boreal caribou populations, habitat, and overall range status, both to fill knowledge gaps and to observe impacts of recovery actions (Appendix B) (ECCC, 2020b). The Federal Recovery Strategy mandates that the five-year reporting under SARA be based on performance indicators such as

the completion of range plans, the boreal caribou distribution across Canada, population trends, and range habitat disturbance (ECCC, 2020b). Similarly, the Action Plan calls for the monitoring of certain performance indicators to measure progress toward population and distribution objectives (Appendix B) (ECCC, 2018a). The Action Plan also mandates research-based monitoring, seeking to establish adaptive management ranges and pilot areas to monitor experimental conservation measures (Appendix B) (ECCC, 2018).

4.1.2 Implementation progress

The Report on the Progress of Recovery Strategy Implementation for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada for the period 2012-2017 and the Report on the Progress of the Recovery Strategy Implementation (period 2017-2022) and the Action Plan Implementation (period 2018-2023) for Caribou (Rangifer tarandus), Boreal Population, in Canada have thus far fulfilled the requirements for progress reporting under SARA (ECCC, 2017, 2024).

4.2 Adaptive management

4.2.1 Legal/policy basis

Boreal caribou planning: The Federal Recovery Strategy emphasizes an adaptive management approach, in which the monitoring of aforementioned performance indicators will facilitate necessary adjustments to future recovery strategies and actions (ECCC, 2020b). The research-based monitoring mandated by the Action Plan is also based on adaptive management and is to be integrated into future amendments to recovery efforts (ECCC, 2018a).

4.2.2 Implementation progress

The Federal Recovery Strategy was last amended in 2020 in order to update population and habitat condition information based on the 2017 recovery strategy progress report (ECCC, 2020b). Key distribution, habitat, threat, and other biological information in the Federal Recovery Strategy and Action Plan is based on western science published in 2011 and Indigenous Knowledge collected in 2010 and 2011 (ECCC, 2020b). Range delineations, risk assessments, and population/distribution objectives are from 2012 (ECCC, 2020b). Range-specific population and habitat conditions are based on data reported on in 2017; however some ranges continue to lack population estimates and trends (ECCC, 2020b). It is unclear how progress reporting for 2018 to 2023 have been utilized.

5. High-level Considerations

5.1 Indigenous rights

5.1.1 Legal/policy basis

Laws and regulations: In its preamble, SARA recognizes the essential role of Indigenous Peoples in conservation, as well as the need for Indigenous Knowledge within the assessments of potential species at risk and the development and implementation of recovery measures (SARA, 2002). Under SARA, COSEWIC must carry out its responsibilities based on the best information, which

includes Indigenous Knowledge (SARA, 2002). To the extent possible, recovery strategies and action plans must be prepared in cooperation with every Indigenous organization that "the competent minister considers will be directly affected by the recovery strategy" (SARA, 2002). Regulations and orders made by the competent minister must first be consulted on with the Minister of Indigenous Services and the Indian Act band which may be affected by it, in the opinion of the Minster (SARA, 2002). Prohibitions for possessing, collecting, buying, selling, or trading individuals under s.32(2) and 36(1)(b) do not apply to Indigenous Peoples which use the animal for ceremonial and/or medicinal purposes, including ceremonial dress (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy defines the overarching objective of achieving self-sustaining ranges across the distribution as allowing for sufficient population to sustain traditional Indigenous harvesting activities, consistent with Indigenous and treaty rights (ECCC, 2020b). The Federal Recovery Strategy states that cooperation of the Minister of ECCC with affected Indigenous organizations is essential for the successful development and implementation of recovery strategies and action plans (ECCC, 2020b). Indigenous involvement, knowledge, and traditional ways of life are to be considered throughout the conservation approaches outlined by the Federal Recovery Strategy, including within the development of range plans, identification of critical habitat, stewardship programs, management of human-caused mortalities, and ongoing monitoring and research (Appendix B) (ECCC, 2020b).

Similarly, the Action Plan seeks collaboration with Indigenous Peoples in its objective and underlines the role of Indigenous Knowledge and collaboration within its recovery measures (Appendix B) (ECCC, 2018a). The Action Plan calls for the protection of critical habitat on Indian Act lands or lands held by Indigenous Peoples under land claims agreements to occur in direct collaboration between the federal government and Indigenous Peoples, supported by the First Nations Advisory Committee on Species at Risk (Appendix B) (ECCC, 2018a). The Action Plan also calls for collaborative approaches towards developing plans for the protection of critical habitat on Indian Act lands and lands held by Indigenous Peoples under land claims agreements (Appendix B) (ECCC, 2018a).

5.1.2 Implementation progress

In 2011, Canada compiled and released the Woodland Caribou (Rangifer Tarandus Caribou) Aboriginal Traditional Knowledge Summary Reports (Indigenous Knowledge Reports) to inform the recovery planning process. These reports were received from Indigenous groups and organizations and published without alteration (ECCC, 2011b). They contained Traditional Knowledge regarding the caribou life history, habitat usage, population status, threats, and conservation measures (ECCC, 2011b). The federal government has funded caribou stewardship projects led by Indigenous governments and organizations across Alberta and Ontario (ECCC, 2017, 2024). As discussed, Indigenous peoples are involved in knowledge sharing through collaborative initiatives under the Federal Action Plan such as the National Boreal Caribou Knowledge Consortium (NBCKC), the NBCKC's Indigenous Knowledge Circle, and the North American Caribou Workshops (ECCC, 2024).

5.2 Socioeconomic considerations

5.2.1 Legal/policy basis

Laws and regulations: In its preamble, SARA acknowledges the social and economic values of wildlife, states that the socioeconomic interests of relevant communities should be considered while developing and implementing recovery measures (SARA, 2002). Section 49 of SARA requires that action plans include an evaluation of the socioeconomic costs and benefits (SARA, 2002). Section 55 mandates that the five year action plan progress reports include ecological and socioeconomic impacts (SARA, 2002).

Boreal caribou planning: The Federal Recovery Strategy reinforces the need for action plans to evaluate socioeconomic costs and benefits related to their implementation (ECCC, 2020b). It also emphasizes that coordinated land planning must occur to ensure development is approved, whilst also taking into account cumulative impacts (Appendix B) (ECCC, 2020b). The Action Plan states that a socioeconomic analysis will be undertaken at a future date and uploaded to the Species At Risk Public Registry (ECCC, 2018a). It also recommends that the development of range plans and similar documents include evaluations of costs and benefits of proposed protection and recovery measures, and that multi-species planning be based on integrating surrounding ecological and socioeconomic systems within conservation planning (Appendix B) (ECCC, 2018a). The Action Plan seeks to engage social and economic stakeholders through measures such as the establishment of a National Boreal Caribou Knowledge Consortium and the 17th North American Caribou Workshop (NACW) to facilitate collaboration between ECCC, NRCan-CFS, Indigenous organizations, Wildlife Management Boards, NGOs, oil and gas, forestry, mining, consulting firms, and so forth (Appendix B) (ECCC, 2018a).

5.2.2 Implementation progress

The socioeconomic cost and benefit analysis was not located online. There have been multiple initiatives to engage socioeconomic actors and priorities (i.e., industry, civil society groups, etc.) within boreal caribou research and stewardship across the provinces. Including the National Boreal Caribou Knowledge Consortium (NBCKC), the NBCKC's working groups, and the North American Caribou Workshops (ECCC, 2024).

5.3 Environmental considerations

5.3.1 Legal/policy basis

Laws and regulations: In its preamble, SARA acknowledges the ecological value of wildlife (SARA, 2002). SARA allows the competent minister may adopt a multi-species approach to the recovery strategy if they consider it appropriate (SARA, 2002). Section 55 mandates that the five-year action plan progress reporting include its ecological and socioeconomic impacts (SARA, 2002). In alignment with the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, a Strategic Environmental Assessment (SEA) is to be conducted for all SARA planning recovery documents (Privy Council Office, 2010). This is aimed at identifying and incorporating environmental considerations within the development of public policies, programs, and plans to prevent inadvertent

ecological effects or negative impacts on the Federal Sustainable Development Strategy (FSDS) (Privy Council Office, 2010).

Boreal caribou planning: The Federal Recovery Strategy calls for cumulative effects assessment approaches to be developed within range planning (Appendix B) (ECCC, 2020b). It underlines the importance of monitoring cumulative disturbance of single projects in order to mitigate adverse effects across the landscape (ECCC, 2020b). The Federal Recovery Strategy also states that the monitoring of effects on other impacted species should be considered where mortality and/or population management is implemented (Appendix B) (ECCC, 2020b). The Action Plan calls for multi-species planning where beneficial based on integrating multiple ecological benefits into conservation planning (Appendix B) (ECCC, 2018a).

5.3.2 Implementation progress

The SEA concluded that many species that share habitat requirements with boreal caribou would benefit from the Recovery Strategy and Action Plan. It concluded that both planning documents would benefit the environment and biodiversity through the protection and recovery of boreal caribou and their habitat (ECCC, 2018a, 2020). However, the SEA highlighted that necessary predator and alternative prey management should be used as an interim management tool, and that the conservation status of all impacted species must be considered when applying such management (ECCC, 2020). Progress related to cumulative disturbance occurs at range-level, and is thus discussed in the following province-specific chapters.

V. Alberta Framework Assessment

This section applies the evaluation framework to provincial and First Nations components of the boreal caribou conservation regime in Alberta. Relevant components of the federal regime's legal/policy basis and implementation progress can be found in the previous section. The tables for each criterion summarize key highlights of the federal, provincial, and First Nations legal/policy basis and implementation progress. Due to the detailed nature of assessment material, descriptions of the legal/policy basis and implementation progress discuss information deemed most relevant. Refer to the appendices or cited sources for full details of the law, regulation, policy, plan, or reporting being described.

1. Knowledge Base

1.1 Population demographics

Table 6: Criterion 1.1 summary table – Alberta.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: COSEWIC reports (s.15) and recovery strategies (s.41). Recovery Strategy: Population monitoring. Action Plan: Research into population responses to disturbance and climate change.	• COSEWIC reports assessing status, federal Recovery Strategy and progress reports publishing population data. • Boreal Caribou Knowledge Portal, National Boreal Caribou Knowledge Consortium (NBCKC), North American Caribou Workshop.
Provincial regime	Provincial progress
Wildlife Act: Species assessment by ESCC sub-committee. Recovery Plan: Fill population trend gaps. Caribou Policy: NA. AB-CAN CA: Assess and estimate population trends. Bistcho Lake SRP: Population monitoring. Cold Lake SRP: Population monitoring.	• Population status assessments for listing. • Population monitoring published in Recovery Plan. • Ongoing population studies, range-specific studies completed for two ranges as of 2024. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: Opportunities for CLFN participation in population monitoring. ACFN-MCFN CA: Indigenous Guardians Program to monitor populations.	• Progress reporting unavailable for CLFN and ACFN-MCFN conservation agreements.

Note. Titles were further abbreviated within tables. Recovery Strategy is the Federal Recovery Strategy; Action Plan is the Federal Action Plan; Recovery Plan is the Alberta Recovery Plan; Caribou Policy is the Alberta Caribou Policy; AB-CAN CA is the Alberta-Canada Conservation Agreement; Bistcho Lake SRP is the Bistcho Lake Sub-regional Plan; Cold Lake SRP is the Cold Lake Sub-regional Plan; CLFN CA is the CLFN-Canada Conservation Agreement; ACFN-MCFN CA is the ACFN-MCFN-Canada Conservation Agreement..

1.1.1 Legal/policy basis

Laws and regulations: The Alberta Conservation Association and Alberta Environment and Parks updates a general assessment on species status every five years based on criteria including distribution, number of occurrences, population size, and population trends (Government of Alberta, 2026a, 2026b). If this general report identifies at-risk species, a second, more detailed assessment is created for the Endangered Species Conservation Committee (ESCC), which will then form a Scientific Subcommittee to study the identified species under section 6 of the *Wildlife Act* (Wildlife Act, 2000). The second assessment is based on the population trends, size, and distribution of the species (Government of Alberta, 2026a). The ESCC makes a recommendation to the Minister of Environment and Protected Areas about legally listing the species under the *Wildlife Act*, and the Minister makes the final decision about listing (Government of Alberta, 2026a; Wildlife Act, 2000).

Boreal caribou planning: The Alberta Woodland Caribou Recovery Plan 2004/5-2013/14 (Alberta Recovery Plan) seeks to determine population trends for herds where population information is lacking (Appendix E) (AWCRT, 2005). The Woodland Caribou Policy for Alberta (Alberta Caribou Policy) does not make specific mandates regarding research of population trends (Government of Alberta, 2011). The Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta (Alberta-Canada Conservation Agreement) sought to further assess and estimate population status and total population size of boreal caribou ranges (Appendix F) (ECCC, 2020a). The Bistcho Lake Sub-regional Plan and the Cold Lake Sub-regional Plan seek to monitor boreal caribou population indicators such as caribou occurrence, population growth, and population size (see MEPA, 2022a, 2022b).

First Nations-federal regime: The Agreement for the conservation of the Woodland Caribou, Boreal population with Cold Lake First Nations (CLFN-Canada Conservation Agreement) sought to investigate opportunities for CLFN participation in monitoring of population metrics and mortality surveys (Appendix G) (ECCC, 2019). The Agreement for the Conservation of the Woodland Caribou, Boreal Population with Athabasca Chipewyan First Nation and Mikisew Cree First Nation (ACFN-MCFN-Canada Conservation Agreement) sought to develop an Indigenous Guardians Program to monitor caribou populations and habitat (Appendix E) (ECCC, 2022c).

1.1.2 Implementation progress

Based on population assessments, boreal caribou were given “threatened” status in 1984 and reassessed in 2001, with population, habitat, and threat-related trends published in the ESCC’s first report (ESCC, 2004). The Alberta Recovery Plan presents population change and trend estimates for some boreal caribou herds, as well as information about habitat requirements and threats (see AWCRT, 2005). Alberta has run ongoing population studies to better understand population structure, trends, distribution, and health across boreal caribou ranges (Appendix C) (ECCC, 2017, 2024). Thus far, complete studies have been done for two ranges (ECCC, 2024). This ongoing population monitoring allows Alberta to estimate population growth annually and estimate distribution and population size (Appendix I) (MEPA, 2024e, 2024d). Implementation progress is not known for the Bistcho Lake and Cold Lake Sub-regional Plans. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress

reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

1.2 Critical habitat

Table 7: Criterion 1.2 summary table - Alberta.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: Recovery strategies (s.41). Recovery Strategy: Revise range delineations. Action Plan: Standards for identification of local ranges, research into new methods for mapping habitat quality.	• *Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou, Boreal Population, in Canada*. • Recovery Strategy defines location and quality of critical habitat. • Boreal Caribou Knowledge Portal, National Boreal Caribou Knowledge Consortium (NBCKC), North American Caribou Workshop.
Provincial regime	Provincial progress
Wildlife Act: Recovery plan may identify critical habitat (s.6). Recovery Plan: Evaluation of habitat supply, creation of habitat planning targets. Alberta Caribou Policy: Mentions habitat monitoring as a type of management effort. AB-CAN CA: Improve monitoring of habitat disturbance and critical habitat. Bistcho Lake SRP: Habitat indicator monitoring. Cold Lake SRP: Habitat indicator monitoring.	• Habitat trends published in ESCC report. • Habitat requirements, limiting factors in Recovery Plan – does not identify critical habitat. Methods for Alberta's identification of critical habitat remain in an internal document not available to the public. • Annual monitoring of habitat disturbance and recovery. Quantification of disturbance published in AB-CAN progress reporting. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: NA. ACFN-MCFN CA: Indigenous Guardians Program to monitor habitat.	• Progress reporting unavailable.

1.2.1 Legal/policy basis

Laws and regulations: When an at-risk species is listed by the Minister under the *Wildlife Act*, under s.6 the Minister is then responsible for creating a recovery plan which may identify the critical habitat of that species (Wildlife Act, 2000).

Boreal caribou planning: The Alberta Recovery Plan calls for the evaluation of caribou habitat supply by Caribou Range Teams at the local-level, as well as the creation of habitat planning targets regarding the type, amount, arrangement, and minimum habitat necessary for sustaining herds (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy mentions habitat monitoring as a type of management effort (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement sought to coordinate and improve habitat disturbance and critical habitat monitoring (Appendix F) (ECCC, 2020a). Both the Bistcho Lake and Cold Lake sub-regional plans seek to monitor habitat indicators including biophysical attributes and disturbance (see MEPA, 2022a, 2022b).

First Nations-federal regime: The CLFN-Canada Conservation Agreement did not include provisions for critical habitat research and/or monitoring (Appendix G) (ECCC, 2019). The ACFN-MCFN conservation agreement calls the development of the Indigenous Guardians Program, which would conduct habitat monitoring (Appendix H) (ECCC, 2022c).

1.2.2 Implementation progress

Habitat trends were published in the ESCC's first report in 2004 (ESCC, 2004). The Alberta Recovery Plan presents information about habitat requirements, limiting factors, and threats (see AWCRT, 2005). However, the plan does not identify critical habitat (AWCRT, 2005). Alberta reports that it identified boreal caribou habitat using a classification system described in Methods for Refining Federal Classification of Woodland Caribou Biophysical Critical Habitat for Alberta, however this is an internal document (MEPA, 2024). Alberta conducts annual monitoring of habitat disturbance and recovery for insight into undisturbed habitat, biophysical habitat characteristics, wildfire disturbances, anthropogenic features, forest harvesting, and approvals for anthropogenic activities (Appendix I) (MEPA, 2024e, 2024d). Quantifications of undisturbed habitat across the ranges is provided in MEPA (2024e, 2024d). Implementation progress is not known for the Bistcho Lake and Cold Lake Sub-regional Plans. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

1.3 Threats

Table 8: Criterion 1.3 summary table - Alberta.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: COSEWIC reports (s.15) and recovery strategies (s.41). Recovery Strategy: Monitor landscape disturbance and assess long-term natural disturbance. Action Plan: Monitor population response to disturbance, climate change impacts, and improved methods for disturbance monitoring.	• COSEWIC assessments and Recovery Strategy define threats. • Boreal Caribou Knowledge Portal, National Boreal Caribou Knowledge Consortium (NBCKC), North American Caribou Workshop.
Provincial regime	Provincial progress
Wildlife Act: General assessment of species prior to Wildlife Act listing utilizes threat indicators. Recovery Plan: Range-specific planning must assess habitat constraints. Alberta Caribou Policy: Mentioned habitat monitoring which may involve habitat-related threats. AB-CAN CA: Disturbance monitoring. Bistcho Lake SRP: Threat-related indicator monitoring. Cold Lake SRP: Threat-related indicator monitoring.	• Habitat trends published in ESCC report. • Limiting factors and threats in Recovery Plan • Annual monitoring of habitat disturbance and specific sources. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress

CLFN CA: Monitoring of caribou mortality when necessary. ACFN-MCFN CA: Indigenous Guardians Program to monitor habitat disturbance, hunting, etc.	• Progress reporting unavailable.

1.3.1 Legal/policy basis

Laws and regulations: Within the species at risk identification process described above, the general assessment on species status is conducted based on criteria which includes threats to habitat and threats to population (Government of Alberta, 2026b). Under the *Wildlife Act*, there is no requirement for recovery plans to identify or assess threats (Wildlife Act, 2000).

Boreal caribou planning: The Alberta Recovery Plan seeks to assess caribou habitat constraints and undertake range-specific planning which would consider disturbance threats (AWCRT, 2005). The Alberta Caribou Policy does not make specific mandates regarding the identification or assessment of threats (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement called for the monitoring of anthropogenic and natural habitat disturbance (Appendix F) (ECCC, 2020a). Both the Bistcho Lake and Cold Lake sub-regional plans seek to monitor threat-related indicators such as anthropogenic footprints and disturbed habitat trends (see MEPA, 2022a, 2022b).

First Nations-federal regime: The CLFN-Canada Conservation Agreement called for the monitoring to boreal caribou mortality when necessary (Appendix G) (ECCC, 2019). The ACFN-MCFN-Canada Conservation Agreement called for the development of the Indigenous Guardian Program which would monitor habitat disturbance, Indigenous and non-Indigenous hunting, and "other activities" (Appendix H) (ECCC, 2022c).

1.3.2 Implementation progress

Population, habitat, and threat-related trends were published in the ESCC's first report (ESCC, 2004). The Alberta Recovery Plan presents information about limiting factors and threats (see AWCRT, 2005). Alberta conducts annual monitoring of habitat disturbance and recovery for insight into wildfire disturbances, anthropogenic features, forest harvesting, and approvals for anthropogenic activities (Appendix I) (MEPA, 2024d, 2024e). Implementation progress is not known for the Bistcho Lake and Cold Lake Sub-regional Plans. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

2. Protecting Individuals and Habitat

2.1 Individual protection

Table 9: Criterion 2.1 summary table - Alberta.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress

SARA: Automatic protections (s.32), emergency protections available (s.80). Exemptions and permits available (e.g., s.72, 74, 78). Recovery Strategy: Monitor/reduce illegal hunting, develop harvest strategies in consultation with Indigenous Peoples. Action Plan: Provinces must determine whether individuals are effectively protected on non-federal land.	NA.
Provincial regime	Provincial progress
Wildlife Act: Hunting is illegal, except for Indigenous harvesting. Recovery Plan: Reduction of poaching, Indigenous harvest, and vehicle collisions where necessary. Alberta Caribou Policy: NA. AB-CAN CA: Assess the need for conservation closures to reduce human-caused kills. Bistcho Lake SRP: NA. Cold Lake SRP: NA.	• Some First Nations voluntarily seceded harvest. • Alberta assessing need for additional controls of illegal hunting and legal harvest. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: Implement Dene laws for hunting. ACFN-MCFN CA: NA.	• Progress reporting unavailable.

2.1.1 Legal/policy basis

Laws and regulations: Hunting of woodland caribou was banned in Alberta in 1981, with the exception of Indigenous harvesting (AWCRT, 2005). The *Wildlife Act* provides protections to boreal caribou as nongame species (Wildlife Act, 2000).

Relevant exemptions: The Minister may make regulations with respect to licences and permits, and issue them, at their discretion under section 12 of the Wildlife Act (Wildlife Act, 2000).

Boreal caribou planning: The Alberta Recovery Plan calls for a reduction of direct human-caused mortality, including harvest by Indigenous Peoples, poaching, and vehicle collisions where necessary (Appendix E) (AWCRT, 2005). Reductions in Indigenous harvesting are to be voluntary (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy as well as the Bistcho Lake and Cold Lake sub-regional plans primarily focus on habitat protection and management (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement called for research to assess the need for conservation closures to prohibit human-caused killing of caribou (Appendix F) (ECCC, 2020a).

First Nations-federal regime: The CLFN-Canada Conservation Agreement sought to develop and implement Dene laws and principles for boreal caribou hunting (Appendix G) (ECCC, 2019). Protections outlined by the ACFN-MCFN-Canada Conservation Agreement were primarily for habitat (Appendix G) (Appendix H) (ECCC, 2019, 2022c).

2.1.2 Implementation progress

Under the Federal Recovery Strategy, some First Nations in Alberta have announced voluntary cessations of caribou hunting (Appendix C) (ECCC, 2017, 2024c). Alberta continues to assess the need for additional control of illegal poaching and legal harvesting (Appendix I) (MEPA, 2024).

Implementation progress is not known for the Bistcho Lake and Cold Lake Sub-regional Plans. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

2.2 Habitat protection

Table 10: Criterion 2.2 summary table - Alberta.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: Automatic protections (s.33), optional protections on federal and provincial land (s.58 and 61), and emergency protections available (s.80). Exemptions and permits available (e.g., s.72, 74, 78). Recovery Strategy: Manage for sufficient habitat and connectivity, protect key areas. Provincial range plans for habitat protection and management. Action Plan: Protection assessment of federal and non-federal land, conservation agreements, Indigenous collaboration for habitat management on Indian Act and Indigenous-held lands.	• *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* under s.58.
Provincial regime	Provincial progress
Wildlife Act: NA. Potential for protection under acts such as the *Provincial Parks Act* or the *Wilderness, Ecological Reserves, Natural Areas and Heritage Rangelands Act,* as well as land use planning laws. However these can be subject to exemptions. Recovery Plan: Caribou habitat planning, mitigation of impacts within industrial operations and access management. Caribou Policy: Maintaining habitat is the immediate priority. AB-CAN CA: Sub-regional planning of anthropogenic land uses, wildfire management planning, voluntary agreements with energy companies, etc. Bistcho Lake SRP: Habitat disturbance mitigation through industrial operating guidelines. Wildfire management. Cold Lake SRP: Habitat disturbance mitigation through industrial operating guidelines. Wildfire management.	• 2016 interim restriction on sale of new petroleum and natural gas, oil sands, coal, metallic and industrial mineral rights in all caribou ranges. • 818,658 ha were included within the designation of protected areas under the *Provincial Parks Act* between 2018 and 2023. • Habitat impact mitigation progress discussed under criterion 2.3 and 2.4. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: Landscape-level planning, exploration of options for protection of habitat zones. ACFN-MCFN CA: Caribou Stewardship areas.	• Progress reporting unavailable.

2.2.1 Legal/policy basis

Laws and regulations: Under the *Wildlife Act*, species' dens have protection, but habitat does not (s.36) (Wildlife Act, 2000). Section 103 allows the Minister to designate wildlife sanctuaries and habitat conservation areas, however these do not explicitly prohibit disturbance (Wildlife Act, 2000). Additionally, boreal caribou habitat in Alberta could be subject to direct protections under the *Forest Reserves Act* (FRA, 2000), the *Provincial Parks Act* (PPA, 2000), the *Wilderness, Ecological Reserves, Natural Areas and Heritage Rangelands Act* (WAA, 2000) as well as planning decisions under the *Alberta Land Stewardship Act* (ALSA, 2009) and the *Public Lands Act* (PLA, 2000). As will be discussed, acts regulating anthropogenic use of natural resources such as the *Environmental Protection and Enhancement Act* (EPEA, 2000) may also indirectly protect and/or mitigate impacts on boreal caribou habitat.

Relevant exemptions: Under the *Wildlife Act,* licenses authorizing the control or collection of wildlife can override house, nest, and den protections under s.36 (Wildlife Act, 2000).Where wilderness areas and ecological reserves are strictly protected from disturbance, section 7 of the *Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act* allows for some dispositions to be granted in natural areas and heritage rangelands (WAA, 2000). Section 10 and Alta Reg 241/1977 of the *Provincial Parks Act* allows for industrial development such as mineral exploration and pipelines under a ministerial disposition (Alta Reg 241/1977, 1977; PPCRA, 2006). Under sections 9 and 13 of the *Alberta Land Stewardship Act*, conservation directives which may protect biodiversity under the are not always legally binding or enforceable (ALSA, 2009).

Boreal caribou planning: As discussed, the Alberta Recovery Plan does not identify critical habitat nor call for its explicit protection (AWCRT, 2005). Rather, it calls for the establishment of caribou habitat planning targets, and the mitigation of habitat impacts through industrial, wildfire, and access management (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy states that "maintaining caribou habitat is the immediate priority" (Government of Alberta, 2011, pg. 1). The Alberta-Canada Conservation Agreement primarily called for indirect habitat protection through subregional planning of anthropogenic land uses, forest harvest planning, caribou considerations within wildfire management, voluntary agreements with energy companies, and more (Appendix F) (ECCC, 2020a). It also sought to explore and implement management actions for the maintenance of connectivity between ranges where needed (Appendix F) (ECCC, 2020a). The Bistcho and Cold Lake sub-regional plans pursue habitat protection through mitigation measures for anthropogenic land uses and wildfire management (see MEPA, 2022a, 2022b).

First Nations-federal regime: The CLFN-Canada Conservation Agreement sought to manage habitat through landscape-level planning and explore options for protection of boreal caribou habitat zones (Appendix G) (ECCC, 2019). The ACFN-MCFN-Canada Conservation Agreement sought to identify and plan for Caribou Stewardship Areas in which habitat would be protected and conserved (Appendix H) (ECCC, 2022c).

2.2.2 Implementation progress

A comprehensive analysis of critical habitat protections in Alberta aside from what is presented in boreal caribou policy and reporting was out of the purview of this study, however studies which have analyzed this will be discussed in Findings. In 2016, an interim restriction was placed on the sale of new petroleum and natural gas, oil sands, coal, metallic and industrial mineral rights in all woodland caribou ranges. This was to be lifted when directives or range plans implement new operating guidelines, including sub-regional plans (Government of Alberta, 2026c). Between 2012 and 2023, 818,658 ha within the boreal caribou distribution was included within the designation of protected areas under the *Provincial Parks Act*. Including the establishment and expansion of the Richardson, Dillon River, Birch Mountains, and Birch River wildland provincial parks as well as the Kitaskino Nuwenëné Wildland Provincial Park (Appendix C) (ECCC, 2017, 2019b, 2024c). The mitigation of habitat disturbance and loss through measures for industry, which will be discussed under criterion 2.4 (Appendix C, I) (ECCC, 2017, 2024; MEPA, 2024). Implementation progress is not known for the Bistcho Lake and Cold Lake Sub-regional Plans. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

2.3 Permits and assessments of activities

Table 11: Criterion 2.3 summary table - Alberta.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA and *Impact Assessment Act* (IAA): Permits, licenses and other authorizations available under s.73, 74, 77, 78 of SARA. Impact assessments under the IAA must notify competent minister(s) if project may impact species at risk (s.79 of SARA). Such proponents must ensure impacts are avoided or mitigated. Exemptions and fast-tracking of federal impact assessment available under laws and regulations such as the *Building Canada Act*. Recovery Strategy: Caribou range plans must inform the issuance of permits or other authorizations. Action Plan: NA.	• *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* under s.58.
Provincial regime	Provincial progress
Wildlife Act: Permits and licenses can be issued under s.12 and 32. EPEA: Identification of negative environmental impacts and mitigation plans. AER: Identification of negative environmental impacts and mitigation plans. Operation approvals also regulated by natural resource acts. Recovery Plan: NA. Caribou Policy: NA.	• Master Schedule of Standards and Conditions adjusted to modify approval standards and improve caribou risk considerations in land-use planning. • Need for adjustments to Master Schedule and land reservations being monitored. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.

AB-CAN CA: Project approval conditions for certain land uses minimize impacts to caribou. Bistcho Lake SRP: Disturbance minimization within access approvals, footprint evaluation and mitigation within some industry approvals. Cold Lake SRP: Disturbance minimization within access approvals, footprint evaluation and mitigation within some industry approvals.	
First Nations-federal regime	First Nations progress
CLFN CA: NA. ACFN-MCFN CA: NA.	• Progress reporting unavailable.

2.3.1 Legal/policy basis

Laws and regulations: As discussed, hunting boreal caribou is illegal in Alberta with the exception of First Nation harvesting (Wildlife Act, 2000). The Minister may make regulations with respect to licences and permits, and issue them, at their discretion under section 12 of the *Wildlife Act* (Wildlife Act, 2000). Licenses authorizing the control or collection of wildlife can override house, nest, and den protections under s.36 (Wildlife Act, 2000). These are not required to be publicized. However, section 11 stipulates that licences and permits issued under the *Wildlife Act* cannot override prohibitions under *Alberta Land Stewardship Act* regional plans (Wildlife Act, 2000).

The *Environmental Protection and Enhancement Act* (EPEA) regulates environmental assessments and approvals of industrial activities under Alta Reg 111/1993 and Alta Reg 112/1993 (Alta Reg 111/1993, 1993; Alta Reg 241/1977, 1977; EPEA, 2000). Project proponents undergoing assessments under the EPEA and associated regulations report any negative environmental impacts which may occur and describe plans to mitigate them (EPEA, 2000). Timber dispositions follow the *Forests Act*, as well as its associated regulations and policy documents (Forests Act, 2000). Disposition of rights for Crown-owned mines and minerals falls under the *Mines and Minerals Act* and associated regulations and policies (Mines and Minerals Act, 2000). Assessments for energy projects such as upstream oil and gas, oilsands, and coal projects fall additionally or solely under the purview of the Alberta Energy Regulator (AER) (Government of Alberta, 2015). AER assessments require the identification of environmental effects, a cumulative effects assessment, and plans to mitigate potential negative effects (AER, 2026a). The AER's requirements for industrial approvals include pipeline applications through provisions under the *Pipeline Act*, the EPEA, the *Water Act*, and other directives and standards (AER, 2026); oilsands development applications through the *Oil Sands Conservation Act* (OSCA) and Alta Reg 151/1971, the EPEA, the *Water Act*, and other directives and standards (AER, 2026b); geothermal applications through provisions under the *Geothermal Resource Development Act* (GRDA) and Alta Reg 116/2022, and other directives; and more. Environmental-related disclosures and planning within such assessment processes do not include avoidance requirements for species at risk. Land use planning laws, namely the *Alberta Land Stewardship Act* (ALSA, 2009), the *Planning Act* (Planning Act, 1990), *Public Lands Act* (PLA, 2000) as well as their associated regulations and policies also impact approvals for relevant anthropogenic activities. For example, timber dispositions under the *Forests Act* must comply with the provisions of applicable ALSA regional plans (Forests Act, 2000).

Relevant exemptions: Alta Reg 111/1993 exempts multiple activities from the environmental assessment process, including transmission lines; sand, gravel, clay or marl pits smaller than 2 ha; pipelines with length in kilometers and diameter in millimetres resulting in an index number of less than 2690; oil and gas wells; and more (Alta Reg 111/1993, 1993). As discussed, some energy activities exempt from the EPEA are assessed and approved by the AER and associated acts and regulations.

Boreal caribou planning: All actions in the Alberta Recovery Plan were adopted by the Minister except for moratoriums on further mineral and timber resource allocation on ranges with herds at risk of immediate extirpation (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy do not make explicit references to permits or assessments (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement sought to ensure project approval conditions for energy, forestry, and other land uses minimized impacts to caribou and their habitat (Appendix F) (ECCC, 2020a). The Bistcho Lake and Cold Lake sub-regional plans include a living Access Management Plan (AMP) which seeks to approve new access routes in ways which minimize disturbance, with approvals in the Bistcho Lake sub-region not allowed within sensitive areas identified through engagement with Indigenous peoples and stakeholders (MEPA, 2022a, 2022c). Once the plans are in effect under the Lower Athabasca Regional Plan (LARP), sales restrictions placed in 2016 on new Crown rights for commodities within caribou ranges can be removed within the sub-regions (MEPA, 2022a, 2022c). Provisions for mineral activities as well as oil sands, pipeline, geophysical exploration, forestry, surface material extraction, and transmission lines focus on strategies for disturbance minimization rather than restrictions on new approvals (see MEPA, 2022a, 2022c). Requirements for approvals in ranges include footprint evaluations for coal and metallic and industrial mineral activities, AMP requirements for forestry road dispositions, and specific areas for peat extraction applications (see MEPA, 2022a, 2022c).

First Nations-federal regime: The CLFN-Canada Conservation Agreement sought to establish Dene Law and principles for caribou hunting, but did not reference permitting (Appendix G) (ECCC, 2019). The ACFN-MCFN-Canada Conservation Agreement sought to monitor Indigenous and non-Indigenous hunting, but did not explicitly reference permitting (Appendix H) (ECCC, 2022c).

2.3.2 Implementation progress

As discussed, in 2016 Alberta implemented an interim restriction on the sale of petroleum and natural gas, oil sands, coal, metallic and industrial mineral rights within all caribou ranges (ECCC, 2017). These restrictions will stay in place until new operating practices are implemented through directives or the approval of a range plan such as the Bistcho Lake and Cold Lake Sub-regional Plans (ECCC, 2017). It is unclear if the restriction has been lifted in areas included in the Bistcho Lake and Cold Lake Sub-regional Plans. In 2021, the Master Schedule of Standards and Conditions overseeing disposition applications under the *Public Lands Act* was adjusted to make modifications to approval standards, conditions and wildlife sensitivity layers for woodland caribou, allowing the general public, industrial operators and government departments to determine where land-use activities could pose higher and lower risk to caribou (Appendix C) (ECCC, 2024c) As of 2024, the need for further adjustments to approval conditions and standards within the Master Schedule of Standards and Condition and new or modified existing land reservations was being monitored (Appendix I) (MEPA, 2024e). The progress of the Bistcho Lake and Cold Lake sub-regional plans is also unknown. Furthermore, the regulatory details

for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

2.4 Protection within anthropogenic activities

Table 12: Criterion 2.4 summary table - Alberta.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: Proponents must ensure project impacts are avoided or mitigated (s.79 of SARA) Recovery Strategy: Considerations for caribou and their habitat integrated into management of industry and land use planning. Range plans outline how sufficient habitat is managed to prevent destruction. Action Plan: NA.	• *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* under s.58.
Provincial regime	Provincial progress
Wildlife Act: NA. Plethora of acts and associated regulations which oversee industry, other anthropogenic land uses, and land use planning (see detailed description). None were found the have explicit provisions for boreal caribou protection or impact mitigation. Alberta's CPPs seek to minimize harm within new Coal Exploration Permits and Geophysical Dispositions. Recovery Plan: Industrial operations and access management should reduce negative impacts. Caribou Policy: Management of land base and development must reduce negative impacts. AB-CAN CA: SRPs and habitat impacts reduced in forest harvesting, energy, and other activities. Bistcho Lake SRP: Disturbance minimization within access features, energy and mineral operations, pipelines, geophysical exploration, forestry, and more. Cold Lake SRP: Disturbance minimization within access features, energy and mineral operations, pipelines, geophysical exploration, forestry, and more.	• Quantified, on the ground impacts of activity mitigations is unknown. • 2019 voluntary agreement with energy company to commit to no future land disturbance for eight years in ~8000 ha of Little Smoky range. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: NA. ACFN-MCFN CA: Indigenous Caribou Stewardship Plans.	• Progress reporting unavailable.

2.4.1 Legal/policy basis

Laws and regulations: The *Wildlife Act* does not have specific provisions regarding species at risk protections within the operation of anthropogenic activities (Wildlife Act, 2000). Natural resource operations which may impact Alberta's boreal caribou and their habitat are also governed by the *Coal Conservation Act* (CCA, 2000), the *Geothermal Resource Development Act (GRDA, 2020)*, the *Mineral*

Resource Development Act (MRDA, 2021), the *Oil and Gas Conservation Act* (OGCA, 2000), the *Oil Sands Conservation Act (OSCA, 2000)*, the *Pipeline Act (Pipeline Act, 2000),* the *Forests Act* (Forests Act, 2000), as well as their associated regulations and policies. Land use planning in Alberta is primarily governed by the *Alberta Land Stewardship Act* (ALSA, 2009), the *Planning Act* (Planning Act, 1990), *Public Lands Act* (PLA, 2000), and their associated regulations and policies. Explicit protections for boreal caribou within natural resource regulation primarily exist within guidelines such as Alberta's Caribou Protection Plans (CPPs), which seek to minimize harm to caribou and their habitat within new development categorized as Coal Exploration Permits and Geophysical Dispositions (MEPA, 2026).

Boreal caribou planning: The Alberta Recovery Plan calls for industrial operation guidelines and access management to reduce negative impacts on herds and habitat, which will evolve with caribou range planning (AWCRT, 2005). The Alberta Caribou Policy calls for management of the land base and associated development to be required to reduce impacts on caribou habitat (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement sought to integrate boreal caribou conservation into sub-regional plans, which would outline habitat considerations for anthropogenic land uses across the landscape (Appendix F) (ECCC, 2020a). It also sought to reduce habitat impacts and disturbance within forest harvesting, energy sector activities, and other land use management regimes (Appendix F) (ECCC, 2020a). The Bistcho and Cold Lake sub-regional plans outlined requirements for the mitigation of habitat disturbance by access features, energy and mineral activity, pipelines, geophysical exploration, forestry, surface material extraction, and more. Mitigation measures include AMPs with size and frequency limitations for access routes, aggregated harvest patterns and Harvest Timing Series for forestry, concentrating the disturbance of multiple energy projects, meandering paths and tree avoidance for receiver lines, and more (see MEPA, 2022b, 2022a).

First Nations-federal regime: The CLFN-Canada Conservation Agreement did not call for the integration of boreal caribou habitat protections into anthropogenic land uses or any associated development (Appendix G) (ECCC, 2019a). The ACFN-MCFN-Canada Conservation Agreement sought to develop range-specific Indigenous Caribou Stewardship Plans which minimize conflict with industry and other land uses (Appendix H) (ECCC, 2022c).

2.4.2 Implementation progress

To fulfill the range-plan requirements under the Federal Recovery Plan, sub-regional plans must be completed for all boreal caribou ranges except for Bistcho and Cold Lake (Appendix I) (MEPA, 2024d). The adoption of industry guidelines such as the CPPs or industry partnerships is unknown. Comprehensive effectiveness for the minimization of negative impacts on caribou and their habitat within Alberta's anthropogenic land uses is unknown. Measurable examples include a 2019 agreement between Ovintiv natural gas company (transferred to Kiwetinohk Resources Corp. in 2022) and Alberta to extend their tenure within Little Smoky included a commitment to no future land disturbance for eight years in ~8000 ha and a 10-year financial contribution to seismic line restoration (Appendix C) (ECCC, 2024). The progress of the Bistcho Lake and Cold Lake sub-regional plans is also unknown. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

3. Recovery

3.1 Recovery objectives

Table 13: Criterion 3.1 summary table - Alberta.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: Recovery strategies must state objectives (s. 41). Recovery Strategy: "Achieve self-sustaining local populations in all boreal caribou ranges throughout their current distribution in Canada, to the extent possible". Ranges with small populations achieve minimum 100 individuals, habitat disturbance kept at minimum 65% undisturbed range threshold. Action Plan: NA.	NA.
Provincial regime	Provincial progress
Wildlife Act: Recovery plans may include population goals (s.6). Recovery Plan: "Achieve self-sustaining woodland caribou herds and maintain the distribution of caribou in Alberta" and "ensure the long-term habitat requirements for woodland caribou are met within Alberta's caribou ranges". Caribou Policy: Achieve naturally sustaining woodland caribou populations, and identify, maintain, and restore sufficient caribou habitat. AB-CAN CA: Naturally self-sustaining ranges and 65% undisturbed habitat. Bistcho Lake SRP: Self-sustaining ranges and minimum 65% undisturbed habitat in 50 to 100 years. Cold Lake SRP: Self-sustaining ranges and minimum 65% undisturbed habitat in 50 to 100 years.	• No ranges have met the recovery objectives. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: "Support the achievement of a self-sustaining population in the Cold Lake Boreal Caribou Range" and "support traditional Indigenous harvesting activities, consistent with existing Indigenous Rights". ACFN-MCFN CA: "Support the achievement of a self-sustaining population, consistent with the population and distribution objectives in the Federal Recovery Strategy, in the Red Earth Range, West Side Athabasca River Range, Richardson Range, and East Side Athabasca River Range".	• Progress reporting unavailable. • As of 2024 reporting, ranges included in the conservation agreements had not achieved recovery objectives.

3.1.1 Legal/policy basis

Laws and regulations: Under s.6 of the *Wildlife Act*, the Minister is responsible for creating a recovery plan for listed species which may include "population goals" and strategies to "enable populations to recover" (Wildlife Act, 2000).

Boreal caribou planning: The Alberta Recovery Plan was adopted by the Minister with the vision that "within 10 years, a majority of woodland caribou herds in Alberta will exhibit positive population trends and exist in well distributed populations across Alberta's caribou ranges, setting the stage for the species recovery and removal from the list of provincially threatened species" (AWCRT, 2005, pg.10). It also defines two specific recovery objectives, to "achieve self-sustaining woodland caribou herds and maintain the distribution of caribou in Alberta" and "ensure the long-term habitat requirements for woodland caribou are met within Alberta's caribou ranges" (AWCRT, 2005, pg.11). The Alberta Caribou Policy commits the Government of Alberta to achieving naturally sustaining woodland caribou populations, and identifying, maintaining, and restoring sufficient caribou habitat (Government of Alberta, 2011). The overarching goal of the Alberta-Canada Conservation Agreement was to "support the conservation and recovery of woodland caribou local populations to naturally self-sustaining status" (ECCC, 2020a). The purpose of the agreement includes the achievement and maintenance of a minimum 65% undisturbed habitat (ECCC, 2020a). The sub-regional plans have the long-term goal of naturally self-sustaining caribou populations and the federal objective of achieving 65% undisturbed habitat within 50-100 years (MEPA, 2022d, 2022b;).

First Nations-federal regime: The overarching goal of the CLFN-Canada Conservation Agreement was to "support the achievement of a self-sustaining population in the Cold Lake Boreal Caribou Range" aligned with the federal recovery strategy and in ways which "will support traditional Indigenous harvesting activities, consistent with existing Indigenous Rights" (ECCC, 2019a). The overarching goal of the ACFN-MCFN-Canada Conservation Agreement was to "support the achievement of a self-sustaining population, consistent with the population and distribution objectives in the Federal Recovery Strategy, in the Red Earth Range, West Side Athabasca River Range, Richardson Range, and East Side Athabasca River Range" (ECCC, 2022b).

3.1.2 Implementation progress

Based on the most recent reporting, Alberta has not yet met the recovery objectives of the Federal Recovery Strategy or outlined in the Alberta Recovery Plan, Alberta Caribou Policy, Alberta-Canada Conservation Agreement (ECCC, 2024c; MEPA, 2024e). Comprehensive progress reporting is not available for the sub-regional plans, CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement. However, based on the most recent population and habitat reporting, overarching objectives for the ranges included in the plans and agreements have not been met (MEPA, 2024d).

3.2 Short-term recovery outcomes

Table 14: Criterion 3.2 summary table - Alberta.

Legal/Policy Basis	Progress

Federal regime	Relevant national-scale progress
SARA: NA Recovery Strategy: Predator, alternative prey, and caribou management as interim tools. Action Plan: Predator, alternative prey, and caribou management as interim tools and range-specific.	NA.
Provincial regime	**Provincial progress**
Wildlife Act: NA. Recovery Plan: Predator and alternate prey management as an interim approach where necessary. Caribou Policy: Predator and alternate prey management. AB-CAN CA: Wolf and alternate prey management, monitor need for captive caribou rearing. Bistcho Lake SRP: Monitor needs for moose and wolf management. Cold Lake SRP: NA.	• Extensive wolf population reduction across East Side Athabasca River, Cold Lake, Little Smoky, Chinchaga, Slave Lake, and Nipisi ranges. • Alternate prey harvesting expanded across Alberta. • Captive rearing facility funded yet still under consideration in Little Smoky range. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	**First Nations progress**
CLFN CA: Explore opportunities and provide recommendations for predator and alternate prey management. ACFN-MCFN CA: NA.	• Progress reporting unavailable. • Alternate prey management strategy for ungulates in Cold Lake Air Weapons Range.

3.2.1 Legal/policy basis

Boreal caribou planning: The Alberta Recovery Plan calls for strategies which match the herd population status, prioritizing immediate actions for herds at risk of extirpation and urgent actions for herds in decline (Appendix E) (AWCRT, 2005). The Plan calls for predator management where necessary to halt decline and/or prevent extirpation, including measures to influence predator mobility and hunting ability, as well as measures to control predator population (Appendix E) (AWCRT, 2005). It is emphasized that predator management must act as an interim approach, and that habitat conservation and management be the fundamental tool for reducing predation (AWCRT, 2005). Under the Plan, alternative prey management of ungulates within range plans may be necessary as a result of predator management (AWCRT, 2005). The Alberta Caribou Policy states that effective management of predator and prey populations will be required (Appendix E) (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement stated that population (i.e., predator, prey, and caribou) management actions were interim measures to be met with concurrent critical habitat protection and restoration (ECCC, 2020a). Specifically, it called for the continuation or implementation of wolf and alternative prey population management, as well as the examination of the need for captive rearing in the Little Smoky range (Appendix F) (ECCC, 2020a). The Bistcho Lake Sub-regional Plan calls for the monitoring of needs for short-term recovery actions including moose and wolf management (MEPA, 2022a). The Cold Lake Sub-regional Plan does not include plans for wildlife management (MEPA, 2022c).

First Nations-Canada regime: The CLFN-Canada Conservation Agreement sought to "explore opportunities and provide recommendations" regarding predator and alternate prey management, including increased hunting and trapping if necessary (Appendix G) (ECCC, 2019). The ACFN-MCFN-

Canada Conservation Agreement did not include measures for immediate recovery actions, i.e., population management efforts (Appendix H) (ECCC, 2022c).

3.2.2 Implementation progress

Intensive wolf management is primarily responsible for stabilizing caribou population trends that would otherwise be declining (MEPA, 2024d). For decades, ongoing government programs have conducted wolf population reduction within and adjacent to ranges most susceptible to extirpation, including East Side Athabasca River, Cold Lake, Little Smoky, and the Alberta portion of Chinchaga range (Appendix C, I) (ECCC, 2017, 2024c; MEPA, 2024d). Wolf management programs were initiated in the Slave Lake and Nipisi ranges in 2022 (Appendix I) (MEPA, 2024e). Opportunities for alternative ungulate prey harvesting and hunting have been expanded across all ranges (Appendix C) (ECCC, 2017, 2024c). Aligned with the CLFN-Canada Conservation Agreement, an alternate prey management strategy in the Cold Lake Air Weapons Range began in 2023 (Appendix C) (ECCC, 2024c). A captive rearing facility was recommended for the Little Smoky range and $2.5 million was allocated for design, but as of 2023 the facility was still being considered (Appendix I) (ECCC, 2017; MEPA, 2024d). The progress of the Bistcho Lake and Cold Lake sub-regional plans is unknown. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

3.3 Long-term recovery outcomes

Table 15: Criterion 3.3 summary table - Alberta.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: NA Recovery Strategy: Enhancement of connectivity, habitat restoration and reclamation. Action Plan: Research to support habitat restoration.	NA.
Provincial regime	Provincial progress
Wildlife Act: NA. Recovery Plan: Range-specific habitat restoration and recovery. Caribou Policy: Provincial restoration program, seismic line recovery, industrial recovery measures. AB-CAN CA: Provincial restoration program, seismic line recovery, requirements for industry. Bistcho Lake SRP: Restoration and reclamation requirements for industry. Cold Lake SRP: Restoration and reclamation requirements for industry.	• 2017 Provincial Restoration and Establishment Framework for Legacy Seismic Lines in Alberta. • Caribou Habitat Recovery Program (CHRP): ~7000km of restoration planning, ~4600km of restoration treatment, ~500km of seedling monitoring, and ~2.8 million trees planted in boreal and southern mountain caribou habitat. • Assessment of seismic lines for restoration in Bistcho, Yates, Caribou Mountains, West Side Athabasca River, Richardson, and Chinchaga ranges. • Seed collection in Red Earth and Little Smoky. • Planning for treatments in up to 800km in Cold Lake, 530km in East Side Athabasca, and 1,300km in Red Earth ranges. • Industry-related restoration in criterion 3.4.

	• Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: Enhance restoration, explore opportunities for recovery of habitat zones. ACFN-MCFN CA: Indigenous Caribou Stewardship Plans, Indigenous Restoration Standards, community-based restoration.	• Progress reporting unavailable.

3.3.1 Legal/Policy Basis

Boreal caribou planning: The Alberta Recovery Plan calls for range-specific habitat restoration and recovery beginning in Stage 1 of the recovery timeline (Appendix E) (Wildlife Act, 2000). The Alberta Caribou Policy emphasizes the importance of restoring disturbed habitat (Appendix E) (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement sought to restore caribou habitat through a provincial restoration program and a focus on seismic line recovery, as well as the incorporation of habitat recovery measures within industry operations (Appendix F) (ECCC, 2020a). The Bistcho and Cold Lake sub-regional plans include many provisions for the restoration of disturbed caribou habitat, primarily related to restoration and reclamation requirements for industrial features and activities as will be discussed below (see MEPA, 2022b, 2022a).

First Nations-Canada regime: The CLFN-Canada Conservation Agreement sought to maintain and enhance landscape restoration, as well as explore opportunities for the recovery and protection of boreal caribou habitat zones (Appendix G) (ECCC, 2019). The ACFN-MCFN-Canada Conservation Agreement sought to develop Indigenous Caribou Stewardship Plans which would work towards annual restoration objectives, identify priority restoration areas, and plan for future Caribou Stewardship Areas (Appendix H) (ECCC, 2022c). It also sought to develop Indigenous Restoration Standards based on Indigenous Knowledge and technical expertise (Appendix H) (ECCC, 2022c). Furthermore, the ACFN-MCFN-Canada Conservation Agreement sought to build community restoration capacity through the establishment of a locally-run greenhouse and nursery to grow plant materials for restoration which are also of food, social, or cultural significance, as well as training community members to restore linear disturbances (Appendix H) (ECCC, 2022c).

3.3.2 Implementation progress

In 2017, the Provincial Restoration and Establishment Framework for Legacy Seismic Lines in Alberta was released, outlining planning, implementation, and monitoring requirements for government led programs and recommendations for voluntary industry-led programs (Government of Alberta, 2017). Since 2017, the government of Alberta has led the Caribou Habitat Recovery Program (CHRP) to re-establishing trees on legacy seismic lines in boreal and southern mountain caribou ranges (Appendix C, I) (ECCC, 2024c; MEPA, 2024b). As of 2024, the CHRP achieved ~7000km of restoration planning, ~4600km of restoration treatment, ~500km of seedling monitoring, and ~2.8 million trees planted in both boreal and southern mountain caribou habitat (Appendix I) (MEPA, 2024b). By 2023, ~500km of seismic lines received restoration, ~540,000 trees were planted, and two seedling survival assessment projects were implemented in the Cold Lake boreal caribou range (Appendix C) (ECCC, 2024). ~44km of wide

seismic lines received restoration treatments within the Richardson range, and legacy seismic line treatments in Little Smoky were underway with an expected total of ~ 763 km of restoration and ~849,000 seedling plantings (ECCC, 2024). Assessments of vegetation state of seismic lines for restoration are ongoing across multiple ranges (Appendix C) (ECCC, 2024). Seed collection projects have been occurring in Red Earth and Little Smoky ranges to provide native seeds for habitat restoration (ECCC, 2024). As of 2023, planning was underway for restoration treatments of up to 800km in Cold Lake, up to 530km in East Side Athabasca, and up to 1,300km in Red Earth (Appendix C) (ECCC, 2024).

The progress of the Bistcho Lake and Cold Lake sub-regional plans is unknown. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Further long-term recovery planning progress was related to industry operations, and is discussed under criterion 3.4. Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

3.4 Recovery within anthropogenic activities

Table 16: Criterion 3.4 summary table - Alberta.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: NA Recovery Strategy: Range plans to manage critical habitat. Action Plan: Range plans to manage critical habitat.	NA.
Provincial regime	Provincial progress
Wildlife Act: NA. ALSA: Implement sub-regional plans and their habitat restoration requirements. Other acts which regulate natural resource operations do not include specific provisions for caribou habitat restoration. Recovery Plan: Industrial recovery measures Caribou Policy: Industrial recovery measures. AB-CAN CA: Restoration and reclamation requirements for industry. Bistcho Lake SRP: Restoration and reclamation requirements for industry. Cold Lake SRP: Restoration and reclamation requirements for industry.	• Sub-regional plans incomplete. • Restoration partnerships with AER, Forest Resource Improvement Association, etc. • 2021 Site Rehabilitation Program to support energy-related closures and reclamation. • 2021 Moose Lake Access Management Plan guiding resource development to restore seismic lines in part of Red Earth Range. • 2019 agreement with Kiwetinohk Resources Corp. to contribute financial support for restoration in Little Smoky range. • Between 2008 and 2023, Cenovus Energy treated over 1300 km of linear features in Cold Lake range. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP. Both are not yet legally enforceable.
First Nations-federal regime	First Nations progress
CLFN CA: NA. ACFN-MCFN CA: Indigenous Caribou Stewardship Plans.	• Progress reporting unavailable.

3.4.1 Legal/Policy Basis

Laws and regulations: The *Wildlife Act* does not include provisions for species recovery which could be applied to natural resource activities or other land uses (AWCRT, 2005). Natural resource governance instruments which may impact boreal caribou recovery include the *Coal Conservation Act* (CCA, 2000), the *Geothermal Resource Development Act (GRDA, 2020)*, the *Mineral Resource Development Act* (MRDA, 2021), the *Oil and Gas Conservation Act* (OGCA, 2000), the *Oil Sands Conservation Act* (OSCA, 2000), the *Pipeline Act* (Pipeline Act, 2000), the *Forests Act* (Forests Act, 2000), the *Environmental Protection and Enhancement Act* (EPEA, 2000), the *Public Lands Act* (PLA, 2000), and the *Alberta Land Stewardship Act* (ALSA, 2009), as well as their associated regulations. While the ALSA is utilized to implement sub-regional plans, the other laws do not explicitly implement caribou habitat restoration within industrial practices. Rather, this is done through Alberta's caribou conservation planning and voluntary guidelines.

Boreal caribou planning: As discussed, the Alberta Recovery Plan calls for the creation and implementation of industrial operation guidelines and access management to reduce negative impacts on herds and habitat, however it does not call for the incorporation of recovery actions within industrial or other land uses (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy calls for management of the land base and associated development to require the facilitation of caribou habitat restoration (Appendix E) (Government of Alberta, 2011). As discussed, the Alberta-Canada Conservation Agreement sought to incorporate boreal caribou habitat considerations across anthropogenic landscape activities through sub-regional planning, these measures were focused on mitigating and minimizing disturbance, with less emphasis on active restoration and recovery measures (Appendix F) (ECCC, 2020a). The Bistcho Lake and Cold Lake sub-regional plans seek to incorporate caribou recovery into the operation requirements of access management routes, energy and mineral activity, pipelines, geophysical exploration, forestry, surface material extraction, and more (see MEPA, 2022b, 2022a). Long-term recovery-oriented measures include standards for reclamation and restoration of industrial features, closure quotas for oil wells, revegetation requirements for temporary disturbances, and more (see MEPA, 2022b, 2022a).

First Nations-federal regime: As discussed, the CLFN-Canada Conservation Agreement did not call for the integration of boreal caribou habitat protections into anthropogenic land uses or any associated development (Appendix G) (ECCC, 2019). The ACFN and MCFN conservation agreement sought to develop range-specific Indigenous Caribou Stewardship Plans for both habitat protection and restoration which minimize conflict with industry and other land uses (Appendix H) (ECCC, 2022c).

3.4.2 Implementation progress

To fulfill the range-plan requirements under the Federal Recovery Plan, sub-regional plans must still be finalized for all boreal caribou ranges except for Bistcho Lake and Cold Lake (MEPA, 2024e). These plans will comprehensively guide the integration of habitat protection, disturbance minimization, and recovery into anthropogenic land-use planning and activities such as forestry and energy operations (MEPA, 2024e). Aforementioned government-led habitat restoration occurred in partnership with industry entities such as the Alberta Energy Regulator and Forest Resource Improvement Association of Alberta (ECCC, 2024c).

The Site Rehabilitation Program was launched in 2021 to support oil field service contractors' well, pipeline, and oil and gas site closures and reclamation (Appendix C) (ECCC, 2024). In 2021, the Moose Lake Access Management Plan was implemented to limit habitat disturbance, restore legacy seismic lines, and support Indigenous land uses near Fort McKay First Nation Moose Lake reserves and parts of the Red Earth range (Appendix C) (ECCC, 2024). A 2019 agreement between Ovintiv natural gas company (transferred to Kiwetinohk Resources Corp. in 2022) and Alberta to extend their tenure within Little Smoky included a commitment to no future land disturbance for eight years in ~8000 ha and a 10-year financial contribution to seismic line restoration (Appendix C) (ECCC, 2024). Between 2008 and 2023, Cenovus Energy treated over 1300 km of linear features through their Cenovus Caribou Habitat Restoration Project, primarily in the Cold Lake range (Appendix I) (MEPA, 2024e). Progress of the habitat recovery measures for industry under the two sub-regional plans has not yet been published. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

4. Monitoring and Transparency

4.1 Regular, transparent monitoring of recovery progress

Table 17: Criterion 4.1 summary table - Alberta.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Progress reporting for recovery strategies and action plans every five years (s.46 and 55). Recovery Strategy: Monitoring of indicators to track impact of recovery actions for five-year reporting. Action Plan: Monitoring of indicators to track impact of recovery actions for five-year reporting.	• Report on the Progress of Recovery Strategy Implementation for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada for the period 2012-2017 • Report on the Progress of the Recovery Strategy Implementation (period 2017-2022) and the Action Plan Implementation (period 2018-2023) for Caribou (Rangifer tarandus), Boreal Population, in Canada
Provincial regime	Provincial progress
Wildlife Act: NA. Recovery Plan: Re-evaluation every three years, annual review and reporting of conservation progress. Caribou Policy: Regular evaluation of recovery through population and habitat monitoring. AB-CAN CA: Annual public progress reporting, final comprehensive progress report. Bistcho Lake SRP: Reporting on indicators five years after publication, every 10 years after that, or triggered by worrisome habitat disturbance trends. Cold Lake SRP: Reporting on indicators five years after publication, every 10 years after that, or triggered by worrisome habitat disturbance trends.	• First Report On The Implementation Of The Section 11 Agreement For The Conservation And Recovery Of The Woodland Caribou In Alberta • Report on the Implementation of the Section 11 Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta • Progress reporting unavailable for Caribou Recovery Plan and Caribou Policy. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP.
First Nations-federal regime	First Nations progress

CLFN CA: Annual meetings and reporting on status of conservation measures. Public disclosure of progress relies on consent between Parties. ACFN-MCFN CA: Annual meetings and reporting on status of conservation measures. No requirement for public access to reporting.	• Progress reporting unavailable.

4.1.1 Legal/Policy Basis

Boreal caribou planning: The Alberta Recovery Plan utilizes an adaptive management approach in which success is re-evaluated at least every three years and conservation strategies are adjusted as required. It is not explicitly stated that this reporting must be made public (AWCRT, 2005). The Alberta Caribou Policy calls for a similar approach in which recovery is evaluated through monitoring caribou populations and habitats, adjusting management approaches when necessary however it not mention reporting transparency (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement was to be subject to public annual progress reports and a final comprehensive progress report (ECCC, 2020a). It also called for annual monitoring and reporting of local population and habitat metrics (Appendix F) (ECCC, 2020a). Similarly, the Bistcho Lake and Cold Lake sub-regional plans utilize an adaptive management approach, in which the Government of Alberta will report on specific environmental and socioeconomic indicators (see MEPA, 2022b, 2022a). The sub-regional plans will be subject to review five years after approval and every 10 years after that, or triggered by worrisome habitat disturbance trends in caribou ranges (see MEPA, 2022b, 2022a). It is unclear whether this reporting must be made publicly available.

First Nations-federal regime: The CLFN-Canada Conservation Agreement called for annual meetings and reporting on the status of conservation measures to be shared between the Parties (ECCC, 2019a). Public access to such information is not mandated, rather, the agreement states that consent between the Parties is required prior to public access especially since Indigenous Knowledge cannot be publicly disclosed without consent from CLFN (ECCC, 2019a). The CLFN-Canada Conservation Agreement also sought to establish a process for tracking and measuring reforestation success (Appendix G) (ECCC, 2019). The ACFN-MCFN-Canada Conservation Agreement called for annual meetings and reporting on the status of conservation measures, there is no requirement for or mention of public access to this information (ECCC, 2022b).

4.1.2 Implementation progress

Comprehensive progress reporting regarding the Alberta Recovery Plan and Alberta Caribou Policy were not identified. The First Report On The Implementation Of The Section 11 Agreement For The Conservation And Recovery Of The Woodland Caribou In Alberta and the Report on the Implementation of the Section 11 Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta describe the implementation of the Alberta-Canada Conservation Agreement for the years 2021 to 2023 (MEPA, 2024a, 2024b). However, reporting for the years 2024 and 2025, as well as comprehensive reporting for the entire five years is lacking. Progress of the habitat recovery measures for industry under the two sub-regional plans has not yet been published. No progress reporting was identified for the CLFN-Canada or the ACFN-MCFN-Canada Conservation Agreements.

4.2 Adaptive management

Table 18: Criterion 4.2 summary table - Alberta.

Legal/Policy Basis	Progress
Federal regime	Relevant national-scale progress
SARA: NA. Recovery Strategy: Monitoring of indicators will support adjustments to future strategies and actions. Action Plan: Monitoring to be integrated into future amendments to recovery efforts.	• Federal Recovery Strategy updated with population and habitat conditions from 2017 data. • Biological information still based on western science and Indigenous Knowledge from 2010, 2011, and 2012.
Provincial regime	Provincial progress
Wildlife Act: NA. Recovery Plan: Recovery actions adjusted annually based on progress reporting. Caribou Policy: Regular improvements to policy based on evaluations. AB-CAN CA: Create new commitments or changes based on annual progress evaluations. Bistcho Lake SRP: Adjust based on monitoring and reporting. Cold Lake SRP: Adjust based on monitoring and reporting.	• Recovery Plan and Caribou Policy have not been updated with monitoring results. • Utilization of AB-CAN CA monitoring is unclear. • Utilization of sub-regional plan monitoring is unclear.
First Nations-federal regime	First Nations progress
CLFN CA: Adjust measures based on annual evaluations. ACFN-MCFN CA: Adjust measures based on annual evaluations.	• Utilization of monitoring is unclear.

4.2.1 Legal/policy basis

Boreal caribou planning: As discussed, the Alberta Recovery Plan calls for adaptive management in which progress is evaluated to inform management adjustments and ensure best measures for long-term sustainability of herds (AWCRT, 2005). Specifically, for recovery actions to be adjusted annually based on progress reviews and reporting (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy similarly mandates an adaptive management approach to regularly adjust and improve caribou recovery and the policy itself (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement called for the Parties to meet at least annually, evaluate progress of implementation, and identify new commitments or changes necessary to strengthen progress based on this evaluation (ECCC, 2020a). As discussed, the Bistcho and Cold Lake sub-regional plans utilize adaptive management to monitor, report on, and evaluate implementation and the plans themselves, so that the plans can be adjusted (MEPA, 2022c, 2022a).

First Nations-federal regime: The CLFN-Canada Conservation Agreement called for the Parties to meet annually, document and examine progress, and adjust conservation measures as needed to strengthen progress based on this evaluation (ECCC, 2019a). The ACFN-MCFN-Canada Conservation Agreement called for the same process, in which evaluations of progress may inform changes to conservation measures (ECCC, 2022b).

4.2.2 Implementation progress

Despite relatively consistent habitat and population monitoring by the Government of Alberta, such science has not yet been incorporated into the Alberta Recovery Plan or Caribou Policy (AWCRT, 2005; Government of Alberta, 2011). It is unknown how population, habitat, and progress monitoring for the Alberta-Canada Conservation Agreement has been or will be utilized in future conservation plans or policies. It is uncertain what data were used to finalize caribou considerations in the Bistcho and Cold Lake sub-regional plans, as well as how monitoring of the plans have or will be utilized. It is further unclear how population, habitat, and progress monitoring CLFN-Canada Conservation Agreement and the ACFN-MCFN-Canada Conservation Agreements has been or will be utilized in future conservation plans or policies.

5. High-level Considerations

5.1 Indigenous rights

Table 19: Criterion 5.1 summary table - Alberta.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Indigenous Knowledge and collaboration within species assessments, recovery strategies, and action plans. Recovery Strategy: Integration of Indigenous Knowledge and collaboration into conservation approaches. Action Plan: Integration of Indigenous Knowledge and collaboration into conservation measures.	• 2011 Woodland Caribou (Rangifer Tarandus Caribou) Aboriginal Traditional Knowledge Summary Reports for Alberta. • Funded Indigenous-led caribou stewardship projects across Alberta and Ontario. • National Boreal Caribou Knowledge Consortium (NBCKC), NBCKC's Indigenous Knowledge Circle, and the North American Caribou Workshops.
Provincial regime	Provincial progress
Wildlife Act: NA. Recovery Plan: Voluntary cessations on caribou harvesting where necessary. Caribou Policy: Consideration for Indigenous rights and traditional land uses. AB-CAN CA: Engagement with Indigenous peoples and considerations of their input. Bistcho Lake SRP: Support for Indigenous-led initiatives and land uses. Cold Lake SRP: Support for Indigenous-led initiatives and land uses.	• Tâdzié-Sagow Atihk (Caribou) Stewardship Plan reaffirmed with federal support under ACFN-MCFN CA. • Wildland park expansions in partnership with Tall Cree First Nation and Mikisew First Nation. • Aseniwuche Winewak Nation memorandum of understanding and funding. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP.
First Nations-federal regime	First Nations progress
CLFN CA: Nation-to-nation agreement based on UNDRIP and the TRC's Calls to Action. Support for Indigenous-led stewardship and community capacity building. ACFN-MCFN CA: Nation-to-nation agreement based on UNDRIP and the TRC's Calls to Action. Support for Indigenous-led stewardship and community capacity building.	• Progress reporting unavailable.

5.1.1 Legal/Policy Basis

Laws and regulations: The *Wildlife Act* does not refer to Indigenous treaty or Constitutional rights within species at risk conservation (Wildlife Act, 2000). Bans on woodland caribou hunting made exception for traditional Indigenous harvesting (Wildlife Act, 2000).

Boreal caribou planning: The Alberta Recovery Plan calls for collaborative approaches to voluntary cessations on harvesting where necessary (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy mandates that planning and implementation will consider First Nations rights and traditional uses (Appendix E) (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement recognized the role of Indigenous Peoples and their constitutional rights within woodland caribou recovery, committing to engagement with Indigenous Peoples and the consideration of shared information from Indigenous Peoples (ECCC, 2019a) Specific conservation measures and their deliverables sought to involve Indigenous Peoples in protection and recovery efforts through engagement and collaboration (Appendix F) (ECCC, 2020a). The Bistcho Lake Sub-regional Plan includes provisions for facilitating Indigenous-led initiatives such as habitat restoration and community monitoring programs, long-term traditional land use and wildlife habitats, Indigenous participation, perspectives, and values within land-use planning (see MEPA, 2022a). Similarly, the Cold Lake Sub-regional Plan includes provisions for supporting Indigenous-led initiatives, long-term opportunities for traditional land-uses, and Indigenous participation, perspectives, and values within land-use planning (see MEPA, 2022).

First Nations-federal regime: The CLFN-Canada Conservation Agreement was a framework for Nation-to-Nation cooperation based on reconciliation, with the implementation of the agreement to be guided by the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) and informed by the Truth and Reconciliation Commission's (TRC) Calls to Action (ECCC, 2019a). It was also mandated to be Indigenous-led and intergenerational, and committed to sharing Indigenous Knowledge only with the consent of CLFN (ECCC, 2019). It acknowledged the cultural significance of boreal caribou to the CLFN, as well as the historic injustices faced by the Denesoun'lini when they were removed from the land for the development of the Cold Lake Air Weapons Range (ECCC, 2019a). It committed the Parties to Indigenous perspectives and participation informing all aspects of the agreement (ECCC, 2019a). The conservation measures of the CLFN-Canada agreement sought to develop the community's capacity and integrate knowledge braiding and Indigenous governance into boreal caribou conservation (Appendix G) (ECCC, 2019a).

Similarly, reconciliation was a core principle of the ACFN-MCFN-Canada Conservation Agreement, a Nation-to-Nation framework to be guided by UNDRIP and informed by the TRC's Calls to Action (ECCC, 2022b). It was mandated to facilitate Indigenous-led caribou conservation and long-term capacity, intergenerational knowledge sharing, and values for MCFN and ACFN's communities (ECCC, 2022b). It recognized the significant role of boreal caribou in MCFN and ACFN's Indigenous rights, culture, and way of life (ECCC, 2022c). The conservation measures of the agreement sought to strengthen Indigenous stewardship, capacity, participation, and leadership within boreal caribou protection and recovery (Appendix H) (ECCC, 2022b).

5.1.2 Implementation progress

Indigenous Knowledge Reports from Alberta include information from workshops with the Aseniwuche Winewak Nation, Beaver First Nation, Bigstone Cree Nation, Métis Nation of Alberta Region 2, as well as private information from the Athabasca Chipewyan First Nation, Dene Tha' First Nation, Fort Chipewyan Métis 125, Lesser Slave Lake Indian Regional Council, Métis Nation of Alberta Region 6, and the Mikisew Cree First Nation (ECCC, 2011c). In 2018, 2019, and 2022, the Tall Cree First Nation, Mikisew First Nation, Nature Conservancy of Canada, Government of Alberta, Government of Canada, and Syncrude Canada Ltd. established and expanded four wildland parks (Appendix C) (ECCC, 2024b). In May of 2024, the Government of Alberta invested $1.25 million into boreal caribou habitat restoration projects led by Fort McKay First Nation and the Athabasca Landing Métis Community Association (Government of Alberta, 2024). The Tâdzié-Sagow Atihk (Caribou) Stewardship Plan for the Richardson, Red Earth, East Side of the Athabasca River and West Side of the Athabasca River Boreal Caribou Ranges created by the ACFN and MCFN was reaffirmed under the ACFN-MCFN-Canada Conservation Agreement in 2022 (Appendix C) (Chamberlain, 2025; ECCC, 2024c). As of 2024, the plan required further conservation actions in alignment with the ACFN-MCFN-Canada Conservation Agreement, however progress reporting is not available (ECCC, 2024). The Moose Lake Access Management Plan seeks to align resource development with Indigenous traditional land uses and constitutional rights near the Fort McKay First Nation (Appendix C) (ECCC, 2024c).

In February of 2025, Alberta and the Aseniwuche Winewak Nation signed a memorandum of understanding (MOU) to pursue self-sustaining subpopulations in areas of importance for the Nation, located in west central Alberta (Government of Alberta, 2025). It will aim to enhance the Aseniwuche Winewak Nation's Caribou Patrol Program, identify opportunities for the involvement of Nation members in caribou habitat restoration, and explore ways to strengthen caribou recovery (Government of Alberta, 2025). ECCC announced $23,878 of funding for the one-year Aseniwuche Winewak Nation Caribou Habitat Assessment and Monitoring Program Development project through the Indigenous Partnerships for Species at Risk Fund (ECCC, 2025a). Progress of the two sub-regional plans has not yet been published. Furthermore, the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

5.2 Socioeconomic considerations

Table 20: Criterion 5.2 summary table - Alberta.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Acknowledgement of importance of socioeconomic interests of relevant communities. Socioeconomic cost/benefit analysis and reporting for action plans (s.49 and 55). Recovery Strategy: Coordinated planning to ensure development approvals.	• Cost/benefit analysis not located online. • National Boreal Caribou Knowledge Consortium (NBCKC), NBCKC working groups, and the North American Caribou Workshops.

Action Plan: Range plans should include socioeconomic cost/benefit analysis, socioeconomic stakeholder engagement across Canada.	
Provincial regime	Provincial progress
Wildlife Act: NA. Recovery Plan: Analyses of socioeconomic trade-offs and implications of caribou recovery within range plan process. Caribou Policy: Socioeconomic impacts considered within caribou recovery. AB-CAN CA: Sub-regional plans factor in socioeconomic considerations and analyses. Bistcho Lake SRP: Planning for socioeconomic opportunities through industrial growth. Cold Lake SRP: Planning for socioeconomic opportunities through industrial growth.	• Bistcho Lake and Cold Lake sub-regional plans published with measures to ensure socioeconomic wellbeing through industrial growth.
First Nations-federal regime	First Nations progress
CLFN CA: Integration of relevant socioeconomic values. ACFN-MCFN CA: Integration of relevant socioeconomic values.	• Progress reporting unavailable.

5.2.1 Legal/policy basis

Boreal caribou planning: The Alberta Recovery Plan acknowledges the significant social and cultural value of boreal caribou recovery, as well as the high economic value for natural resource sectors within boreal caribou habitat. It recommends that detailed analyses of socioeconomic trade-offs or implications of caribou recovery must occur through range plan completion (AWCRT, 2005). The plan also recognizes that humans will continue to engage in activities within caribou ranges to contribute to economic wellbeing, and that the plan will therefore seek to identify effective recovery strategies which align with this (AWCRT, 2005). The Alberta Caribou Policy mandates that social and economic impacts be considered within the planning and implementation of caribou recovery (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement stated that woodland caribou conservation and recovery would consider relevant social and economic factors, mandating that sub-regional plans factor in socioeconomic considerations and analyses (Appendix F) (ECCC, 2020a). As comprehensive land use planning documents, the Bistcho and Cold Lake sub-regional plans seek to support socioeconomic opportunities, values, and wellbeing across their respective jurisdictions, primarily through industrial development (MEPA, 2022b, 2022a). They take an integrated land management approach, seeking to balance environmental, social, and economic outcomes (MEPA, 2022a, 2022b).

First Nations-federal regime: The CLFN-Canada Conservation Agreement mandated that conservation measures be developed and implemented in ways which integrate relevant socioeconomic considerations, based on Parties' separate and collective analysis of social and economic factors (ECCC, 2019). The ACFN-MCFN-Canada Conservation Agreement stated that conservation measures were to be developed and implemented in ways which integrate relevant socioeconomic considerations (ECCC, 2022b).

5.2.2 Implementation progress

Key progress for socioeconomic considerations within Alberta's boreal caribou conservation regime exists within the completed Bistcho and Cold Lake sub-regional plans. These plans are primarily comprised of measures for economic growth and social wellbeing through natural resource development (MEPA, 2022c, 2022a). Progress of the two sub-regional plans has not yet been published and the regulatory details for each are not yet implemented, meaning that any provisions within the plans are not currently enforceable by law (MEPA, 2024a, 2026b). Comprehensive progress reporting is not available for the CLFN-Canada Conservation Agreement nor the ACFN-MCFN-Canada Conservation Agreement.

5.3 Environmental considerations

Table 21: Criterion 5.3 summary table - Alberta.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Competent minister may adopt a multi-species approach in recovery strategies (s.41). Ecological impact reporting for action plans (s.55). Strategic Environmental Assessments for all recovery planning mandated by the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals. Recovery Strategy: Cumulative effects assessments and approaches within range planning. Monitor impacts of population management measures on other species. Action Plan: Landscape-level multi-species planning where beneficial.	• SEA concluded that many species would benefit from Recovery Strategy and Action Plan, but necessary predator/prey management should be used as an interim tool only.
Provincial regime	Provincial progress
Wildlife Act: NA. Recovery Plan: Cumulative effects and recognition of ecological interrelationships within recovery measures. Caribou Policy: Secure broad range of environmental values within caribou planning. AB-CAN CA: Project approval conditions take cumulative effects into account. Bistcho Lake SRP: Integrated support for plants and wildlife across jurisdiction. Cold Lake SRP: Integrated support for plants and wildlife across jurisdiction.	• No relevant progress identified. • Progress reporting unavailable for Bistcho Lake SRP and Cold Lake SRP.
First Nations-federal regime	First Nations progress
CLFN CA: Conservation measures developed using analysis of biological factors. ACFN-MCFN CA: NA.	• Progress reporting unavailable.

5.3.1 Legal/policy basis

Boreal caribou planning: The Alberta Recovery Plan recommends that all recovery approaches recognize ecological interrelationships, take a holistic approach, and consider cumulative effects when

managing ecosystems (AWCRT, 2005). It calls for the implications of predator management on prey species – both ungulates and others – to be considered and addressed (Appendix E) (AWCRT, 2005). The Alberta Caribou Policy states that caribou conservation and associated land-use planning should "secure a broad range of environmental values" but does not specifically mandate ecosystem or landscape-wide considerations within caribou recovery (Government of Alberta, 2011). The Alberta-Canada Conservation Agreement stated that conservation and recovery would consider relevant biological factors, mandating that sub-regional plans factor in multi-species considerations and that landscape planning integrate cumulative effects considerations into project approval processes (Appendix F) (ECCC, 2020a). As comprehensive planning documents, the Bistcho and Cold Lake sub-regional plans seek to support naturally self-sustaining plant and wildlife populations across landscapes (MEPA, 2022a, 2022c). They take an integrated land management approach, seeking to consider environmental, social, and economic outcomes (MEPA, 2022a, 2022c).

First Nations-federal regime: The CLFN-Canada Conservation Agreement mandated that the determination of conservation measures involve analysis of biological factors, amongst other things (ECCC, 2019a). The ACFN-MCFN-Canada Conservation Agreement did not explicitly discuss the consideration of biological, ecosystem, or landscape factors aside from those directly related to boreal caribou (ECCC, 2022c).

5.3.2 Implementation progress

Tangible progress regarding the integration of environmental considerations within boreal caribou conservation in Alberta is primarily related to the planning for cumulative disturbance impacts within the two sub-regional plans. These plans take an Integrated Land Management approach to coordinate landscape-wide activities (MEPA, 2022c, 2022a). Monitoring of the ecological impacts of predator and prey population management was not identified.

VI. Ontario Framework Assessment

1. Knowledge Basis

1.1 Population demographics

Table 22: Criterion 1.1 summary table - Ontario.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: COSEWIC reports (s.15) and recovery strategies (s.41). Recovery Strategy: Population monitoring. Action Plan: Research into population responses to disturbance and climate change.	• COSEWIC reports assessing status, federal Recovery Strategy and progress reports publishing population data. • Boreal Caribou Knowledge Portal, National Boreal Caribou Knowledge Consortium (NBCKC), North American Caribou Workshop.
Provincial regime	Provincial progress
ESA: COSSARO assessments (s.4 and 5) Conservation Plan: Population research, monitoring, and range assessments. Range Policy: Methods for range population assessments. ON-CAN CA: Enhanced population monitoring and science programs. PNP Action Plan: Genetic analysis.	• Population status assessments for listing. • Integrated range assessments for Continuous Distribution. • Ongoing population monitoring. • Monitoring funded by Species at Risk Research Fund for Ontario and Caribou Conservation Stewardship Program. • Provincial Woodland Caribou Database, Provincial Caribou Technical Committee, and Boreal Caribou Knowledge Plan established. • Genetic analysis in PNP complete.

Note. Titles were further abbreviated within tables. Conservation Plan is the Ontario Conservation Plan; Range Policy is the Ontario Range Management Policy; ON-CAN CA is the Ontario-Canada Conservation Agreement.

1.1.1 Legal/policy basis

Laws and regulations: The *Endangered Species Act* (ESA) (section 4 and 5) mandates that the Committee on the Status of Species at Risk in Ontario (COSSARO) assess and classify species based on their geographic range in Ontario and the condition of the species inside and outside of Ontario (ESA, 2007). It must be noted that the ESA is to be replaced with the *Species Conservation Act* (SCA) at a date yet to be confirmed (ESA, 2007; POUEA, 2025).

Boreal caribou planning: Ontario's 2009 Woodland Caribou Conservation Plan (Ontario Conservation Plan) outlines multiple objectives for population research, including metrics for population viability, health, and dynamics (Appendix J) (MNR, 2009b). The 2014 Ontario Range Management Policy in Support of Woodland Caribou Conservation and Recovery (Ontario Range Management Policy) sets out methodology for assessing range condition based on population size, population trend, habitat disturbance and the amount and arrangement of habitat aligned with the Integrated Assessment Protocol for Woodland Caribou Ranges in Ontario (Integrated Range Assessment Protocol) (MNR, 2014j, 2014a). The Ontario-Canada Agreement for the Conservation of Caribou, Boreal Population in Ontario (Ontario-

Canada Conservation Agreement) calls for the identification of current and projected population status through its monitoring conservation measures, including data collection programs such as the Boreal Caribou Monitoring Program and Boreal Caribou Knowledge Plan (Appendix K) (ECCC, 2022a). The Multi-species Action Plan for Pukaskwa National Park of Canada (PNP Action Plan) called for genetic analysis through scat and mark/recapture data collection (Parks Canada, 2017).

1.1.2 Implementation progress

Boreal caribou populations in Ontario have been subject to multiple COSSARO reports, both before and after being listed under the ESA (COSSARO, 2015; OWCRT, 2008). In alignment with the Ontario Conservation Plan, Ontario Range Management Policy, and Integrated Range Assessment Protocol, integrated range assessments were conducted for the 13 provincially recognized ranges in the Continuous Distribution, i.e., excluding ON6 Lake Superior Coastal Range. These assessments estimated population trends based on aerial surveys and collared caribou analysis (see MNR, 2014b, 2014c, 2014d, 2014i, 2014e, 2014f, 2014g, 2014h). Range assessments were utilized in the 2015 COSSARO assessment (COSSARO, 2015). Ontario has been implementing multiple collaring, aerial, genetic, and other studies to better understand population across both the Continuous Distribution and the Lake Superior Coastal Range (LSCR) (Appendix D, Appendix L) (ECCC, 2017, 2024c; MECP, 2024a; MNR, 2014m). Ontario has been also conducting and funding numerous population-related monitoring projects by the MNR and under the Species at Risk Research Fund for Ontario and Caribou Conservation Stewardship Program (Appendix L) (MECP, 2024; MNR, 2014m). Population research is further supported by the Provincial Woodland Caribou Database, Provincial Caribou Technical Committee, and Boreal Caribou Knowledge Plan (Appendix L) (MECP, 2024; MNR, 2014m). Genetic analysis of caribou in PNP was completed as of 2022 (Parks Canada, 2022).

1.2 Critical habitat

Table 23: Criterion 1.2 summary table - Ontario.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: Recovery strategies (s.41). Recovery Strategy: Revise range delineations. Action Plan: Standards for identification of local ranges, research into new methods for mapping habitat quality.	• Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou, Boreal Population, in Canada. • Recovery Strategy defines location and quality of critical habitat. • Boreal Caribou Knowledge Portal, National Boreal Caribou Knowledge Consortium (NBCKC), North American Caribou Workshop.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Range-level habitat assessments and monitoring. Range Policy: Methods for habitat assessments. ON-CAN CA: Enhanced habitat monitoring and science programs. PNP Action Plan: Monitor calving habitat and wildfires.	• General Habitat Description for the Woodland Caribou (Forest-dwelling boreal population) • Integrated range assessments for Continuous Distribution. • Monitoring funded by Species at Risk Research Fund for Ontario and Caribou Conservation Stewardship Program.

	• Monitoring of calving habitat and wildfires in PNP completed. • Provincial Woodland Caribou Database, Provincial Caribou Technical Committee, and Boreal Caribou Knowledge Plan established.

1.2.1 Legal/policy basis

Laws and regulations: Prior to recent amendments, the Ontario *Endangered Species Act* (ESA) (section 11) mandated a recovery strategy for threatened and endangered species which identified areas to be classified as habitat, as well as habitat needs (ESA, 2007). However it must be noted that s.11 was repealed by amendments under the *Protect Ontario by Unleashing our Economy Act* in 2025, and the ESA is to be replaced with the *Species Conservation Act* at a date yet to be confirmed (ESA, 2007; POUEA, 2025).

Boreal caribou planning: The Ontario Conservation Plan mandates ranges as the basis for identifying and assessing habitat, and calls for scientific research into habitat quality, quantity, and suitability (Appendix J) (MNR, 2009b). The Ontario Range Management Policy confirmed recommended methods for identifying and assessing ranges based on population size, population trend, habitat disturbance and the amount and arrangement of habitat using integrated range assessments (MNR, 2014j, 2014a). The Ontario-Canada Conservation Agreement calls for the identification of current and projected habitat status, updating of range boundaries, and the creation of a Habitat Restoration Assessment Initiative to monitor and improve habitat recovery efforts (Appendix K) (ECCC, 2022a). The PNP Action Plan called for monitoring of calving habitat and wildfire occurrence in critical habitat (Parks Canada, 2017).

1.2.2 Implementation progress

The 2013 General Habitat Description for the Woodland Caribou (Forest-dwelling boreal population) (General Habitat Description) and 2014 Delineation Report for Woodland Caribou Ranges in Ontario finalized habitat descriptions and range identification across the Ontario distribution (MNR, 2013d, 2014l). The General Habitat Description categorizes sub-range habitat into three categories based on the tolerance of habitat features to alteration and function compromise (Appendix K) (MNR, 2013d). There is some uncertainty surrounding these habitat definitions, including the lack of specific rutting areas identified in Ontario (MNR, 2013d). Integrated range assessments were conducted for the 13 provincially recognized ranges in the Continuous Distribution, i.e., excluding ON6 Lake Superior Coastal Range, between 2010 and 2012 (see MNR, 2014d, 2014e, 2014f, 2014k, 2014g, 2014h, 2014i, 2014j). Ontario has been implementing multiple studies to better understand habitat-related metrics across both the Continuous Distribution and the LSCR (Appendix D, Appendix L) (ECCC, 2017, 2024c; MECP, 2024a; MNR, 2014m). Ontario has been conducting and funding habitat-related monitoring projects by the MNR and under the Species at Risk Research Fund for Ontario and Caribou Conservation Stewardship Program (Appendix L) (MECP, 2024; MNR, 2014m). Habitat data and monitoring is also supported by the Provincial Woodland Caribou Database, Provincial Caribou Technical Committee, and Boreal Caribou Knowledge Plan (Appendix L) (MECP, 2024; MNR, 2014m). As of 2024, the Habitat

Restoration Assessment Initiative was still in stakeholder engagement stages (MECP, 2024a). Monitoring of calving habitat and wildfires was completed in PNP as of 2022 (Parks Canada, 2022).

1.3 Threats

Table 24: Criterion 1.3 summary table - Ontario.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: COSEWIC reports (s.15) and recovery strategies (s.41). Recovery Strategy: Monitor landscape disturbance and assess long-term natural disturbance. Action Plan: Monitor population response to disturbance, climate change impacts, and improved methods for disturbance monitoring.	• COSEWIC assessments and Recovery Strategy define threats. • Boreal Caribou Knowledge Portal, National Boreal Caribou Knowledge Consortium (NBCKC), North American Caribou Workshop.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Habitat disturbance threshold and cumulative impact research. Range Policy: Methods for habitat disturbance assessments. ON-CAN CA: Enhanced threat-related monitoring and science programs. PNP Action Plan: Monitoring of wildfires.	• Integrated range assessments for Continuous Distribution. • Monitoring funded by Species at Risk Research Fund for Ontario and Caribou Conservation Stewardship Program. • Provincial Woodland Caribou Database, Provincial Caribou Technical Committee, and Boreal Caribou Knowledge Plan established. • Wildfire monitoring in PNP completed.

1.3.1 Legal/policy basis

Laws and regulations: Prior to recent amendments, section 11 of the ESA mandated a recovery strategy for threatened and endangered species which include a description of the threats to survival and recovery (ESA, 2007). Again, it must noted that s.11 was repealed by amendments under the *Protect Ontario by Unleashing our Economy* Act in 2025, and the ESA is to be replaced with the *Species Conservation Act* at a date yet to be confirmed (ESA, 2007; POUEA, 2025).

Boreal caribou planning: The Ontario Conservation Plan calls for research into habitat disturbance thresholds and cumulative impacts (Appendix J) (MNR, 2009b). The Range Management Policy provides methodologies for the examination of habitat disturbance within range assessments and determination of range condition (MNR, 2014l). Monitoring and science measures within the Ontario-Canada Conservation Agreement seek to enhance threat-related data, primarily that of habitat disturbance, including programs such as the Boreal Caribou Knowledge Plan (Appendix K) (ECCC, 2022a). As discussed, the PNP Action Plan called for wildfire monitoring in critical habitat (Parks Canada, 2017).

1.3.2 Implementation progress

Integrated range assessments monitored habitat disturbance levels which were then utilized in the 2015 COSSARO assessment (COSSARO, 2015; MNR, 2014d, 2014e, 2014f, 2014k, 2014g, 2014h, 2014i, 2014j). Ontario's population and habitat studies also monitor threat-related metrics across both the Continuous Distribution and the Lake Superior Coastal Range (LSCR) (Appendix D, Appendix L)

(ECCC, 2017, 2024c; MECP, 2024a; MNR, 2014m). Ontario has been conducting and funding threat-related monitoring programs under the Species at Risk Research Fund for Ontario and Caribou Conservation Stewardship Program (Appendix L) (MECP, 2024; MNR, 2014m). This is further supported by the establishment of the Provincial Woodland Caribou Database, Provincial Caribou Technical Committee, and Boreal Caribou Knowledge Plan (Appendix L) (MECP, 2024; MNR, 2014m). As discussed, wildfire monitoring in PNP was completed as of 2022 (Parks Canada, 2022).

2. Protecting Individuals and Habitat

2.1 Individual protection

Table 25: Criterion 2.1 summary table - Ontario.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: Automatic protections (s.32), emergency protections available (s.80). Exemptions and permits available (e.g., s.72, 74, 78). Recovery Strategy: Monitor/reduce illegal hunting, develop harvest strategies in consultation with Indigenous Peoples. Action Plan: Provinces must determine whether individuals are effectively protected on non-federal land.	NA.
Provincial regime	Provincial progress
ESA: Prohibition on physical harm (s.9). Permits to harm available (s.17). Mining exploration under the *Mining Act* and forestry operations under the CFSA exempt from ESA protections. FWCA: Hunting illegal, except for Indigenous harvest. Conservation Plan: Monitor all instances of human-caused mortality. Range Policy: NA. ON-CAN CA: NA. PNP Action Plan: NA.	• ECCC assessed that protection for individuals in Ontario were sufficient.

2.1.1 Legal/policy basis

Laws and regulations: Although listed as a game species by the *Fish and Wildlife Conservation Act (1997)* (FWCA), hunting season for woodland caribou by non-Indigenous people is permanently closed under O. Reg 670/98 (O. Reg. 670/98, 1998). Section 9 of the ESA prohibits the killing, harming, capturing, taking, possessing, transporting, collecting, selling, leasing, and trading of species at risk (ESA, 2007).

Relevant exemptions: Section 17 of the ESA enables the permitting of activities which would result in harm to individuals and habitat otherwise prohibited under s.9 and 10 (ESA, 2007). O. Reg 242/08 exempts early mineral exploration under the *Mining Act* from prohibitions to harm individuals (s.9) and habitat (s.10) under the ESA (O. Reg. 242/08, 2008). However, if exploration is occurring on boreal caribou habitat, the proponent must inform the Minister of Natural Resources and must not kill,

harm or harass caribou during a time of year when they are likely to be carrying out life processes related to feeding, migration or reproduction, including rearing (O. Reg. 242/08, 2008). Furthermore, all exempted activities under O. Reg 242/08 must not occur in an area that is being used, or has been used in the previous three years, by boreal caribou for life processes related to reproduction, including rearing (O. Reg. 242/08, 2008). Crown forest operations under the *Crown Forest Sustainability Act (1994)* (CFSA) were exempt from the ESA under O. Reg. 242/08 from 2013 to 2020, until an omnibus budget bill, *Bill 229 Protect, Support and Recover from COVID-19 Act,* permanently exempted them from the ESA (Government of Ontario, 2020).

Boreal caribou planning: The Ontario Conservation Plan mandates that Ontario document all known instances of human-caused mortality to better understand caribou mortality factors (Appendix E) (MNR, 2009).

2.1.2 Implementation progress

In alignment with the Action Plan, ECCC assessed the protection of individuals in Ontario and Quebec in 2023 and concluded that they were protected (Appendix B) (ECCC, 2023, 2024). According to the 2014 State of the Woodland Caribou Resource Report (State of Caribou Report), Ontario had not yet documented instances of human-caused mortality as outlined in the Ontario Conservation Plan, but that MNR was considering approaches to do so (see MNR, 2014k). There has been no relevant progress under the Ontario-Canada Conservation Agreement (Appendix L) (MECP, 2024).

2.2 Habitat protection

Table 26: Criterion 2.2 summary table - Ontario.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: Automatic protections (s.33), optional protections on federal and provincial land (s.58 and 61), and emergency protections available (s.80). Exemptions and permits available (e.g., s.72, 74, 78). Recovery Strategy: Manage for sufficient habitat and connectivity, protect key areas. Provincial range plans for habitat protection and management. Action Plan: Protection assessment of federal and non-federal land, conservation agreements, Indigenous collaboration for habitat management on Indian Act and Indigenous-held lands.	• *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* under s.58.
Provincial regime	Provincial-scale progress
ESA: Protection of dwelling places and area immediately around them (s.10). Permits available (s.17). Mining exploration under the Mining Act and forestry operations under the CFSA exempt from ESA protections. Potential for protections under acts such as *Provincial Parks and Conservation Reserves Act* along with land use planning laws. However exemptions are available.	• ECCC assessed that critical habitat protections in Ontario were generally consistent with SARA, except for a lack of identification of minimum threshold and industry exemptions from the ESA. • Habitat considerations within land use management (criterion 2.4).

Conservation Plan: Caribou considerations within new protected areas and wildfire management. Habitat Regulation under ESA. Commitment to protecting area in Far North Boreal Region. Range Policy: NA. ON-CAN CA: Protected Areas Initiative. PNP Action Plan: Minimize, monitor, supress fires where necessary.	• Planning of Dedicated Protected Areas within Far North Planning Area. • Wildfire suppression and monitoring completed in PNP.

2.2.1 Legal/policy basis

Laws and regulations: Prior to recent amendments, s.10 of the ESA prohibited the damage and destruction of the habitat of provincially listed species, where habitat was defined as "an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding" (ESA, 2007). While s.10 is still intact, recent amendments to the ESA in preparation for the SCA changed the definition of habitat to "a dwelling-place, such as a den, nest or other similar place, that is occupied or habitually occupied by one or more members of a species for the purposes of breeding, rearing, staging, wintering or hibernating" and the areas immediately around those dwelling places that are essential for the aforementioned purposes (ESA, 2007). In addition to the ESA, boreal caribou habitat in Ontario could be subject to direct protections under the *Provincial Parks and Conservation Reserves Act* (PPCRA, 2006b), as well as planning decisions under the *Far North Act* (FNA, 2010), the *Planning Act* (Planning Act, 1990), *Public Lands Act* (PLA, 1990), and their associated regulations. As will be discussed, acts regulating anthropogenic use of natural resources including the *Environmental Assessment Act* (EAA, 1990) may also indirectly protect and/or mitigate impacts on boreal caribou habitat.

Relevant exemptions: Section 17 of the ESA enables the permitting of activities which would result in harm to individuals and habitat otherwise prohibited under s.9 and 10 (ESA, 2007). O. Reg 242/08 exempts early mineral exploration under the *Mining Act* from prohibitions to harm individuals (s.9) and habitat (s.10) under the ESA (O. Reg. 242/08, 2008). However, if exploration is occurring on boreal caribou habitat, the proponent must inform the Minister of Natural Resources and must not kill, harm or harass caribou during a time of year when they are likely to be carrying out life processes related to feeding, migration or reproduction, including rearing (O. Reg. 242/08, 2008). Furthermore, all exempted activities under O. Reg 242/08 must not occur in an area that is being used, or has been used in the previous three years, by boreal caribou for life processes related to reproduction, including rearing (O. Reg. 242/08, 2008). Crown forest operations were exempt from the ESA under O. Reg. 242/08 from 2013 to 2020, until Bill 229 permanently exempted them from the ESA (Government of Ontario, 2020). Sections 16 and 19 of the *Provincial Parks and Conservation Reserves Act* allow for the continual operation of oil and gas wells, aggregate pits, and hydro-electricity generation sites within parks and reserves. Section 20 allows resource access roads, trails, and utility corridors to be built subject to policy (PPCRA, 2006b).

Boreal caribou planning: The Ontario Conservation Plan mandates that caribou are considered within creation of new protected areas and wildfire management strategies, and that a Habitat Regulation under O. Reg. 832/21 of the ESA be implemented to support the provision of sufficient habitat (Appendix

J) (MNR, 2009). The plan states that the Ontario Government had committed to protecting at least 225,000 km^2 in the Far North Boreal Region as part of the Far North planning, but it did not specify how caribou considerations would guide this goal (MNR, 2009). The majority of habitat protection measures involve range-specific land use planning and incorporating considerations for habitat protection within natural resource management or operations, which falls under criterion 2.4 (MNR, 2009b). The Ontario Range Management Policy outlines specific measures for implementing habitat protection within anthropogenic range activities across every range except for the LSCR, which falls under criterion 2.4 (Appendix J) (see MNR, 2014j).

The Ontario-Canada Conservation Agreement calls for reductions in fragmentation and cumulative disturbance, enhanced protection on protected and public lands, and a focus on caribou considerations within the expansion or creation of new protected areas through a Protected Areas Initiative (Appendix K) (ECCC, 2022a). It also calls for implementation of habitat protection considerations within forestry and mining management, as well as a management approach policy for the Lake Superior Coast Range and the Discontinuous Distribution (Appendix K) (ECCC, 2022a). The PNP Action Plan seeks to minimize prescribed fires within caribou habitat and monitor and/or suppress wildfires where necessary (Parks Canada Agency, 2017). Critical habitat in PNP would be protected through the aforementioned s.58 order under SARA.

2.2.2 Implementation progress

Under the Action Plan, ECCC completed critical habitat assessments for boreal caribou in 2018 (Appendix B) (ECCC, 2024). The 2018 Progress Report on Unprotected Critical Habitat for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada report found that critical habitat protections in Ontario were generally consistent with prohibitions under SARA, however, Ontario's General Habitat Description does not identify a minimum threshold of undisturbed habitat (i.e., 65% undisturbed) (ECCC, 2018b). The 2018 report also highlighted that certain activities are exempt from habitat protections under the ESA, the Provincial Parks and Conservation Reserves Act (PPCRA) and the Far North Act which are not consistent with SARA (ECCC, 2018b).

A comprehensive analysis of critical habitat protections in Ontario aside from what is presented in boreal caribou policy and reporting was out of the purview of this study, however studies which have analyzed this will be discussed in the final Findings. Between 2012 and 2023, Ontario's habitat protection progress under Recovery Strategy requirements was primarily related to the integration of habitat considerations within fire management and natural resource management, as discussed below (Appendix D) (ECCC, 2017, 2024; MNR, 2014k). Opportunities to enhance and increase protection of habitat, as well as expand protected areas under the PPCRA, are being considered (MECP, 2024). Ontario has been working with First Nation communities in the Far North Planning Area to develop community-based land use plans, each of which will include at least one Dedicated Protected Area (Appendix D) (ECCC, 2024). Ontario is still in the development stage for a management approach for the LSCR and Discontinuous Distribution (DD) area (Appendix D) (ECCC, 2017, 2024). In PNP, wildfire suppression and monitoring was successful as of 2022 (Parks Canada, 2022).

2.3 Permits and assessments of activities

Table 27: Criterion 2.3 summary table - Ontario.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA and *Impact Assessment Act* (IAA): Permits, licenses and other authorizations available under s.73, 74, 77, 78 of SARA. Impact assessments under the IAA must notify competent minister(s) if project may impact species at risk (s.79 of SARA). Such proponents must ensure impacts are avoided or mitigated. Exemptions and fast-tracking of federal impact assessment available under laws and regulations such as the *Building Canada Act*. Recovery Strategy: Caribou range plans must inform the issuance of permits or other authorizations. Action Plan: NA.	• *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* under s.58.
Provincial regime	Provincial progress
ESA and EAA: Proponents must identify if project will violate s.9 and 10 of ESA, and take actions to prevent, change, mitigate, or remedy these impacts. Exemptions for exploration permits under *Mining Act* and forestry operations under the CFSA. Operation approvals also regulated by other natural resource acts. Conservation Plan: Resource proposal decisions guided by caribou population and habitat status, based on cumulative impacts approach. Screening tool for development in caribou distribution. Range Policy: Methods for assessing whether projects violate ESA protections. Use of BMPs to avoid or reduce negative impacts within project planning. ON-CAN CA: NA. PNP Action Plan: NA.	• Caribou Screening Tool utilized to screen activity proposals against caribou considerations within ranges. • No reporting on the adoption or progress of the Range Management Policy within assessment processes since 2014.

2.3.1 Legal/policy basis

Laws and regulations: Project approvals which may impact species at risk are primarily governed by the Ontario's *Environmental Assessment Act* (EAA) and the ESA (EAA, 1990; ESA, 2007). The EAA requires "comprehensive environmental assessments" under Part II.3 to describe the environmental impacts of a proposed project and the actions necessary to prevent, change, mitigate, or remedy these impacts (EAA, 1990). To align with protections under the ESA, project proponents and/or permit applications, as well as the MNR must determine whether the proposed activity is likely to violate prohibitions on harming individuals and/or species at risk habitat under sections 9 and 10 (ESA, 2007). This is supported by policies such as Policy Guidance on Harm and Harass under the Endangered Species Act and the policy document Categorizing and Protecting Habitat under the Endangered Species Act (MNR, 2025b, 2025a). There is reference to a Guidance for Assessing Impacts of Activities on Caribou

and their Habitat policy for completing ESA submission and permitting processes, however a copy of this document cannot be found online.

The *Crown Forest Sustainability Act* and its associated regulations governs the designation of Crown forest as management units and the approval of Forest Management Plans (CFSA, 1994). The *Mining Act* its associated regulations govern the permitting of mineral exploration, the leasing of mining claims, exploration licenses for oil and gas drilling on Crown land, leasing for drilling or producing oil, gas, and more mining-related land uses (Mining Act, 1990). The *Aggregate Resources Act* and its associated regulation allow for permits and licenses related to surface mining of aggregate on Crown land (Aggregate Resources Act, 1990). The *Oil, Gas and Salt Resources Act* and associated regulations govern the licensing of well activities and the permitting of injection projects (OGSRA, 1990). Permitted activities under these acts must comply with ESA requirements unless otherwise exempt. The only act with explicit requirements for boreal caribou is the CFSA, under which FMPs must align with the Forest Management Guide (CFSA, 1994; MNR, 2014b). Land use planning laws, namely the *Public Lands Act* (PLA, 1990) and the *Far North Act* (FNA, 2010) as well as their associated regulations and policies also impact approvals for relevant anthropogenic activities and land-use designations. For example, regulations under the *Public Lands Act* prohibit disruptive mineral exploration activities, construction, and other activities unless otherwise approved through work or land use permits (O. Reg. 239/13, 2013; O. Reg. 349/98, 1998; R.R.O. 1990, 1990a, 1990b).

Relevant exemptions: Under the EAA, incoming "streamlined environmental assessments" under Part II.4 of the EAA allows proponents to begin the project after meeting "prescribed requirements" to be defined by incoming regulation (EAA, 1990). Section 17 of the ESA enables the permitting of activities which would result in harm to individuals and habitat otherwise prohibited under s.9 and 10 (ESA, 2007). O. Reg 337/20 permanently exempts forestry governed by the Crown Forest Sustainability Act from environmental assessments under the EAA (O. Reg. 337/20, 2020). O. Reg 242/08 exempts early mineral exploration permits provided under the *Mining Act* from prohibitions to harm individuals (s.9) and habitat (s.10) under the ESA (O. Reg. 242/08, 2008). However, if exploration is occurring on boreal caribou habitat, the proponent must inform the Minister of Natural Resources and must not kill, harm or harass caribou during a time of year when they are likely to be carrying out life processes related to feeding, migration or reproduction, including rearing (O. Reg. 242/08, 2008). Furthermore, all exempted activities under O. Reg 242/08 must not occur in an area that is being used, or has been used in the previous three years, by boreal caribou for life processes related to reproduction, including rearing (O. Reg. 242/08, 2008). Crown forest operations were exempt from the ESA under O. Reg. 242/08 from 2013 to 2020, until Bill 229 permanently exempted these operations from the ESA (Government of Ontario, 2020). While forestry operations must align with the Forest Management Guide for Boreal Landscapes (Forest Management Guide), the removal of Crown forest resources for other activities can be permitted under the CFSA and are not subject to FMPs and/or sustainability mandates (CFSA, 1994). However, these permits must still comply with requirements under relevant acts such as the EAA or *Mining Act* (CFSA, 1994). Under the OGSRA, special projects can be designated and exempt from any requirements under the Act or its regulations (OGSRA, 1990).

Boreal caribou planning: The Ontario Conservation Plan mandates that the status of caribou populations and habitats guide decisions on resource management proposals through the province's range management approach, and based on cumulative impacts monitoring (Appendix J) (MNR, 2009). It also calls for the development of a specific screening tool for development proposals within boreal caribou distributions (MNR, 2009). The Range Management Policy outlines a methodology for the assessment of whether proposed activities violate protections for boreal caribou under sections 9 and 10 of the ESA (Appendix J) (MNR, 2014l). It states that the Best Management Practices (BMPs) for Woodland Caribou in Ontario series be consulted to avoid or reduce threats within planning stage. Where avoidance of negative impacts on caribou is not possible, the Range Management Policy states that it will be purview of the ESA to authorize the activity (MNR, 2014l). There were no relevant measures within the Ontario-Canada Conservation Agreement (Appendix K) (ECCC, 2022a).

2.3.2 Implementation progress

As of 2014, the Ontario Caribou Screening Tool (CST) had been developed to monitor cumulative disturbance within ranges and incorporate caribou considerations into the screening of activity proposals (MNR, 2014m). However, the Range Management Policy, CST, and BMPs are not enforceable and the extent to which they have been utilized within project assessment processes is unknown. There has been no reporting on the Range Management Policy, its tools, or the CST since 2014 (MNR, 2014m). The Forest Management Guide was fully integrated into the FMPs overlapping within the Continuous Distribution as of 2024 (Appendix L) (MECP, 2024). The effectiveness of both the guide and the BMPs is still being assessed under the Ontario-Canada Conservation Agreement (Appendix L) (MECP, 2024).

2.4 Protection within anthropogenic activities

Table 28: Criterion 2.4 summary table - Ontario.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: Proponents must ensure project impacts are avoided or mitigated (s.79 of SARA). Recovery Strategy: Considerations for caribou and their habitat integrated into management of industry and land use planning. Range plans outline how sufficient habitat is managed to prevent destruction. Action Plan: NA.	• *Critical Habitat of the Woodland Caribou (Rangifer tarandus caribou) Boreal Population Order: SOR/2019-188* under s.58.
Provincial regime	Provincial progress
ESA: Activities must comply with s.9 and 10 protections unless exempted or permitted. Plethora of acts and associated regulations which oversee industry, other anthropogenic land uses, and land use planning. CFSA: Forest Management Guide for Boreal Landscapes. BMP series provides guidelines for mitigating habitat impacts within mineral exploration and development activities, renewable energy, tourism activities, and aggregate activities.	• Forest Management Guide fully integrated into FMPs within Continuous Distribution. • Effectiveness of the guide and BMP series is under review. • Community-based planning in the Far North Area.

Conservation Plan: Incorporation of caribou considerations in land use planning, forest management, BMPs, etc. Range Policy: Use of BMPs to avoid or mitigate harm. ON-CAN CA: Habitat considerations within forestry management and BMPs for mineral exploring and mining. PNP Action Plan: NA.	

2.4.1 Legal/policy basis

Laws and regulations: As discussed, activities must comply with prohibitions under the ESA unless otherwise exempt and activities permitted by the EAA and ESA which may harm species at risk are often required to avoid or minimize as much impact as possible (EAA, 1990; ESA, 2007). The operations of activities which impact Ontario's boreal caribou are primarily governed by the *Mining Act* (Mining Act, 1990), the *Aggregate Resources Act* (Aggregate Resources Act, 1990), the *Oil, Gas and Salt Resources Act* (OGSRA, 1990), the *Crown Forest Sustainability Act* (CFSA, 1994), and the as well as their associated regulations and policies. The land use planning of areas in Ontario is primarily regulated by the *Public Lands Act* (PLA, 1990), the *Far North Act* (FNA, 2010), and their associated regulations and policies. Explicit protections for boreal caribou within natural resource regulation primarily exists under the CFSA through the Forest Management Guide, which directs FMPs manage caribou habitat in areas which overlap with the Continuous Distribution (MNR, 2014a). Under the guide, forest management plans (FMPs) must apply a Dynamic Caribou Habitat Schedule (DCHS), a long-term plan for providing year-round caribou habitat (MNR, 2014a). Furthermore, Best Management Practices (BMPs) for Woodland Caribou in Ontario were released in alignment with the Ontario Conservation Plan for mineral exploration and development activities, renewable energy, tourism activities, and aggregate activities (MNR, 2013c, 2013b, 2013a, 2014a). These are not mandatory but rather recommended measures for habitat disturbance avoidance, minimization, and rehabilitation across all phases of development (MNR, 2013c, 2013b, 2013a, 2014a).

Relevant exemptions: O. Reg 242/08 exempts early mineral exploration under the *Mining Act* from prohibitions to harm individuals (s.9) and habitat (s.10) under the ESA (O. Reg. 242/08, 2008). However, if exploration is occurring on boreal caribou habitat, the proponent must inform the Minister of Natural Resources and must not kill, harm or harass caribou during a time of year when they are likely to be carrying out life processes related to feeding, migration or reproduction, including rearing (O. Reg. 242/08, 2008). Furthermore, all exempted activities under O. Reg 242/08 must not occur in an area that is being used, or has been used in the previous three years, by boreal caribou for life processes related to reproduction, including rearing (O. Reg. 242/08, 2008). Crown forest operations were exempt from the ESA under O. Reg. 242/08 from 2013 to 2020, until Bill 229 permanently exempted these operations from the ESA (Government of Ontario, 2020). While forestry operations must align with the Forest Management Guide, the removal of Crown forest resources for other activities which require such removal can be permitted under the CFSA and are not subject to FMPs and/or sustainability mandates (CFSA, 1994). However, these permits must still comply with requirements under relevant acts such as

the EAA or *Mining Act* (CFSA, 1994). Under the OGSRA, special projects can be designated and exempt from any requirements under the Act or its regulations (OGSRA, 1990).

Boreal caribou planning: The Ontario Conservation Plan mandates the incorporation of caribou considerations within land use planning and the Crown Land Use Policy Atlas, implementation of DCHSs for FMPs, BMPs for resource management and development, and collaboration with resource sectors to increase awareness of caribou presence and planning requirements (Appendix J) (MNR, 2009). The Ontario Range Management Policy calls for the implementation of the BMPs for Woodland Caribou in Ontario series to avoid and/or mitigate destruction of caribou habitat (Appendix J) (see MNR, 2014j). The BMPs provide recommendations for mitigating harm to boreal caribou habitat within mineral exploration and development activities, renewable energy, tourism activities, and aggregate activities (see MNR, 2013c, 2013b, 2013a, 2014a). The Ontario-Canada Conservation Agreement calls for habitat protection considerations within forestry management under the Forest Management Guide, and best practices for mineral exploration and mining (Appendix K) (ECCC, 2022a).

2.4.2 Implementation progress

The Forest Management Guide was fully integrated into the FMPs overlapping within the Continuous Distribution as of 2024 (Appendix L) (MECP, 2024). The effectiveness of both the guide and the BMPs is still being assessed under the Ontario-Canada Conservation Agreement (Appendix L) (MECP, 2024). Community-based planning under the *Far North Act* is occurring with the goal of integrating habitat protections into land use planning and management (Appendix D) (ECCC, 2017, 2024). The integrated range assessments which were to evaluate the success of the Ontario Range Management Policy have not been updated since 2014 (ECCC, 2024). Furthermore, there is no comprehensive reporting on the tangible adoption of the Range Management Policy or the BMPs by anthropogenic operations in Ontario.

3. Recovery

3.1 Recovery objectives

Table 29: Criterion 3.1 summary table - Ontario.

Legal/policy basis	Implementation progress
Federal regime	Relevant national-scale progress
SARA: Recovery strategies must state objectives (s. 41). Recovery Strategy: "Achieve self-sustaining local populations in all boreal caribou ranges throughout their current distribution in Canada, to the extent possible". Ranges with small populations achieve minimum 100 individuals, habitat disturbance kept at minimum 65% undisturbed range threshold. Action Plan: NA.	NA.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: "Maintain self-sustaining, genetically-connected local populations of	• Last reporting on self-sustaining status of Ontario ranges was from 2012, in which five of the federal ranges were self-sustaining.

Woodland Caribou (forest-dwelling boreal population) where they currently exist, improve security and connections among isolated mainland local populations, and facilitate the return of caribou to strategic areas near their current extent of occurrence". Range Policy: "Maintain or move towards a sufficient range condition in all caribou ranges in Ontario". ON-CAN CA: Create environmental conditions required to maintain and recover self-sustaining local populations of boreal caribou. PNP Action Plan: NA.	

3.1.1 Legal/policy basis

Laws and regulations: Prior to recent amendments, the ESA mandated that a recovery strategy be prepared for listed species with recommendations for "objectives for the protection and recovery of the species" (ESA, 2007). Provisions for recovery strategies and objectives were repealed from the amended ESA and are not included in the draft of the incoming SCA (ESA, 2007; SCA, 2025).

Boreal caribou planning: The Ontario Conservation Plan's objective is to "maintain self-sustaining, genetically-connected local populations of Woodland Caribou (forest-dwelling boreal population) where they currently exist, improve security and connections among isolated mainland local populations, and facilitate the return of caribou to strategic areas near their current extent of occurrence" (MNR, 2009b). The objective of the Range Management Policy is to "maintain or move towards a sufficient range condition in all caribou ranges in Ontario" (MNR, 2014l). The Ontario-Canada Conservation Agreement seeks to create the environmental conditions required to maintain and recover self-sustaining local populations of boreal caribou in alignment with the Ontario Conservation Plan objective (ECCC, 2022a). Note that Ontario has not yet adopted the goal of minimum 65% range-level undisturbed habitat outlined in the Federal Recovery Strategy. Specific conservation objectives were not developed for boreal caribou within PNP (Parks Canada, 2017).

3.1.2 Implementation progress

Based on the most recent data in 2012, five of Ontario's federal ranges were self-sustaining and four were not (ECCC, 2020). In 2019, four of the nine federal ranges were below 65% undisturbed (ECCC, 2020b).

3.2 Short-term recovery outcomes

Table 30: Criterion 3.2 summary table - Ontario.

Legal/Policy Basis	Progress
Federal regime	Relevant national-scale progress
SARA: NA Recovery Strategy: Predator, alternative prey, and caribou management as interim tools. Action Plan: Predator, alternative prey, and caribou management as interim tools and range-specific.	NA.

Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Expansion of white-tailed deer hunting seasons where necessary. Range Policy: NA. ON-CAN CA: NA. PNP Action Plan NA.	• Translocation of boreal caribou from Michipicoten Island to Slate and Caribou Islands. • New hunting seasons for white-tailed deer guided by Cervid Ecological Framework.

3.2.1 Legal/policy basis

Boreal caribou planning: The Ontario Conservation Plan calls for the expansion of white-tailed deer hunting seasons where necessary (Appendix J) (MNR, 2009).

3.2.2 Implementation progress

Boreal caribou were translocated from Michipicoten Island to the Slate Islands and Caribou Island within the LSCR due to wolf encroachment (Appendix D) (ECCC, 2017, 2024). Progress for short-term recovery actions under the Ontario Conservation Plan primarily included new hunting seasons for white-tailed deer, additionally guided by the Cervid Ecological Framework. The Cervid Ecological Framework was released in 2009 after the Ontario Conservation Plan, and provides overarching management guidance for woodland (boreal) caribou, moose, white-tailed deer, and American elk in four large ecological zones across Ontario (MNR, 2009a). Ecological zones with caribou habitat are to be managed in alignment with the Ontario Conservation Plan and for low densities of moose and elk (MNR, 2009a).

3.3 Long-term recovery outcomes

Table 31: Criterion 3.3 summary table - Ontario.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: NA Recovery Strategy: Enhancement of connectivity, habitat restoration and reclamation. Action Plan: Research to support habitat restoration.	NA.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Habitat restoration within silvicultural practices. Range Policy: NA. ON-CAN CA: Priority list of restoration locations, development of Habitat Restoration Assessment Initiative. PNP Action Plan: NA.	• Funding for habitat restoration through Caribou Conservation Stewardship Program. • Unclear if priority list of restoration locations has been implemented, was to be in 2025 according to 2024 reporting. • Habitat Restoration Initiative still in development. • Restoration within forestry under CFSA and Forest Management Guide (criterion 3.4).

3.3.1 Legal/policy basis

Boreal caribou planning: The Ontario Conservation Plan calls for habitat restoration primarily driven by silvicultural policies and practices (Appendix J) (MNR, 2009). More emphasis is placed on the mitigation of habitat disturbance in comparison to restoration (Appendix J) (MNR, 2009). Similarly, the Ontario Range Management Policy focuses on impact mitigation rather than active recovery (MNR,

2014l). The Ontario-Canada Conservation Agreement calls for a priority list of habitat restoration locations and the development of the Habitat Restoration Assessment Initiative to assess habitat restoration approaches (Appendix K) (ECCC, 2022).

3.3.2 Implementation progress

The Caribou Conservation Stewardship Program has provided funding for some habitat restoration projects (MECP, 2025). Restoration within silvicultural practices as mandated in the Ontario Conservation Plan primarily include the application of Dynamic Caribou Habitat Schedules under the Forest Management Guide, which falls under criterion 3.4 (Appendix D) (ECCC, 2024c; MNR, 2014b). However, the effectiveness of both the Forest Management Guide is still being assessed under the Ontario-Canada Conservation Agreement (Appendix L) (MECP, 2024). As of the last progress report, the priority list of restoration locations and approaches under the Ontario-Canada Conservation Agreement were to be implemented beginning in 2025, and the Habitat Restoration Assessment Initiative was still in development (Appendix L) (MECP, 2024).

3.4 Recovery within anthropogenic activities

Table 32: Criterion 3.4 summary table - Ontario.

Legal/policy basis	**Implementation progress**
Federal regime	Relevant national-scale progress
SARA: NA Recovery Strategy: Range plans to manage critical habitat. Action Plan: Range plans to manage critical habitat.	NA.
Provincial regime	Provincial progress
ESA: NA. CFSA: Forest Management Guide requires rehabilitation planning within FMPs and renewal practices within harvesting operations. Regeneration of roads as soon as possible. BMPs recommend rehabilitation and/or renewal of sites for mineral exploration and development activities, renewable energy, tourism activities, and aggregate activities. Conservation Plan: Silvicultural restoration practices, land use management for connectivity, removal of access roads, Forest Management Guide, BMPs. Range Policy: Use of BMPs. ON-CAN CA: Forest Management Guide, best practices for mineral exploration and mining, reviews of the effectiveness of both. PNP Action Plan: NA.	• Ontario Range Management Policy fulfilled federal regime requirement for range planning. Tangible adoption of policy is unknown. • Forest Management Guide fully integrated into FMPs within Continuous Distribution. • Effectiveness of the guide and BMP series is under review.

3.4.1 Legal/policy basis

Laws and regulations: The ESA does not have explicit provisions for species and habitat recovery actions within anthropogenic land-uses outside of protections and impact mitigation (ESA, 2007). Activity-specific requirements for environmental rehabilitation are outlined in the *Crown Forest*

Sustainability Act, *Mining Act,* the *Aggregate Resources Act*, and/or their regulations such as O. Reg 25/24 under the *Mining Act* and the associated *Mine Rehabilitation Code of Ontario* (Aggregate Resources Act, 1990; CFSA, 1994; Mining Act, 1990). Under the CFSA, the Forest Management Guide requires forestry operations to enhance important areas of caribou habitat, with FMPs required to include habitat regeneration objectives (MNR, 2014b). Enhancement involves utilizing silvicultural practices to renew or support the renewal of habitat within two years of harvest, as well as the regeneration of operational, and branch roads and road networks as soon as possible (MNR, 2014b).

Boreal caribou planning: The Ontario Conservation Plan mandates recovery primarily through changes to management of anthropogenic activities (Appendix J) (MNR, 2009b). Including effective renewal of habitat through silvicultural initiatives, land use management aimed at improving connectivity, the removal of access roads, implementing the Forest Management Guide and the BMPs for resource development, and more (Appendix J) (MNR, 2009). The Ontario Range Management Policy calls for the use of the BMPs for Woodland Caribou (see MNR, 2014j). The BMPs outline recommendations for the rehabilitation and/or renewal of sites for mineral exploration and development activities, renewable energy, tourism activities, and aggregate activities (MNR, 2013c, 2013b, 2013a, 2014a). The Ontario-Canada Conservation Agreement calls for habitat recovery considerations within forestry management under the Forest Management Guide, as well as best practices for mineral exploration and mining (Appendix K) (ECCC, 2022a). This includes the examination of the effectiveness of current forest management guidance and mineral sector practices in supporting recovery objectives (Appendix K) (ECCC, 2022a).

3.4.2 Implementation progress

Under the federal regime, the Ontario Range Management Policy fulfilled the requirement for range planning under the Federal Recovery Strategy (Appendix D) (ECCC, 2017, 2024c). The Integrated Range Assessment Reports which were to evaluate Ontario Range Management Policy success have not been updated since 2014 (ECCC, 2024). The Forest Management Guide was fully integrated into the FMPs within the Continuous Distribution as of 2024 (Appendix L) (MECP, 2024). However, the effectiveness of both the Forest Management Guide and the BMPs is still being assessed under the Ontario-Canada Conservation Agreement (Appendix L) (MECP, 2024). Furthermore, there is no comprehensive reporting on the tangible adoption of the Range Management Policy or the BMPs by anthropogenic operations in Ontario.

4. Monitoring and Transparency

4.1 Regular, transparent monitoring of recovery progress

Table 33: Criterion 4.1 summary table - Ontario.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Progress reporting for recovery strategies and action plans every five years (s.46 and 55).	• Report on the Progress of Recovery Strategy Implementation for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada for the period 2012-2017.

Recovery Strategy: Monitoring of indicators to track impact of recovery actions for five-year reporting. Action Plan: Monitoring of indicators to track impact of recovery actions for five-year reporting.	• Report on the Progress of the Recovery Strategy Implementation (period 2017-2022) and the Action Plan Implementation (period 2018-2023) for Caribou (Rangifer tarandus), Boreal Population, in Canada.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Comprehensive reporting in the State of the Woodland Caribou Resource Report. Range Policy: Integrated Range Assessments to evaluate policy implementation. ON-CAN CA: Annual public reporting on status of conservation measures. PNP Action Plan: Reporting aligned with s.55 of SARA.	• 2014 State of the Woodland Caribou Resource Report. • Integrated Range Assessments from 2010 to 2012. • 2023–2024 Annual Report on the Status and Implementation of the Canada-Ontario Agreement for the Conservation of Caribou, Boreal Population in Ontario. • Implementation Report: Multi-species Action Plan for Pukaskwa National Park of Canada (2017 to 2022).

4.1.1 Legal/policy basis

Laws and regulations: Prior to recent amendments, section 12.2 of the ESA mandated that a review of progress is conducted with regard to species recovery strategies which have received Government of Ontario response statements (ESA, 2007). However the new ESA does not mandate recovery strategies and thus do not call for progress reporting (ESA, 2007).

Boreal caribou planning: The Ontario Conservation Plan calls for a "State of the Woodland Caribou Resource Report" to be published by 2014 as comprehensive reporting of recovery progress, as well as of the monitoring of effectiveness of recovery measures such as forest renewal and deer population management (Appendix J) (MNR, 2009). The Ontario Range Management Policy is based on an adaptive management framework, in which Integrated Range Assessments following the Integrated Assessment Protocol are utilized to evaluate the policy's success. It is not explicitly stated that these must be public (MNR, 2014l). The Ontario-Canada Conservation Agreement mandates annual public reporting about the results and status of the conservation measures, including a cumulative report at the end of the five years (ECCC, 2022a). As a federal action plan, the PNP Action Plan is required to report on its implementation every five years (Parks Canada, 2017).

4.1.2 Implementation progress

The 2014 State of the Woodland Caribou Resource Report is the only comprehensive progress reporting published for the Ontario Conservation Plan (MNR, 2014m). Integrated Range Assessments for all ranges except the LSCR were conducted between 2010 to 2012 and published in 2014, but have not been updated since (MNR, 2014k, 2014j, 2014i, 2014h, 2014g, 2014f, 2014e, 2014d). The 2023–2024 Annual Report on the Status and Implementation of the Canada-Ontario Agreement for the Conservation of Caribou, Boreal Population in Ontario is the only current progress reporting published for the Ontario-Canada Conservation Agreement (MECP, 2024). The Implementation Report: Multi-species Action Plan for Pukaskwa National Park of Canada was released for the years 2017 to 2022 (Parks Canada, 2022).

4.2 Adaptive management

Table 34: Criterion 4.2 summary table - Ontario.

Legal/Policy Basis	Progress
Federal regime	Relevant national-scale progress
SARA: NA. Recovery Strategy: Monitoring of indicators will support adjustments to future strategies and actions. Action Plan: Monitoring to be integrated into future amendments to recovery efforts.	• Federal Recovery Strategy updated with population and habitat conditions from 2017 data. • Biological information still based on western science and Indigenous Knowledge from 2010, 2011, and 2012.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Recovery approaches adjusted based on new research and monitoring. Range Policy: Policy review based on Integrated Range Assessments. ON-CAN CA: Adjust conservation measures if necessary based on annual progress reporting. PNP Action Plan: NA.	• Conservation Plan not updated since publication. • Range Management Policy not updated since publication. • Utilization of ON-CAN CA monitoring is unclear.

4.2.1 Legal/policy basis

Boreal caribou planning: The Ontario Conservation Plan calls for overarching recovery based on an adaptive management approach and the best scientific information (MNR, 2009). Meaning that recovery approaches will be adjusted based on new research and monitoring (MNR, 2009b). The Range Management Policy is to be reviewed based on the findings of Integrated Range Assessments (MNR, 2014l). The Ontario-Canada Conservation Agreement mandates that Parties will evaluate yearly progress reporting and adjust conservation measures to improve the likelihood of achieving the agreement's objectives (ECCC, 2022a).

4.2.2 Implementation progress

The Caribou Conservation Plan is still based on the same data sources from the time of its publication (MNR, 2009b). Integrated Range Assessments have not been conducted since the early 2010s, and it does not seem as though they triggered changes to the Range Management Policy (MNR, 2014l). It is unclear how population, habitat, and progress monitoring for the Ontario-Canada conservation agreement has been or will be utilized.

5. High-level Considerations

5.1 Indigenous rights

Table 35: Criterion 5.1 summary table - Ontario.

Legal/Policy Basis	Progress
Federal regime	Relevant national-scale progress

SARA: Indigenous Knowledge and collaboration within species assessments, recovery strategies, and action plans. Recovery Strategy: Integration of Indigenous Knowledge and collaboration into conservation approaches. Action Plan: Integration of Indigenous Knowledge and collaboration into conservation measures.	• 2011 Woodland Caribou (Rangifer Tarandus Caribou) Aboriginal Traditional Knowledge Summary Reports for Ontario. • Funded Indigenous-led caribou stewardship projects across Alberta and Ontario. • National Boreal Caribou Knowledge Consortium (NBCKC), NBCKC's Indigenous Knowledge Circle, and the North American Caribou Workshops.
Provincial regime	Provincial progress
ESA: Indigenous Knowledge within species assessments, prohibition of the violation of treaty or constitutional rights of Indigenous peoples. Conservation Plan: Integration of Indigenous Knowledge and participation in recovery measures. Commits to meeting constitutional and treaty obligations. Range Policy: NA. ON-CAN CA: Integration of Indigenous Knowledge, communities, organizations, and participation across conservation measures. PNP Action Plan: NA.	• Community-based planning with First Nations under Far North Act. • Indigenous-led caribou monitoring. • Funding Indigenous-led stewardship through Species at Risk Stewardship Fund and Caribou Conservation Stewardship Program. • Boreal Caribou Knowledge Plan.

5.1.1 Legal/policy basis

Laws and regulations: The ESA mandates that species at risk are identified based on Indigenous Knowledge, and that nothing in the Act will be "construed so as to abrogate or derogate from the protection provided for the existing aboriginal or treaty rights of the aboriginal peoples of Canada as recognized and affirmed in section 35 of the *Constitution Act, 1982*" under section 46 (ESA, 2007).

Boreal caribou planning: The guiding principles and specific conservation actions of the Ontario Conservation Plan commit to incorporating Indigenous Knowledge and participation into decision-making and recovery efforts, as well as meeting constitutional obligations and treaty rights (Appendix J) (MNR, 2009b). The Ontario Range Management Policy does not include explicit measures for Indigenous rights or collaboration (MNR, 2014l). The Ontario-Canada Conservation Agreement states that Parties will respect Indigenous and treaty rights, recognize and respect Indigenous cultural connections and knowledge pertaining to boreal caribou, use the best available information including Indigenous traditional and community knowledge, and will continuously seek out opportunities for collaboration with Indigenous communities (ECCC, 2022a). Indigenous engagement and consultation is part of implementation timelines across conservation measures, no conservation measures are explicitly Indigenous-led (Appendix K) (ECCC, 2022). While the PNP Action Plan does make reference to Indigenous collaboration and Knowledge, it does not incorporate these into the specific actions for boreal caribou (Parks Canada, 2017).

5.1.2 Implementation progress

Indigenous Knowledge Reports from Ontario which informed the federal recovery planning process includes public information from workshops in the Western James Bay and North-Western Ontario areas, as well as private information provided by the Metis Nation of Ontario (ECCC, 2011c).

Participants in both the workshops expressed the need for more protections for boreal caribou, and the importance of the caribou to their culture (ECCC, 2011c). Community-based land-use planning under the *Far North Act* is occurring in collaboration between Ontario and First Nations in the area, and multiple monitoring initiatives in Ontario under the Federal Recovery Strategy are being led by First Nations and Indigenous communities (Appendix D) (ECCC, 2017, 2024). Ontario has funded multiple Indigenous-led stewardship projects through the Species at Risk Stewardship Fund and the Caribou Conservation Stewardship Program (Appendix L) (MECP, 2025; MNR, 2014m). Under the Ontario Conservation Plan, MNR has met with Indigenous communities to discuss how to best implement the Ontario Conservation Plan and properly integrate Traditional Knowledge into conservation activities (see MNR, 2014m). Engagement under the Ontario-Canada Conservation Agreement has also occurred with Indigenous communities and organizations regarding protection, recovery, and monitoring activities (MECP, 2024). The Boreal Caribou Science Plan was renamed the Boreal Caribou Knowledge Plan, and the agreement commits to further engagement with Indigenous Knowledge (Appendix L) (MECP, 2024a).

5.2 Socioeconomic considerations

Table 36: Criterion 5.2 summary table - Ontario.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Acknowledgement of importance of socioeconomic interests of relevant communities. Socioeconomic cost/benefit analysis and reporting for action plans (s.49 and 55). Recovery Strategy: Coordinated planning to ensure development approvals. Action Plan: Range plans should include socioeconomic cost/benefit analysis, socioeconomic stakeholder engagement across Canada.	• Cost/benefit analysis not located online. • National Boreal Caribou Knowledge Consortium (NBCKC), NBCKC working groups, and the North American Caribou Workshops.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Commitment to socioeconomic considerations within conservation. Range Policy: Measures for project approval and natural resource development. ON-CAN CA: Integration of socioeconomic considerations across conservation measures. PNP Action Plan: Evaluation of socioeconomic costs and benefits.	• Engagement of socioeconomic actors within planning and conservation measures. • PNP Action Plan's cost/benefit analysis.

5.2.1 Legal/policy basis

Boreal caribou planning: The Ontario Conservation Plan commits to considering social and economic concerns when planning for long-term caribou conservation (MNR, 2009b). Measures within the Range Management Policy supports project approval and natural resource development within boreal caribou ranges (MNR, 2014l). The preamble and principles of the Ontario-Canada Conservation Agreement calls for socioeconomic considerations across conservation measures (Appendix F) (ECCC,

2022a). As a federal action plan, a socioeconomic cost/benefit analysis was required for the PNP Action Plan (Parks Canada, 2017).

5.2.2 Implementation progress

Ontario's Species at Risk Stewardship Fund and Caribou Conservation Stewardship Program has funded projects led by socioeconomic actors such as forestry companies, consultants, NGOs, universities, and more (MECP, 2025). Under the Ontario Conservation Plan, local communities, resource development companies, environmental organizations, and more were engaged in planning and implementation of conservation measures (MNR, 2014m). Anthropogenic activity-related measures such as the Forest Management Guide and BMPs were designed in conjunction with other ministries and stakeholders (MNR, 2014m). The PNP Action Plan included its cost/benefit analysis in publication, concluding that no major socioeconomic costs were expected and benefits were projected for park visitors, local residents, and Indigenous Peoples (Parks Canada, 2017).

5.3 Environmental considerations

Table 37: Criterion 5.3 summary table - Ontario.

Legal/Policy Basis	**Progress**
Federal regime	Relevant national-scale progress
SARA: Competent minister may adopt a multi-species approach in recovery strategies (s.41). Ecological impact reporting for action plans (s.55). Strategic Environmental Assessments for all recovery planning mandated by the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals. Recovery Strategy: Cumulative effects assessments and approaches within range planning. Monitor impacts of population management measures on other species. Action Plan: Landscape-level multi-species planning where beneficial.	• SEA concluded that many species would benefit from Recovery Strategy and Action Plan, but necessary predator/prey management should be used as an interim tool only.
Provincial regime	Provincial progress
ESA: NA. Conservation Plan: Commitment to environmental considerations within conservation. Range Policy: Cumulative disturbance considerations within range activity. ON-CAN CA: NA. PNP Action Plan: NA.	• Integrated Range Assessments from 2010 to 2012, except for LSCR. • Caribou Screening Tool to monitor disturbance across ranges. • Adoption of Range Management Policy and its measures is unknown.

5.3.1 Legal/policy basis

Boreal caribou planning: The Ontario Conservation Plan commits to considering environmental concerns when planning for long-term caribou conservation, it underlines the importance of a cumulative effects approach and cumulative impact assessments through range planning (MNR, 2009). Similarly, the Range Management Policy is based on accounting for cumulative disturbance across ranges (MNR,

2014l). The preamble and principles of the Ontario-Canada Conservation Agreement mandates biological considerations within protection and recovery efforts (ECCC, 2022a). Conservation measures do not specifically mandate identification monitoring of their ecological impacts (Appendix E) (ECCC, 2022a).

5.3.2 Implementation progress

The key progress for environmental considerations within Ontario's boreal caribou regime is within the adoption and application of the Range Management Policy. Cumulative disturbance was investigated in all ranges except LSCR through the Integrated Range Assessments conducted between 2010 and 2012 (MNR, 2014d, 2014e, 2014f, 2014g, 2014h, 2014i, 2014j, 2014k). The Ontario Caribou Screening Tool (CST) is utilized in conjunction with the Range Management Policy to track cumulative disturbance across ranges (MNR, 2014m). However, reporting on the adoption of the Range Management Policy, its recommended instruments and measures, the CST, and integrated range assessments has not been published since 2014.

VIII. Interview Results

The interview results aligned with the initial results of the framework and strengthened them with new, personal insights. The first section summarizes the key findings of planned questions, which sought to gain perspective on the strengths, obstacles, conservation-industry balance, objectives, conservation agreements, and future insights within the boreal caribou conservation regime (Appendix M). The second describes key themes which emerged from interview responses. Note that some interview respondents spoke about Alberta, Ontario, or national scales of the regime, which is reflected below. The following chapters combines the framework assessments and interview results to present final finings and conclusions.

A) High-level results

i. Strengths of the boreal caribou regime

Across nearly all interviewees, strengths of the boreal caribou regimes in Alberta and Ontario were not associated with actual, on-the-ground conservation progress. Rather, they were primarily related to the science/knowledge basis, monitoring, funding, federal-provincial collaboration, and policy framework of the regimes. Across the groups, the majority of participants referred to the science and knowledge about what is needed to recover boreal caribou being clear in both provinces. Some stated that laws, documents, and conservation agreements provided an adequate basis for conservation. Those from the Bureaucratic group and one from the eNGO group emphasized that provincial-federal collaboration through the conservation agreements was a relatively significant within Canadian conservation. Three of the 14 respondents referenced specific, implemented measures as strengths, including the legacy seismic line restoration and effectiveness of predator control in Alberta, along with the forestry habitat practices implemented in Ontario. However, one participant which discussed seismic line restoration and predator control in Alberta emphasized that the source of decline, i.e., habitat loss, was not being properly addressed. The others that referenced funding and seismic line restoration underlined that any “hope” from those components of the regime disappeared with the recent sub-regional plans.

ii. Obstacles within the boreal caribou regime

The overarching consensus was that the regime was lacking upon actual implementation, in which policies and planning continue without tangible, on-the-ground progress. However, reasons for the lack of delivery on commitments were varied. Unsurprisingly, nearly all participants referenced industrial disturbance, citing the lack of attention to cumulative effects and favouritism for industry within land use planning. The lack of limitation for industry and delivery on commitments were associated with issues of political will or political value in conserving caribou habitat. Participants underlined that boreal caribou conservation often does not carry enough political weight to be prioritized over other socioeconomic interests. Contributing factors included the United States’ tariffs impacting timber, general economic uncertainty, changes in government, internal politics, the influence of third parties, tensions between provinces and federal instruments, governments having to balance the needs of diverse

stakeholders, little incentive for governments to control rapid economic development, and more. Participant Federal_3 emphasized that "it is never just about caribou" when elaborating on the numerous forces impacting government's ability to delivery on commitments.

Outlying obstacles included more technical issues within the regime, especially in Ontario. Such as the lack of data regarding carrying capacity and population trends of caribou in Ontario, as well as the need for ranges to be revised based on biology rather than administrative uses (Forestry_1). The understanding and monitoring of such a northern, broadly distributed species was also highlighted (Ontario_1). Finally, participant Forestry_2 underlined the challenges of effectively applying a broad regime across such diverse geographies and subpopulations within Ontario's Continuous Distribution. Citing that the policies and plans end up misaligned with specific habitat or population attributes upon implementation, as they were written to be applied across such a broad distribution.

iii. Ability to achieve conservation objectives

When asked about the ability of the current regime to achieve boreal caribou conservation objectives, i.e., self-sustaining ranges across the federal and subnational distributions, the majority of respondents answered that changes were necessary. Multiple interviewees underlined that the objectives were scientifically and technically feasible, however flaws within the regime as well as external uncertainties were acting as barriers to realizing them. Political and legal flaws mentioned included the lack of disturbance limits and cumulative effects considerations within project assessment processes, lack of mechanisms which hold provinces accountable to conservation outcomes, emphasis on impact mitigation rather than proactive habitat protection, sub-regional planning in Alberta focusing more on development expansion than caribou conservation, and the need to better integrate the 65% undisturbed threshold and self-sustaining objectives into laws. Non-political or legal barriers included the need for more accurate understanding of caribou reactions to habitat disturbance and the implications of climate change for forest recovery. Of particular interest, Participant eNGO_4 underlined that the conservation objectives will not require changes to the regime, but rather the actors involved in it. They emphasized the need for NGOs and environmentalists with more understanding of northern communities', as well as industry with a more generous mindset.

In most of the interviews, conservation triage was a follow-up point during discussion of conservation objectives. Across the board, the general perception was that while triage had not been formally implemented, it seems to be happening by design – especially in Alberta – due to limited resources and the dire outlooks of certain ranges. However, multiple participants also noted that due to the structure of the guiding federal regime, in which all measures are to be implemented equally, triage will likely not be officially codified in the near future. Furthermore, many respondents underlined concerns with triage as an inappropriate strategy which is misaligned with the purpose of conservation. For example, participant eNGO_1 labelled triage a "perverse incentive" which rewards areas that have done the most damage by relieving them of recovery requirements. Others highlighted that without detailed plans for how triage will stop, you risk cyclical abandonment of ranges as they continue to be disturbed.

iv. Effectiveness of conservation-industry balance

Generally, perceptions of the relationship between boreal caribou conservation and industry on the landscape were negative. Despite acknowledgement of legal/policy tools seeking balance, such as the conservation agreements and guidelines for natural resource operations, interviewees highlighted that intensity and duration of disturbance was increasing in critical habitat.

> What I say we need to see from Ontario is a is a rebalancing because it's completely out of whack. … they've gone so far off on the industrial development side that it's not healthy. It's radical. Like I don't think Ontarians and Canadians know just how radical some of these governments have been with their desire for industrial development (eNGO_5).

Criticisms of the balance between caribou and industry were also related to political and legal barriers, similar to discussions of the conservation objectives described above. Some respondents further underlined that "balancing" industry and caribou conservation is no longer possible, and that caribou land uses must be prioritized rather than balanced in order to achieve conservation objectives. Participants such as eNGO_1 and eNGO_6 referenced specific mechanisms in which a "balance" between industry and caribou result in "a landscape of diminishing returns for wildlife" (eNGO_1). Respondents underlined that sustainable limits are better for industry in the long run, and that awareness of this must increase within actors extracting from the landscape. Sustainable land use planning was specified as offering long-term economic certainty for industry, especially in comparison to a section 61 or 80 order under SARA. For forestry in particular, sustainable harvest limits were underlined as being best for caribou and the industry, but not well implemented in both provinces.

Participant Ontario_1 responded that Ontario has a comprehensive legal approach to natural resource and caribou harmonization on the landscape through the ESA, EAA, and CFSA as well as their related regulations and policies. Participant Forestry_1 emphasized that forestry operations in Ontario are following policies to ensure that sufficient caribou habitat is managed and renewed over time, however there is uncertainty about long-term forest recovery. Participant Forestry_2 underlined that the relationship between forestry and boreal caribou is intrinsically important and necessary, however challenges arise from how "politically charged" caribou conservation is. They elaborated that certain localized forest management is often subject to public scrutiny that inhibits non-political decisions from being made.

v. Insights about conservation agreements

Across both the Alberta-Canada and Ontario-Canada conservation agreements, there were some positive perceptions regarding funding, monitoring outcomes, and cross-stakeholder collaborations. However there were multiple criticisms regarding favour for industrial and political priorities, a lack of tangible conservation measure implementation, and the short-term timelines of agreements. Regarding the Alberta-Canada Conservation Agreement, some respondents highlighted the sub-regional planning concept as an adequate strategy for range-level planning, but many criticized their implementation as abandoning caribou considerations and favouring industrial land uses. In spite of conversations occurring about the renewal of the Alberta-Canada agreement, those who had knowledge of it did not seem to think it would be renewed. Participant Alberta_1 confirmed that the last year's progress report is in draft to be

published. Regarding the Ontario-Canada Conservation Agreement, efforts for habitat protection were criticized, particularly the lack of commitment to the 35% disturbance threshold within range planning, "business as usual" policies for mining and forestry, and lack of changes to policy or analysis of policy effectiveness as was agreed to.

One participant noted that, in working with the ACFN and MCFN, they were are that those in both nations were frustrated with limited progress under the ACFN-MCFN-Canada Conservation Agreement.

> I have worked with the Mikisew Cree and Athabasca Chippewan [Nations], and I know that they were frustrated with limited progress. And I think that the onus is on the government to say what happened, like what you know, and to do some sort of reporting on it (Participant eNGO_1).

Participant Alberta_1 underlined that, as nation to nation agreements, the province had little to no involvement in their creation or progress. Other than this, there were no insights into the CLFN-Canada of ACFN-MCFN-Canada Conservation Agreements.

vi. Future insights

Future insights for boreal caribou were all negative, citing increasing stressors and inevitable population declines. In Ontario, it was acknowledged that some ranges were for north enough to avoid intensive disturbance. However, recent pushes for fast-tracked development in the North such as in the Ring of Fire, as well as recent changes to endangered species protections, were cited as signalling new provincial-federal dynamics and socioeconomic priorities putting pressure on caribou conservation. Future insights for Alberta were especially grim, with many predicting that highly intensive measure such as wolf culling and penning will likely be the only measures keeping caribou on the landscape in most ranges, and that the loss of ranges was increasingly inevitable.

B) Emergent themes

i. The federal-provincial relationship

Interesting insights arose regarding the role of federal-provincial dynamics in boreal caribou conservation across the federal and eNGO groups. While the notion of federal-provincial collaboration through conservation agreements was perceived as a win for conservation, the constitutional divide of powers was often referenced as a challenge within the boreal caribou regime. Multiple participants had observed the federal government retreating from the provinces in terms of their role in conservation, and discussed how the federal government is hesitant to overstep jurisdictional boundaries. This delicate relationship was referenced as a reason behind the lack section 61 or 80 orders under SARA, as well as conservation agreements which favour continual industry growth. There was discussion with multiple participants about how both provinces are increasingly pushing back on federal influence over environmental protection.

The perspective of participants from the Federal group were of particular interest. Federal intervention for species at risk was emphasized as the final backstop within the federal regime conservation, which are utilized in the most dire and costly scenarios. Participant Federal_1 noted that

the feds will incur the costs of section 80 emergency protection orders, such as compensation claims and land management, and that provinces/territories would still need to implement conservation measures that cannot be enforced by SARA. This, in combination with requests from provinces for the respect of jurisdictional powers, results in the federal government empowering provinces to act for species at risk, rather than imposing section 61 and 80 orders. Similarly, participant Federal_3 emphasized that these SARA interventions have rarely been tested in court, adding to the caution in overstepping jurisdictional boundaries. Furthermore, respondents in the Federal group noted that with current US-Canada tensions and internal cessation movements in Alberta and Quebec, the federal government wants to prioritize the state of the federation.

> Is it the feds always to jump in and clean up the mess or jump in and absorb all the costs? Because, Abby, let's say we have an emergency order. What happens with compensation claims? Where is it going? Who's absorbing the cost of implementing an [emergency order]? That means us becoming kind of manager[s] of the land, hiring people and staff, and us bearing the bad news to local communities and us having to deliver permits and us having to manage all the comms aspects (Participant Federal_1).

ii. Perceptions of habitat protection

Nearly all participants underlined a lack of tangible boreal caribou habitat protection, both through the lack of delineated conservation areas and a lack of guardrails for industry accessing habitat. In Ontario, some participants acknowledged the expansion of provincial parks as well as the policy framework for habitat protection.

> So I think the strengths are, first of all, that we do have a legal framework to protect and conserve boreal caribou up across all land in the province and then wherever there's like federal land, it's covered federally. So one of the strengths is pretty comprehensive legal, legal protection, both of the species itself as well as its key, its key habitat (Participant Ontario_1).

However, perceptions of conservation regimes in Alberta and Ontario are largely critical of a disproportionate focus on disturbance mitigation or remediation, rather than preventing access to habitat through limits to new development, project assessment processes, or other proactive measures. It was noted that current natural resource governance is oriented to begin with the approval of activities, rather than assessment. The lack of attention to cumulative disturbance effects from diverse sources across boreal landscapes was specified as a significant flaw within habitat protection. It was noted that disturbance is not just due to industrial access, but the cumulative effects of recreational and other land uses which expand once access is secured.

In Ontario, participants responded that the ESA originally set out to proactively protect species at risk and their habitat, however continued exemptions – particularly those for forestry – violate federal expectations for critical habitat protections. It was further emphasized that Ontario has not committed to the 65% undisturbed threshold for habitat and not internalized this into its range planning or industry guidelines. While Alberta has incorporated the 65% undisturbed threshold into its conservation regime, participants emphasized that current sub-regional plans will not achieve this upon implementation due to allowances for industrial expansion. Some respondents noted that existing habitat protection efforts have

been targeted in non economically valuable areas which do not overlap with the most important, frequently utilized areas such as winter habitat. Habitat mitigation guidelines such as Ontario's BMPs and Alberta's CPPs were criticized for being largely voluntary and not enforced comprehensively. Across both provinces, respondents underlined the need for conservation areas with impenetrable boundaries, tangible and quantified limits to disturbance with consideration for cumulative effects, and better monitoring of such disturbance.

iii. Perceptions of habitat and population recovery

Long timelines for boreal caribou habitat recovery in combination with the lack of current habitat protections resulted in habitat restoration being perceived as insufficient. Respondents acknowledged the significant funding and push for habitat restoration in Alberta, along with the habitat recovery work being done under the CFSA in Ontario. However, criticisms underlined that restoration efforts are insufficient if habitat continues to be disturbed and lost – particularly in Alberta. This was closely associated to long timelines for boreal caribou habitat recovery, even where active restoration is occurring.

> [Regarding Alberta] Well, I mean, they're not doing any habitat conservation work. Um, you know, the province is actively sanctioning the destruction of critical habitat at an accelerating rate, not only increasing, but accelerating rates of critical habitat destruction. So I think it's entirely disingenuous to be doing that and at the same time saying we're gonna protect caribou and caribou habitat because the math doesn't work out. If you're accelerating your habitat destruction, your restoration cannot keep up (Participant eNGO_3).

During probing, the balance between short-term and long-term recovery measures, e.g., wolf culls versus habitat recovery or protection, was discussed with nearly all participants. Regarding Alberta, nearly all echoed similar concerns regarding the over-reliance of intensive measures, especially wolf culls, in comparison to tangible habitat protection. Despite Alberta's recent push for habitat restoration, the long timelines of habitat recovery in addition to the lack of habitat protection were perceived as constraining Alberta to continual reliance on wolf culls and other intensive measures such as penning. Respondents also underlined the positive feedback loop which can occur with large-scale wolf culls, in which halting them increases relative abundance of prey and results in rapid recovery of wolf populations.

iv. Climate change and uncertainty within the boreal landscape

Participants from the forestry sector in Ontario both highlighted how climate change causes significant uncertainty within boreal caribou habitat recovery. Participant Forestry_1 stated that the policies governing habitat management and renewal within forestry operations were being implemented and followed, but the results – i.e., if caribou will come and use the resulting landscapes – are uncertain due to climate change and the long-term nature of boreal caribou habitat renewal. Participant Forestry_2 underlined that forestry practices are aimed at replicating the natural variation of northern Ontario's current mature forests, but that this is not feasible with current projections for climate change. They outlined how the future is possibly precarious for specific ecological components of boreal caribou habitat such as black spruce trees or the growth of arboreal and ground lichens. In addition to climate change, managing forests for caribou is uncertain due to intersecting forces from operational constraints, the long-term impacts of fire suppression, and footprints from other industries: "We're pretending that

we can somehow manipulate forest management to reproduce forests that were 400-600 years ago. And unfortunately, that is not within our ability" (Participant Forestry_2). This is significant, as much of the regimes in Alberta and Ontario are predicated upon habitat recovery.

Some participants highlighted the dangers associated with white-tailed deer encroachment into boreal caribou habitat, especially in Alberta. White-tailed deer are alternate prey for wolves and can spread disease throughout ungulate populations. Participant eNGO_7 noted that hotter, drier forest conditions in western Alberta are driving white-tailed deer expansion into boreal caribou habitats, whereas northern Ontario's harsh winters have been slowing white-tailed deer encroachment thus far. However, as climate change intensifies, participant Ontario_1 stated that range recession of white-tailed deer, as well as other pests and predators, will increasingly stress Ontario's ranges. Participant eNGO_3 referenced how chronic wasting disease (CWD) is an increasing threat from growing habitat overlap with white-tailed deer. Of particular interest, participant Alberta_1 shared that emergent cases of parasitic meningeal worm *P. tenuis* is of great concern for boreal caribou in Alberta. According to this participant, the impact of the worm on boreal caribou is under monitored due to its recent detection. However, it is known that this will only intensify caribou mortalities, as white-tailed deer can carry the worm without affect, but are certainly spreading it throughout ungulate populations. Alberta_1 emphasized that this was a "game changer" for boreal caribou conservation, with last known cases around only 50 km from Slave Lake and Nipisi ranges. Participant Alberta_1 also underscored how controlling white-tailed deer populations is extremely difficult due to negative public perceptions.

> …we're on an extremely accelerated path of expiration of some of those populations by the sounds of by the looks of it. And unfortunately, that's a white-tailed deer problem. How the hell do you deal with white-tailed deer in the boreal forest? (Participant Alberta_1).

v. Indigenous-led conservation

Across the interviews, Indigenous leadership and Indigenous-led conservation such as Indigenous Protected and Conserved Areas (IPCAs) were mentioned as potential sources of progress for boreal caribou conservation. However, respondents also discussed that federal and provincial governments have not provided adequate resources for Indigenous peoples, priorities, or conservation within the boreal caribou regime. It was further emphasized that the loss of caribou from the land is a violation of Indigenous treaty and Constitutional rights.

> I think our biggest hope, and this should come as no surprise in caring for our environment, is indigenous communities and nations across Alberta. I don't speak for them in any way, but like, it's very clear that by eliminating these species from our landscapes, it's a violation of treaty rights and it's a violation of constitutional rights. So that's what I think (Participant eNGO_3).

In Alberta, recent sub-regional plans and regulatory details such as the draft South Athabasca Sub-regional Plan are apparently occurring without proper consultation with First Nations or environmental groups, but with input from industry.

> …that question [of Indigenous rights] came, came up, was asked yesterday at the webinar for the South Athabasca [Regional Plan]. And when we ask, when someone asks like 'how is this

> infringing in Indigenous rights', they're like, 'we really care about this. It's really important for us to engage with indigenous peoples' ... But I know there's people waiting to sue them. Like I know of nations who are waiting to sue the government because of infringement … (Participant eNGO_6).

vi. Additional political factors

Components of the current political system were referenced as contributing to obstacles within boreal caribou conservation in Alberta and Ontario. Participant Federal_1 highlighted that the politicians who inform caribou conservation are elected by constituents in remote communities being impacted by tariffs and highly dependent on resource extraction. Participant Federal_3 noted that, since governments utilize the "public purse" to meet policy goals, they often are only willing to spend money if there is "public appetite" for the issue. Similarly, participant eNGO_2 highlighted that caribou are "not politically salient" or subject to enough political pressures within the context of increasing socioeconomic pressures. In Alberta, the change in governments was cited as weakening caribou conservation.

> … they say because they want to fast track all of [the sub-regional] plans, they don't really have time for meaningful consultation with anyone … so the [sub-regional] task forces' report recommendations that were made, they're being completely ignored because it's not the priority of the current government anymore … The task forces were like under the previous government. So current government is not really interested in including any of those recommendations, even though it was like made by stakeholders. All of the people who care about [caribou] were there and they're like, we don't care (Participant eNGO_6).

Participant Federal_1 further emphasized that the feds are led by Cabinet, which has to balance fluctuating capacity, trade-offs, and resources. Participant Federal_3 also noted that in Alberta, effectiveness of sub-regional planning was limited due to the involvement of politicians (i.e., MLAs) in the process, thus politicizing the balance between caribou and other socioeconomic considerations. Participants eNGO_1 and eNGO_7 highlighted that money from industry goes towards government through royalties, with participant eNGO_1 adding that natural resource companies have very strong lobbying resources. Upon follow up, eNGO_1 underlined that governments are not interested in speaking with conservation lobbyists.

IX. Findings

Based on the literature review, framework assessments, and semi-structured interviews, five key findings are made regarding the federal and provincial boreal caribou conservation regimes in Alberta and Ontario:

1. Boreal caribou conservation regimes are impeded by a lack of tangible implementation progress that is highly disproportionate to an abundance of policies and planning.
2. The federal boreal caribou regime has fallen short on holding Alberta and Ontario accountable, instead signing conservation agreements which have not made sufficient progress for boreal caribou.
3. Alberta and Ontario are not balancing their responsibilities to govern natural resource development and conserve boreal caribou, resulting in the continual demise of ranges and the investment in inadequate conservation measures.
4. Federal and provincial governments are faced with highly complex trade-offs and conflicting priorities when attempting to conserve boreal caribou, as it is an inherently political, values-based Wicked Problem.
5. Further research and resources are required to uplift Indigenous peoples within boreal caribou conservation, as the loss of boreal caribou threatens their treaty and constitutional rights.

A) The lack of tangible implementation across the boreal caribou conservation regimes

Boreal caribou conservation in Alberta and Ontario is defined by a lack of on-the-ground, positive changes for caribou and their habitat. Implementation progress seems especially lacking when compared to the plethora of laws, policies, plans, and other documents comprising the legal/policy basis of the regimes, as well as compared to the continual negative trends for population and habitat (ECCC, 2024c; MECP, 2024a; MEPA, 2024e). Progress reporting continues to focus more on planning processes than on-the-ground progress (ECCC, 2017, 2024c; MECP, 2024a; MEPA, 2024d). This lag is especially pronounced in Ontario, which has reported almost no notable measures that have protected or recovered boreal caribou populations or habitats other than monitoring and funding for external research (DSF, 2024b, 2024a; ECCC, 2024c; MECP, 2024a) Simultaneously, Alberta has reported on-the-ground habitat restoration, protection, and population management progress, however this pales in comparison to accelerating habitat disturbance (AWA, 2024; DSF, 2024a; MEPA, 2024d).

Lacking implementation and conservation progress was described perfectly by interview participant eNGO_4, who stated that "… boreal caribou has been an absolute feast of verbiage and an absolute starvation of action". The same participant further underlined:

> For all of this flurry of action around … endangered species, around SARA, the cooperative agreements, you have to ask if I'm a caribou, am I better off? Apparently not. I mean, the caribou have declined. So that's kind of sad testimony to the end result of all this (Participant eNGO_4).

This cycle of continual policy and planning has been a criticism of the boreal caribou conservation regime for years (DSF, 2024; Festa-Bianchet et al., 2011; Fortin et al., 2020; Hebblewhite & Fortin, 2017; Hummel & Ray, 2008; Narváez-Torres, 2025). The misalignment between the legal/policy basis and implementation progress of the regimes is demonstrated in the evaluation framework results above, as well as the findings below. The frustration of those involved in boreal caribou conservation is further exemplified in the following quote:

> No, I am done with plans. I am done with talking. I am done with sitting at tables … you know, the first table I sat on was in 2001. It is now 2026. OK, so the time of talking is over. We know what needs to happen. We just need people to commit to it now. Let's start. Start protecting habitat and giving it a shot and we can do it in five year increments and reevaluate and see what works and what doesn't. And let's make sure we have monitoring as well. But this whole idea that we're just going to continue to log the habitat, put roads in the habitat, mine the and then somehow hope and Pray that caribou recover is ridiculous (Participant eNGO_5).

It should be acknowledged that the non-implementation progress such as collaboration between federal, provincial, Indigenous, industry, eNGO and other actors within the boreal caribou conservation is a valuable accomplishment. This was also underlined by many respondents, who pointed out that the boreal caribou regime demonstrates strong examples of cooperation within biodiversity conservation. National scale collaboration such as the National Boreal Caribou Knowledge Consortium, National Boreal Caribou Technical Committee, Federal-Provincial-Territorial Coordinating Committee, as well as provincial-scale collaboration such as Alberta's sub-regional planning task forces and Ontario's Provincial Caribou Technical Committee create foundations for well-informed, collaborative conservation (ECCC, 2024c; MEPA, 2025; MNR, 2014m). However, the outcomes of the regime remain heavily skewed towards industrial and political interests, rather than boreal caribou conservation, Indigenous rights, and the input of environmental experts advocating for sustainable economic development.

B) The federal regime has fallen short on holding Alberta and Ontario responsible for boreal caribou

The faults of the federal boreal caribou conservation regime in this case demonstrate key gaps in Canada's biodiversity conservation framework, specifically in SARA and its implementation. Due to the constitutional separation of powers, Alberta and Ontario have the majority of jurisdiction over boreal caribou ranges (Constitution Act, 1867). Under SARA, the federal government's main role in boreal caribou conservation is to create a guiding framework with which the Alberta and Ontario should align their respective regimes (SARA, 2002). Through the Federal Recovery Strategy, Federal Action Plan, and supporting, technical documents and studies, it identifies quantified, scientifically supported objectives for self-sustaining populations and habitat disturbance, along with overarching frameworks for landscape planning, habitat management, morality and population management, monitoring, and more (ECCC, 2011a, 2018a, 2020b). However, the federal regime falls short in its most critical role – holding Alberta and Ontario accountable to protecting boreal caribou and their habitat.

Under the Accord for the Protection of Species at Risk, federal and subnational governments committed to protecting and recovering species at risk and their critical habitats through their own legislation, regulations, policies, and programs (Government of Canada, 1996). SARA was designed with provisions for compelling provinces to uphold these responsibilities and fill the jurisdictional gaps which arise due to the constitution, in which provinces are responsible for the majority of lands and natural resources within them. Specifically relevant in this case are section 61 safety net orders, in which the Governor in Council may dictate that "no person shall destroy any part of the critical habitat of a listed endangered species or a listed threatened species that is in a province or territory and that is not part of federal lands" upon recommendation from the Minister of Environment (SARA, 2002). The framework application, interview analysis, literature review, and subsequent findings illustrate that the federal government has cause for triggering section 61 orders under SARA for the boreal caribou ranges in Alberta and Ontario that are in dire conditions, on the brink of extirpation, and/or are not subject to effective habitat protections. This was the same case made by numerous environmental, scientific, Indigenous, and civil society groups which have advocated for such orders in Alberta and Ontario (Ecojustice, 2017, 2018).

In response to these numerous movements and legal actions, the federal government instead pursued a collaborative approach and signed the CLFN-Canada, ACFN-MCFN-Canada, Alberta-Canada, and Ontario-Canada conservation agreements under section 11 of SARA (). Under section 61(4) these agreements can stave off section 61 orders as alternatives for habitat protection, since the Minister must recommend an order if they are of the opinion that "(a) there are no provisions in, or other measures under, this or any other Act of Parliament that protect the particular portion of the critical habitat, including agreements under section 11; and (b) the laws of the province or territory do not effectively protect the critical habitat" (SARA, 2002). Whilst provincial-federal collaboration is necessary for productive conservation and the funding has been helpful for provincial governments, available reporting demonstrates that conservation agreements are not nearly equivalent to the protections which would have been afforded with a section 61 order (MECP, 2024a; MEPA, 2024e). Ineffective federal intervention for boreal caribou demonstrate flaws in SARA highlighted by Turcotte et al. (2021) and Bolliger et al. (2020), which conclude that SARA's limited jurisdiction and the lack of section 61 or 80 orders leave significant gaps and inconsistencies within habitat protection.

Interviews highlighted barriers to federal actors enacting section 61 or 80 orders under SARA, including the costs incurred by the federal government if land uses are halted in an area; the lack of precedent for such orders being implemented and tested in court; consideration for the state of the federation and the provincial-federal relationship, especially in times of political instability or economic uncertainty; and, finally, the fact that the federal government can halt activities with a section 61 or 80 order, but cannot compel provinces to implement recovery measures under SARA. Therefore, a collaborative approach with provinces is seen as the favourable option. However, the conservation agreements have expired or are about to expire, and did/do not provide protections like what would have been achieved by provincial laws equivalent to SARA or section 61 orders (MECP, 2024a; MEPA, 2024e). This sentiment was shared by interview respondents when discussing the federal government's role in boreal caribou conservation.

> And I know that the provincial [conservation agreements] are just nothing. Again, they're basically merely a way to ensure cooperative relationships and sometimes the, well, I guess in each case the flow of money to try to basically buy cooperation in recalcitrant provinces (Participant eNGO_1).

The political and economic implications of utilizing SARA to compel provincial action have thus resulted in conservation agreements with inadequate habitat protection measures for boreal caribou in Alberta and Ontario. This facilitates violations of the Accord for the Protection of Species At Risk and exposes major gaps in the implementation of SARA and federal-provincial dynamics within species at risk conservation in Canada. Meanwhile, ranges such as Alberta's Little Smoky and Ontario's LSCR are on the brink of extirpation (Boan & Plotkin, 2023; ECCC, 2024c; MEPA, 2024e).

C) Alberta and Ontario are not balancing industrial and conservation priorities

While the federal government has a responsibility to enforce SARA and compel protections, federal interview participants underlined that these measures should be the last-ditch, backstop solutions. The governments of Alberta and Ontario should be responsible for implementing proactive boreal caribou protection and effective recovery so that federal interventions are not necessary. However, provinces are simultaneously responsible for natural resource development and economic growth. In spite of laws, regulations, policies, and plans seeking to incorporate considerations of caribou and their habitat into the governance of natural resources, on the ground, boreal caribou continuously lose in the pursuit of 'balance' on the landscape. Experts have coined this as the "fallacy of balance" within species at risk conservation, in which balancing the landscape between conservation and extraction results in continuous, diminishing returns for wildlife and increasing returns for industry (Plotkin, 2015). This continual loss of caribou habitat is exemplified in the following interview quote:

> …then a few decades later you go like, oh, we need balance. Now that you have 50% left of caribou habitat, well, caribou gets 25% industry gets 25 and then a few decades later, a few years later, did the same thing, more balance. But Caribou always loses in this balance (Participant eNGO_6).

The current status of boreal caribou in Alberta is the result of a legacy of this fallacy, as well as accelerating expansion of extraction and implications of climate change. In Ontario, the northern, continuous nature of ranges have shielded them from such fragmentation, however warming temperatures and current trends in natural resource governance put them on a similar path as Alberta's ranges.

Whilst Alberta and Ontario's boreal caribou regimes differ in terms of geography, climate, and range distribution, their socioeconomic and political context make them a comparable duo. Socioeconomically, both provinces are key contributors to Canada's natural resource economy, with huge social and financial incentive to continue and accelerate extraction. Interview respondents perceived them both as highly preferential to industrial actors over environmental groups, Indigenous peoples, and others advocating for species at risk protection. The boreal caribou regimes of both provinces are

similarly lacking tangible, enforced, positive results on caribou and their habitat despite relatively robust regimes. The framework identified the following high-level trends within Alberta and Ontario's boreal caribou regime. See sections VI, V, IV for references.

- **Monitoring and knowledge bases:** Monitoring of conservation progress and knowledge bases (population, habitat, threats) is relatively sufficient in both provinces when compared to other framework criteria. It is more consistent, comprehensive, and transparent in Alberta. The results of Ontario's recent monitoring efforts are not available to the public, with the last comprehensive data on population and habitat trends being published in the 2017 federal progress report and still lacking population trends for most ranges. However, adaptive management is lacking for both, as key boreal caribou planning has not yet integrated monitoring results.
- **Protection of individuals and habitat:** The legal basis for protection of caribou and their habitat was slightly stronger in Ontario due to the ESA, however this was heavily eroded by exemptions for mining exploration, forestry, and the recent changes to habitat protections, recovery planning, and other provisions. Alberta has expanded some protected areas under the *Provincial Parks Act*, whereas Ontario's Dedicated Protected Areas in the Far North are still in the planning stage.
- **Project assessments, permitting, and other authorizations:** Both provinces have environmental assessment laws, regulations, and policies which require the identification of negative environmental impacts and plans to mitigate them. Only Ontario has specific provisions for species at risk in these processes due to the ESA, however both provinces focus on mitigation of impacts rather than avoidance. Ontario has not limited new activities similar to Alberta's restriction on Crown mineral rights; however these are able to be lifted once sub-regional plans are released and do not prohibit non-mineral development or development by existing leaseholders. It is unknown how boreal caribou are being considered on a project-to-project basis but known that industrial footprints continue to expand.
- **Habitat restoration:** The government of Alberta is leading notably more habitat restoration efforts than Ontario, particularly that of legacy seismic lines. While Ontario has legal/policy basis for restoration, such measures were still in the planning stage as of the most recent reporting, except for funding for some restoration projects. Alberta's push for habitat restoration is robust, however quite delayed in the context of the province's decades of conservation planning. In both provinces, the timeline for recovery of suitable boreal caribou habitat is significantly long (~40 to 50 years) and increasing pressures on the landscape's ecology related to industry and climate change exacerbate the uncertainty of caribou habitat recovery.
- **Habitat protection and restoration within anthropogenic operations:** Through the CFSA and Forest Management Guide, Ontario has some legal basis for the integration of boreal caribou habitat protections and restoration into anthropogenic operations. Other than this, Ontario's BMPs and some forestry guidelines, along with Alberta's Caribou Protection Plans and sub-regional plans, are currently voluntary and neither their adoption nor effectiveness has not been comprehensively, publicly reported on.
- **Short-term recovery efforts:** Alberta heavily relies on wolf culling and some other short-term, resource intensive conservation measures to maintain boreal caribou on the landscape. Ontario has utilized translocations within the Lake Superior Coastal Range and expanded white-tailed deer

hunting seasons but has not yet needed to employ predator management. However, caribou population trends are declining for nearly all Ontario ranges.

Alberta did not begin implementing coordinated, long-term, on-the-ground conservation measures until 2017 (ECCC, 2017). By then habitat was significantly below the 65% threshold and populations were reliant upon intensive predator management (ECCC, 2017; MEPA, 2024e). This was the result of a lack of proactive measures, despite boreal caribou decline known about for decades (Narváez-Torres, 2025). Most of Ontario's northern ranges have larger populations and are situated within a less fragmented distribution (ECCC, 2017). Due to their location, these ranges will also feel climate change impacts such as white-tailed deer encroachment at a slower pace than Alberta's ranges. Ontario must be proactive in protecting habitat, as is exemplified by the current state of conservation in Alberta. However, the Ontario-Canada Conservation Agreement has not achieved notable on-the-ground progress for caribou and environmental oversight is weakening with the repealing of the ESA, incoming SCA, federal and provincial interest in the Ring of Fire, and northern expansion of exploration (Government of Canada, 2025; MECP, 2024a; POUEA, 2025; SCA, 2025).

i. Key gaps within provincial range planning

Under the Federal Recovery Strategy and Action Plan, range plans are key components of provincial boreal caribou conservation regimes (ECCC, 2018a, 2020b). In Alberta and Ontario, overarching caribou plans further emphasize range-specific planning as the most appropriate approach for boreal caribou habitat conservation and management, including the governance of activities which harm habitat (AWCRT, 2005; MNR, 2009b). However, framework evaluations and interviews concluded that Alberta and Ontario's versions of range planning have significant gaps in both their structure and implementation. This is especially worrisome as the Alberta-Canada Conservation Agreement has expired and, according to interviews, is not likely to be renewed and the Ontario-Canada Conservation Agreement expires in 2027. Meaning that range planning will remain the key governing factors within each province's boreal caribou conservation regimes.

a) Alberta's sub-regional plans and industry guidelines

Alberta has only released two sub-regional plans, which are greatly inhibited by a notably disproportionate focus on industry expansion and management. Despite the recommendation reports for the Bistcho Lake and Cold Lake sub-regional plans involving a wide-range of stakeholders, boreal caribou are a small part of the resulting plans (MEPA, 2022c, 2022a; Northeast Caribou Sub-regional Task Force, 2020; Northwest Caribou Sub-regional Task Force, 2020). While the plans acknowledge the 65% undisturbed threshold for boreal caribou habitat, they heavily favour industrial operations and do not include specific measures for monitoring or limiting cumulative disturbance (MEPA, 2022a, 2022c). The plans are not yet enforceable through regulatory details, and the draft regulatory details have not been received well be environmental experts, who criticized the amount of exemptions, discretionary decision-making processes, and unsupported restoration timelines (Earl et al., 2023). According to the last public reporting, habitat in the Bistcho and Cold Lake ranges was less than 25% undisturbed, and populations in Cold Lake were being stabilized through intensive predator management . The lack of

strict limitations for continued industry expansion within the sub-regional plans is in direct conflict with the needs of these ranges.

These findings are echoed in the commentary of expert groups, as well as the results of the interviews. All of the respondents with knowledge about the plans, including the respondent from Alberta's bureaucracy, agreed that the sub-regional planning process had been dominated by competing social, economic, and political interests.

> So the sub regional planning process is … the right mechanism for large landscape planning. But once again, the trade-offs between environment, social and economic perspectives here in Alberta are heavily weighted to the non-environmental side of things. Even though these were … originally established for caribou conservation and recovery purposes, the final documents that we've been seeing are doing very little, quite frankly, for caribou conservation. But this is the right mechanism in my mind (Participant Alberta_1).

It was further emphasized by interview participants that the political nature of sub-regional planning, i.e., agendas of different governments and the inclusion of MLAs within plan creation, was a notable reason for the emphasis away from boreal caribou and towards industrial expansion (MEPA, 2025).

The Cold Lake Sub-regional Plan is to be replaced by the draft South Athabasca Sub-regional Plan, which will apply to the Cold Lake and East Side Athabasca ranges (MEPA, 2026). This plan and its regulatory details were not included in the framework analysis as they are still in draft, however they do not bode well for caribou. While there are commitments to Indigenous-led conservation areas, habitat restoration, and timber harvest deferrals, the plan does not reference the 65% undisturbed habitat threshold, seeks to double oil and gas production within the sub-region, and lacks meaningful habitat protection and industrial limits (Ray, 2026; Russell et al., 2026). Interview participant eNGO_6 disclosed that Indigenous peoples and environmental experts have not received adequate consultation within recent sub-regional planning engagement, despite of their role in the initial recommendation reports. Multiple interviewees expressed a sense of hopelessness towards range planning and its impacts on boreal caribou.

> We now have seen the rollback of one of those draft plans come out and be combined with another sub regional area. So for consultation right now it doesn't contain any commitments to Caribou habitat recovery at all. Yeah, there was a moment there where I think we could have made progress. And right now, like, it's very obvious that finding that balance between the environment and the economy is no longer a goal of these planning processes (Participant eNGO_3).

b) Ontario's Range Management Policy and industry guidelines

According to the last federal progress report, Ontario had fulfilled the requirement for range planning through its Range Management Policy (ECCC, 2024c). This policy provides high-level guidance for anthropogenic activities occurring within boreal caribou ranges and was created in tandem with the guiding policy for Integrated Range Assessments. Although these assessments were range-specific and were conducted to inform land use within caribou ranges, Ontario does not have specific range plans for land use and habitat management. Additionally, the Lake Superior Coastal Range (LSCR) is not subject to the Range Management Policy or integrated range assessments, and continues to lack a

comprehensive management plan, despite being Ontario's most highly isolated range and years of efforts to draft a management plan (Boan & Plotkin, 2023; MECP, 2024a; MNRF, 2018). Ontario's Range Management Policy also does not commit to a habitat disturbance threshold, and neither do the BMPs and Forest Management Guide (ECCC, 2023b; MNR, 2013c, 2013a, 2013b, 2014b, 2014a).

These concerns were echoed by some interview participants, who also expressed disappointment with the BMPs and Forest Management Guide.

> [Regarding guides for industry in Ontario] those things don't protect habitat. They're not designed to actually reflect what the species needs. They are about the industrial activity. So they're all the premise is you start with the activity and then you say oh, by the way, maybe we can make it less bad if we do this, but it there's no guarantee it will work. And then by the way, we're not willing to take the harder step, which is says let's give the species what they need. And so that's the challenge with those guides. And they're horribly out of date. They're not based on the latest science (Participant eNGO_5).

Contrastingly, those from Ontario's bureaucracy and forestry sector shared that operations were managed for sufficient caribou habitat in alignment with the CFSA and current policies. However, as discussed, the uncertainty within forest renewal was highlighted, as well as the need for more specific policies to account for the diverse geographies and habitats within the Continuous Distribution. Participant Forestry_2 highlighted this gap, and upon probing recommended planning specific to habitat type and characteristics. Interviews also identified the need for change to Ontario's current range boundaries to improve habitat management, particularly within forestry practices. Range delineations were to be re-evaluated under the Ontario-Canada Conservation Agreement but have not as of the most recent reporting (MECP, 2024a).

As discussed, the adoption and effectiveness of neither the BMPs nor the Forest Management Guide have been evaluated, in spite of this being a goal under the Ontario-Canada Conservation Agreement (MECP, 2024a). Participant Ontario_1 shared that alignment with the BMPs is considered within environmental assessments and other permitting processes, especially those for mineral exploration. However, the applications of the BMPs remain a notable knowledge gap, especially considering that they are a key component of the Range Management Policy, are entirely voluntary, and have not been subject to peer-reviewed analyses like that of Ontario's forestry regime (Boan & Plotkin, 2023; MECP, 2024a; MNRF, 2018). With regard to forestry, the CFSA and standards within the Forest Management Guide are mandatory, however operations governed by the CFSA have been exempt from the ESA since 2020. This occurred under the guise that the CFSA provided enough consideration for species at risk, however grey and peer-reviewed sources have since argued against this claim, particularly highlighting that the CFSA does not commit to a quantitative disturbance threshold (ECCC, 2023b; Mackey et al., 2023; Malcolm et al., 2025).

ii. Lack of habitat protection

Boreal caribou conservation in Alberta and Ontario demonstrates the implications and drivers of not prioritizing proactive wildlife conservation. The Accord for the Protection of Species At Risk, SARA, Ontario's former ESA, and conservation scholars all emphasize the importance of proactively protecting

existing habitat (ESA, 2007; Government of Canada, 1996; Redford et al., 2011; SARA, 2002). This is especially true for boreal caribou due to the long-term and uncertain nature of habitat recovery, and their need for mature, undisturbed swaths of land (ECCC, 2020b). However, boreal caribou habitat protection in both provinces focuses more on industry mitigation than explicit protection. This occurs through two high-level gaps: a lack of strict, explicit protection of valuable areas of habitat; and a lack of avoidance or cumulative disturbance considerations within processes governing habitat access at the project level.

a) Explicit habitat protection

In Alberta, the *Wildlife Act* does automatically protect the habitat of species at risk. Rather, habitat can be protected under acts such as the *Provincial Parks Act* or the *Wilderness, Ecological Reserves, Natural Areas and Heritage Rangelands Act*, and *Alberta Land Stewardship Act* (ALSA, 2009; PPA, 2000; WAA, 2000). However, studies such as ECCC (2018b) and Herbert et al. (2017) concluded that Alberta's acts and regulations which could protect boreal caribou habitat were not doing so sufficiently. In Ontario, the ESA and incoming SCA now protect habitat limited to a "dwelling place" used for breeding, rearing, staging, wintering, or hibernating such as a nest or den, as well as the area immediately around it necessary for those purposes (ESA, 2007; SCA, 2025). This new definition applies to a very small part of the necessary habitats for boreal caribou and is very worrisome for their protection (Norris et al., 2025). Exemptions are available through section 17 of the ESA as well as provisions under the new Special Economic Zones Act (ESA, 2007; SEZA, 2025). Similarly to Alberta, Ontario has other laws which can protect habitat such as the *Provincial Parks and Conservation Reserves Act* and the *Far North Act* (FNA, 2010; PPCRA, 2006), however sources such as ECCC (2023b) and Herbert et al. (2017) have argued that critical habitat lacks legal protection.

Between 2012 and 2023, 818,658 ha within Alberta's boreal caribou distribution was included within the designation of protected areas within provincial parks (ECCC, 2017, 2019b, 2024c). In Ontario, Dedicated Protected Areas in the Far North are still in the planning stages (ECCC, 2024c). The remaining protections for habitat involve existing national or provincial parks, or other conservation areas (Fig. 9, ECCC, 2024c). Despite protected area expansion in Alberta, framework evaluations, interviews, and the literature review demonstrate that habitat protection remains inadequate in the context of current rates of disturbance, and that limits and/or minimization within industry governance are insufficient to achieve or maintain the 65% undisturbed threshold (Fryxell et al., 2020b; MEPA, 2024d; Nagy-Reis et al., 2021). Stakeholder interviews further highlighted that protected areas are often created or expanded within less socioeconomically desirable locations which are not important for or frequently used by boreal caribou. These findings are supported by federal assessments such as ECCC (2018c), ECCC (2023b), as well as grey literature such as Herbert et al. (2017), which identified similar gaps within Alberta and Ontario's legislative boreal caribou critical habitat protections.

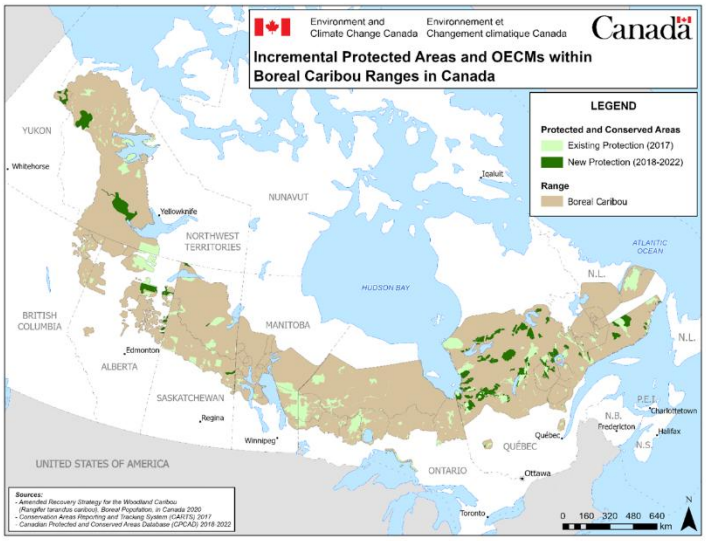


Figure 9: Protected areas within Canada's boreal caribou distribution (ECCC, 2024).

b) Project assessment and approval processes

Assessment and mitigation of environmental impacts at the project level is a critical component of biodiversity conservation in Canada (Poulton & Ray, 2023). The mitigation hierarchy within environmental assessment a widely accepted framework for the prioritization of mitigation measures, is equally as important. It dictates that proponents and regulators must first avoid impacts, then minimize unavoidable impacts, seek to restore on-site impacts, and finally offset residual impacts (Poulton & Ray, 2023). Within the boreal caribou conservation regime, the evaluation framework revealed a disproportionate focus on minimization rather than avoidance within the legal and policy components of the regime, which support continued habitat disturbance upon implementation. This is especially pronounced in Alberta, in which habitat disturbance levels are dire but project approvals continue across ranges (MEPA, 2024d). In this study, avoidance also refers to whether or not the project should proceed in addition to the avoidance of certain impacts of an approved project. This definition of avoidance has been recommended by sources such as Bull et al. (2022) and Phalan et al. (2018), which emphasize the importance of avoidance for conservation and the tendency for assessment processes to overlook, undervalue, or improperly quantify avoidance measures.

Alberta's assessment processes are primarily regulated by the EPEA and the Alberta Energy Regulator (AER, 2026a; EPEA, 2000). Provisions exist for addressing environmental impacts, however no concrete guardrails to accessing boreal caribou habitat were identified other than the protected areas discussed above and Alberta's restriction on new Crown mineral rights within caribou habitat. This moratorium does not prevent expansion of activities by existing leaseholders and can be lifted in areas where sub-regional plans are in place. However, the Bistcho and Cold Lake sub-regional plans are heavily focused on guidelines for minimization and restoration rather than avoidance (MEPA, 2022b, 2022a). The Alberta-Canada Conservation Agreement seeks to ensure project approvals minimize impacts, however it is unclear how this would occur and, again, begins with project approval rather than avoidance (MEPA, 2024e).

In Ontario, environmental assessments are primarily regulated by the EAA and ESA (EAA, 1990; ESA, 2007). Similarly, provisions for environmental impacts were identified but strict limits to habitat access were not. The Range Management Policy outlines best practice for activity review and assessment which aligns with species and habitat protections in the ESA (MNR, 2014l). It also refers projects to the BMPs for guidance on accounting for boreal caribou in assessment processes and operation expansions. However, the adoption and impacts of the Range Management Policy is unknown, and the effectiveness of the BMPs has not yet been evaluated (MECP, 2024a). In both provinces, the application of cumulative disturbance monitoring and considerations are unclear, despite being emphasized as critical for boreal caribou habitat management in federal and provincial caribou policy (ECCC, 2020b; MEPA, 2022c, 2022a; MNR, 2014l).

> Well, it's spelled out in the in the Boreal Caribou … recovery strategy that was led by the federal government [and] amended in 2020, which has … a very evidence-based description of critical habitat which talks about limiting disturbance in ranges and so it's about limits to human activity and ascribing those. We don't have any models for that anywhere in [the] Canadian boreal range at this point we just have a pretty clear idea about what needs to be done, but it just hasn't been done anywhere (Participant eNGO_7).

Collard et al. (2020), one of the key studies investigating how boreal caribou are accounted for within individual assessments, identified significant gaps in how negative boreal caribou impacts are valued and mitigated. Of notable concern, projects with significant projected adverse impacts for boreal caribou were approved based on unproven mitigation strategies, as well as the rationale that caribou habitat in the area was already degraded and/or boreal caribou no longer used the area (Collard et al., 2020). Similarly, Campbell et al. (2019) found habitat modelling – including that of caribou – within provincial assessments for oil and gas projects in Alberta to be significantly inconsistent. The assessments were highly confident in minimization measures despite little empirical evidence of their effectiveness (Campell et al., 2019). The lack of project avoidance, overreliance on minimization measures, and apparent lack of evidence regarding minimization efficacy identified in this thesis and similar studies expose a notable gap within the boreal caribou conservation regime. Findings underline the need for research into the legitimacy and effectiveness of minimization measures adopted by approved projects in boreal caribou ranges.

iii. Inefficiency and uncertainty within recovery

Inefficiency and uncertainty within habitat and population recovery was also identified as a key barrier to long-term boreal caribou conservation. Inefficiency refers to how the allocation of resources toward certain conservation measures is not maximizing conservation benefits. This is closely related to uncertainty within the outcomes of habitat restoration, increasing climate change impacts, and positive feedback loops of intensive wolf culling. In Alberta, this is especially prominent due to the hundreds of millions of dollars being invested in habitat restoration and predator management, but simultaneous acceleration of habitat disturbance (Government of Alberta, 2025; MEPA, 2024e). In Ontario, where ranges are not as fragmented or disturbed as Alberta, this is primarily a question of prioritizing proactive versus reactive measures through effective protections – especially as subpopulations are on the decline (MECP, 2024a). Proactive preservation of existing boreal caribou habitat is paramount to their survival,

however, current measures are focused on impact mitigation and predator/prey management. In other words, habitat in Alberta and Ontario is being accessed, developed, and degraded at faster pace than it is being restored – despite efforts and investments in restoration. This is especially true in Alberta, in which ranges are comparatively more accessible, fragmented, and vulnerable to climate change (MEPA, 2024e).

Alberta's push for habitat restoration is respectable, however quite delayed in the context of the province's decades of conservation planning (Narváez-Torres, 2025). Ontario's regime incorporates restoration measures into forestry operations under the Forest Management Guide and other activities through voluntary BMPs (MNR, 2013c, 2013a, 2013b, 2014a, 2014b). However, the recovery of suitable boreal caribou habitat takes decades, remains the subject of scientific uncertainty, is difficult to monitor, and varies significantly across habitat types . Simultaneously, increasing pressures from climate change, white-tailed deer encroachment, and persistent cumulative disturbance threaten the recovery of boreal caribou subpopulations and habitat. As highlighted by participants from Ontario's forestry sector, practices operate for the renewal of current-day forests despite the future composition of forests and their ability to support caribou within climate change scenarios being largely unknown. Encroachment of white-tailed deer due to climate change and continued landscape disturbance exposes boreal caribou to increased predation, CWD and, in Alberta, new *P. tenuis* cases that are of extreme concern for the direst ranges.

> Our Slave Lake [and] Nipisi populations are also … the most critical, most dire … They're, you know, incredibly small and mostly isolated. Now they're on the, you know, within 50 kilometers of the last P. tenuis confirmed case. We could be, we could be in a world of hurt here in the next short while. So, I don't have the solutions for you (Participant Alberta_1).

Intensive predator and prey management, especially that of wolf culling, has been the core component of positive boreal caribou trends in Alberta for decades. This is in spite of federal and provincial emphasis on such techniques as interim measures, only to be applied in conjunction with effective habitat conservation and restoration. Alberta's own Recovery Plan states that "predator control will not succeed as s sole, or predominant, tool for caribou recovery" (pg. 23). Whilst wolf populations are able to withstand such reductions, without concrete conservation measures, culling cannot be halted without negative predator impacts swiftly reappearing on the landscape (Hervieux et al., 2014; Johnson et al., 2022a). Furthermore, there is a multitude of ethical implications involved with the murder of one species for the survival of another (Johnson et al., 2022a). The violence of wolf culls is why they were meant to be interim measures, however as discussed, they have been used as the primary conservation strategy in Alberta (MEPA, 2024e).

Implications for conservation triage

Multiple interview participants and reviewed literature sources argue that conserving most of the boreal caribou ranges in the two provinces is technically feasible, however the protection and restoration efforts required are highly unlikely and extremely costly (Hebblewhite, 2017; Schneider et al., 2010). Studies argue that conservation triage in Alberta, in which the most viable subpopulations are prioritized over less viable, will ensure that resources are allocated towards feasible progress rather than wasted on attempts to recover the entire distribution (Hebblewhite, 2017; Schneider et al., 2010). As Alberta's most

critical ranges such as Chinchaga, Little Smoky, Nipisi, and Slave Lake, as well as Ontario's LSCR face increasing disturbance but are subject to resource-intensive conservation measures, this contradiction further calls into question the efficacy of the current model governing federal and provincial species at risk conservation, in which all subpopulations or ranges of boreal caribou should be subject to equal attention (Gerber, 2016; Hebblewhite, 2017).

Contrastingly, policy and interview analysis underlined that the nature of SARA and values of conservation organizations are at odds with type of triage approach. Interview participants highlighted that the dangers of accepting an officially triage approach outweigh any benefits, particularly the concept of rewarding areas that have not conserved caribou by releasing them of recovery responsibility, the implications of unrestricted triage as range conditions worsen, and the overall risk of accelerating extirpation by codifying triage as a formal approach. Furthermore, the negative implications of conservation triage for Indigenous harvesting, rights, and sovereignty cannot be ignored. However, participants stated that triage is already informally happening in provinces like Alberta.

> I mean, in Alberta we've just like functionally seen them give up on recovery for all boreal caribou. I think when you're on the triage aspect, I don't think anyone's out loud said it ... but I also at the same time have had no conversations about what to do with the Nipisi and Slave Lake caribou populations. So like, no one's talking about them (Participant eNGO_4).

C) Boreal caribou conservation is a Wicked Problem

The examination of Alberta and Ontario's boreal caribou conservation regimes demonstrate the inherent political and values-based nature of boreal caribou conservation, as well as species at risk conservation in general. Nearly all interview participants underlined that decision making for boreal caribou is an issue of values, particularly concerning how extractive and conservation land uses are valued, as well as the numerous social, economic, political, and environmental factors influencing how these are valued. Factors which arose in literature and interviews include, but are not limited to:

- US-Canada tensions
- National and global demand for natural resources
- Northern communities' economic development
- Industry lobbyists
- Industry jobs
- Indigenous communities' and First Nation's economic development
- eNGO advocacy and legal action
- Natural resource jobs
- Indigenous treaty and constitutional rights
- Indigenous cultures
- Recreational land uses
- Industrial land uses
- Federal, provincial, municipal elections
- Social license for industry

- Public consciousness
- Climate change
- White-tailed deer encroachment
- Disease spread
- Cumulative disturbance
- Wildfires
- Predator-prey dynamics
- Misinformation campaigns
- Canadian culture
- Limited federal and provincial funding
- Stability within the federation

For example, participant Federal_1 explained how the conservation regime may be influenced by democratic processes and geopolitical tensions:

> …you need to look at, for example, the tariffs and the impact on the socioeconomic aspects in Canada, right? So yes, you may want to protect Caribou. But you need to protect jobs in the regions you need to protect the economic engines in the regions and right now with what's going on in the US that … gives [provinces and territories] some second thoughts about how they want to conduct the [boreal caribou] file in this specific context (Participant Federal_1).

The sheer number of shifting, interconnected priorities affecting boreal caribou conservation classify it as a Wicked Problem. Wicked Problems are persistent issues comprised of numerous changing components which are seemingly impossible to reconcile and require interdisciplinary problem solving (Kumlien & Coughlan, 2018). This research demonstrates that the decline and possible recovery of boreal caribou require a socioecological systems (SES) thinking approach to conservation. Future research should employ both the natural and social sciences, marrying biology, policy, and examinations of the role of civil society.

D) Indigenous rights and leadership must be uplifted within boreal caribou conservation research

Boreal caribou, and the boreal landscape in general, hold critical importance for the wellbeing and sovereignty of Indigenous peoples. This study did not have the scope to conduct an equitable, collaborative, and comprehensive investigation into the implications of the boreal caribou regime for Indigenous peoples. However, it did illicit findings regarding the role of Indigenous rights and leadership within the regime, as well as considerations for future research or conservation efforts. Once again, these are findings from the research of a non-Indigenous person, and in no way seek to assume the perspective of Indigenous peoples involved in boreal caribou conservation.

The federal and provincial regimes acknowledge the role of Indigenous rights, knowledge, and wellbeing within boreal caribou conservation. In both provinces, there are conservation measures being implemented in partnership with First Nations (ECCC, 2024c; MECP, 2024a; MEPA, 2024e). In Alberta,

the CLFN-Canada and ACFN-MCFN-Canada conservation agreements sought to act as frameworks for nation-to-nation collaboration and Indigenous-led boreal caribou conservation (ECCC, 2019a, 2022b). In spite of these efforts, boreal caribou habitat and population trends continue to decline in both provinces, inhibiting Indigenous harvesting rights (ECCC, 2024c; MEPA, 2024e). Interview participants who had experience working with Indigenous peoples within boreal caribou conservation mentioned that the current treatment of Indigenous peoples within the regime was highly insufficient.

> The provinces haven't caught up [with Indigenous collaboration in conservation] … especially Ontario. Look, Ontario doesn't recognize Indigenous Protected and Conservation Areas … They're not coming to the table. They're not speaking with those nations. They're not looking at co-governance initiatives. They're just like totally regressive (Participant eNGO_1).

The public Indigenous Knowledge Reports for Alberta and Ontario informing the Federal Recovery Strategy reaffirm the cultural importance of caribou, as well as disappointment in its conservation. Indigenous peoples participating in the Ontario workshops expressed sadness about the management and status of caribou, as well as the expectation for governments to take responsibility, improve their approaches, and better balance industry with conservation (ECCC, 2011d). In Alberta, participants underlined the desire for large, protected areas for caribou, including the protection of the entire Little Smoky range (ECCC, 2011c). Some of the nations mentioned other issues such as illness, water and air pollution, oil spills, cervid diseases affecting harvests, regulatory capture from the oil industry, and more (ECCC, 2011c, 2011b). This aligns with information shared by interview participant Federal_1, who highlighted that Indigenous communities and First Nations often experience many intersectional socioecological issues, and that these must be addressed in tandem with issues of caribou conservation.

The majority of interview respondents mentioned Indigenous leadership as a potential bright spot within the future of boreal caribou conservation. With some highlighting that the continual disturbance of boreal caribou habitat, population declines, and inadequate consultation or collaboration within planning – especially in Alberta – is a violation of Indigenous treaty and constitutional rights. However, Indigenous boreal caribou conservation should be Indigenous-led, community based, and/or co-produced in alignment with UNDRIP and the TRC's Calls to Action, with considerations for the overall wellbeing of First Nations and/or Indigenous communities (Hill et al., 2019; Polfus et al., 2014). When asked about future insights for boreal caribou, participant eNGO_5 responded:

> So if I were to look for where I see sparks of light, I would say indigenous-led conservation is an important one and that's where we're we might see some hope. But then we're going to have to stand with them and help them convince these governments to do the right thing. Because again, they would be standing up against the same system I've just described that is set up to extract and exploit and for them to stand up and say no, no, no, these waters and these areas are so important culturally and ecologically that we need to keep them and leave them alone. That's also going against the [grain], so we need to stand with them and so hopefully Canadians will see that … So yeah, but I think it's probably going to get a bit darker before it gets better, but that doesn't mean we give up. And so I just want to flag that we don't give up and we just keep fighting (Participant eNGO_5).

X. Conclusions

Through a literature review, the creation and application of an evaluation framework, and semi-structured interviews with 14 key stakeholders, this honours thesis set out to answer the question:

Is Canada's legislative, regulatory, and policy-based biodiversity conservation regime effectively protecting and recovering boreal caribou in Alberta and Ontario?

The simple answer is no, from a species conservation lens, the regimes in Alberta and Ontario are not effective. In spite of boreal caribou decline being documented for decades, and over a decade of coordinated federal and provincial conservation planning, on-the-ground progress for boreal caribou is extremely limited in both provinces. In Alberta, habitat disturbance is extreme and accelerating, whilst stable population trends are reliant upon intensive wolf culling (MEPA, 2024e). In Ontario, nearly all subpopulations are declining, and habitat protections are weakening (Bethlenfalvy & Olive, 2021; ECCC, 2020b; SCA, 2025). This thesis concludes that the implementation and effectiveness of the legislative, regulatory, and policy-based boreal caribou conservation regimes in Alberta and Ontario are primarily inhibited by a lack of federal intervention in response to inadequate habitat protections, and insufficient conservation agreements being used as an alternative, as well as a provincial imbalance between boreal caribou habitat and anthropogenic land uses, expressed in inadequate range planning, habitat protection, and restoration laws and policies.

However, this thesis also reveals that policy and decision making within the boreal caribou conservation regime exist within a highly complex ecosystem of social, economic, political, and ecological factors. Boreal caribou act as a case study for the Wicked Problem of conserving species which share land with high-priority development and extraction. Confirming the key role of laws and policies within biodiversity conservation whilst highlighting the need for a holistic lens to conservation research. Furthermore, while this thesis did not have the scope to properly examine implications of boreal caribou conservation for Indigenous peoples, rights, and sovereignty, the importance of these factors for future research cannot be understated. Findings also underlined that efforts to involve Indigenous peoples within boreal caribou conservation cannot act in isolation to other socioecological issues facing First Nations.

A) Outlooks for boreal caribou and the boreal landscape

Based on the findings of this thesis, the future for boreal caribou in Alberta and Ontario is grim. As oil and gas, mining, and forestry continue to expand throughout their ranges, habitat protection is lacking and habitat recovery is highly uncertain. Thus far, there has not been a positive example of boreal caribou being reintroduced and recovered within a disturbed range. Uncertainty is further complicated by pressures such as warming temperatures, intensifying wildfire regimes, white-tailed deer encroachment, and disease spread. In Alberta, the likelihood of extirpation for ranges such as Slave Lake, Little Smoky, and Nipisi is increasing, despite intensive wolf culling. In Ontario, the LSCR is yet to have a comprehensive management plan in spite of isolation, declining populations, and the need for translocations. As this conclusion was being written, the ESA was officially repealed in Ontario and replaced with the SCA. Although boreal caribou are still listed as threatened under this new act, the

weakened definitions for habitat – amongst other changes – are worrisome and federal intervention seems unlikely.

As umbrella and indicator species, boreal caribou reflect the health of the surrounding boreal ecosystems. Based on this case study, the boreal landscape is not being adequately protected, recovered, or prioritized in the face of competing priorities for natural resource extraction, accelerated economic growth, and environmental deregulation. As the North opens up for development and governments promise to prioritize sustainable growth, the boreal caribou conservation regime demonstrates that relatively robust laws, policies, and plans do not equate to tangible nor sufficient progress. The case of boreal caribou directly aligns with existing criticisms regarding the treatment of boreal ecosystems and resources within law and policy. This primarily includes an overall lack of alignment between science and policy, expressed by the lack of proactive disturbance avoidance, adequate cumulative disturbance considerations, and effective restoration within the regulation of project lifecycles (Malcolm et al., 2025; WCS Canada, 2026; Wells et al., 2020). Improved Indigenous engagement, collaboration, and leadership within land use planning and resource governance is additionally critical for the wellbeing of Canada's boreal caribou and larger boreal socioecological systems (Bélisle et al., 2025; Mantyka-Pringle et al., 2025; Wells et al., 2020).

In spite of some claims, the majority of actors advocating for better boreal caribou conservation do not wish for harm to industrial sectors or local economies. While caribou and industry often have a significantly dichotomous relationship, interview participants as well as external conservation entities, scientists, and other experts argue that there are ways to more sustainably share the landscape – both for the long-term benefit of nature and industry (Ontario Nature, 2019; Plotkin, 2019). These sources, as well as caribou literature such as Boan & Plotkin (2023) and Hummel & Ray (2008) underline that coexistence is not optional, despite being framed as such in most policy. Rather, it is essential to sustain our boreal landscapes, their wildlife, their biodiversity, and the countless ecosystem services they provide. Although controlled, sustainable growth is technically feasible, the decisions to prioritize short-term socioeconomic growth versus long-term sustainability are inherently political and values based. As boreal caribou decline and habitat disturbance increases within the context of continual industrial development, this case study illustrates how species at risk are undervalued when compared to agendas for growth within a natural resource economy. Thus highlighting issues which have inhibited Canada's broader biodiversity conservation for centuries.

B) Implications for biodiversity conservation in Canada

Boreal caribou embody the key challenges inhibiting federal and subnational biodiversity conservation regimes that have been outlined in the literature. Particularly, a lack of federal leadership associated with the constitutional authority of provinces and Canada's continual emphasis on natural resource extraction, as well as a lack of avoidance and overreliance on mitigation within industry governance (Ray et al., 2021). The case of boreal caribou highlights that effective federal intervention remains unlikely in the context of continual provincial failures to protect habitat. This calls into question the overall strength of SARA as one of the key federal laws for biodiversity conservation. Findings also highlight inherent linkages between natural resource governance and biodiversity conservation regimes,

particularly the implications of avoidance, mitigation, restoration, and cumulative disturbance policies within wildlife protection and recovery. Thus underlining the complications borne from seemingly dichotomous provincial responsibilities for natural resource development and biodiversity conservation. Furthermore, the boreal caribou case study demonstrates the plethora of values, priorities, and system components which make biodiversity conservation a Wicked Problem for policymakers.

To help meet its commitments under the UN Convention on Biological Diversity, Canada's 2030 Nature Strategy seeks to "ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species … and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence" (ECCC, 2024a, pg. 40). The case of boreal caribou in Alberta and Ontario demonstrate that neither federal nor provincial conservation regimes are adequately aligning with this target. However, just as boreal caribou illustrate the flaws in Canada's legislative, regulatory, and policy-based biodiversity conservation, they can also act as a vehicle for change. In managing and conserving nature for species like boreal caribou, governments can ensure a safer, more secure future for all plants, wildlife, and people. Boreal caribou are a stark reminder that if we are to benefit from the immense value of Canada's biodiversity, we must learn to share and sustain the land. That being said, it is time for Canada's governing actors, land managers, and land users to actually treat such coexistence as a necessity, rather than simply planning for it. These sentiments are captured by the following quote from Hummel & Ray (2008, pg. 25):

> Finally, it may just be that caribou are so culturally and ecologically important that they will serve not as *victims* but rather as *arbiters* of what happens to the North. Certainly no other animal has the same power is better placed to inspire change. And since caribou above all need space – and a lot of it – sorting things out for this species would have formative consequences for a huge expanse of land – everything from the boreal forest to the High Arctic Islands – which constitutes almost half the area of North America.
>
> Improbable? Beyond hope? We don't think so; we don't think we can afford to think so. After all, it not caribou, then what other natural element of the North will bring humanity to its senses?

XI. References

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XII. Appendices

Appendix A: Federal biological materials

Table A1. Boreal Caribou population and habitat condition information within federal range boundaries (ECCC, 2024). Trends for Alberta and Ontario are highlighted in green.

e ID	Range name	2012 recovery strategy					2017 progress report					2024 progress report				
		Population size (< 100, 100–300, or > 300)	Population trend	Disturbed habitat (%)			Population size (< 100, 100–300, or > 300)	Population trend	Disturbed habitat (%)			Population size (< 100, 100–300, or > 300)	Population trend	Disturbed habitat (%)		
				Fire	Anthro	Total			Fire	Anthro	Total			Fire	Anthro	Total
NT1	Northwest Territories	> 300	not available	24	8	31	> 300	not available	28	9	35	> 300[1]	not avalable[2]	22	10	30
BC1	Maxhamish	100–300	not available	0.5	57	58	100–300	declining[1]	2	67	68	100–300	increasing	2	69	69
BC2	Calendar	100–300	not available	8	58	61	100–300	declining[1]	16	53	61	100–300	declining	18	55	63
BC3	Snake-Sahtahneh	> 300	declining	6	86	87	100–300	declining[1]	5	77	79	> 300	increasing	4	79	79
BC4	Parker	< 100	not available	1	57	58	< 100	declining	3	57	57	< 100	not available	3	59	59
BC5	Prophet	< 100	not available	1	77	77	< 100	declining	10	78	78	< 100	not available	10	78	79
AB1	Chinchaga (including BC portion)	100–300	declining	8	74	76	100–300	declining	9	79	80	100–300	increasing[1]	7	80	81

AB2	Bistcho	100–300	declining	20	61	71	> 300	declining	40	58	75	> 300	stable	42	60	77
AB3	Yates	> 300	stable	43	21	61	100–300	stable	42	20	55	100–300	stable	48	21	58
AB4	Caribou Mountains	> 300	declining	44	23	57	> 300	declining	46	27	62	> 300	stable	38	29	56
AB5	Little Smoky	< 100	declining	0.2	95	95	100–300	stable	0.4	96	96	100–300	increasing[1]	0.4	96	96
AB6	Red Earth	100–300	declining	30	44	62	100–300	declining	40	48	72	> 300	increasing	38	50	73
AB7	West Side Athabasca River	100–300	declining	4	68	69	> 300	declining	5	70	72	> 300	stable	9	72	75
AB8	Richardson	100–300	not available	67	22	82	> 300	stable	74	23	88	> 300	stable	68	24	83
AB9	East Side Athabasca River	100–300	declining	26	77	81	> 300	declining	28	78	84	> 300	increasing[1]	32	80	85
AB 10	Cold Lake	100–300	declining	32	72	85	> 300	declining	33	76	87	> 300	stable[1]	14	77	79
AB1 1	Nipisi	< 100	not available	6	66	68	< 100	not available	9	75	77	< 100	declining	37	80	85
AB 12	Slave Lake	< 100	not available	37	63	80	< 100	not available	39	74	87	< 100	declining	37	77	88
SK1	Boreal Shield	not available	not available	55	3	57	> 300[1]	stable	58	3	60	> 300	stable	55	3	57
SK2	Boreal Plain	not available	not available	26	20	42	> 300	not available	30	20	45	not available	not available	26	22	44

MB1	The Bog	< 100	stable	4	12	16	100–300[1]	not available	6	14	19	100–300	declining	6	15	20
MB2	Kississing	< 100	stable	39	13	51	100–300[1]	not available	39	15	54	not available	not available	19	15	33
MB3	Naosap	100–300	stable	28	26	50	not available	not available	28	28	52	100–300	declining	28	29	52
MB4	Reed	100–300	stable	7	20	26	not available	not available	7	20	26	not available	not available	7	20	26
MB5	North Interlake	< 100	stable	4	14	17	< 100	not available	4	14	18	< 100	not available	4	17	21
MB6	William Lake	< 100	stable	24	14	34	< 100	not available	25	17	36	not available	not available	25	17	37
MB7	Wabowden	100–300	stable	10	19	28	100–300	not available	10	20	28	100–300	increasing	10	20	28
MB8	Wapisu	100–300	stable	10	14	24	not available	not available	11	13	24	100–300	not available	11	13	25
MB9	Manitoba North	not available	not available	23	10	32	not available	not available	23	11	33	not available	not available	23	12	34
MB 10	Manitoba South	not available	not available	4	11	15	not available	not available	4	12	16	not available	not available	4	13	17
MB 11	Manitoba East	not available	not available	26	3	29	not available	not available	26	3	29	> 300	stable	26	3	29
MB 12	Atikaki-Berens	> 300	stable	31	6	35	not available	not available	29	6	34	> 300	not available[2]	27	6	32
MB 13	Owl-Flinstone	< 100	stable	25	18	39	< 100	not available	25	18	39	< 100	not available[3]	28	18	43

ON1	Sydney	not available	stable	28	33	58	< 100	declining	27	25	49	not available	not available	29	27	55
ON2	Berens	not available	not available	34	7	39	100–300[1]	declining	31	6	37	not available	not available	36	7	42
ON3	Churchill	not available	not available	6	28	31	100–300	declining	8	28	34	not available[2]	not available	7	31	36
ON4	Brightsand	not available	not available	18	28	42	100–300	declining	19	26	41	not available[2]	not available	10	28	35
ON5	Nipigon	100–300	stable	7	25	31	100–300	declining	7	25	30	not available	not available	7	26	32
ON6	Coastal	> 300	not available	0	16	16	100–300	declining	0	15	15	< 100[3]	not available	0.4	16	16
ON7	Pagwachuan	not available	not available	0.9	26	27	100–300	stable	0.7	27	27	not available	not available	0.8	29	29
ON8	Kesagami	> 300	declining	3	36	38	100–300[1]	declining	3	37	40	> 300[2,4]	not available	3	38	41
ON9	Far North	> 300	not available	14	1	15	> 300	declining	15	1	16	> 300	not available	13	2	14
QC1	Val d'Or	< 100	declining	0.1	60	60	< 100	declining	0.2	65	65	< 100	declining[1]	0.2	67	67
QC2	Charlevoix	< 100	stable	4	77	80	< 100	declining	4	80	82	< 100	declining[1]	4	80	83
QC3	Pipmuacan	100–300	stable	11	51	59	100–300	declining	11	60	68	100–300	declining	12	63	70
QC4	Manouane	> 300	stable	18	23	39	≥ 100[2]	stable	18	26	41	not available	not available	14	29	40
QC5	Manicouagan	100–300	increasing	3	32	33	≥ 100[2]	stable	3	36	37	not available	not available	3	40	41

QC6	Quebec	> 300	stable	20	12	30	> 300	not available	20	13	32	> 300	not available	18	13	30
NL1	Lac Joseph	> 300	declining	7	1	8	> 300	declining [1]	12	2	14	> 300	declining	11	2	12
NL2	Red Wine Mountain[2]	< 100	declining	5	3	8	100–300[3]	not available[4]	7	3	9	100–300	increasing	5	3	8
NL3	Mealy Mountain	> 300	declining	0.4	1	2	> 300	not available	1	1	2	> 300[5]	declining	0.8	1	2

Table A2. Risk assessments for federal ranges (SS = self-sustaining; NSS = not self-sustaining) (ECCC, 2024). Assessments for Alberta and Ontario highlighted in green.

Range ID	Range Name	Risk Assessment
NT1	Northwest Territories	SS
BC1	Maxhamish	NSS
BC2	Calendar	NSS
BC3	Snake-Sahtahneh	NSS
BC4	Parker	NSS
BC5	Prophet	NSS
AB1	Chinchaga (including BC portion)	NSS
AB2	Bistcho	NSS
AB3	Yates	NSS
AB4	Caribou Mountains	NSS
AB5	Little Smoky	NSS
AB6	Red Earth	NSS
AB7	West Side Athabasca River	NSS
AB8	Richardson	NSS
AB9	East Side Athabasca River	NSS
AB10	Cold Lake	NSS
AB11	Nipisi	NSS
AB12	Slave Lake	NSS

Range ID	Range Name	Risk Assessment
MB6	William Lake	NSS
MB7	Wabowden	SS
MB8	Wapisu	SS
MB9	Manitoba North	NSS/SS
MB10	Manitoba South	SS
MB11	Manitoba East	SS
MB12	Atikaki-Berens	SS
MB13	Owl-Flinstone	NSS/SS
ON1	Sydney	NSS
ON2	Berens	NSS/SS
ON3	Churchill	SS
ON4	Brightsand	NSS/SS
ON5	Nipigon	SS
ON6	Coastal	SS
ON7	Pagwachuan	SS
ON8	Kesagami	NSS
ON9	Far North	SS
QC1	Val d'Or	NSS

SK1	Boreal Shield	SS
SK2	Boreal Plain	NSS/SS
MB1	The Bog	NSS/SS
MB2	Kississing	NSS
MB3	Naosap	NSS
MB4	Reed	SS
MB5	North Interlake	NSS/SS

QC2	Charlevoix	NSS
QC3	Pipmuacan	NSS
QC4	Manouane	NSS/SS
QC5	Manicouagan	SS
QC6	Quebec	SS
NL1	Lac Joseph	NSS/SS
NL2	Red Wine Mountain[2]	NSS
NL3	Mealy Mountain	NSS/SS

Figure A1. Disturbance management thresholds for boreal caribou: The probability of observing stable or positive growth ($\lambda \geq$ stable) of boreal caribou local populations over a 20-year period at varying levels of total range disturbance (fires $\leq$ 40 years + anthropogenic disturbances buffered by 500 m) (ECCC, 2020b).

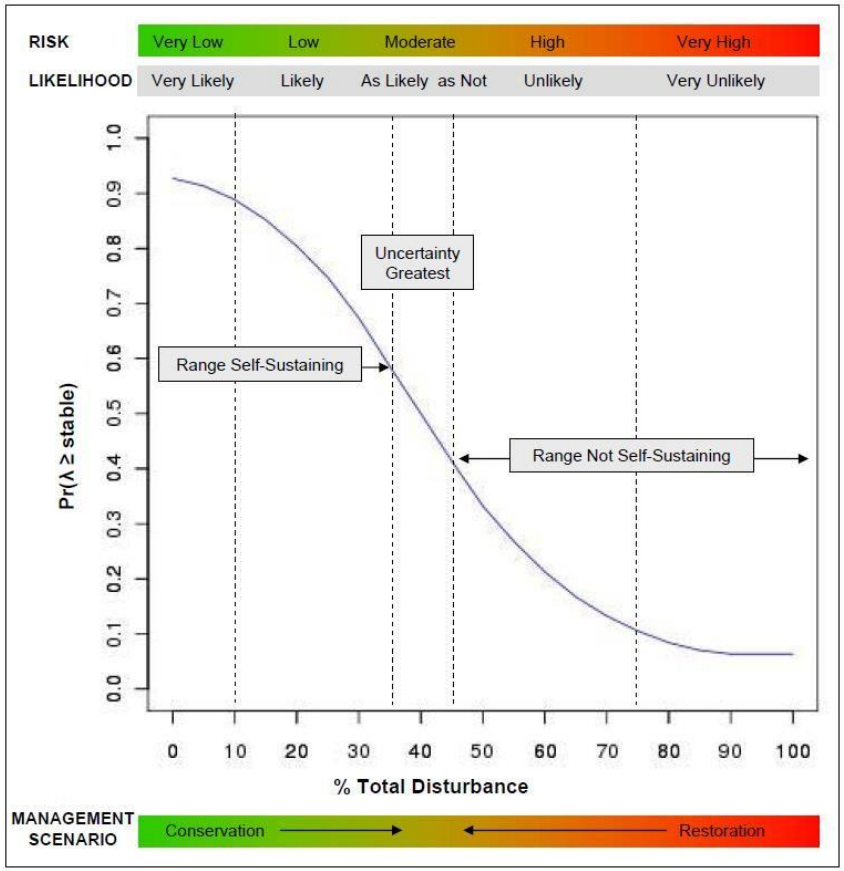


Table A3. Disturbance management thresholds for boreal caribou: Intervals of total range disturbance associated with varying levels of certainty in outcome and assigned risk relative to achieving stable or positive population growth (ECCC, 2020b).

Probability of Sustained Stable or Positive Growth	**Likelihood of Desired Outcome**	**Disturbance Interval**	**Level of Risk**
≥ 90%	Very Likely	≤ 10%	Very Low
< 90 to ≥ 60%	Likely	> 10 to 35%	Low
< 60 to ≥ 40%	As Likely as Not	> 35 to 45%	Moderate
< 40 to ≥ %10	Unlikely	> 45 to 75%	High
< 10%	Very Unlikely	>75%	Very High

Figure A2. Boreal caribou distribution across ecozones and ecoregions in Canada (ECCC, 2020b). The tables below only describe habitat attributes for zones and regions overlapping with Alberta and Ontario's ranges.

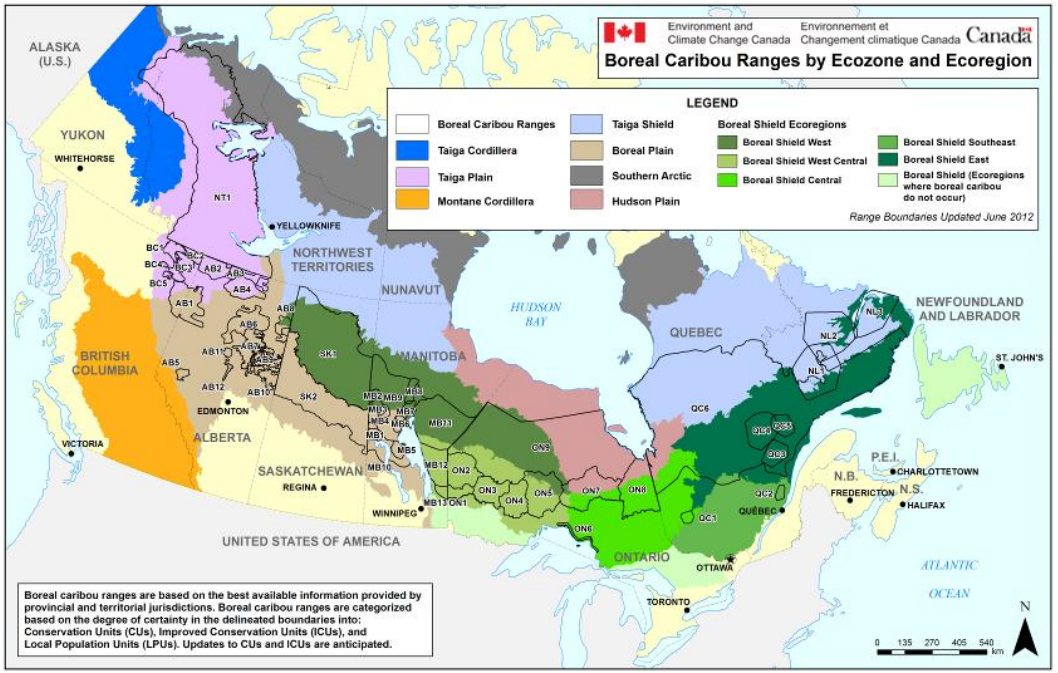


Table A4. Biophysical attributes for boreal caribou critical habitat in the Taiga Plain ecozone (ECCC, 2020b).

Type of habitat	Description
Broad scale	Mature forests (jack pine, spruce, and tamarack) of 100 years or older, and open coniferous habitat. Large areas of spruce peat land and muskeg with preference for bogs over fens and upland and lowland black spruce forests with abundant lichens, and sedge and moss availability. Flatter areas with smaller trees and willows, hills and higher ground.
Calving	Open coniferous forests, tussock tundra, low shrub, riparian, recent burned areas, south and west aspects and hills and higher locations. Muskegs, marshes, staying close to water sources. Caribou observed on small islands of mature black spruce or mixed forests within peat lands, in old burns at the edge of wetlands, in alder thickets with abundant standing water and on lake shores.
Post-calving	Muskegs or areas with access to muskegs, open meadows on higher ground, close to water (lakes and rivers) and mixed bush areas. Open coniferous forests with abundant lichens, low shrub, riparian, tussock tundra, sparsely vegetative habitat, recent burns and west aspects. Old burns and neighbouring remnant unburned forests selected in late spring and early summer.
Rutting	Open coniferous and mixed wood forests, low shrub, riparian, tussock tundra, recent burns and west aspect. Still use muskegs that harbor ground lichen and sedges, mixed bush areas, areas of higher ground. Regenerating burns and sparsely vegetated habitat.
Winter	Open coniferous forests (black spruce and pine) that provide adequate cover with abundant lichens, riparian areas. Caribou observed in muskeg areas in early winter. Spruce-lichen forests, fire regenerated, sparsely vegetated habitat, herbaceous and tall shrub habitat and sphagnum moss with scattered spruce. As snow depth increases, they remain more often in areas of dense pine or thickly wooded black spruce, with hanging lichen and remains access to open, mixed vegetation for ground forage.
Travel	Females show high fidelity to calving sites among years (i.e. within 14.5km). Many caribou shift the pattern of use based on seasonal preferences, in large multi-habitat areas. Rates of movement increase during the rut and are greatest in winter.

Table A5. Biophysical attributes for boreal caribou critical habitat in the Boreal Plain ecozone (ECCC, 2020b).

Type of habitat	Description
Broad scale	Late seral-stage (> 50 years old) conifer forest (jack pine, black spruce, tamarack), treed peat lands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peat land complexes. Higher elevations (~1135m). Selected old (>40 years) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peat lands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.

Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peat lands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peat lands and muskeg during summer.
Winter	Treed peat lands, treed bog and treed fen and open fen complexes with > 50% peat land coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 years old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peat lands.

Table A6. Biophysical attributes for boreal caribou critical habitat in the Boreal Shield West ecoregion (ECCC, 2020b).

Type of habitat	**Description**
Broad scale	Conifer/tamarack-dominated peat land complexes, muskegs or bogs, use dry islands in the middle of muskegs and upland moderate to dense mature conifer forests (jack pine, black spruce, tamarack) with abundant lichens. Hilly or higher ground, lots of smaller lakes in area.
Calving	Peat lands, stands dominated by black spruce, mature forest stands and treed muskeg all used for calving. Caribou will use islands, small lakes, lakeshores during calving.
Post-calving	Wooded lakeshores, islands, sparsely treed rock, upland conifer-spruce and treed muskeg are used in summer. Sites with a high abundance of arboreal lichen are important for foraging in some areas. Dense conifer and mixed forest are also used.
Rutting	Dense and sparse conifer and mixed forests. Open riparian habitats are also used during the rut.
Winter	Mature upland spruce, pine stands and treed muskeg. Jack pine dominated forests. Caribou select sparse and dense conifer, mixed forests and treed bogs. In some areas caribou will select habitat with greater visibility and further away from forest edges.
Travel	Some males move > 100km during the rutting season. Traditional travel routes between summer and winter ranges occur in large peat land complexes. Caribou migrate in a north to south pattern.

Table A7. Biophysical attributes of boreal caribou habitat in the Boreal Shield West Central ecoregion (ECCC, 2020b).

Type of habitat	**Description**
Broad scale	Mature conifer uplands and conifer/tamarack dominated lowlands. Conifer/tamarack-dominated peat lands, muskegs with abundant arboreal lichens, upland mature conifer forests stands with abundant terrestrial lichen and rocky areas with sparse trees. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 years) burns.
Calving	Forested wetlands/treed bog, old burns, sparse conifer and dense spruce. Need lichen availability. Peat lands, raised hillrocks with large muskeg areas, forested islands and shorelines of large lakes selected during calving. Jack pine or jack pine/black spruce forests also used for calving.
Post-calving	Peat land with forested islands, islands, and shorelines selected during summer. Mature, dense forest stands.
Rutting	Semi-open and open bogs and mature conifer uplands selected during rutting. Terrestrial lichens and arboreal lichens, sedges and bog ericoids (*Andromeda glaucophylla*, *Chamaedaphne calyculata*, *Kalmia polifolia*, and *Ledum groenlandicum*) are important sources of forage.
Winter	Mature coniferous stands. Areas with a high proportion of lakes (> 5-100ha) with convoluted shorelines. Caribou forage in areas with high lichen abundance and fewer shrubs in jack pine and black spruce stands with low tree densities, low basal areas and short heights. Caribou select open bogs, intermediate to mature jack pine rock ridges, jack pine habitats with lichens and lakes, but move to jack pine ridges in mature conifer stands with lichen when winter conditions prevent foraging in bogs. Arboreal lichens, terrestrial lichens, sedges and ericaceous species are an important source of forage.
Travel	Travel mainly in conifer forests, avoiding open habitats (e.g. lakes, disturbed areas, etc.) when migrating from summer to winter habitat. Use frozen lakes for travel during winter/spring, in some instances to reach islands for calving. Spring migration is not restricted to specific travel routes. Some move at a range of 100km during the rutting season. Caribou moved 8-60km away after logging operations were begun.

Table A8. Biophysical attributes for boreal caribou critical habitat in the Boreal Shield Central ecoregion (ECCC, 2020b).

Type of habitat	Description
Broad scale	Late seral-stage black spruce-dominated lowlands and jack pine dominated uplands. Open black spruce lowlands. Low-density late seral-stage jack pine or black spruce forests and black spruce/tamarack-dominated peat lands with abundant terrestrial and moderate arboreal lichens. Caribou also use areas with dry to moist sandy to loamy soils and shallow soils over bedrock. Elevations of 300m. Intermediate values of Normalized Difference Vegetation Index[af]. Selection for old (>40 years) burns.
Calving	Open canopies of mature black spruce and mesic peat land with ericaceous species for calving are selected for calving in the Claybelt region. Females with calves selected areas with more abundant ericaceous shrubs and terrestrial lichens during the summer compared to females without calves.
Winter	Large areas of contiguous forests dominated by black spruce. Open conifer forests or forests with lower tree densities where terrestrial and arboreal lichen are abundant and there is significant less snow (e.g. shorelines) are also selected.

Table A9. Biophysical attributes for boreal caribou critical habitat in the Hudson Plain ecozone (ECCC, 2020b).

Type of habitat	Description
Broad scale	Habitats selected generally to reduce predation risk. Shrub rich treed muskeg and mature conifer forests abundant in lichens. Shorelines of deep lakes and rivers (birch trees). Poorly drained areas dominated by sedges, mosses and lichens, as well as open black spruce and tamarack forests. Elevations of 150m. Intermediate levels of ruggedness[af] and Normalized Difference Vegetation Index[ag].
Calving	Mature conifer stand with and without lichens and muskegs. Preference for higher altitudes compared to habitat use during other periods.
Post-calving	Fens, bogs and lakes.
Rutting	Wetlands and conifer stands with lichen. Mature and regenerating conifer stands are also used, albeit to a lesser degree. Caribou use hills in the lowlands, treed islands in muskegs with several different tree species.
Winter	Dense and mature conifer forests with lichens and wetlands. Peat lands dominated by open bogs and terrestrial lichens. Large patches of intermediate and mature black spruce, shrub-rich treed muskeg and mixed conifer stands all used in late winter.
Travel	Movements greatest in fall/winter when caribou transition from calving to winter habitat. Long range movements are greater in areas with high moose densities, presumably to reduce predation risk.

Appendix B: Federal recovery planning materials

Figure B1. Population objectives as of 2019 (ECCC, 2020b).

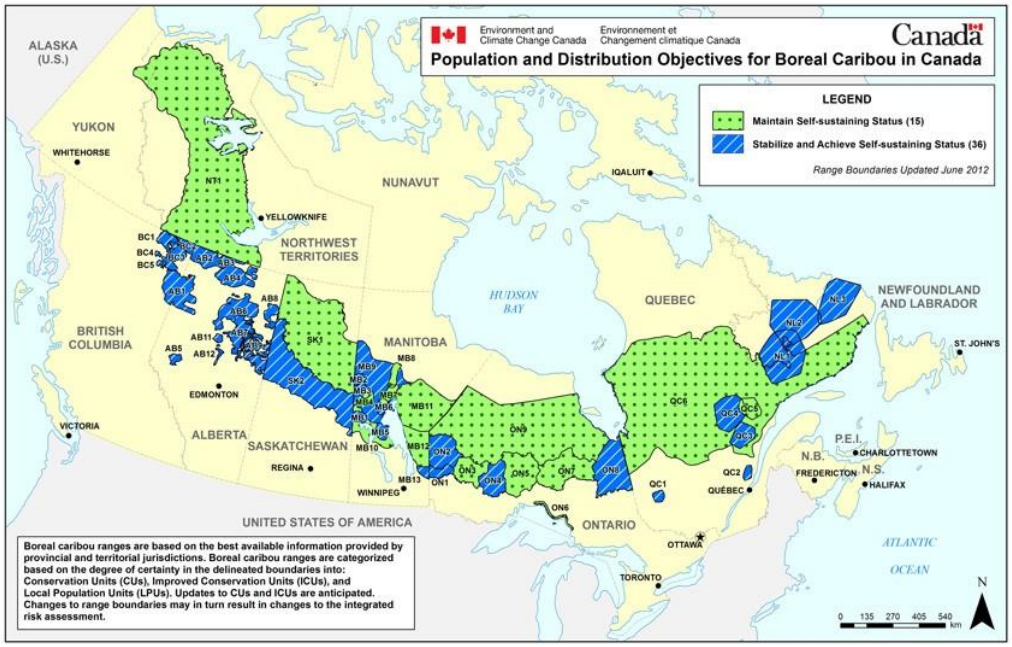


Table B1. Federal Recovery Strategy planning for boreal caribou (ECCC, 2020b).

Threat	Threat or Limitation	Priority	Broad Strategy to Recovery	General Description of Research and Management Approaches
Landscape Level Planning	Habitat alteration as a result of human land-use activities Habitat alteration as a result of natural processes	Urgent	Undertake landscape level planning that considers current and future boreal caribou habitat requirements	• Develop range plans (see Section 7.3) that outline range-specific population and habitat management activities with measurable targets to achieve recovery goal • Undertake coordinated land and/or resource planning to ensure that development activities are planned (type, amount, and distribution) and implemented at appropriate spatial and temporal scales (e.g. consider sensitive periods/areas such as calving)

				• Plan to maintain habitat within and between boreal caribou ranges, to maintain connectivity where required • Undertake coordinated planning among provincial and territorial jurisdictions that jointly manage ranges (i.e. transboundary ranges) to reach agreement on the overall strategic direction for local population recovery • Develop range-appropriate cumulative effects assessment approaches. Very large ranges (Northwest Territories (NT1), Far North (ON9), and Quebec (QC6)) will require different approaches • Communicate among governments, wildlife management boards, Indigenous communities and organizations, non-governmental organizations, and other organizations responsible for land and/or resource management and/or conservation within the boreal forest to ensure coordination of planning and management and, where applicable, facilitate cross-jurisdictional cooperation and implementation
Habitat Management	Habitat alteration as a result of human land-use activities Habitat alteration as a result of natural processes	Urgent	Manage habitat to meet current and future habitat requirements of boreal caribou	• Protect key areas for boreal caribou through appropriate habitat management and protection mechanisms (e.g. legislated protected areas, no development zones, mixed use zones, and conservation agreements) • Undertake coordinated actions to reclaim boreal caribou habitat through restoration efforts (e.g. restore industrial landscape features such as roads, old seismic lines, pipelines, cut-lines, temporary roads, cleared areas; reconnect fragmented ranges) • Measure and monitor disturbance on the landscape (see Section 4.2.1). Update range plans to reflect changes in habitat condition • Where ranges are highly disturbed, identify areas that will be prioritized for boreal caribou recovery and targeted for early habitat reclamation. Incorporate management guidelines and actions into permitting conditions for activities identified as affecting boreal caribou or their habitat • For ranges that are jointly managed (i.e. transboundary), undertake collaborative habitat management among responsible provincial and territorial jurisdictions to ensure equitable efforts are underway • Encourage stewardship of boreal caribou habitat among industries, interest groups, and Indigenous communities and organizations • Assess the impact of natural disturbance (e.g. forest fire) on the long-term habitat management of boreal caribou ranges. Where necessary, incorporate short- and long-term boreal caribou habitat considerations, along with other considerations, into forest fire management

				• Monitor habitat and use adaptive management to assess progress and adjust management activities as appropriate
Mortality and Population Management	Predation	High	Manage predators and alternate prey	• Where necessary, apply predator management as an interim management tool, in conjunction with other management approaches (e.g. habitat restoration and management), to achieve boreal caribou local population growth. Alternate prey management may also be applied in conjunction with predator management • Where applicable, consider effective indirect predator management techniques as an alternative to direct predator management (e.g. limiting predator access, penning of boreal caribou) • Where mortality and/or population management are implemented, monitor boreal caribou local populations and consider monitoring the effects on other impacted species
Mortality and Population Management	Hunting	Medium	Manage direct human-caused mortality of boreal caribou	• Determine the extent of current hunting, and the effects of hunting on boreal caribou local populations • In consultation with Indigenous people, develop and implement harvest strategies, where required to achieve boreal caribou recovery • Assess and address impacts of hunting regulations for all boreal caribou ranges that overlap with other legally hunted Woodland Caribou ecotypes • Reduce illegal hunting through stewardship, education and enforcement
Population Monitoring	Knowledge gaps: Population dynamics (trends, size, structure, and distribution)	High	Conduct population studies to better understand population structure, trends and distribution	• Where necessary, refine understanding of the structure and functioning of boreal caribou local populations • Monitor population size and/or trend, as well as changes in boreal caribou distribution over time and in relation to habitat condition and disturbance • Coordinate data collection, data-sharing, and planning between or among neighbouring provincial and territorial jurisdictions to establish transboundary ranges where appropriate • Revise boreal caribou range delineations based on updated population information from science and Indigenous Knowledge
Population Monitoring	Knowledge gaps: boreal caribou health and condition	Low – Medium	Monitor boreal caribou health and condition	• Gather information, monitor and manage the health and body condition of individual boreal caribou

Population Monitoring	Knowledge gaps: boreal caribou sensory disturbance	Low - Medium	Monitor and manage sensory disturbance of boreal caribou	• Assess the extent, distribution, and possible consequences of sensory disturbance (e.g. aircraft traffic, snowmobiles, all-terrain vehicles, tourism, research, and equipment associated with oil and gas or forestry) on boreal caribou, and where required reduce its effects, particularly during sensitive periods (e.g. calving) • Minimize disturbance to boreal caribou during monitoring and research programs, and select monitoring and research techniques that are the least intrusive

Table B2. Federal Action Plan implementation schedule for pillar 1, knowledge to support recovery (ECCC, 2018).

Subject	**#**	**Recovery measures**	**Lead federal department(s)**	**Broad strategy for recovery**	**Priority**	**Threats or objectives addressed**	**Timeline**
Knowledge to support recovery	1	Engage with Wildlife Management Boards, Indigenous peoples, other federal departments, provincial and territorial governments, academics, industry and environmental non-governmental organizations to design and establish a National Boreal Caribou Knowledge Consortium to share lessons learned, and pool capacity and capabilities to address key knowledge gaps.	ECCC	Landscape Level Planning	High	Knowledge gaps	Launch of the Consortium is targeted for June 2018
Knowledge to support recovery	2	Establishment of a network of designated adaptive management ranges and pilot areas where experimentation will be encouraged and carefully monitored, and where results will be shared broadly	ECCC	Landscape Level Planning	High	Knowledge gaps	Ongoing
Knowledge to support recovery	3	Conduct research to enhance understanding of the relationship between disturbance and boreal caribou population response to inform range and action planning.	ECCC NRCan	Landscape Level Planning Population Monitoring	High	Habitat alteration as a result of human land-use activities and natural processes Knowledge gaps: Population dynamics	Results will be available in spring 2018
Knowledge to support recovery	4	Conduct scientific analysis to inform a national risk management approach to secure recovery outcomes for boreal caribou ranges in Canada.	ECCC	Landscape Level Planning Population Monitoring	High	Knowledge gaps	December 2018

Knowledge to support recovery	5	Conduct research to develop robust approaches and standards for identification of local population ranges.	ECCC	Population Monitoring	High	Knowledge gaps: Population dynamics	September 2018
Knowledge to support recovery	6	Conduct research to increase our understanding of the current and predicted impacts of climate change on boreal caribou critical habitat and population status. Assess implications of projected impacts and identify adaptive strategies to support conservation and recovery.	ECCC	Landscape Level Planning Habitat Management Population Monitoring	Medium	Climate change	Ongoing
Knowledge to support recovery	7	Conduct research to inform boreal caribou recovery in the context of multi-species conservation and recovery.	ECCC	Landscape Level Planning	Medium	None	Ongoing
Knowledge to support recovery	8	Conduct strategic research on space-based earth observation technology and approaches to improve efficiency and accuracy of mapping and monitoring natural and anthropogenic disturbance, habitat quality of undisturbed areas and habitat recovery.	ECCC	Habitat Management	High	Habitat alteration as a result of human land-use activities and natural processes Knowledge gaps: Habitat monitoring	Ongoing
Knowledge to support recovery	9	Conduct research to optimize habitat recovery through forest landscape restoration approaches and the development of tools and practices to support restoration success at the site level.	ECCC NRCan	Habitat Management	High	Knowledge gaps	Ongoing
Knowledge to support recovery	10	Lead the organization of the 17th North American Caribou Workshop as a key mechanism for sharing knowledge and lessons learned, reporting on the status of recovery activities, and discussing approaches to address key challenges to caribou conservation and recovery.	ECCC with support from NRCan	Landscape Level Planning	Medium	Knowledge gaps	Conference to be held October 29 - November 2, 2018

Table B3. Federal Action Plan implementation schedule for pillar 2, recovery and protection (ECCC, 2018).

Subject	**#**	**Recovery measures**	**Lead federal department(s)**	**Broad strategy for recovery**	**Priority**	**Threats or objectives addressed**	**Timeline**
Critical habitat protection	11	Undertake protection assessments of critical habitat on non-federal lands.	ECCC	Landscape Level Planning Habitat Management	High	Critical habitat protection	2017-2018

Critical habitat protection	12	Explore the establishment of conservation agreements with each province and territory, and other parties where appropriate, to formalize the commitments each party is making to protect and recover boreal caribou.	ECCC	Landscape Level Planning Habitat Management	High	Critical habitat protection	2018-2019
Critical habitat protection	13	Protect critical habitat on federally-administered lands through section 58 .	ECCC	Landscape Level Planning Habitat Management	High	Critical habitat protection	Publish order in Canada Gazette in 2018
Critical habitat protection	14	Work with Indigenous governments, Wildlife Management Boards, and provincial and territorial governments, as required under land claims agreements to collaboratively develop a path forward for the protection of critical habitat on Indian Act lands and lands held by Indigenous peoples under land claims agreements.	ECCC	Landscape Level Planning Habitat Management	High	Critical habitat protection	2018
Critical habitat protection	15	Collaboratively develop a path forward for the protection of critical habitat on devolved lands.	ECCC	Landscape Level Planning Habitat Management	High	Critical habitat protection	2018
Critical habitat identification in northern Saskatchewan's Boreal Shield range (SK1)	16	Identify critical habitat for SK1 in a proposed amendment to the Recovery Strategy.	ECCC	Landscape Level Planning	High	Critical habitat identification	Summer 2018
Protection of individuals	17	Consult and work with provinces and territories and Wildlife Management Boards to assess the best available information to determine whether the species is effectively protected on non-federal lands in the provinces and on lands not under the authority of the Minister of Environment and Climate Change or the Parks Canada Agency in the territories.	ECCC	Population Monitoring	High	Protection of individuals	2018
Stewardship	18	Continue to support and undertake stewardship actions, including funding stewardship projects for boreal caribou that are strategic in nature and have the potential to advance recovery.	ECCC	Landscape Level Planning Habitat Management	High	Habitat alteration as a result of human land-use activities and natural processes	Ongoing
Multi-species planning to facilitate recovery	19	When planning and implementing recovery measures for boreal caribou, the federal government will continue to look for associated benefits and to minimize any potential adverse	ECCC	Landscape Level Planning Habitat Management	Medium	None	Ongoing

		impacts to other species and take those into consideration.					

Table B4. Federal Action Plan implementation schedule for pillar 3, reporting on progress (ECCC, 2018).

Subject	**#**	**Recovery measures**	**Lead federal department(s)**	**Broad strategy for recovery**	**Priority**	**Threats or objectives addressed**	**Timeline**
and population monitoring	20	Complete assessment to inform collaborative development of national caribou monitoring standards building on the NBCTC report on caribou monitoring methods and integrating new technology.	ECCC	Population Monitoring	Medium	Knowledge gaps: Population dynamics	January 2019 with annual review
Habitat and population monitoring	21	Monitor and assess habitat disturbance and recovery across 51 ranges by completing the 5-year update to the 2010 disturbance mapping using 2015 Landsat imagery at both 30 metre and 15 metre resolutions.	ECCC	Habitat Management	High	Habitat alteration as a result of human land-use activities and natural processes	Completed for 30 metre March 2018 for 15 metre
Habitat and population monitoring	22	Update range boundaries and status of self-sustainability of local populations, based on new or more refined evidence provided by the provincial and territorial jurisdictions, as well as the results of ECCC's updated disturbance mapping, in a proposed amendment to the Recovery Strategy.	ECCC	Habitat Management Population Monitoring	High	Knowledge gaps: Population dynamics and habitat alteration	To be determined
5-year report on the implementation of the recovery strategy	23	Publish the first 5-Year Report on the Implementation of the Recovery Strategy for boreal caribou.	ECCC	Landscape level planning Habitat Management Mortality and Population Management Population Monitoring	Not applicable	None	Completed
Reports on steps to protect critical habitat	24	If the Minister determines that any portion of critical habitat is unprotected, prepare a report on steps being taken to protect critical habitat.	ECCC	Landscape Level Planning Habitat Management	High	Habitat alteration as a result of human land-use activities	April 2018

Table B5. Examples of mitigation techniques to avoid destruction of critical habitat (ECCC, 2020b).

Considerations when planning development	Examples of possible mitigation techniques
Threshold of disturbance in the short- and long-term	Minimize the footprint of development, consider locations where habitat is already disturbed; restore habitat to provide continual availability of undisturbed habitat over time.
Ecological factors	Avoid destruction of biophysical attributes.
Spatial configuration	Minimize disturbance by adapting its shape (small polygon vs. linear).
Sensory disturbances	Mitigation of noise, light, smells, vibrations to prevent harassment of boreal caribou.
Pollution	Mitigate pollution through scrubbers or other techniques. Some types of pollution may be especially of concern (e.g. air pollution that increases acidity may affect lichens on which boreal caribou depend for food).
Timing of disturbance	Certain types of disturbance could occur only in seasons when boreal caribou are not using the area or do not respond negatively to the activity.
Induced effects	New access roads in previously undisturbed areas may induce further disturbance by opening territory to more development, recreational users, etc. This could be prevented by an access management plan that could include limiting access, decommissioning roads, etc.
Corridors that support predator movement	Impact may be reduced by using techniques that prevent use of corridor by predators (no compaction of snow, immediate replanting of trees, etc.).
Increases in predator and/or alternate prey populations	Mortality management techniques may be considered where the killing of predators would be a final, necessary option implemented temporarily, along with habitat restoration.

Appendix C: Federal progress reporting materials for Alberta

Figure C1. Alberta graphic summary from Federal Report on the Progress of the Recovery Strategy Implementation (2017 To 2022) and the Action Plan Implementation (2018 to 2023) (ECCC, 2024).

Alberta
Overview

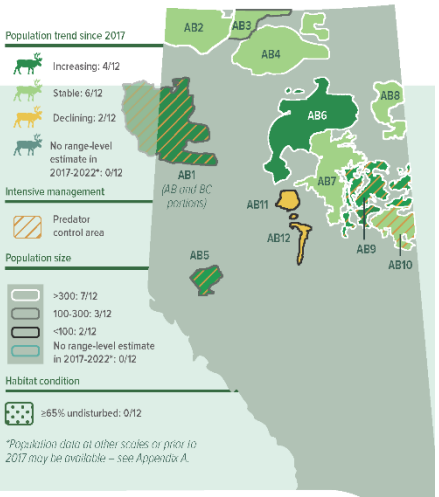
Federal-Provincial Agreement:

Alberta and Canada signed a five-year conservation agreement in 2020 to support the conservation and recovery of boreal and southern mountain caribou to naturally self-sustaining status within 50-100 years.

Agreement commitments support achieving and maintaining **at least 65% undisturbed habitat.**

Commitments Include

- Annual monitoring and public reporting of population trends and habitat condition.
- Continue and scale up provincial restoration programs and avoid disturbing treated areas.
- Landscape-level planning, including final sub-regional plans for all ranges by 2021-2025.
- Align access management plans and harvesting operations with caribou critical habitat outcomes.



Range Plans or Similar Plans:

Completed
Cold Lake (AB10)
Bistcho (AB2)

Final sub-regional plans in all ranges are expected by 2027.

Key Recovery Measures Since 2017:

818,658 ha included in the designation of protected areas.

~500 km of seismic lines received provincially-led restoration treatments.

Caribou monitoring including population trend (in all ranges), size (in two ranges), distribution, and health.

ECCC committed $33 million for projects in Alberta:

$12 million to Indigenous governments and organizations

$18 million to the province

$3 million to stakeholders

Partners committed **$117 million** in matching funds.

Further details on boreal caribou status and recovery progress since 2017 can be found in this Progress Report.

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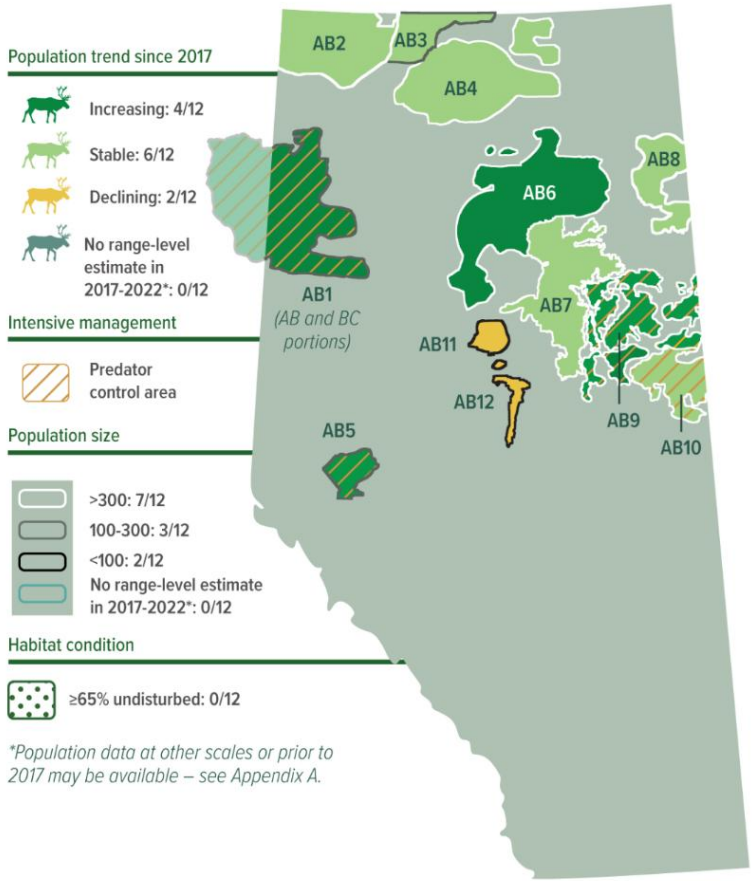


Table C1. Summary of recovery measures undertaken for strategy "undertake landscape level planning that considers current and future boreal caribou habitat requirements" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
The final Cold Lake Sub-regional Plan was posted April 8, 2022	Cold Lake (AB10), and Christina portion of East Side Athabasca River (AB9)	Completed (April 2022)	Government of Alberta
The final Bistcho Sub-regional Plan was posted April 8, 2022	Bistcho (AB2)	Completed (April 2022)	Government of Alberta
The Wandering River task force stage of the planning process has been completed. The task force recommendations report was completed, and drafting of the sub-regional plan is underway	East Side Athabasca River (AB9)	In progress (anticipated sub-regional plan finalization in 2023)	Government of Alberta
The Berland task force stage of the planning process has been completed. Drafting of the task force recommendations report is underway, and drafting of the sub-regional plan is anticipated to begin in 2023	Little Smoky (AB5) and A la Peche (southern mountain caribou range)	In progress (anticipated sub-regional plan finalization in 2024)	Government of Alberta
The Chinchaga (AB1) task force recommendations report has been completed and drafting of the sub-regional plan is anticipated to begin in 2023	Alberta portion of Chinchaga (AB1)	In progress (anticipated sub-regional plan finalization in 2024)	Government of Alberta
The Indigenous knowledge-based Tâdzié-Sagow Atihk (Caribou) Stewardship Plan was developed and publicly released in December 2022. Next steps include engaging with other First Nations and the Government of Alberta, as well as developing a restoration offsets standard and an Indigenous Guardians program	Red Earth (AB6), Richardson (AB8), East Side Athabasca River	Completed (December 2022)	Athabasca Chipewyan First Nation and Mikisew Cree First Nation

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
to monitor caribou and their habitat. This work is in alignment with a SARA s.11 agreement between the Government of Canada, Athabasca Chipewyan First Nation and Mikisew Cree First Nation	(AB9), West Side Athabasca River (AB7)		

Table C2. Summary of recovery measures undertaken for strategy “manage habitat to meet current and future habitat requirements of boreal caribou” (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
818,658 ha within boreal caribou distribution in Alberta have been protected since the 2017 Report on Implementation. This includes: • 232,158 ha in Red Earth (AB6) and Richardson (AB8) through the March 2019 establishment and January 2022 expansion of the Kitaskino Nuwenëné Wildland Provincial Park under Alberta's *Provincial Parks Act*, following collaboration with Mikisew Cree First Nation and other Indigenous communities • 586,500 ha in Red Earth (AB6), Richardson (AB8), and East side of the Athabasca (AB9) through a 2018 partnership between the Government of Alberta, the Government of Canada, Tall Cree First Nation, Syncrude and the Nature Conservancy of Canada (NCC), to establish and expand the Richardson, Dillon River, Birch Mountains, and Birch River wildland provincial parks under Alberta's *Provincial Parks Act*.	Red Earth (AB6), Richardson (AB8), East Side Athabasca River (AB9)	Complete	Government of Alberta Mikisew Cree First Nation Tall Cree First Nation ECCC Syncrude Nature Conservancy of Canada
Three Cold Lake Habitat Restoration projects were initiated in January 2019 and completed in March 2022 for a total of 457.6 km treated seismic lines and 537,470 trees planted. Following the above restoration treatments, two seedling survival assessment projects were initiated in May 2022	Cold Lake (AB10)	Restoration treatments completed (March 2022) Seedling survival assessments in progress (estimated completion in Fall 2022)	Government of Alberta Forest Resource Improvement Association of Alberta
Approximately 44 km of 6 m wide seismic lines received restoration treatments using the Provincial Restoration and Establishment Framework for Legacy Seismic lines in Alberta within Richardson Wildland Provincial Park and Marguerite River Wildland Provincial Park in Richardson (AB8)	Richardson (AB8)	Completed (August 2021)	Alberta Energy Regulator Canadian Forest Service Alberta InnoTech Government of Alberta

Legacy seismic line restoration treatments within Little Smoky (AB5), including mechanical site preparation, tree felling deactivation and tree planting, is underway for an expected total of approximately 763 km and 849,000 seedlings to be planted	Little Smoky (AB5)	In Progress (estimated completion in Fall 2022)	Government of Alberta Forest Resource Improvement Association of Alberta
Inventories of the current vegetation state of seismic lines for restoration have been completed within Bistcho (AB2), and are underway in Richardson (AB8), Yates (AB3), Caribou Mountains (AB4), Chinchaga (AB1) and West Side Athabasca River (AB7)	Alberta portion of Chinchaga (AB1) Bistcho (AB2) Yates (AB3) Caribou Mountains (AB4) West Side Athabasca River (AB7) Richardson (AB8)	Completed (February 2022; Bistcho and Yates) In Progress (Richardson, and Caribou Mountains initiated in August 2021 and expected to be completed 2023; West Side Athabasca initiated May 2022 and expected to be completed 2023; Chinchaga initiated in May 2022 and expected to be completed 2024.)	Government of Alberta Forest Resource Improvement Association of Alberta
A seed-collection project in Red Earth (AB6) collected 2.32 kg of black spruce seeds and 7.81 kg of Jack Pine seeds to provide native seeds for habitat restoration work. Another seed collection project is ongoing in Little Smoky (AB5) for black spruce, Engelmann spruce and tamarack/larch	Red Earth (AB6) Little Smoky (AB5)	Completed (September 2022; Red Earth) In progress (Little Smoky; initiated September 2020)	Government of Alberta Forest Resource Improvement Association of Alberta
Planning is underway to implement restoration treatments on up to 800 km of seismic lines in Cold Lake (AB10), up 530 km in East Side Athabasca (AB9), and up to 1,300 km in Red Earth (AB6)	Cold Lake (AB10) East Side Athabasca River (AB9) Red Earth (AB6)	In progress (completion of operational planning in Cold Lake and East Side Athabasca River expected Spring 2023. Completion of restoration work in Red Earth expected in Fall 2023)	Government of Alberta Forest Resource Improvement Association of Alberta

The Site Rehabilitation Program was launched in May 2021 to provide grants to oil field service contractors to perform well, pipeline, and oil and gas site closure and reclamation work in specific geographic areas, including within caribou ranges. Under period 8 of the program, $100 million in funding was available for closure work in greater sage-grouse, native trout and caribou habitat in specific geographic areas	Priority boreal caribou ranges: • Bistcho (AB2), • Chinchaga (AB1), • Alberta portion of Cold Lake (AB10), • Little Smoky (AB5)	Completed (March 2023)	Government of Alberta Oil field service contractors
A Moose Lake Access Management Plan was approved by Alberta on February 8, 2021 that will provide resource development direction intended to limit landscape fragmentation and disturbance by setting limits on allowable resource development footprint, restoring legacy seismic disturbance, and supporting Indigenous traditional uses and Section 35 rights. The planning area encompasses a 10 km perimeter adjacent to the Fort McKay First Nation Moose Lake reserves and overlaps approximately 85,000 ha of Red Earth (AB6)	Red Earth (AB6)	Completed (February 8, 2021)	Government of Alberta
A number of adjustments were made to the Master Schedule of Standards and Conditions in January 2021, including modifications to approval standards, conditions and wildlife sensitivity layers for woodland caribou. The designation of caribou range zones provides the general public, industrial operators and government departments with information on areas where land-use activities could pose higher (zone A) and lower (zone B) risk to caribou populations. This dataset delineates areas within caribou range where specified conditions apply to support species conservation and recovery while still accommodating land-use activities	All boreal caribou ranges in Alberta	Completed (January 2021)	Government of Alberta

A development agreement was negotiated by Ovintiv and Alberta and signed on October 25, 2019. The agreement includes tenure extensions on a portion of Ovintiv's holdings within Little Smoky (AB5) with the commitment to no future land disturbance for eight years in approximately 8,000 ha within the range. This agreement also provides a 10-year financial contribution to restoration of legacy seismic lines	Little Smoky (AB5)	Completed (October 25, 2019)	Government of Alberta Kiwetinohk Resources Corp. (transferred from Ovintiv March 22, 2022)
Approximately 1,361,925 ha of surface land, in eleven boreal caribou ranges, have been vacated by sub-surface agreements and returned to the Crown since June 2017 under the moratorium on sub-surface resource sales within caribou ranges. Calculations of sub-surface agreement area are not a true indication of actual areas of surface disturbance that would be precluded, since the area of surface footprint required to develop a given area of subsurface holdings is unknown. Future activity will be guided by individual sub-regional plans	Areas within all boreal caribou ranges in Alberta, except Caribou Mountains (AB4)	Ongoing (no end date has been determined for the moratorium)	Government of Alberta

Table C3. Summary of recovery measures undertaken for strategy “manage predators and alternate prey” (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
Alberta is annually delivering wolf population reduction programs within and adjacent to four boreal caribou population ranges to enable caribou population persistence. Annual wolf population reductions are primarily achieved through government-led actions during the winter season. Alberta also initiated a program with the Alberta Trappers Association to provide incentives for wolf harvesting by Registered Fur Management Area (RFMA) holders	East Side Athabasca River (AB9) Cold Lake (AB10) Little Smoky (AB5) Alberta portion of Chinchaga (AB1)	Ongoing (Little Smoky initiated 2006; East Side Athabasca River and Cold Lake initiated 2017; Chinchaga initiated 2019)	Government of Alberta (lead) Alberta Trappers Association (grant recipient)
Alberta currently provides increased opportunities for licensed hunting of alternative ungulate prey species (that is, moose, elk and deer) in Wildlife Management Units overlapping with caribou ranges (additional moose opportunities to support caribou recovery are only available in Little Smoky). The intent of these actions is to manage the increased population growth of these species resulting from wolf population reductions and reduce expansion of white-tailed deer into caribou range	All ranges in whole or in part on provincial land	Ongoing	Government of Alberta
A strategy for alternate prey (that is, ungulates and beaver) management activities in the Cold Lake Air Weapons Range was developed in 2021. Implementation, which was delayed due to access issues, began in 2023. This work is in alignment with a SARA s.11 agreement between the Government of Canada and Cold Lake First Nations	Cold Lake (AB10)	In Progress (strategy completed 2021; implementation began 2023)	Cold Lake First Nations

Table C4. Summary of recovery measures undertaken for strategy “manage direct human-caused mortality of boreal caribou” (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
No new actions since 2017 reported	No new actions since 2017 reported	No new actions since 2017 reported	No new actions since 2017 reported

Table C5. Summary of recovery measures undertaken for strategy "conduct population studies to better understand population structure, trends and distribution" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
Alberta's ongoing caribou population monitoring program monitors movement, distribution, habitat use and vital rates of caribou. Vital rate monitoring includes estimating annual rates for adult female survival and calf recruitment within local populations, which together allow for the estimation of annual caribou population growth for each boreal caribou local population under provincial management	All ranges in whole or in part on provincial land	Ongoing	Government of Alberta
Alberta has estimated population size for selected caribou populations using a capture-mark-recapture sampling procedure, based on collection of fecal DNA. Selected ranges are surveyed multiple times in a single winter to collect caribou fecal pellets within and adjacent to caribou ranges. Alberta continues to undertake caribou population estimation surveys, based on fecal DNA collections and since 2017 has completed an additional two caribou local populations	Nipisi (AB11); 2018/19 Slave Lake (AB12); 2018/19	Completed in 2 ranges between 2017 and 2022	Government of Alberta

Table C6. Summary of recovery measures undertaken for strategy "monitor boreal caribou health and condition" (ECCC, 2024).

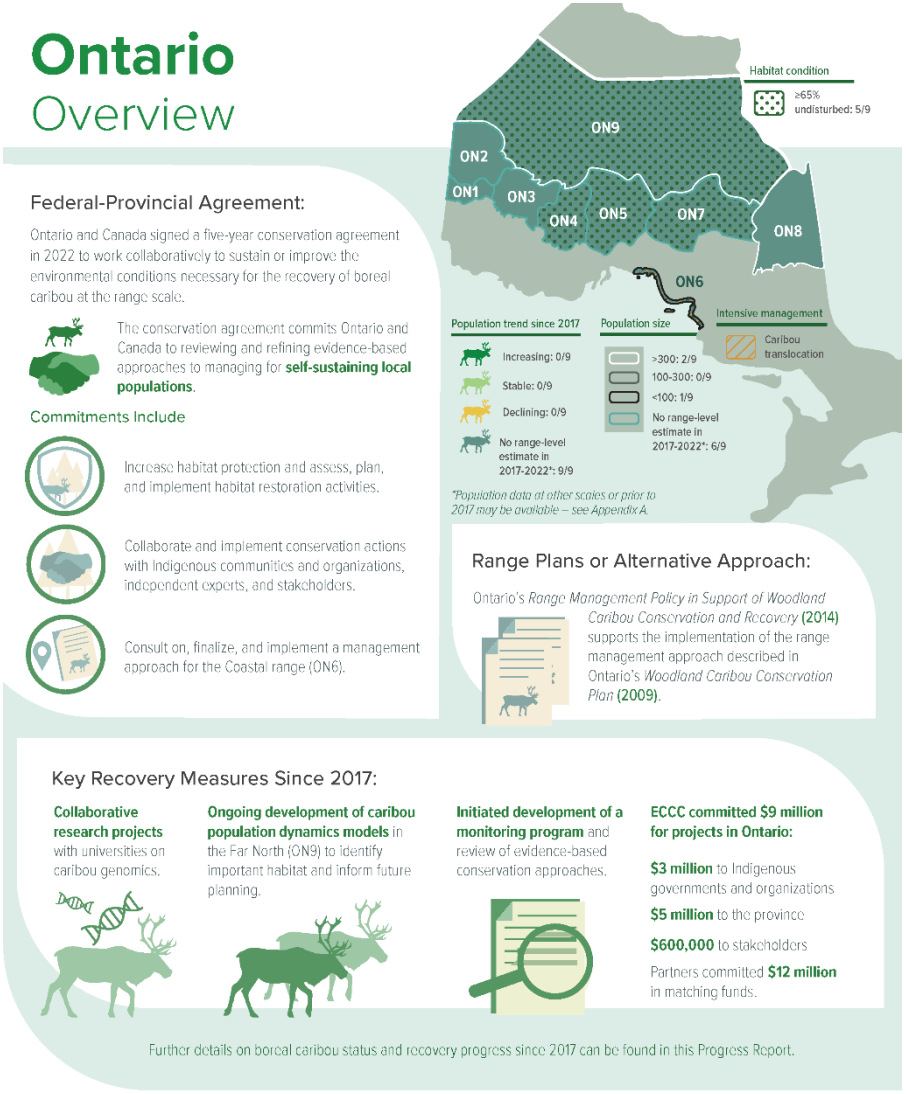
Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
When possible, mortalities of radio-collared adult female caribou are visited to assess cause of death, and various samples are collected for health, body condition and disease monitoring (for example, Slater et al., 2022). Cold Lake First Nations provides support when mortalities occur within the Cold Lake Air Weapons Range	All ranges in whole or in part on provincial lands	Ongoing	Government of Alberta Cold Lake First Nations

Table C7. Summary of recovery measures undertaken for strategy "monitor and manage sensory disturbance of boreal caribou" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
No new actions since 2017 reported	No new actions since 2017 reported	No new actions since 2017 reported	No new actions since 2017 reported

Appendix D: Federal progress reporting materials for Ontario

Figure D1. Ontario graphic summary from Federal Report on the Progress of the Recovery Strategy Implementation (2017 To 2022) and the Action Plan Implementation (2018 to 2023) (ECCC, 2024).



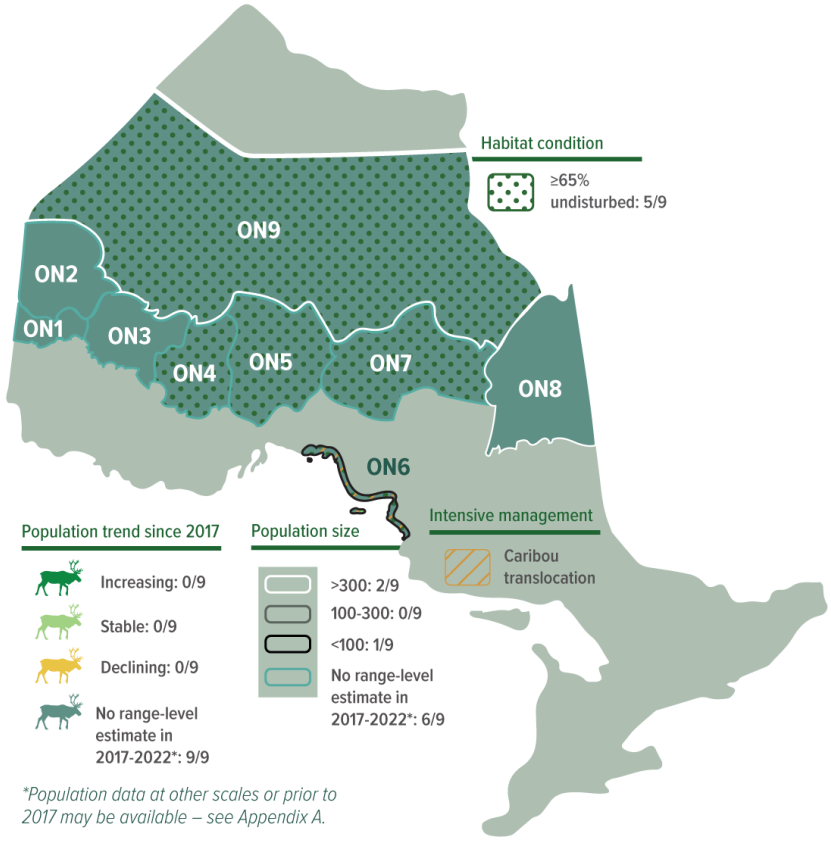


Table D1. Summary of recovery measures undertaken for strategy "undertake landscape level planning that considers current and future boreal caribou habitat requirements" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
In 2018, the Government of Ontario initiated a broad public discussion on the future of boreal caribou in the Lake Superior Coast Range (LSCR; corresponds to Coastal (ON6)) and Discontinuous Distribution (DD; the provincially identified area separating the LSCR from the ranges to the north), with the intent of developing a management approach for the area. These areas are not covered by the Range Management Policy. This broad public discussion included a discussion paper entitled "Seeking Advice on the Future of Caribou in the Lake Superior Coast Range" that was released in March 2018, and a workshop with Indigenous communities and stakeholders held in March 2019. A decision on the long-term approach has not yet been made	Coastal (ON6) and the provincial DD	Initiated (the Ontario conservation agreement commits Ontario to finalizing a management approach for the LSCR and DD by 2023-24, with subsequent implementation)	Government of Ontario

Table D2. Summary of recovery measures undertaken for strategy "manage habitat to meet current and future habitat requirements of boreal caribou" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
Ontario's Forest Management Guide for Boreal Landscapes (2014) ("Landscape Guide") directs forest management planning teams to manage the amount and arrangement of habitat in areas where forest management units overlap the continuous caribou distribution. Within these areas, forest management plans (FMPs) are required to have a Dynamic Caribou Habitat Schedule (DCHS). A DCHS is a long-term	All ranges in Ontario that overlap with forest management units (except ON6)	Ongoing (the Ontario conservation agreement commits Ontario to integrating the Landscape Guide into all FMPs that intersect with boreal caribou ranges by 2026-27 and to assess the effectiveness of existing direction in supporting self-sustaining local populations)	Government of Ontario

plan for providing year-round caribou habitat in large, interconnected landscape patches. A DCHS is intended to support the achievement of management objectives (for example, maintain caribou habitat within an estimated natural range) through the application of long-term strategies and operational plans for roads, forest harvesting and forest renewal. Calving and nursery areas, and related conditions on forest operations, are considered during the development of an FMP. Currently, all forest management units within Sydney (ON1), Berens (ON2), Churchill (ON3), Brightsand (ON4), Nipigon (ON5), Pagwachuan (ON7), and Kesagami (ON8) include a DCHS in their FMPs			
In the Far North planning area, the province continues to work jointly with interested First Nation communities to develop community-based land use plans under the *Far North Act* (2010). When completed, each plan will include at least one Dedicated Protected Area. Establishment of Dedicated Protected Areas will result in enhanced protection of significant areas of the Far North from human disturbance	Far North (ON9)	Ongoing (since 2010)	Government of Ontario Deer Lake First Nation Eabametoong and Mishkeegogamang First Nations Marten Falls First Nation Constance Lake First Nation Webequie First Nation McDowell Lake First Nation Kashechewan First Nation Weenusk First Nation North Spirit Lake First Nation Moose Cree First Nation

Table D3. Summary of recovery measures undertaken for strategy “manage predators and alternate prey” (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
In 2018, following the movement of wolves over an ice bridge to Michipicoten Island, caribou were moved from Michipicoten to the wolf-free Slate Islands and Caribou Island. Nine caribou were successfully translocated to the Slate Islands while six caribou were successfully translocated to Caribou Island	Coastal (ON6)	Completed (2018)	Government of Ontario

Table D4. Summary of recovery measures undertaken for strategy "manage direct human-caused mortality of boreal caribou" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
No new actions reported	No new actions reported	No new actions reported	No new actions reported

Table D5. Summary of recovery measures undertaken for strategy "conduct population studies to better understand population structure, trends and distribution" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
A survey was conducted in 2020 on the caribou translocated in 2018 from Michipicoten Island to the Slate Islands to estimate population recovery and growth. The most recent estimate is 45 animals on the Slate Islands (2021). Additionally, a 2022 estimate by external parties indicates that there are 22-26 caribou on Caribou Island	Coastal (ON6)	Ongoing, 2020; targeting next survey prior to the conclusion of the Ontario conservation agreement (2026-27)	Government of Ontario
Collars were deployed in Ozhiski in March 2019 and Missisa in March 2020 to further understand population structure, trends and distribution in relation to habitat condition and disturbance. Between 2020 and 2022, efforts were undertaken annually to deploy additional collars to maintain the sample size within each range	Ozhiski and Missisa provincial ranges within the Far North (ON9)	Ongoing (since 2019-20)	Government of Ontario

In the Far North (ON9), work is ongoing to develop population dynamics models for caribou to facilitate regional cumulative effects assessment. These models may assist in the identification of boreal caribou critical habitat in the Far North and may help to inform future planning and resource development decisions in this region. Preliminary results from multi-species 'Moose-Wolf-Caribou' population dynamics were published in Rempel 2021 and an associated Technical Report is in preparation. Model components can be revisited and updated once additional information becomes available	Far North (ON9)	Ongoing (since 2018)	Government of Ontario
Ongoing development of a spatially explicit Population Viability Assessment model to assess caribou persistence is ongoing and will incorporate climate change and forest management planning	All ranges, except Coastal (ON6)	Ongoing (since 2019)	Government of Ontario
Research on using whole genome sequences to develop a simple genetic test to distinguish between boreal and eastern migratory caribou ecotypes and better delineate their ranges, and to investigate fine scale genomic structure of boreal caribou to delineate local populations and assess connectivity is underway	Ozhiski and Missisa provincial ranges within the Far North (ON9)	Ongoing (since 2020)	Trent University Government of Ontario ECCC
Research on conservation genomics of Lake Superior caribou is ongoing to investigate evolutionary origins, inbreeding, and adaption, and will support identification of priorities for habitat connectivity between the Lake Superior caribou and the continuous range	Coastal (ON6)	Ongoing (since 2020)	Trent University Government of Ontario ECCC
Caribou population and habitat monitoring has been undertaken in the context of two environmental assessment projects. This includes winter aerial surveys in 2018 and 2019, a Caribou Nursery Habitat Survey in 2019, and deployment of a total of 59 GPS radio-collars. This information is intended to provide baseline data within and near the proposed projects	Missisa provincial range within the Far North (ON9)	The winter aerial surveys and nursery habitat surveys are complete (2018-19). The collaring studies are ongoing (since 2021)	Webequie First Nation Marten Falls First Nation AtkinsRéalis (previously SNC-Lavalin) AECOM Canada Ltd. WSP

ECCC conducted regional-scale, non-invasive fecal DNA study across Missisa and Ozhiski in 2021 and 2022, respectively. Data will provide baseline information to help inform the review of potential future developments in the area. Planning occurred in 2022 for surveying James Bay in 2023	Missisa, Ozhiski, and James Bay provincial ranges within the Far North (ON9)	Sample collection complete (2021-22); project ongoing	ECCC Trent University
Planning began in 2022 to develop an ongoing range-scale caribou monitoring program and to monitor key ranges in winter 2023 (Brightsand (ON4), Churchill (ON3), Kesagami (ON8) and Kinloch (part of Far North (ON9))	All ranges	Ongoing (since 2022; The Ontario conservation agreement commits Ontario to develop an ongoing monitoring program by 2023-24 and to monitor all ranges by 2026-27, starting with key ranges in 2022-23)	Government of Ontario
Fecal DNA mark-recapture surveys of caribou were carried out in Brightsand (ON4) in 2020 to estimate population genetic diversity statistics and population size	Brightsand (ON4)	Completed (2023)	Lakehead University ECCC Government of Ontario Resolute Forest Products Weyerhauser Company Ltd EACOM Timber Corporation Forest Products Association of Canada
Aerial survey of caribou was carried out in a portion of the Kesagami (ON8) range and the adjoining Detour range in Quebec in 2022	Kesagami (ON8)	Completed (2023)	Government of Québec ECCC GreenFirst Forest Products Agnico Eagle Mining Ltd. Hecla Quebec

			Abitibiwinni First Nation Council

Table D6. Summary of recovery measures undertaken for strategy "monitor boreal caribou health and condition" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
Condition of caribou captured during deployment of collars in Ozhiski and Missisa was estimated using a qualitative score and analysis of blood samples (hematocrit, pregnancy-specific protein B). When possible, bone marrow fat is determined from long bones collected during mortality assessments	Ozhiski and Missisa provincial ranges within the Far North (ON9)	Ongoing (since 2019-20)	Government of Ontario

Table D7. Summary of recovery measures undertaken for strategy "monitor and manage sensory disturbance of boreal caribou" (ECCC, 2024).

Measures implemented to support recovery	Geographic scope	Status and timeline	Lead and supporting organizations
No new actions since 2017 reported	No new actions since 2017 reported	No new actions since 2017 reported	No new actions since 2017 reported

Appendix E: Alberta Woodland Caribou Recovery Plan 2005-05-2013-14

Table E1. Recovery objectives and short-term goals (AWCRT, 2005).

1. Achieve self-sustaining woodland caribou herds and maintain the distribution of caribou in Alberta	
Goals for first three years after plan implementation	a. Stabilize woodland caribou populations and affect a population increase (achieve positive population growth) for herds currently at risk of extirpation. b. Achieve stable or positive population growth for herds currently known or believed to be in decline. c. Maintain population stability or achieve positive population growth in currently stable woodland caribou herds. d. Avoid loss of existing woodland caribou herds. e. Determine woodland caribou population trends for herds where population information is lacking. f. Determine the feasibility of restoring self-sustaining woodland caribou herds to former range areas.
2. Ensure the long-term habitat requirements for woodland caribou are met within Alberta's caribou ranges	

Goals for first three years after plan implementation	a. Ensure sufficient quality habitat (including type, amount, and distribution) is available at all times to sustain each woodland caribou herd and thereby allow range occupation.

Table E2. Matching strategic direction for caribou herd population status (AWCRT, 2005). Note that these were all adopted by the Minister except for the moratorium on mineral and timber allocations in specific caribou ranges.

Herd status	**Matching strategic direction**
Caribou herds in immediate risk of extirpation	These herds require immediate and significant actions in order to avoid herd loss, and allow continued occupation of the caribou range. • Industrial and other human activities on the caribou range must be addressed. An assessment of current and potential habitat constraints and concerns (habitat supply evaluation) must be immediately completed, and recommended corrective actions initiated. The habitat supply evaluation must consider habitat constraints and concerns resulting from both human and natural causes. • A moratorium on further mineral and timber resource allocation (sales) should be put in place until a range plan is completed, evaluated, and implemented. • It is anticipated that this process will take a maximum of one year from the date of range team formation. • To avoid herd extirpation, predator management and possibly management of other prey species will be required to improve caribou herd trend and affect a caribou population increase. • Measures must be taken to eliminate any hunting and poaching of caribou. • Herds must be monitored annually to ensure that herd trends and distribution are known with high confidence.
Caribou herds in decline	These herds require urgent action to arrest caribou herd declines and to diminish the risk of herd extirpation. This will help alleviate the need for severe future management actions. • Industrial and other human activities on the caribou range must be addressed. An assessment of current and potential habitat constraints and concerns (habitat supply evaluation) must be immediately completed, and recommended corrective actions initiated. The habitat supply evaluation must consider habitat constraints and concerns resulting from both human and natural causes. • Predator management and/or management of other prey species may be required to achieve stable or positive caribou population growth. • Measures must be taken to eliminate any hunting and poaching of caribou. y Herd trends and distribution must be monitored sufficiently to permit an evaluation of recovery actions.
Caribou herds of unknown status	These herds require monitoring to establish trends that can become the basis for categorization and action. In some cases, however, professional judgement and local knowledge may indicate that individual herds are likely in decline or are in immediate risk of extirpation. Several caribou herds of unknown population status do occur within ranges containing high levels of industrial and other human infrastructure and developments, and/or high levels of habitat loss caused by recent forest fires. In such cases, the herd status should be categorized and recommended recovery actions should begin immediately. For all herds of unknown status, habitat evaluation, planning, and management actions should be initiated or continued. Trend monitoring is a high priority, but lack of this information should not become a reason to delay actions that are likely necessary to sustain the herd.
Stable caribou herds	These herds are not experiencing a recent decline in population, although past declines may have occurred. However, preventative actions to sustain these herds will still be necessary. In general, activities that are listed above for herds in decline should be initiated at a reasonable rate for stable herds. Predator and/or management of other prey species will not be implemented. Specific guidelines for project and landscape level industrial and human activities must be implemented, including caribou habitat supply evaluation and planning. Herds must be monitored sufficiently to assess if herd stability is being maintained, and to permit an evaluation of management actions

Table E3. Summary of recovery strategies (AWCRT, 2005). See (AWCRT, 2005) for complete strategy descriptions.

#	Recovery strategy	Summary
1	Categorization of caribou herd population status	Categorize herds based on population trends to establish urgency and appropriate recovery actions.
2	Matching strategic direction to caribou herd population status	See table G3 (above).
3	Caribou range plans	To facilitate localized planning, Caribou Range Plans will be created by Caribou Range Teams. Bound by the goals, objectives, and strategies of the Caribou Recovery Plan, plans will include specific recovery actions aimed at successfully implement the Plan. Range plans will inform existing government and company planning and approval systems. These are to be promptly, avoiding undue delays in the delivery of necessary recovery efforts.
4	Habitat planning targets	Development of caribou habitat planning targets based on type, amount, and spatial arrangement of habitat required to sustain herds. Targets should be used to identify minimum habitat necessary for survival and recovery of caribou.
5	Industrial operating and access management guidelines	5.1. Current operating guidelines are summarized, evaluated, and improved. Operating guidelines are created where necessary. The goal of such guidelines is to reduce negative development impacts on herds and habitats at project level, as well as provide a base case from which range planning can evaluate industrial impacts on habitat/range condition.
		5.2. Access management plans or programs (potentially Alberta's existing Access Management Program) used to manage the development, use, and reclamation of all linear features. Range teams must also consider if management of recreational, trapping, or other forms of access is necessary.
6	Management of other wildlife species	6.1 Predator management: Should be conducted when necessary to halt decline or prevent extirpation. However it should not be the sole, predominant tool for recovery, rather, an interim measure with emphasize remaining on habitat conservation and management as the fundamental approach to reducing undue caribou predation. Predators will not be eliminated from the landscape.
		6.2 Management of prey species (ungulates): May be necessary after/during predator management. Ungulate populations will not be eliminated.
7	Management of human-caused mortality	7.1 First Nations harvest: In some cases, harvesting may have significant consequences and recover actions are required through dialogue with First Nations and gathering traditional knowledge to achieve voluntary cessation of hunting when necessary.
		7.2 Poaching: Reduce poaching and access to poaching areas. Public education will be required to explain the reasons hunting laws and consequences for breaching them.
		7.3 Vehicle collisions: Consider problem areas and recommend solutions.
8	Monitoring, plan evaluation and amendment	Alberta Woodland Caribou Recovery Team (now defunct) is to meet annually to review and evaluate recovery progress. They will provide annual progress reports to the Director of Wildlife Management, ongoing comments to the Endangered Species Conservation Committee, and other senior provincial and federal government personnel. Recovery actions are to be adjusted annually based on these reviews.

Table E4. Recovery actions and schedule to be implemented three years after Plan publication (AWCRT, 2005).

#	Broad strategy	Actions and timeline
1	Caribou range plans	1. Provincial and/or federal governments, together with representatives of industry and other stakeholders, should establish caribou range teams (by geographic areas as outlined in Figure 2), and initiate range planning, based on the following schedule: • East Side Athabasca River – Fall 2002 (already initiated by Boreal Caribou Committee)

		• Chinchaga – Fall 2002 (already initiated by Boreal Caribou Committee) • West Central – Fall 2004 • West Side Athabasca River – Fall 2004 • Red Earth – Fall 2004 • Richardson – Fall 2005 • Bistcho/Caribou Mountains – Fall 2005
		2. Caribou range teams must develop and recommend interim management actions within six months of range team formation, and completed range plans within one year of team formation. Government should review and begin to implement each team's interim recommended management changes within six months of range team formation. Implementation of completed range plans should begin within one year of range team formation.
		3. Provincial and/or Federal governments should consult with caribou and land managers in adjacent jurisdictions (British Columbia, Northwest Territories, Saskatchewan) to ensure that range plan recommendations and results are communicated and that management actions are aligned for cross-boundary herds. Current ongoing work to continue.
2	Habitat planning targets	1. Provincial government should lead an effort to complete development of a habitat-planning target for mountain caribou winter ranges by December 2004.
		2. The Boreal Caribou Committee should update and periodically evaluate the boreal caribou habitat target equation as new caribou population trend, habitat alteration, and other data become available.
3	Industrial operating and access management guidelines	1. Provincial and/or federal governments, in consultation with industry and the multistakeholder caribou committees should prepare a summary of the operating guidelines currently being applied within Alberta's caribou ranges. Complete by December 2004.
		2. Provincial and/or federal governments, in consultation with industry and the multistakeholder caribou committees should ensure that no areas of the province (e.g., Cold Lake caribou range) are lacking application of operating guidelines developed with respect to caribou conservation. Institute guidelines in all areas by September 2004.
		3. Provincial and/or federal governments, in consultation with industry and the multistakeholder caribou committees should review current operating guidelines, with respect to value for caribou conservation, and develop/implement any recommended changes. Complete by Spring 2005.
		4. Guidelines and their associated best practises must align with range plans outlined above.
		5. The provincial Access Management Program (see Appendix 5) will need to take account of information and recommendations from caribou range plans to ensure alignment with caribou conservation needs and to achieve effective access management results.
4	Management of other wildlife species	1. Alberta Fish and Wildlife Division and Parks Canada should determine options and a schedule for implementing control of predators and (possibly) other prey species on caribou ranges where herds are in immediate risk of extirpation. The report should include program description and justification, including implementation schedule and detailed program goals/objectives. Report to be completed by October 2004. Begin implementation of any recommendations during winter 2004/05.
		2. Alberta Fish and Wildlife Division and Parks Canada should prepare a long-term action plan regarding the need for, and options for delivery of, predator and other prey species management for caribou ranges where herds are in decline. The plan should consider both, (1) measures to control predator mobility and hunting efficiency and (2) measures to control predator population size and distribution. Report to be completed by December 2004. Begin implementation as recommended by action plan schedule.
5	Management of human-caused mortality	1. Provincial government should develop and establish a process of effective dialogue with First Nations communities aimed at achieving a voluntary cessation of caribou hunting. Initiate process in key First Nations communities in 2004/2005. Broaden the process to include additional communities in 2005/2006 and 2006/2007.
		2. Provincial government together with First Nations communities should develop and initiate an extension and consultation process with First Nations peoples not residing within First Nations communities, towards achievement of a voluntary cessation of caribou hunting.

		3. Provincial government together with industry should develop and distribute provincial educational materials outlining the status of caribou in Alberta, the importance of caribou conservation, and the consequences of illegally killing caribou. A first task would be to determine the target audience for receipt of the educational materials. Initiate process in 2004/2005.
		4. Alberta Fish and Wildlife Division should prepare a strategic review of enforcement priorities, impediments, and opportunities regarding the reduction of woodland caribou poaching in Alberta. Complete review and begin to implement any recommended changes in 2004/2005.
6	Estimate woodland caribou population trends	1. Alberta Fish and Wildlife Division should complete an initial assessment of caribou population trend for herds of "unknown status" by fall 2004. Report to be based on currently available information, professional judgement and local knowledge.
		2. Alberta Fish and Wildlife Division, Parks Canada, and the Department of National Defence, in collaboration with industry should prepare a detailed overall strategy and plan (including a schedule) for the long term monitoring (trend and distribution) of woodland caribou herds in Alberta. It is anticipated that substantial discussions must occur with the multi-stakeholder caribou committee in completing this task. Plan to be completed by December 2004 with implementation beginning during the winter of 2004 - 2005.
7	Determine feasibility of restoring caribou to former range	1. Alberta Fish and Wildlife Division should prepare a report, which reviews and make recommendations on the feasibility of restoring caribou to former range. Complete report by March 2005.
8	Evaluation of recovery implementation	1. The Alberta Woodland Caribou Recovery Team Leader will annually call upon those conducting caribou recovery actions to prepare summary reports of activities and accomplishments. Each range team must prepare an annual report. Summary reports will be provided to senior provincial and federal government personnel, and will be provided to the Alberta Woodland Caribou Recovery Team. The recovery team will evaluate all reports with respect to progress towards achieving woodland caribou recovery, and will communicate the results of these evaluations to senior government personnel and to the Alberta Endangered Species Conservation Committee. Similarly in year three, the team leader will organize the preparation and review of an overall provincial summary report for Stage 1 of recovery plan implementation.
		2. The Alberta Woodland Caribou Recovery Team Leader will call a meeting of the recovery team at least annually to review and comment upon plans, reports, and/or summaries of recovery plan activities and accomplishments. The team leader will determine if more frequent team meetings are required.

Appendix F: Alberta-Canada Conservation Agreement recovery planning

Table F1. Landscape planning measures (ECCC, 2020a).

Management tool	Contribution to population and distribution objectives	Action objective over term of agreement	Accountable agency	Ranges	Deliverables
A1. Subregional Planning (Range Planning)	Critical habitat and woodland caribou population conservation and recovery.	A1.1. Complete subregional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016).	Alberta	Cold Lake (including Christina portion of East Side of the Athabasca River range), Bistcho	**2021:** Continue to support subregional task forces to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges. **2022 to 2025:** Implement subregional plans for identified ranges.
		A.1.2 Complete subregional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016).	Alberta	Redrock/Prairie Creek, Narraway	**2021:** Continue to support subregional task forces to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2022:** Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges. **2023 to 2025:** Implement subregional plans for identified ranges.
		A.1.3 Complete subregional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016).	Alberta	East Side of the Athabasca River	**2021:** Subregional task forces will be established to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2022:** Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges. **2023 to 2025:** Implement subregional plans for identified ranges.
		A.1.4 Complete subregional plans that will achieve, at the caribou range level,	Alberta	Chinchaga, Little Smoky, A La Peche	**2021:** Subregional task forces will be established to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and

		woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016).			socioeconomic considerations and analyses will be considered by the task forces. **2022:** Continue to support subregional task forces to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2023:** Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges. **2024 and 2025:** Implement subregional plans for identified ranges.
		A.1.5 Complete subregional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016).	Alberta	Nipisi, Slave Lake	**2022:** Subregional task forces will be established to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2023:** Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges. **2024 and 2025:** Implement subregional plans for identified ranges.
		A.1.6 Complete subregional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016).	Alberta	Richardson, West Side of the Athabasca Rive	**2022:** Subregional task forces will be established to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2023:** Continue to support subregional task forces to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2024:** Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges. **2025:** Implement subregional plans for identified ranges.
		A.1.7 Complete subregional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's	Alberta	Yates, Caribou Mountains, Red Earth	**2023:** Subregional task forces will be established to develop recommendations that inform subregional plans that achieve critical habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2024:** Continue to support subregional task forces to develop recommendations that inform subregional plans that achieve critical

		Range Plan Guidance for Woodland Caribou, Boreal Population (2016).			habitat outcomes set out in the Recovery Strategies. Multispecies and socioeconomic considerations and analyses will be considered by the task forces. **2025:** Finalize subregional plans that consider all land uses, including footprint, recreational and access management plans, for identified ranges.
A.2 Legal Authority for Subregional Plans	Critical habitat and woodland caribou population conservation and recovery.	A.2.1 Establish subregional plans, that support woodland caribou conservation and recovery, under provincial legislation	Alberta		**2021 to 2025:** Enable subregional plans under provincial legislation. Subregional plans are published in the Alberta Gazette.
A.3 Cross Jurisdictional Coordination	Critical habitat and woodland caribou population conservation and recovery.	A.3.1 Develop and implement complementary conservation and management measures with neighbouring federal, territorial, and provincial jurisdictions for shared woodland caribou populations	Environment and Climate Change Canada and Alberta	Transboundary ranges, including Bistcho, Yates, Caribou Mountains, Red Earth, Chinchaga, A La Peche, Redrock Prairie Creek Narraway, Jasper, Cold Lake, East Side of the Athabasca River, Richardson	**2021:** Initiate or build on current communication, collaboration, and formalize engagement with neighbouring jurisdictions. **2022 to 2025:** Maintain engagement with neighbouring jurisdictions. Develop and implement plans for shared woodland caribou populations.
A.4 Range Boundary Updates	Critical habitat and woodland caribou population conservation and recovery. Enable subregional plans	A.4.1 Adjust identified woodland caribou local population range boundaries.	Alberta (lead) Environment and Climate Change Canada	Caribou Mountains, Yates, and Red Earth, relative to range delineations within Wood Buffalo National Park, and an overall evaluation of Richardson	**2021:** Finalize adjusted range boundaries and incorporate in provincial land use planning and approval processes. Updated range boundaries are available for incorporation into future Recovery Strategy amendments.

Table F2. Habitat conservation, management, and recovery measures (ECCC, 2020a).

Management tool	Contribution to population and distribution objectives	Action objective over term of agreement	Accountable agency	Ranges	Deliverables
B.1 Restoration	Critical habitat and woodland caribou population conservation and recovery Increase critical habitat	B.1.1 Restore footprint to contribute to achievement of woodland caribou critical habitat outcomes set out in the Recovery Strategies.	Alberta	All ranges in whole or in part on provincial land with an emphasis on southern mountain caribou	**2021:** Establish funding mechanisms to enable partnership among industry, federal and provincial governments, and other partners. Complete analyses for and publish map of priority restoration areas on a provincial scale. Develop 5 year program plan and annual workplan that includes identification of engagement activities with Indigenous Peoples and stakeholders. Continue implementing and scaling up provincial restoration program. Publish Alberta's Provincial Restoration and Establishment Framework for Legacy Seismic Lines in Alberta. Establish a process to track sites where restoration has been initiated, and monitor restoration progress. **2022:** Set up Indigenous and multistakeholder Restoration Steering Committee to support habitat restoration program implementation. Continue implementing provincial restoration program. **2023 to 2025:** Continue implementing provincial restoration program.
		B.1.2 Involve Indigenous Peoples in identification of desired access routes prior to restoration implementation.	Alberta	All ranges in whole or in part on provincial land	**2021:** Work with interested Indigenous peoples to identify desired access routes. **2022 to 2025:** Ongoing.
B.2 Forest Harvest Management	Critical habitat and woodland caribou population conservation and recovery Reduce impacts to critical habitat (i.e., disturbance and biophysical habitat	B.2.1 Complete range-specific planning to inform forest management that will achieve woodland caribou critical habitat outcomes set out in the Recovery Strategies.	Alberta	All ranges in whole or in part on provincial land	**2021 to 2025:** Complete forest harvest planning for areas with completed subregional plans, that is consistent with woodland caribou conservation and recovery. Planning will consider the implications of alternative forest management scenarios and enable an increase in the amount of critical habitat over time within all woodland caribou ranges.
		B.2.2 Ensure alignment of Forest Management Plans and harvesting operations with conservation and	Alberta	All ranges in whole or in part on provincial land	**2021 to 2025:** Forest Management Plans and harvesting operations will be aligned with, and contribute to, conservation and recovery of local woodland caribou populations and critical habitat outcomes.

	attributes) and to woodland caribou population trend and distribution.	recovery of local woodland caribou populations and woodland caribou critical habitat outcomes set out in the Recovery Strategies.			
B.3 Wildfire Management Planning	Reduction of wildfire risk to woodland caribou values in accordance with Wildfire Management priorities.	B.3.1 Incorporate woodland caribou range values (e.g., critical habitat, caribou population occurrence, rearing facilities) in wildfire management plans.	Alberta	Little Smoky, A La Peche, RedRock/Prairie Creek, Narraway	**2021:** Values are to be identified within each woodland caribou range and provided to Wildfire Management Branch for forest area wildfire management planning. **2022 and 2023:** Strategies for addressing wildfire risk are identified in each woodland caribou range. Update wildfire management plans, if required, and progressively implement for existing plans and as plans are developed. **2024:** Progressive implementation. **2025:** Review strategies and implementation; develop and implement adjustments as needed.
		B.3.2 Incorporate woodland caribou range values (e.g., critical habitat, caribou population occurrence, rearing facilities) into wildfire management plans.	Alberta	All remaining ranges in whole or in part on provincial land	**2021 and 2022:** Values are to be identified within each woodland caribou range and provided to Wildfire Management for forest area wildfire management planning. **2023 to 2025:** Strategies for addressing wildfire risk are identified in each woodland caribou range. Update wildfire management plans, if required, and progressively implement for existing plans and as plans are developed.
B.4 Management of Energy Sector Activities	Critical habitat and woodland caribou population conservation and recovery Net reduction in disturbance to critical habitat from energy sector activities Reduce impacts to critical habitat (i.e., disturbance and biophysical habitat) and to woodland caribou population trend and distribution.	B.4.1 Pursue voluntary agreements with energy companies that support woodland caribou conservation and recovery objectives.	Alberta	All remaining ranges in whole or in part on provincial land	**2021:** Alberta will implement existing agreements and evaluate the impact of these agreements in contributing to woodland caribou conservation and recovery objectives. Alberta will consider and may pursue additional agreements with energy companies to reduce footprint of future developments. **2022 to 2025:** Alberta will consider and may pursue additional agreements with energy companies to reduce footprint of future developments.
		B.4.2 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Alberta	Cold Lake, Bistcho	**2021:** Initiate development of access management plans for identified ranges. **2022:** Finalize access management plans for identified ranges. **2023 to 2025:** Implement access management plans for identified ranges.
		B.4.3 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Alberta	Redrock/Prairie Creek, Narraway	**2022:** Initiate development of access management plans for identified ranges. **2023:** Finalize access management plans for identified ranges. **2024 and 2025:** Implement access management plans for identified ranges.
		B.4.4 Conduct access management planning that	Alberta	East Side of the Athabasca River	**2022:** Initiate development of access management plans for identified ranges.

		is consistent with woodland caribou conservation and recovery objectives			**2023:** Finalize access management plans for identified ranges. **2024 and 2025:** Implement access management plans for identified ranges.
		B.4.5 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Alberta	Chinchaga, Little Smoky, A La Peche, Nipisi, and Slave Lake	**2023:** Initiate development of access management plans for identified ranges. **2024:** Finalize access management plans for identified ranges. **2025:** Implement access management plans for identified ranges.
		B.4.6 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Alberta	Richardson, West Side of the Athabasca River	**2024:** Initiate development of access management plans for identified ranges. **2025:** Finalize access management plans for identified ranges.
		B.4.7 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Alberta	Yates, Caribou Mountains, Red Earth	**2025:** Initiate development of access management plans for identified ranges.
B.5 Land Use Management	Critical habitat and woodland caribou population conservation and recovery Minimize destruction and disturbance of critical habitat.	B.5.1 Ensure project approval conditions for existing and future energy, forestry and other land uses minimize impacts, including cumulative effects, to woodland caribou critical habitat, individual woodland caribou, and woodland caribou populations Develop new conditions to reduce impacts, including cumulative effects, to woodland caribou critical habitat, individual woodland caribou, and woodland caribou populations	Alberta	All ranges in whole or in part on provincial land	**2021:** Make permanent the referral of all non-standard energy industry applications by the Alberta Energy Regulator to Alberta Environment and Parks – Fish & Wildlife Stewardship Branch personnel for review and comment. Consider potential opportunities to adjust Master Schedule of Standards and Conditions if zonation or similar approaches are adopted for woodland caribou ranges. Review and update the Master Schedule of Standards and Conditions related to woodland caribou ranges. **2022:** Assess and implement use of reservations and notations to assist in achieving woodland caribou critical habitat outcomes as listed in the Recovery Strategies. Ensure that project approval conditions for energy, forestry, and other land uses reduce impacts to caribou critical habitat and caribou populations. **2023 to 2025:** Continue ensuring that project approval conditions for energy, forestry, and other land uses reduce impacts to woodland caribou critical habitat and woodland caribou populations.
	Maintain connectivity for caribou within and between local population	B.5.2 Consider potential management actions for identified important areas that occur outside range boundaries	Alberta	All ranges in whole or in part on provincial land	**2021:** Assess important areas, biophysical habitat attributes, undisturbed caribou habitat, caribou occurrence, and caribou movements for opportunities and needs related to land use management actions.

	ranges to support woodland caribou conservation and recovery				**2022 to 2024:** Document and implement any management actions.

Table F3. Mortality and population management measures (ECCC, 2020a).

Management tool	Contribution to population and distribution objectives	Action objective over term of agreement	Accountable agency	Ranges	Deliverables
C.1 Predator Management	Reduce mortality of woodland caribou due to predation.	C.1.1 Wolf population management.	Alberta	All ranges in whole or in part on provincial land	**2021:** Maintain current predator management programming in populations where currently underway. Assess need for predator management in additional woodland caribou ranges, consider discussions with relevant Indigenous Peoples, and identify the need to coordinate with neighbouring jurisdictions. Ongoing coordination of predator management program delivery with British Columbia (i.e., Red Rock/Prairie Creek, Narraway, and Chinchaga). **2022 to 2024:** Ongoing predator management programming. Assess need for predator management in additional woodland caribou ranges, consider discussions with relevant Indigenous Peoples, and identify the need to coordinate with neighbouring jurisdictions. Implement predator management actions as agreed upon during cross-jurisdictional discussions (see next action objective). **2025:** Ongoing predator management programming. Discussions with Indigenous Peoples as required. Implement predator management actions as agreed upon during cross-jurisdictional discussions (see next action objective). Five-year reporting on range-specific predator management activities.
		C.1.2 Convene neighbouring federal, provincial, and territorial jurisdictions on predator management.	Environment and Climate Change Canada	Transboundary ranges	**2021:** Convene relevant neighbouring federal, provincial, and territorial jurisdictions to identify the need for, and collaborate on, predator management actions for Chinchaga, Jasper, A La Peche, Cold Lake, and East Side of the Athabasca River woodland caribou populations. **2022 to 2024:** Convene relevant neighbouring federal, provincial, and territorial jurisdictions to identify the need for, and

					collaborate on, predator management actions for additional local populations based on needs assessment (see previous row), as necessary. **2025:** Convene relevant neighbouring federal, provincial, and territorial jurisdictions to identify the need for, and collaborate on, predator management actions for additional local populations based on needs assessment (see previous row) as necessary.
		C.1.3 Evaluate effectiveness of Alberta Trappers Association-led pilot program to increase wolf harvest activity by Registered Fur Management Area (RFMA) holders	Alberta	Little Smoky A La Peche, Redrock-Prairie Creek, Chinchaga, Cold Lake East Side of the Athabasca River	**2021:** Continued delivery of pilot program related to incentivised wolf harvesting, and to training of RFMA holders and Indigenous trappers. **2022 to 2025:** Implement program subject to availability of budget resources and success of pilot program
C.2 Captive Rearing	Reduce mortality of woodland caribou due to predation	C.2.1 Consider establishing a rearing facility in the Little Smoky range and, if approved, commence 5- year pilot program	Alberta	Little Smoky	**2021:** Finalize decisions regarding proceeding with the project. **2022:** Proceed with project, based on approvals. **2023 to 2025:** Ongoing operations as needed.
		C.2.2 Explore opportunities for collaboration with Indigenous Peoples	Alberta	Little Smoky	**2021 to 2025:** Continue engagement.
C.3 Harvest Management	Reduce human-caused woodland caribou mortality	C.3.1 Assess the need for establishing a conservation closure to prohibit killing of woodland caribou	Alberta	All ranges in whole or in part on provincial land	**2021:** Assess need for conservation closure. Identify communities that harvest woodland caribou. **2022:** Initiate consultation with identified communities and non-community-based stakeholders, including current woodland caribou harvest and desired future woodland caribou harvest. **2023:** Establish conservation closure as required.
C.4 Alternative Prey Management	Reduce mortality of woodland caribou population due to predation	C.4.1 Manage vegetation to reduce alternative prey forage	Alberta	All ranges in whole or in part on provincial land	**2021 to 2025:** Complete and deliver range-specific plans that over time will achieve woodland caribou critical habitat outcomes set out in the Recovery Strategies.
		C.4.2 Increase harvest opportunities for alternative prey species	Alberta	Woodland caribou ranges receiving predator management actions	**2021 to 2025:** Assess alternative prey abundance and harvest levels by Indigenous Peoples with constitutionally recognized harvesting rights. Enhance licenced harvesting opportunities where needed to avoid alternative prey population increases.

Table F4. Population and habitat monitoring measures (ECCC, 2020a).

Management tool	Contribution to population and distribution objectives	Action objective over term of agreement	Accountable agency	Ranges	Deliverables
D.1 Monitoring	Monitor annual population growth and distribution	D.1.1 Assess woodland caribou population status	Alberta	All ranges in whole or in part on provincial land	**2021 to 2025:** Implement annual program and prepare a report.
	Estimate rangespecific population size	D.1.2 Estimate total population size	Alberta	One or two ranges per year to establish baseline conditions	**2021 to 2025:** Field work, analyses, and reporting.
	Habitat disturbance by human and natural sources	D.1.3 Develop an annual monitoring and reporting framework for habitat disturbance and recovery, including areas where habitat restoration has been initiated	Alberta	All ranges in whole or in part on provincial land	**2021 to 2024:** Annual assessment and reporting on trends in habitat disturbance and recovery, biophysical habitat attributes by type, and spatial arrangement of habitat. **2025:** Annual assessment and reporting on trends in habitat disturbance and recovery, biophysical habitat attributes by type, and spatial arrangement of habitat. Prepare 5-year progress report.
	Critical habitat and woodland caribou population recovery	D.1.4 Deliver woodland caribou conservation, management, and recovery measures	Alberta	All ranges in whole or in part on provincial land	**2021 to 2025:** Evaluate and coordinate areas where additional knowledge will help inform conservation, management, and recovery measures (e.g., silvacultural prescriptions).
	Delineation of critical habitat	D.1.5 Delineate range categories within each local population unit for southern mountain caribou ranges	Alberta	A La Peche Narraway Redrock-Prairie Creek	**2021:** Environment and Climate Change Canada to provide necessary information to support critical habitat delineation within each range.

Appendix G: Cold Lake First Nations (CLFN)-Canada Conservation Agreement recovery planning

Table G1. Landscape-level planning and habitat management measures (ECCC, 2019).

Conservation measure	Activities	Target timeline	Parties to the agreement	Potential collaborators
1. Development and Implementation of a Landscape Restoration Plan for Boreal Caribou	Continue involvement in and support ongoing landscape restoration planning underway at the Cold Lake Boreal Caribou Range multi-partner group. Seek opportunities for involvement in implementation of restoration activities.	Year 1: Continued involvement and support of ongoing landscape restoration planning Year 2 - 4: Implementation of activities pursuant to annual work plan(s)	CLFN: Participation and collaboration, as appropriate ECCC: Funding and other support, as relevant	NRCan: Participation in development of the plan through modeling support, for example. DND: Participation. Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the CLAWR without unduly risking safety or military security Alberta: Provide information to enable alignment with provincial restoration work, and implementation, as required. Lead for the Cold Lake Boreal Caribou Range multi-partner group.
2. Monitoring Restoration Effectiveness	Establish a process for tracking restoration activities outlined in measure 1 and determining reforestation success. Create recommendations for certification standards applicable in the Cold Lake Boreal Caribou Range, based on restoration activities in CLAWR.	Year 1 - Year 2: Establish process and identification of relevant restoration work Year 3 - Year 4: Track and evaluate restoration work	CLFN: Lead ECCC: Funding and other support, as relevant	NRCan: Provide techniques for restoration monitoring, share knowledge of best practices, and options on scaling up monitoring of restoration. DND: Support, as required. Alberta: Provide information to enable alignment with provincial restoration framework, as required.
3. Boreal Caribou Habitat Recovery and Protection	Explore opportunities and provide recommendations on options for recovery and protection of Boreal Caribou habitat zones	Year 1 - Year 2: Exploration and feasibility study Year 3: Develop and implement recommendations, as appropriate	CLFN: Lead and provide recommendations ECCC: Support, as relevant	NRCan: Planning and information sharing, as relevant. DND: Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the

				CLAWR without unduly risking safety or military security. Alberta: Receive recommendations.

Table G2. Community capacity development, knowledge braiding and governance measures (ECCC, 2019).

Conservation measure	Activities	Target timeline	Parties to the agreement	Potential collaborators
4. Develop and Implement Dene Law/Principles for Hunting and Conservation	Conduct community-based study on Dene Law principles for hunting and conservation that includes elements such as: community harvest, conservation area planning, spiritual elements of harvest and conservation.	Year 1: Conduct Study Year 2 - Year 4: Annual Review and Outreach	CLFN: Lead development and continued outreach with communities and stakeholders ECCC: Funding and other support, as relevant	NRCan: Observe; participation as relevant. DND: Observe; participation as relevant. Alberta: Observe; participation as relevant.
5. Develop and Implement Indigenous Guardians Pilot Program	Develop a proposal to and implement an Indigenous Guardians Pilot Program that includes caribou conservation capacity development, development of commercial servicing, youth engagement, training, etc.	Year 1: Develop proposal Year 2 - Year 4: Implement Pilot Program	CLFN: Lead on Indigenous Guardians Pilot Program ECCC: Funding and other support, as relevant	NRCan: Observe; participation as relevant. DND: Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the CLAWR without unduly risking safety or military security. Alberta: Observe; participation as relevant.
6. Knowledge, Science and Research	Conduct and/or participate in research programs and knowledge gathering for boreal caribou conservation (for example, climate change, habitat restoration, multi-species), and as relevant, linking to Measure 4.	Year 1 - Year 4: Conduct research programs	CLFN: pursue collaborative research with NRCan, ECCC, and Alberta ECCC: Support, as relevant	NRCan: possible co-lead. DND: Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the CLAWR without unduly risking safety or military security. Alberta: Provide information to enable alignment with provincial research.

Table G3. Population management measures (ECCC, 2019).

Conservation measure	Activities	Target timeline	Parties to the agreement	Potential collaborators
7. Predator and Alternate Prey Management	Explore opportunities and provide recommendations to contribute/enhance predator and alternate prey management, including by building on results from Measure 4, and monitoring of population responses to management actions.	Year 1 - Year 2: Explore predator and alternate prey management opportunities Year 3 - Year 4: Implement recommendations, as appropriate	CLFN: Engage Alberta to explore opportunities, including for increased hunting and trapping pressure for predators and alternative prey species, if required and monitoring of population responses, provide recommendations ECCC: Funding and other support, as relevant	DND: Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the CLAWR without unduly risking safety or military security. Alberta: Ongoing delivery of provincial predator management programming in Cold Lake Range; participate in discussions with CLFN on opportunities.

Table G4. Population monitoring (ECCC, 2019).

Conservation measure	Activities	Target timeline	Parties to the agreement	Potential collaborators
8. Monitoring of Boreal Caribou Population Metrics (for example, population size, population trend, calf recruitment)	Explore opportunities and provide recommendations for CLFN participation in population monitoring, including by building on results from Measure 4.	Year 1 - Year 2: Identify opportunities for CLFN participation Year 3 - Year 4: Implement recommendations, as appropriate	CLFN: Engage Alberta to explore opportunities for participation and support, provide recommendations ECCC: Support as required	DND: Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the CLAWR without unduly risking safety or military security. Alberta: Ongoing delivery of provincial caribou population monitoring programming, including population size estimates, population trend estimates (for example, DNA analysis, using fecal pellets), and annual calf recruitment surveys.
9. Boreal Caribou Mortality Surveys	Investigate opportunities and provide recommendations for monitoring of mortality in Boreal Caribou (including disease-related, and information on	Year 1: Identify opportunities for CLFN participation	CLFN: Explore opportunities with Alberta for participation and	DND: Contribute to planning by defining military constraints to land availability and CLAWR access considerations. Contribute to implementation by considering access to the

	Chronic Wasting Disease) as appropriate/necessary.	Year 2 - 4: Implement recommendations, as appropriate	support, provide recommendations ECCC: Funding and other support, as relevant	CLAWR without unduly risking safety or military security. Alberta: Ongoing provincial delivery of caribou mortality surveys; participate in discussions with CLFN and support monitoring.

Appendix H: Athabasca Chipewyan First Nation (ACFN) and Mikisew Cree First Nation (MCFN)-Canada Conservation Agreement recovery measures

Table H1. Stewardship planning measures (ECCC, 2022).

Conservation measure	Activities	Ranges	Activities description	Target timeline	Roles
1. Development of Indigenous Caribou Stewardship Plans	Develop Indigenous Caribou Stewardship Plans	Red Earth Richardson West Side Athabasca River (WSAR) East Side Athabasca River (ESAR)	ACFN and MCFN will undertake a scoping exercise to determine elements of range-specific Indigenous Caribou Stewardship Plans and identify information gaps. ACFN and MCFN will develop range-specific Indigenous Caribou Stewardship Plans. These Plans will focus on the caribou range boundaries identified by the Government of Alberta but would also refer to areas known by ACFN and MCFN knowledge holders to be used by caribou. ACFN and MCFN will use Indigenous Knowledge and technical expertise to develop Indigenous Caribou Stewardship Plans that reflect their rights, interests, and values. The Indigenous Caribou Stewardship Plans would • Seek to maximize caribou recovery without other interventions being necessary • maximize protection for ACFN and MCFN cultural values, and minimize	2019-20: Undertake scoping exercise, and develop Indigenous Caribou Stewardship Plans for Red Earth and Richardson Ranges 2020-21: Develop Indigenous Caribou Stewardship Plans for WSAR and ESAR	ACFN and MCFN: Scope and develop Indigenous Caribou Stewardship Plans ECCC: Support, as relevant

			conflict with industry and other land uses • Set annual area-based restoration objectives, and identify priority restoration areas • Identify other areas that ACFN and MCFN see as future Caribou Stewardship Areas		
	Work to enable ACFN and MCFN participation in provincial range planning processes	Red Earth Richardson WSAR ESAR	ACFN and MCFN make best efforts to engage with the Government of Alberta on provincial range planning process for Red Earth, Richardson, WSAR, ESAR.	2019-24: Continued engagement and support in provincial range planning	ACFN and ACFN: Engage in provincial range planning process to the extent possible ECCC: Engage with ACFN and MCFN on the status of caribou range planning in Alberta, by way of the Caribou Working Group. Support engagement consistent with Section 6 of the draft Canada-Alberta Conservation Agreement for Woodland Caribou

Table H2. Caribou Stewardship Areas measures (ECCC, 2022).

Conservation measure	Activities	Ranges	Activities description	Target timeline	Roles
2. Identification of Caribou Stewardship Areas	Identify and plan for Caribou Stewardship Areas	Red Earth Richardson West Side Athabasca River (WSAR) East Side Athabasca River (ESAR)	Caribou Stewardship Areas could be protected areas that would be identified in Indigenous Caribou Stewardship Plan development. Explore opportunities and provide recommendations on options for protection and conservation of boreal caribou habitat zones.	2019-21: Identify potential Caribou Stewardship Areas 2021-24: Identify role of ACFN and MCFN to play in the management of these areas	ACFN and MCFN: Identification of Caribou Stewardship Area and provide recommendations on options when possible ECCC: Support, as relevant.

Table H3. Restoration measures (ECCC, 2022).

Conservation measure	Activities	Ranges	Activities description	Target timeline	Roles
3. Restoration of disturbed habitat	Develop Indigenous Restoration Standards for disturbed habitat	Red Earth Richardson West Side Athabasca River (WSAR) East Side Athabasca River (ESAR)	ACFN and MCFN will use Indigenous Knowledge and technical expertise to develop criteria and standards for restoration of linear disturbance that reflects the variety of disturbances on the landscape and needs for restoration. This will include timelines for restoration, requirements to establish different plants, and quantifiable metrics to assess outcomes. The Indigenous Restoration Standards will be premised on the availability of plant material from the ACFN and MCFN greenhouse and plant nursery.	2022-23: Develop an Indigenous Restoration Standard 2023-24: Implement	ACFN and MCFN: Use the development of this information to provide feedback to Government of Alberta and Industry Proponents on restoration initiatives ECCC and NRCan: Contribute to research examining the efficacy of restoration approaches for various restoration goals. In particular, NRCan can provide technical expertise and modeling support on various restoration goals and techniques. ECCC can provide, for example, a forum to share this information through the National Boreal Caribou Knowledge Consortium
	Developing an Indigenous standard for calculating caribou habitat offsets	Red Earth Richardson West Side Athabasca River (WSAR) East Side Athabasca River (ESAR)	ACFN and MCFN will use Indigenous Knowledge and technical expertise to develop criteria and standards for calculating caribou habitat offsets. The standards and criteria will be used by ACFN and MCFN to inform the governments and industry proponents about its expectations around offsetting for caribou habitat.	2022-23: Develop Indigenous Caribou Habitat Offset Calculator	ACFN and MCFN: Use the development of the Indigenous Caribou Habitat Offset Calculator to provide feedback to Government of Alberta, and Industry proponents, where relevant ECCC: Participate and support, as relevant
	Design and operate a greenhouse and nursery to grow and supply plant materials of food, social or cultural	Red Earth Richardson West Side Athabasca	ACFN and MCFN will conduct a feasibility study regarding the construction and operation of a greenhouse and nursery in Fort Chipewyan for plants used in linear disturbance restoration Pending the identification and attainment of additional adequate funding, ACFN and MCFN	2022-23: Conduct feasibility study 2023-24: Pending funding, implement	ACFN and MCFN: Undertake feasibility study and implementation of outcomes of feasibility study

	importance for restoration work	River (WSAR) East Side Athabasca River (ESAR)	will implement the outcomes of feasibility study The greenhouse would employ ACFN and MCFN community member and grow local plants; this would support the capacity of ACFN and MCFN to participate in restoration activities, increase community confidence in restoration work undertaken, and ensure restored sites are being returned to traditional landscapes	outcomes of the feasibility study	ECCC: Work with and consider outcomes of feasibility study NRCan: Provide expertise and best practices for operation of a greenhouse and nursery

Table H4. Community awareness, education and training measures (ECCC, 2022).

Conservation measure	Activities	Ranges	Activities description	Target timeline	Roles
4. Restoration training and activities	Train community members to complete restoration in identified areas	Red Earth Richardson West Side Athabasca River (WSAR) East Side Athabasca River (ESAR)	ACFN and MCFN will develop a training program for community members in restoration of linear disturbances and build capacity within the Nations to undertake this work alone or on behalf of Alberta, Canada or proponents.	2023-24: Develop a training program, identify priority restoration work and, associated kms to restore	ACFN and MCFN: Develop program and train members Coordinate with the Government of Alberta to align and focus on complimentary work ECCC: Support training program development NRCan: See Measure 3
5. Pilot Indigenous Guardians Program	Development of a process and the implementation of an Indigenous Guardians Program that includes monitoring of caribou populations and habitat, monitoring of Indigenous and non-Indigenous hunting,	Red Earth Richardson West Side Athabasca River (WSAR) East Side Athabasca River (ESAR)	ACFN and MCFN will conduct a feasibility study to determine details and needs of an Indigenous Guardians Program (e.g. number of staff required to hire, integration with existing Guardians programs), and prioritization of ranges for implementation of program. Subject to adequate funding, ACFN and MCFN will establish an Indigenous Guardians Program that carries out monitoring of caribou populations, habitat, and disturbance, and reports the findings to ACFN and MCFN leadership, Alberta, and Canada.	2021-22: Conduct feasibility study 2022-24: Subject to adequate funding, consider the implementation of the outcomes of the feasibility study	ACFN and MCFN: Undertake feasibility study ECCC: Complete review and consideration of outcomes of the feasibility study

	and the monitoring of other activities		ACFN and MCFN will develop methods, criteria and thresholds that permit robust and defensible monitoring and reporting, using existing methods, criteria and thresholds where appropriate.		

Appendix I: Alberta-Canada Conservation Agreement progress for 2021 to 2023

Table I1. Landscape planning measures (MEPA, 2024b, 2024a).

Management tool	Action objective	Range	2021 results	2022, 2023 results	Next steps
A.1 Sub-regional Planning (Range Planning)	A.1.1 Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016)	Cold Lake (including Christina portion of East Side of the Athabasca River range), Bistcho	The draft Cold Lake and Bistcho sub-regional plans were released for engagement and were updated to reflect feedback. Sub-regional plans were in process for approval.	2022: Alberta approved subregional plans for Cold Lake and Bistcho Lake in April 2022. 2023: Development of regulatory details continued.	Continue to implement Cold Lake and Bistcho sub-regional plans and finalize regulatory details
	A.1.2. Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016)	Redrock-Prairie Creek, Narraway	Task force recommendations were received and drafting of the sub-regional plan was initiated.	2022, 2023: Sub-regional planning for the Upper Smoky sub-region continued.	Complete sub-regional planning for the Upper Smoky sub-region.
	A.1.3 Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016)	East Side of the Athabasca River	The Wandering River task force was initiated.	2022: Recommendation report was received from the Wandering River Task Force. Sub-regional planning for the Wandering River sub-region was initiated. 2023: Sub-regional planning for the Wandering River sub-region continued.	Complete sub-regional planning for the Wandering River sub-region.
	A.1.4 Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for	Chinchaga, Little Smoky, A la Peche	The Berland task force was initiated.	2022: Sub-regional task forces for the Chinchaga and Berland sub-regions continued. 2023: Recommendation reports were received from the Berland and Chinchaga Task Forces.	Initiate Berland and Chinchaga sub-regional planning and public engagement.

	Woodland Caribou, Boreal Population (2016)				
	A.1.5 Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016)	Nipisi, Slave Lake	NA	NA	Continue planning to meet Agreement timelines.
	A.1.6 Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016)	Richardson, West Side of the Athabasca River	NA	NA	Continue planning to meet Agreement timelines.
	A.1.7 Complete sub-regional plans that will achieve, at the caribou range level, woodland caribou critical habitat outcomes set out in the Recovery Strategies and consistent with ECCC's Range Plan Guidance for Woodland Caribou, Boreal Population (2016)	Yates, Caribou Mountains, Red Earth	NA	NA	Yates, Caribou Mountains, Red Earth
A.2 Legal Authority for Subregional Plans	A.2.1 Establish sub-regional plans, that support woodland caribou conservation and recovery, under provincial legislation	NA	Work is underway to enable Bistcho Lake and Cold Lake sub-regional plans under provincial legislation following government approval.	2022, 2023: Work continues to enable Bistcho Lake and Cold Lake sub-regional plans under provincial legislation.	Finalize regulatory details to enable sub-regional plans under provincial legislation.
A.3 Cross-Jurisdictional Coordination	A.3.1 Develop and implement complementary conservation and management measures with neighbouring federal, territorial, and provincial jurisdictions for shared woodland caribou populations	Transboundary ranges, including Bistcho, Yates, Caribou Mountains, Red Earth, Chinchaga, A la Peche,	Alberta coordinates delivery of wolf population reductions with the government of British Columbia, and provides caribou location and vital rates information to British Columbia, the	Alberta coordinates delivery of wolf population reductions with the government of British Columbia, and shares caribou location and vital rates information with neighbouring jurisdictions. ECCC and	Continue to collaborate with neighbouring jurisdictions on conservation and management measures for shared

		RedrockPrairie Creek Narraway, Jasper, Cold Lake, East Side of the Athabasca River, Richardson	Northwest Territories, Saskatchewan and Jasper National Park. ECCC and Alberta continue to communicate and collaborate via the federal/ provincial/ territorial National Boreal Caribou Technical Committee. ECCC and Alberta have initiated a committee to facilitate quarterly (or more frequent) discussions on implementation of the Agreement. Some discussions are periodically occurring between Alberta, BC, SK, NWT and Jasper National Park as part of existing engagements; ECCC supports those communications and collaborations, as needed.	Alberta continue to communicate and collaborate on conservation measures via the federal/ provincial/ territorial National Boreal Caribou Technical Committee. ECCC and Alberta had quarterly (or more frequent) committee discussions on implementation of the conservation agreement. Periodic discussions occurred between Alberta, BC, SK, NWT and Jasper National Park as part of existing engagements; ECCC continued to support those communications and collaborations	woodland caribou populations
A.4 Range Boundary Updates	A.4.1 Adjust identified woodland caribou local population range boundaries	Caribou Mountains, Yates, and Red Earth, relative to range delineations within Wood Buffalo National Park, and an overall evaluation of Richardson	Timelines for completion of all range boundary/local caribou population updates have been delayed. Through this current report, Alberta has: 1) identified local population ranges and (to the extent possible) reported on population vital rates for caribou local populations that were previously grouped under the administratively defined East Side of the Athabasca Range; 2) delineated the local population range and reported on population vital rates for the Deadwood local population, which was	Timelines for completion of all range boundary/local caribou population updates have been delayed. Updates are anticipated for the 2024 report. Through this current report, Alberta has continued to take steps to evaluate, identify and adjust local population range boundaries, and (to the extent possible) report on population vital rates for caribou at both the local population and range-level scales.	Complete caribou local population range adjustments. No action by ECCC was required in 2022-2023. ECCC will consider including updated range boundaries, when submitted by Alberta, towards inclusion into an amended Recovery Strategy

			previously grouped with the Chinchaga local population; and 3) identified and reported on population vital rates for the Birch Mountains local population, which was previously grouped with the Red Earth local population.		

Table I2. Habitat conservation, management, and recovery measures

Management Tool	Action Objective	Range	2021 results	2022, 2023 results	Next steps
B.1 Restoration	B.1.1 Restore footprint to contribute to achievement of woodland caribou critical habitat outcomes set out in the Recovery Strategies	All ranges in whole or in part on provincial land with an emphasis on southern mountain caribou	Initial steps have been made to enhance the restoration program in Alberta, including funding provided to the Caribou Habitat Recovery Program (CHRP) which supports the development and implementation of restoration treatment plans.	2022, 2023: Set up of the Restoration Steering Committee has been delayed. Steps continue to be made to enhance the restoration program in Alberta, including funding provided to the Caribou Habitat Recovery Program (CHRP) which supports the development and implementation of restoration treatment plans. The Alberta-Canada caribou section 11 contribution agreement was finalized in July 2022. This supports implementation and scaling up of the provincial restoration program to achieve these actions. Updates to Alberta's Provincial Restoration and Establishment Framework for Legacy Seismic Lines in Alberta are underway.	Continue implementing the provincial restoration program. Work towards the setup of the Restoration Steering Committee. Continue updates to Alberta's Provincial Restoration and Establishment Framework for Legacy Seismic Lines in Alberta. Updates to this document are expected to be completed in 2025. Explore opportunities to support participation of Indigenous communities and organizations in the restoration program.
	B.1.2 Involve Indigenous Peoples in identification of desired access routes prior to restoration implementation	All ranges in whole or in part on provincial land	The Bistcho Lake and Cold Lake draft sub-regional plans enable ongoing access for Indigenous traditional use, following forest harvest and	The Bistcho Lake and Cold Lake sub-regional plans enable ongoing access for Indigenous traditional use, following forest harvest and the reforestation of	Continue to work with Indigenous communities through the CHRP to understand access

			the reforestation of legacy seismic footprint in new harvest blocks. There is work with Indigenous communities under the CHRP to understand access needs in planning for legacy seismic footprint restoration.	legacy seismic footprint in new harvest blocks. There is ongoing work with Indigenous communities under the CHRP to understand access needs in planning for legacy seismic footprint restoration.	needs in planning for legacy seismic footprint restoration.
B.2 Forest Harvest Management	B.2.1 Complete range-specific planning to inform forest management that will achieve woodland caribou critical habitat outcomes set out in the Recovery Strategies	All ranges in whole or in part on provincial land	The draft sub-regional plans for Cold Lake and Bistcho Lake considered alternative forest management scenarios.	2022, 2023: An aggregated approach to forestry has been established in the Cold Lake and Bistcho Lake sub-regions through harvest timing sequences included in these sub-regional plans approved in April 2022. Subsequent stand-level planning of harvest timing sequences and the associate requirements for forest harvest have begun by companies within these two subregions. The development of the Wandering River and Upper Smoky sub-regional plans is including consideration of alternative forest management scenarios.	Implement forest harvest requirements consistent with the Cold Lake and Bistcho Lake sub-regional plans. Finalize approach to forest harvest management in the Wandering River and Upper Smoky sub-regional planning areas as these sub-regional plans and regulatory details are developed.
	B.2.2 Ensure alignment of Forest Management Plans and harvesting operations with conservation and recovery of local woodland caribou populations and woodland caribou critical habitat outcomes set out in the Recovery Strategies	All ranges in whole or in part on provincial land	The draft sub-regional plans for Cold Lake and Bistcho Lake include direction for forest harvest management planning.	2022, 2023: The Cold Lake and Bistcho Lake sub-regional plans, approved in April 2022, include direction on aggregating forestry activities within caribou ranges to minimize forestry-related disturbance and create larger patches of intact habitat as the forest regrows. The development of the Wandering River and Upper Smoky sub-regional plans is including consideration of directions for	Implement forest management consistent with the Cold Lake and Bistcho Lake sub-regional plans. Finalize approach to forest harvest management in the Wandering River and Upper Smoky sub-regional planning areas as these sub-regional plans and

				forest harvest management planning.	regulatory details are developed
B.3 Wildfire Management Planning	B.3.1 Incorporate woodland caribou range values (e.g., critical habitat, caribou population occurrence, rearing facilities) in Wildfire Management Plans	Little Smoky, A la Peche, RedrockPrairie Creek, Narraway	Caribou occurrence data was provided to AAFRED for consideration in development of a Grande Prairie Wildfire Management Plan (i.e., Redrock-Prairie Creek and Narraway caribou ranges).	2022, 2023: Caribou range boundaries were provided to AFP.	EPA continues to provide input and advice for the effective incorporation of caribou values into Wildfire Management Plans and inform wildfire suppression operations to support caribou recovery objectives.
	B.3.2 Incorporate woodland caribou range values (e.g., critical habitat, caribou population occurrence, rearing facilities) in Wildfire Management Plans	All remaining ranges in whole or in part on provincial land	Caribou range data was provided to AAFRED for consideration in Peace River, Edson, Lac La Biche and Fort McMurray Wildfire Management Plans.	2022, 2023: Caribou range boundaries were provided to AFP to inform the development of the Whitecourt and Slave Lake Wildfire Management Plans.	EPA continues to provide input and advice for the effective incorporation of caribou values into Wildfire Management Plans and inform wildfire suppression operations to support caribou recovery objectives. Commence development of the High Level Forest Area Wildfire Management Plan.
B.4 Management of Energy Sector Activities	B.4.1 Pursue voluntary agreements with energy companies that support woodland caribou conservation and recovery objectives	All ranges in whole or in part on provincial land	No voluntary agreements signed in 2021.	2022, 2023: The transfer of the Little Smoky Caribou Herd Development Agreement from Ovintiv Canada ULC to Kiwetinohk Energy Corp was completed in 2022. No additional voluntary agreements were signed in 2022 or 2023.	Consider pursuing agreements with energy companies to reduce footprint of future developments.
	B.4.2 Conduct access management planning that is	Cold Lake, Bistcho Lake	Access management planning was included in the	2022: The access management plans for the Cold Lake and	Continue to implement Cold Lake

	consistent with woodland caribou conservation and recovery objectives		development of the draft subregional plans for the Cold Lake and Bistcho Lake sub-regions.	Bistcho Lake sub-regions were included in the Cold Lake and Bistcho Lake sub-regional plans approved in April 2022. 2023: The access management plans are being implemented within the Cold Lake and Bistcho Lake sub-regions.	and Bistcho access management plans and finalize regulatory details.
	B.4.3 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Redrock-Prairie Creek, Narraway	NA.	2022, 2023: Access management planning as part of development of the Upper Smoky sub-regional plan development is continuing.	Complete planning for access management in the Upper Smoky sub-region.
	B.4.4 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	East Side of the Athabasca River	NA.	2022: Access management planning in the Wandering River sub-region was delayed while data was gathered and classified. 2023: Access management planning as part of development of the Wandering River subregional plan is continuing.	Continue planning for access management in the Wandering River subregion.
	B.4.5 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Chinchaga, Little Smoky, A la Peche, Nipisi, and Slave Lake	NA.	2022: NA 2023: Task Forces for the Berland (Little Smoky, A la Peche ranges) and Chinchaga subregions provided their recommendations report in 2023. Drafting of these sub-regional plans, including access management planning, has not yet commenced.	Continue planning to meet Agreement timelines.
	B.4.6 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Richardson, West Side of the Athabasca River	NA.	NA	Continue planning to meet Agreement timelines.
	B.4.7 Conduct access management planning that is consistent with woodland caribou conservation and recovery objectives	Yates, Caribou Mountains, Red Earth	NA.	NA	Continue planning to meet Agreement timelines.

B.5 Land Use Management	B.5.1 Ensure project approval conditions for existing and future energy, forestry and other land uses minimize impacts, including cumulative effects, to woodland caribou critical habitat, individual woodland caribou, and woodland caribou populations Develop new conditions to reduce impacts, including cumulative effects, to woodland caribou critical habitat, individual woodland caribou, and woodland caribou populations	All ranges in whole or in part on provincial land	Between October 2020 and December 2021, a total of 101 non-standard applications were referred to AEP for comment. The majority of non-standard applications occurred within 4 of Alberta's 15 caribou ranges (East Side of the Athabasca (15 non-standard applications), Cold Lake (49 non-standard applications), Little Smoky (13 non-standard applications) and Richardson (17 non-standard applications). The AER remains responsible for approval decisions concerning non-standard applications.	2022 & 2023: Between January 2022 and December 2023, a total of 276 non-standard applications were referred to EPA for comment. Range specific breakdown of the number of non-standard applications are as follows: A la Peche (n = 10); Chinchaga (n=1); Cold Lake (n = 134); East Side of the Athabasca (n = 24); Little Smoky (n = 55); Narraway (n = 3); Nipisi (n = 2); Red Earth (n = 3); Redrock-Prairie Creek (n = 12); Richardson (n = 20); Slave lake (n = 2); and West Side Athabasca (n = 10).	Continue to assess the need for new and modify existing land reservations to achieve caribou recovery objectives. Continue to review, adjust and implement approval conditions and standards within the Master Schedule of Standards and Conditions to achieve caribou recovery objectives.
	B.5.2 Consider potential management actions for identified important areas that occur outside range boundaries	All ranges in whole or in part on provincial land	The draft sub-regional plans for Cold Lake and Bistcho Lake included some considerations and provisions for land management outside of the currently identified caribou ranges.	The Cold Lake and Bistcho Lake sub-regional plans include some considerations and provisions for land management outside of the currently identified caribou ranges.	Identify areas outside of caribou ranges benefitting from enhanced caribou monitoring or land management actions and continue to explore opportunities to be incorporated into land management processes. Implement land-use management actions consistent with the Cold Lake and Bistcho Lake sub-regional plans.

Table I3. Mortality and population management

Management Tool	**Action Objective**	**Range**	**2021 results**	**2022, 2023 results**	**Next steps**

C.1 Predator Management	C.1.1 Wolf population management	All ranges in whole or in part on provincial land	Annual wolf population management program continued in 2021-22 within and adjacent to the following caribou ranges: Little Smoky, A la Peche, Redrock-Prairie Creek, Narraway, Chinchaga, East Side of the Athabasca, and Cold Lake.	2022, 2023: Annual wolf population management program continued within and adjacent to the following caribou ranges: A la Peche, Chinchaga, Cold Lake, East Side of the Athabasca, Little Smoky, Narraway, and RedrockPrairie Creek. New management actions were initiated in 2022 and expanded in 2023 in both Slave Lake and Nipisi ranges..	Maintain existing program delivery and continue to assess the need for additional ranges that may require wolf population management actions.
	C.1.2 Convene neighbouring federal, provincial, and territorial jurisdictions on predator management	Transboundary ranges	Collaboration between Alberta and British Columbia continues in relation to wolf population management for the Narraway and Chinchaga caribou populations.	Collaboration between Alberta and British Columbia continues in relation to wolf population management for the Narraway and Chinchaga caribou populations.	ECCC, Alberta, and neighbouring jurisdictions continued to communicate on predator management activities via the National Boreal Caribou Technical Committee.
	C.1.3 Evaluate effectiveness of Alberta Trappers Association-led pilot program to increase wolf harvest activity by Registered Fur Management Area (RFMA) holders	Little Smoky A la Peche, Redrock-Prairie Creek, Chinchaga, Cold Lake East Side of the Athabasca River	In 2020, 86 Registered Fur Management Area holders participated in the program within the following caribou ranges: A la Peche/Little Smoky (12 RFMAs), Chinchaga (25 RFMAs), and Cold Lake/East Side Athabasca (49 RFMAs). In 2021, 84 Registered Fur Management Area trappers participated in the program within the following caribou ranges: A la Peche/Little Smoky (7 RFMAs), East Side Athabasca (43 RFMAs), Chinchaga (25 RFMAs), Red Rock Prairie Creek (5	In 2022, RFMAs within and proximate to the Nipisi and Slave Lake ranges became eligible for the pilot program. In 2022, 95 Registered Fur Management Area holders participated in the program within the following caribou ranges: A la Peche/Little Smoky (5 RFMAs); Chinchaga (25 RFMAs); Cold Lake (3 RFMAs); East Side of the Athabasca (48 RFMAs); Redrock-Prairie Creek (2 RFMAs); and Slave Lake/Nipisi (15 RFMAs). In 2023, 116 Registered Fur Management Area trappers participated in the program	Continue to evaluate results and success of pilot program, and implementation of program.

			RFMAs), and Cold Lake (4 RFMAs).	within the following caribou ranges: A la Peche/Little Smoky (8 RFMAs); Chinchaga (28 RFMAs); Cold Lake (5 RFMAs); East Side of the Athabasca (58 RFMAs); Redrock-Prairie Creek (2 RFMAs); and Slave Lake/Nipisi (15 RFMAs).	
C.2 Captive Rearing	C.2.1 Consider establishing a rearing facility in the Little Smoky range and, if approved, commence 5-year pilot program	Little Smoky	The proposed caribou rearing facility in the Little Smoky caribou range is not being advanced at this time.	The proposed caribou rearing facility in the Little Smoky caribou range is not being advanced at this time	Continue to consider if a captive rearing facility is necessary to avoid extirpation of the Little Smoky caribou population.
	C.2.2 Explore opportunities for collaboration with Indigenous peoples	Little Smoky	The use of captive rearing is not being advanced at this time.	The use of captive rearing is not being advanced at this time.	Continue to consider if a captive rearing facility is necessary to avoid extirpation of the Little Smoky caribou population.
C.3 Harvest Management	C.3.1 Assess the need for establishing a conservation closure to prohibit killing of woodland caribou	All ranges in whole or in part on provincial land	Alberta's Wildlife Act and Regulations do not allow for caribou harvest, except for Indigenous peoples with constitutionally recognized harvesting rights. There continues to be occurrences of illegal caribou harvesting by non-Indigenous people. While some First Nations and Métis communities and organizations have voluntarily refrained, some harvest of caribou continues across various caribou ranges, as informed by confirmed occurrences and unconfirmed reports. Any caribou harvesting can compromise species	The need for range-specific conservation closures continued to be assessed. No conservation closures were proposed in 2022 or 2023. EPA continues to provide awareness of the current conservation risk for caribou in Alberta and advise that no caribou populations can support harvest at this time	Continue to assess the need for conservation closures.

			conservation, particularly for small populations.		
C.4 Alternative Prey Management	C.4.1 Manage vegetation to reduce alternative prey forage	All ranges in whole or in part on provincial land	Sub-regional plans consider the need to reduce the creation of young seral stage forest stands in caribou range. An industrial land use approval condition which prohibits the seeding of legume species on dispositions within caribou range is in place.	Sub-regional plans consider the need to reduce the creation of young seral stage forest stands in caribou range. An industrial land use approval condition which prohibits the seeding of legume species on dispositions within caribou range remains in place.	The effectiveness of subregional plans at reducing the creation of young seral stage forest stands to enable caribou conservation and recovery will be evaluated over time.
	C.4.2 Increase harvest opportunities for alternative prey species	Woodland caribou ranges receiving predator management actions	Increased opportunities for licensed hunting of alternative ungulate prey species in (and adjacent to) portions of the Little Smoky, A la Peche, and Redrock-Prairie Creek caribou ranges are currently provided. The objective of these actions is to enable management of the increased productivity (population growth) of these species resulting from wolf population reductions.	Adjustments to licensed hunting opportunities, in alignment with wolf population management, have been put in place for portions of the Redrock-Prairie Creek, Little Smoky, and A la Peche caribou ranges to mitigate the negative impacts of alternative prey populations on caribou. 2023: EPA conducted an alternate prey population survey within WMUs 352, 353, 440, 441 and a portion of WMUs 344 and 440 where ongoing wolf population management programs are underway	Continue to assess the need for enhanced harvesting of alternative prey species in areas where wolf population management is being delivered.

Table I4. Population and habitat monitoring measures (MEPA, 2024b, 2024a).

Management Tool	**Action Objective**	**Range**	**2021 results**	**2022, 2023 results**	**Next steps**
D.1 Monitoring	D.1.1 Assess woodland caribou population status	All ranges in whole or in part on provincial land	Annual program work completed.	Annual program work completed	Continue to deliver annual monitoring program.
	D.1.2 Estimate total population size	One or two ranges per year to establish baseline conditions	No total population size estimation field work was carried out in 2021. Analysis	Annual program work completed 2023: In collaboration with the BC Government, EPA	Analysis of data collected to date is underway.

			of data collected to date is currently underway.	delivered a fecal DNA survey of the Chinchaga Range and its' local populations.	Continue to assess the need for additional total population estimation work for Alberta's caribou ranges.
	D.1.3 Develop an annual monitoring and reporting framework for habitat disturbance and recovery, including areas where habitat restoration has been initiated	All ranges in whole or in part on provincial land	Methods are being explored to enhance mapping of caribou critical habitat (i.e. landscape disturbance and biophysical habitat). This work will contribute to providing information on changes to critical habitat over time. During engagement, the draft Bistcho Lake Sub-Region Caribou Habitat Recovery Analysis and The Cold Lake Sub-Region Caribou Habitat Recovery Analysis Appendices were released. These provided habitat outcomes from modelling for the draft Bistcho Lake and Cold Lake sub-regional plans.	Work is underway to compare habitat projections from the approved Cold Lake and Bistcho Lake sub-regional plans with actual anthropogenic footprint., taking into account the temporal scale of the projected footprint.	Report on habitat through Agreement reporting.
	D.1.4 Deliver woodland caribou conservation, management, and recovery measures	All ranges in whole or in part on provincial land	138 km of seismic lines were treated for restoration in the Cold Lake sub-region.	2022: 1,000 km of legacy seismic lines were treated for restoration under the CHRP in the Little Smoky caribou range. 2023: 880 km of legacy seismic lines were treated for restoration under the CHRP in the Little Smoky caribou range.	Continue implementing the provincial restoration program.
	D.1.5 Delineate range categories within each local population unit for southern mountain caribou ranges	All ranges in whole or in part on provincial land	ECCC has initiated work to delineate range categories within southern mountain caribou local population ranges. Work in 2021 focused on the southern mountain caribou – central group,	As part of the process to amend the 2014 Recovery Strategy for the Woodland Caribou, Southern Mountain Population, ECCC continues cooperating with federal and provincial jurisdictions and	ECCC will continue facilitating collaboration between ECCC, Alberta, British Columbia and Parks Canada, and engaging with

			which occurs in Alberta and British Columbia. Timelines to complete updates have been delayed due to challenges assembling caribou population data.	Indigenous peoples on delineation of range categories within the local population units of the Central Group of Southern Mountain Caribou (SMC Central Group). In 2022-23, ECCC continued work to identify disturbance thresholds for the SMC Central Group, by exploring the relationship between population growth and annual range-specific disturbance. This ongoing work will inform updates to delineation of categories for critical habitat. In 2022-23, collaboration and engagement on amendments to the Recovery Strategy included discussions with some individual Indigenous communities and organizations on critical habitat delineation, as well as in person workshops with multiple Indigenous communities and organizations in early 2023.	Indigenous peoples on updating the delineation of critical habitat within each range.

Appendix J: Ontario provincial recovery planning

Table J1. 2009 Woodland Caribou Conservation Plan: Actions to achieve protection and recovery (MNR, 2009).

Strategy	Actions
1 Enhance caribou science	**1.1** Ontario is starting a collaborative provincial caribou research program to increase understanding of the response of caribou populations to human-caused disturbance, natural disturbance, and other influences such as predation, habitat quality and quantity. Research will also support implementation of range management, provide benchmarks for range occupancy, population viability, population dynamics and habitat quality and quantity. It will also inform habitat suitability and population viability models.
	1.2 The re-occupancy of previously logged areas by caribou will be studied as part of the broad caribou research program through several initiatives including: • a broad assessment of caribou re-occupancy of formerly logged habitats, highlighting new science information, lessons learned and recommended adjustments to management; • renew future caribou habitat, including the use of herbicides and silviculture to renew ground lichen after logging; and • case studies of known caribou reoccupancy of formerly logged areas.
	1.3 Research on the establishment and use of thresholds of human disturbance and cumulative impact assessment will be a priority to support land-use planning decisions.
	1.4 Ontario will expand current monitoring efforts by establishing a standard provincial caribou monitoring program to provide baseline data on populations, range occupancy, southern edge of continuous distribution, and population health data (e.g. birth and death rates) for Woodland Caribou across the province. This will include the development of standards and protocols for caribou monitoring surveys.
	1.5 Ontario will initiate an ongoing population range monitoring program at the local population range level to support range management. It is anticipated that 1-2 ranges will be monitored annually.
	1.6 Ontario will create and maintain a provincial caribou database to store, manage and integrate caribou inventory and monitoring data from all past, current and future sources in support of caribou recovery (within the Natural Resource Values Information System – NRVIS).
	1.7 Ontario will establish a Provincial Woodland Caribou Technical Committee to support the implementation of the Caribou Conservation Plan. It will provide provincial-level advice on the implementation of Ontario's Woodland Caribou recovery program to the provincial government. Potential members will have professional or technical expertise in areas such as caribou ecology, forest ecology, conservation biology, forest management and Aboriginal Traditional Knowledge.
2 Adopt a range management approach	**2.1** Ontario will adopt a range management approach to Woodland Caribou recovery. Caribou ranges will be the basis for evaluating habitat conditions and identifying caribou habitat, assessing population trends, and assessing and addressing cumulative impacts. Range management will be the primary approach that sets the spatial and ecological context for planning and management decisions within an adaptive management framework. Management actions will be refined and adapted as new information becomes available. Planning decisions will consider all factors influencing the well-being of caribou within the range including direct and indirect human impacts. MNR policy will be developed to guide implementation.
	2.2 Ontario will identify local caribou population ranges, as units of analysis, within the provincial distribution of caribou. Preliminary ranges across the area of southern caribou distribution (within and immediately adjacent to areas licensed for forest management) have been identified for the Caribou Conservation Plan (Figure 5), based upon the following criteria (in priority order):

	1. Animal survey data – movements, distribution, and evidence of shared geography; 2. Habitat functions and behavioural responses; and 3. Predominant risk factors Boundaries will be refined on a criteria-based approach as new scientific and management information and Aboriginal Traditional Knowledge become available, as part of the adaptive management process. Initial efforts will focus on development of a technical support document to further describe implementation of the range management approach, including refinement of the criteria for range delineation and the process for reviewing and modifying range boundaries as required. Local population ranges for more northern areas will be identified by 2012, in consideration of the Far North planning process as additional information becomes available.
	2.3 As part of its commitment to range management, Ontario will establish range-specific population-based objectives (e.g. population health measures). Successful achievement of these objectives will require that all management decisions reflect and stay within known thresholds of range-level disturbance (human and natural).
	2.4 Ontario will conduct and report on preliminary range assessments for the proposed preliminary ranges (Figure 5) within the first six months of implementation of the Caribou Conservation Plan. Preliminary range assessments will provide the contextual direction for all resource management and land use management planning. These assessments will be based upon the methodology used in the federal Critical Habitat Science Review process tailored to Ontario's situation.
	2.5 Aboriginal Traditional Knowledge will be incorporated where available to support the delineation and refining of caribou ranges.
	2.6 Ontario will work with other jurisdictions, in particular – Manitoba, Quebec, Parks Canada and Environment Canada to ensure the effective and co-ordinated management and conservation of local caribou populations and ranges that cross jurisdictional boundaries.
	2.7 Ontario will develop a management strategy for discontinuous range management to enhance connectivity between the northern continuous range and the southern coastal Lake Superior populations. This connectivity will improve the prospects for persistence of the coastal population. Discontinuous range will not be managed broadly for caribou habitat to support self-sustaining populations. Instead it will be managed with a focus on specific landscapes that may support temporary caribou occupancy or movement between the continuous range and Lake Superior.
3 Improve Planning	**3.1** Caribou populations and habitat will be important considerations in both the designation of conservation lands in the Far North Planning Area, as well as in the management of the rest of the northern landscape. The Ontario Government has committed to protecting at least 225,000 km2 of the Far North Boreal region – this northernmost region represents 43 per cent of Ontario's land mass. Conservation of ecological features and functions, including caribou habitat and populations, will also be integrated into policy and planning tools developed for the Far North Land Use Strategy. Over time, Community Land Use Plans will be prepared in partnership with local First Nation communities to establish land use designations, including areas for protection, in the Far North.
	3.2 Refinements will be made to existing land use and resource management planning processes to better incorporate caribou considerations: • **3.2.1** The Crown Land Use Policy Atlas will be amended within areas of continuous current caribou distribution to reflect caribou presence and the need for additional consideration of caribou. Policies will include a commitment to consider caribou habitat values in all land use decisions. Land use policies for these areas will be updated as appropriate to incorporate new caribou policy. • **3.2.2** Ontario will review Fish and Wildlife Enhanced Management Areas (EMAs) within the area of current caribou distribution to assess their effectiveness for caribou conservation and consider the potential establishment of additional caribou-related EMAs.
	3.3 Parks, protected areas and conservation lands will be managed as important components of a broad landscape approach to caribou conservation through the following considerations:

	• Caribou values will be considered within existing processes for the creation of new protected areas within areas licensed for forest management; • Caribou habitat objectives and strategies will be integrated across the boundaries that separate dedicated protected areas from areas licensed for forest management or other development activities; and • Caribou conservation and recovery will be incorporated into management planning for protected areas within the current distribution of caribou.
	3.4 Habitat Regulation under the Endangered Species Act, 2007 is being planned to provide sufficient amount and arrangement of Woodland Caribou habitat to support self-sustaining local caribou populations. A landscape approach to habitat conservation would be used under the Habitat Regulation and broader policy and legislative tools to advance caribou conservation and recovery.
	3.5 Ontario will provide for and renew caribou habitat during forest management planning by requiring the development of a "dynamic caribou habitat schedule" for each forest management plan. These schedules will be developed for and integrated across all forest management plans within continuous caribou distribution.

	3.6 Decision-making will be integrated through processes that support the achievement of caribou habitat requirements. These will be achieved through forestry and other resource management planning processes, and will be consistent with the range management approach.
	• **3.6.1** As part of the broader cumulative impact assessment approach to assessing the impacts of all resource management activities upon caribou (see 3.7), Ontario will implement an "insurance policy" to guide forest management decisions. This policy will link access to future forest tracts for harvesting to current habitat quality and availability, future habitat provision and population status at the population range level (Figure 6). The purpose of this approach is to ensure that there will always be a sufficient level of Woodland Caribou habitat, relative to natural variation, in areas where forest harvesting occurs.
	• **3.6.2** The range management approach will be the key decision-making framework for caribou conservation in broader resource use and management planning decisions through the assessment of cumulative effects (Figure 7). Cumulative impact assessments will occur at both the population range level and an area of assessment centred on the proposed disturbance – Figure 7 illustrates how the cumulative effects approach is implemented through range management planning. This framework will integrate many of the key components of the Caribou Conservation Plan and provide the range assessments (population health status and contributing factors to any negative population trends) necessary to inform resource management decisions including the caribou "insurance policy". The status of caribou habitat and populations at the population range level will guide decisions on resource management proposals, potential mitigation, and the need for recovery measures. If a range assessment suggests the need for additional long-term deferrals, they will be considered in the stressed range with potential opportunities to offset any associated wood supply impacts from adjacent healthier ranges that range assessments have shown can sustain additional harvest.
	• **3.6.3** Policy will be developed to guide interpretation and implementation of strategies 3.6.1 and 3.6.2. Ontario will consider the following in developing supporting policy:
	  ○ A regular cycle will be established to conduct population monitoring and cumulative impact assessments for each population range; this will be on a different cycle from the development of Forest Management Plans;
	  ○ As population ranges may encompass several forest management units, the habitat and silvicultural criteria of the caribou insurance policy will be applied through the forest management planning process based on information for the specific forest management unit being reviewed;
	  ○ The caribou population health criteria in the caribou "insurance policy" will use the best "range level" information available at the time of FMP renewal or amendment; this assessment of population health will also consider factors other than forestry that may be affecting population health; and

	○ Policy to support implementation of strategy 3.6.1 will require ongoing dialogue between the ministry and forest industry on caribou habitat renewal status, identification of clear and fair science-based standards for performance, minimization of additional "red tape", reporting requirements and industry needs for investment certainty.
	3.7 Ontario will develop caribou policy and planning tools to assess the implications of various resource development proposals, both individually and collectively, and assist in the evaluation of potential impacts to caribou population health and persistence. • **3.7.1** Until strategic policy direction is available, major land use and development proposals within the area of caribou distribution will be assessed through a screening process. A screening tool will be developed to assess all significant development proposals within the provincial distribution of caribou, by evaluating the implications of the proposed development for caribou and identifying options for avoiding or limiting impacts on caribou. • **3.7.2** Cumulative impact assessment will be central to evaluation of the status of caribou population ranges, understanding implications to caribou population health, refining the thresholds of landscape disturbance above which caribou may not survive and making informed decisions on appropriate types and levels of resource uses. • **3.7.3** Ontario will develop policy to manage densities (thresholds) of roads and other linear features to support caribou persistence (e.g. maximum km of roads per 100 km^2). • **3.7.4** Thresholds of human and natural disturbance will be considered in land-use planning decisions. Until research results on thresholds are established, the best available scientific information will be used.
	3.8 A range assessment will be conducted and recovery actions subsequently developed for individual population ranges, using the best available science. This integrated analysis will consider trends in population health, cumulative impacts, current habitat availability, prospects for habitat renewal, disturbance and fragmentation. It will also consider current land use and resource management decisions and identify any additional required mitigation measures to provide for the long-term persistence of caribou. This could potentially include additional land use designations and decisions on areas available for harvest or development. Such decisions would include public consultation. This range assessment will ultimately provide the context for implementing the actions outlined in sections 3.5 and 3.6 and 3.7.
	3.9 Ontario will work with resource sectors (e.g. forestry, mineral exploration and mining, renewable energy, tourism) and communities (e.g. with respect to major access roads) to increase awareness of the presence of caribou and related planning requirements, and the need to include appropriate caribou mitigation measures in resource development plans.
4 Enhance Caribou Habitat	**4.1** In areas licensed for forest management within the continuous extent of caribou occurrence, Ontario will ensure that forest management practices fully consider both current and future Woodland Caribou habitat needs, reflecting natural forest conditions and dynamics. • **4.1.1** Ontario will manage the quality, quantity and location of caribou habitat in the area of continuous extent of caribou occurrence. Forest management planning will use a variety of tools to provide for caribou habitat, including silviculture, scheduling of harvesting and deferrals, science-based modeling, precautionary planning in the face of natural uncertainty such as wildfire, and a requirement for caribou habitat provision objectives and a dynamic caribou habitat schedule. Direction on minimum and maximum limits for the amount and distribution of habitat will provide for an adequate supply of habitat to be available over time, based upon science-based models of the range of habitat conditions provided through natural disturbances (as being developed for the draft Forest Management Guide for Boreal Landscapes). Forest management plans will demonstrate how planning decisions provide for an uninterrupted supply of year-round caribou habitat within the limits of natural forest variability, recognizing the influence of both forest harvesting and wildfire. • **4.1.2** Ontario will require the effective renewal of caribou habitat through a number of silvicultural initiatives, including: ○ A caribou-based objective for silviculture to be included in all forest management plans within the geographic distribution of caribou;

	○ Use of the Silvicultural Effectiveness Monitoring and Independent Forest Audit programs to assess the effectiveness of forest renewal for caribou, provide recommendations for improvements, and monitor how successfully logged areas are tracking toward a suitable future habitat condition, before any long-term deferrals are made available for harvest; and ○ New technical guidance for caribou habitat renewal in forest management guides. • **4.1.3** Where caribou distribution is discontinuous (Figure 5), Ontario will look for opportunities through forest management planning and other land use planning to improve future connectivity between local caribou populations and isolated populations. • **4.1.4** The Lake Superior coastal population will be managed for population security and persistence. The focus will be to protect and manage habitat and encourage connectivity to caribou populations to the north.
	4.2 Ontario will develop caribou habitat policy so that all resource development and management activities within the geographic distribution of caribou with the potential to affect provision of caribou habitat consider the implications for Woodland Caribou and include appropriate conservation and mitigation measures. • **4.2.1** Ontario will develop policy for future primary resource access roads. This will include clear direction and standards for the decommissioning and removal of resource access roads in caribou range where necessary and feasible. • **4.2.2** Caribou conservation values will be considered and incorporated where feasible into fire management strategies, planning priorities and processes to address: ○ Important elements of habitat that require protection; ○ The management of fire to provide future caribou habitat where feasible; and ○ The role of prescribed burns in renewing future caribou habitat.
5 Manage the Wildlife Community	**5.1** White-tailed Deer hunting seasons are being expanded across northern Ontario to help slow deer range expansion within the area of provincial caribou distribution. Deer populations and associated parasites will be monitored to assess trends and their potential impact on caribou populations.
	5.2 Ontario will document all known human-caused mortality of caribou, including road kills, poaching, rail kills, and subsistence harvest. This will help to increase knowledge about the extent and significance of all caribou mortality factors in relation to population viability.
	5.3 Ontario will review the feasibility of caribou translocations (i.e. the trapping and transferring of animals within Ontario) as a caribou recovery tool for very specific situations, including an assessment of risks and the development of criteria and guidelines, if appropriate. This review will examine lessons learned from past experience in Ontario and elsewhere as well as disease transmission and regulatory considerations. Translocations have been shown to be successful at establishing caribou populations in very specific situations, such as predator-free islands.
	5.4 Ontario will assess the relationship between Moose and caribou numbers in order to develop recommended objectives for maximum Moose numbers in Wildlife Management Units within continuous caribou distribution. This process will be implemented through the Moose management program by the establishment of Moose population objectives and harvest management strategies.
	5.5 Within the geographic distribution of caribou, populations of predators will be managed primarily by managing habitat and the associated roads to reflect natural forest conditions. This will include the management of land and resource uses to maintain naturally-occurring low densities of prey (e.g. Moose, White-tailed Deer) and predators. Ontario will assess the feasibility and effectiveness of directly and indirectly influencing predator densities in very specific situations, and develop criteria and guidelines for managing the prey-predator balance as required.
6 Focus on geographic priority areas	**6.1** Ontario will initiate immediate recovery efforts to address the most at-risk local population ranges in the province across the southern edge of continuous caribou distribution (Figure 5) through a range of pilot recovery projects and actions. Pilot projects will include population range delineation and refinement, assessment of population health and landscape disturbance, research studies, inventorying areas requiring road decommissioning and silvicultural improvements, development of cumulative impact assessment tools, and a review of potential recovery actions such as improving landscape

	connectivity and the potential for caribou transfers. Criteria will be developed to prioritize recovery efforts and ensure that actions focus on the most urgent needs.
7 Improve outreach and stewardship	**7.1** Ontario will provide effective ongoing communications, outreach and engagement in support of caribou conservation and recovery in Ontario.
	7.2 Ontario will develop a series of publications on "Best Management Practices in Caribou Country" to increase awareness of caribou ecology and conservation practices, and to help mitigate some of the impacts of resource development. Topics will include: • An explanation of how caribou habitat management is implemented within forest management plans (CCP Implementation); • Managing cumulative effects among resource sectors in caribou country (an overview); • Mining in caribou country; • Renewable energy in caribou country; • Roads and access planning in caribou country; • Tourism and outdoor recreation in caribou country (e.g. shore lunches, campsites and boating, sustainable wildlife viewing); • Caribou screening and decision support tools for resource users in caribou country; and • Caribou habitat considerations in the area of discontinuous distribution.
	7.3 Ontario intends to develop a "State of the Woodland Caribou Resource Report" by 2014 to support the review of progress towards recovery, including progress on: • assessment of caribou populations and habitat conditions for all preliminary ranges; • what has been learned regarding caribou reoccupancy of formerly logged habitats, including recommendations for improved management; and • progress made towards recovery actions and commitments made in Caribou Conservation Plan.
	7.4 Caribou recovery will be based on the best available scientific information. As caribou recovery proceeds, new information from research and monitoring and new recovery tools will become available. This information will be openly shared with the public, user groups and industry partners on an ongoing basis to foster and support caribou recovery through stewardship.
	7.5 Individuals and groups involved in caribou stewardship activities will continue to be supported by government through capacity building and funding initiatives.
	7.6 Ontario intends to reach out to Aboriginal communities, stakeholders and members of the public to seek additional information on caribou populations and habitat in support of caribou recovery.
	7.7 Ontario will ensure ongoing communication with other ministries to better consider and incorporate caribou conservation needs in other resource development initiatives within the geographic distribution of caribou.
8 Integrate Aboriginal Traditional Knowledge	**8.1** Ontario intends to continue to work in partnership with Aboriginal peoples to increase mutual knowledge and awareness of caribou, and to support caribou conservation through the implementation of the Caribou Conservation Plan. Aboriginal Traditional Knowledge will be incorporated in caribou management and research where available.
	8.2 Ontario will work with Aboriginal peoples to identify and develop partnership opportunities for caribou research and recovery actions.

Table J2. 2009 Woodland Caribou Conservation Plan: Preliminary priorities for implementing the caribou conservation plan in the first five years (MNR, 2009).

Timing	Key benchmarks
6 months	• Initial cumulative effects assessment for all preliminary population ranges. • The MNR will work closely with the forest industry to direct the immediate review of all forest management plans (current and in preparation) including the identification of a schedule for revisions and amendments. This will address the adjustments needed to ensure these plans meet commitments for silviculture, dynamic caribou habitat schedule, habitat and road management consistent with direction in the Caribou Conservation Plan, as well as the identification and development of key training messages for forest management planning teams. This will result in a Forest Management Plan adjustment schedule. • Documentation of preliminary population ranges and delineation criteria. • Finalize Caribou Conservation Plan implementation plan. • Development of preliminary screening tool to assess resource development proposals. • Establishment and implementation of Provincial Caribou Technical Committee.

1 year	• Development and distribution of Best Management Practices related to: i) managing cumulative impacts among resource management sectors, and ii) caribou-management requirements within forest management plans.
	• Draft range management policy.
	• Incorporation and implementation of caribou habitat management direction in the Forest Management Guide for Boreal Landscapes.
	• Development of initial dynamic caribou habitat schedules for all forest management units in continuous caribou distribution, and comparisons with existing management direction.
	• Policy and technical guidance on disturbance thresholds analysis for Ontario.
	• Provincial caribou monitoring plan, including protocols and standards.
	• Technical document to provide rationale and support for range management implementation.
	• Full operationalization of the provincial Woodland Caribou database.
	• Interim policy interpretation and decision-making criteria associated with:
	  ○ implementation of caribou "insurance policy";
	  ○ habitat renewal;
	  ○ road densities;
	  ○ road decommissioning; and
	  ○ caribou screening tool.

3 years	• Revised caribou habitat management direction for forest management planning. • Amendment of Crown Land Use Policy Atlas to reflect caribou presence and considerations. • Dynamic caribou habitat schedules developed, integrated and implemented across all of continuous caribou distribution. • Preliminary evaluation of coastal population linkage options to connect discontinuous and continuous range. • Identification of preliminary population ranges for all Far North ranges. • Plan in place for monitoring, assessment and reporting of human-caused mortality of caribou.

5 years	• "State of the Woodland Caribou Resource Report" to support the review of progress towards recovery, including progress on:
	  ○ population assessment for all preliminary ranges;
	  ○ what has been learned regarding caribou reoccupancy of formerly logged habitats, including recommendations for improved management; and
	  ○ progress made towards recovery actions and commitments made in Caribou Conservation Plan.

	• Preliminary population assessment complete for all preliminary ranges at southern extent of continuous caribou distribution (e.g. range occupancy, population viability). o Formal review of preliminary population ranges (southern distribution). o Policy direction on the amount and arrangement of caribou habitat reviewed and amended if necessary.

Table J3. General habitat description for the Forest-dwelling Woodland Caribou: Habitat categorization (MNR, 2009).

Category	Description
1 – Red: Nursery areas	Nursery Areas are generalized features in which individual or multiple adult female caribou select during late parturition, give birth, and raise their calves during the spring, summer and early fall. Evidence of specific calving site locations may not be known for all Nursery Areas. These features are typically comprised of lakes and wetland complexes dominated by fens and bogs, particularly those interspersed with upland islands and peninsulas (Carr et al. 2011). At the broader landscape scale within the range, these areas are selected by caribou for refuge and security. Adult females tend to be more widely dispersed during the calving and post-calving season than other times of the year, making themselves and their calves rare in the midst from other prey species and predators (Bergerud and Page 1987; Ferguson and Elkie 2004a). The early calving season tends to be characterized by low rates of travel, with female caribou making relatively swift movements the week before assumed parturition (>500 m [1.1 km/day]: Ferguson and Elkie 2004a). Adult females with calves exhibit comparatively low movement rates, and more clustered movements post-parturition in the early calving season (Ferguson and Elkie 2004a). In northwestern Ontario, peak calving activity is estimated to occur around June 1, with the calving season defined between May 7 and July 14 and post-calving season between July 15 and November 14 (Ferguson and Elkie 2004a). The start of the calving season for caribou in the Far North was estimated between May 1 and May 7, however the length of the decrease in movement varied considerably among animals, from a few days to more than two weeks (Wilson 2013; Berglund et al. 2013 in prep) suggesting similar calving seasons. Calves are particularly vulnerable to mortality during the first 50 days following birth, predominantly by predation (Pinard et al. 2012). By mid-summer calves become more mobile and females and calves shift behavior, possibly dispersing within the Nursery Area to reduce detection by predators (Ferguson and Elkie 2004a). Ontario has delineated Nursery Areas based on animal observations from May 1 to September 15 (LIO 2013). This range of dates is consistent with the literature described above and is intended to avoid animal observations associated with the large movements of individual adult female caribou prior to calving and seasonal movements in the fall/early winter. At the landscape scale, calving females appear to choose areas for overall high refuge value (i.e. from predators), and not necessarily for access to forage (Dyke and Manseau 2011; Pinard et al. 2012). However, within the nursery area caribou tend to select areas with relatively high abundance of groundcover vegetation, terrestrial lichens, lower shrub density and higher densities of mature confer trees in both northeastern Ontario and northwestern Ontario (Lantin et al. 2003; Carr et al. 2011). Areas with more open upland forest cover afford some lateral cover for concealment, but may also allow adult females and calves to better detect predators and escape to water (Bergerud 1990). Nursery Areas generally tend to be larger in the James Bay ecoregion, likely due to the more homogeneous lowland fen and bog complexes that dominate the landscape. Adult female caribou have less fidelity to exact calving locations here than on the Ontario Shield ecozone, but do tend to occupy the same general area (within 10-20 km) year after year (Hazell and Taylor 2011; Wilson 2013; Berglund et al. 2013 in prep). Adult female caribou show avoidance of suitable locations due to sensory disturbance from development or recreational activities when selecting nursery areas (Carr et al. 2007; Schaefer and Mahoney 2007; Vors et al. 2007; Vistnes and Nellemann 2008). Based on these studies Carr et al. (2011) suggested a critical threshold for parturient caribou of 10-15 km from disturbance. Currently, limited information exists on more precise estimates of caribou response to sensory disturbance at various intensities.

	Caribou have lower reproductive rates than other deer species, maturing later (at 2 ½ years of age), and generally having only one calf per year. As such, caribou are less resilient in dealing with disturbances that may disrupt calving or nursery activities.
1 – Red: Winter use areas	Winter Use Areas are generalized features associated with soil and forest cover conditions that provide abundant ground lichen (Cladina and Cladonia species) for winter forage, and tend to have lower average snow depths that may facilitate easier movement than in surrounding areas (Stardom 1975). Caribou aggregate in higher concentrations (6-50 per group) during the winter to take advantage of these features, which may allow individuals to minimize energy expenditure, forage more efficiently or minimize individual risk of predation (Stardom 1975). Ground lichens are an important winter source of carbohydrates (Schaefer and Pruitt 1991), allowing caribou to meet energetic needs during the winter when more nutrient-rich summer forage is not available. Areas with high lichen abundance are generally lower in deciduous browse and consequently often support lower densities of alternate prey species and predators. In the northern portions of the Ontario Shield ecozone, areas with open jack pine and/or black spruce greater than 40 years old, with abundant ground lichen is most often associated with shallow soils, deep coarse textured soils, or exposed bedrock with poor nutrients and moisture (Racey et al. 1999). In the claybelt region of northeastern Ontario and the James Bay ecoregion, black spruce (all ages) dominated peatlands provide arboreal lichens (Usnea species), sedges and ericaceous shrubs (Brown 2005). Eskers or morainal landforms that support ground lichens are less common in these areas. Lichen availability is not limiting on most landscapes. However, those features that are habitually used by groups of caribou may provide a source of refuge from predators and forage that may not be found in abundance throughout the range. By late winter, wind swept areas or areas of more dense forest cover with lower snow depths may be selected more often depending on snow depth conditions within a particular year. In the early winter season, approximately November 15 to January 20, caribou movement rates tend to be higher (2.5 km/ day) compared to other times of the year (Ferguson and Elkie 2004a). Caribou reduce movements and become more sedentary in the late winter season, approximately January 21 to March 5 (Ferguson and Elkie 2004a). The location and amount of area individual caribou use during the winter varies widely across Ontario, and individual fidelity to specific Winter Use Areas is generally less than for Nursery Areas (Cumming et al. 1996; Ferguson and Elkie 2004a; Hazell and Taylor 2011). Ontario has adopted the use of animal observations from December 1 to March 31 to inform the delineation of Winter Use Areas. When available, Winter Use Areas will be documented in Land Information Ontario (LIO 2013).
1 – Red: Travel corridors	Travel Corridors are generalized habitat features that caribou may use to move between Nursery Areas and Winter Use Areas. These features are widely variable and are less distinct than other High Use Areas. In some ranges, specific travel corridors may not be used or identified, and seasonal movements of caribou are generally subsumed within the larger Seasonal Ranges (see Category 2) and may cross remaining areas within the range (see Category 3). Where evidence of more discrete repeated use exists (e.g. telemetry), it can be used to delineate a Travel Corridor. Variation of travel corridor use between years may be due to changes in disturbance, snow cover depth and condition, ice freeze/thaw and temperature. Caribou travel between Nursery Areas and Winter Use Areas is characterized by higher movement rates (1.8 and 2.5 km/day) during April and November/December, respectively, than at other times of the year (Ferguson and Elkie 2004b). While lakes and rivers and associated landforms have been considered important for caribou movements in the spring and fall (Racey et al. 1999), caribou may not to be choosing to travel on waterways, such as chains of lakes and large rivers (Ferguson and Elkie 2004b). Saher and Smigelow (2004) showed that caribou traveled through areas that were less rugged and close to water, and were associated with mature conifer forest. Ontario has adopted the use of animal movements observed during April and/or November to inform the delineation of Travel Corridors. When available, Travel Corridors will be documented in Land Information Ontario (LIO 2013).

2 – Orange: Seasonal ranges	Seasonal Ranges are large sub-range habitat features that encompass the majority of current caribou distribution during all seasons within the range. Caribou are generally not distributed evenly within Seasonal Ranges in any given year. Individual animals utilize the extent of these large features over multiple years to effectively space themselves out from threats that may change annually (e.g. anthropogenic disturbance, predators) and carry out all their life processes (Racey and Arsenault 2007). Consequently, these features tend to be much larger than the current, known annual home ranges of individual caribou currently occupying the range at any one point in time. Known caribou distribution within a range is generally based on observations and GPS collar tracking of relatively few adult females. Wide variability in movement patterns of caribou derived from this type of data have been attributed to local environmental conditions and individual differences over time (Avgar et al. 2013). Caribou tend to select large (>100 km^2), interconnected tracts of mature (>40-60 years), conifer dominated (jack pine and/or black spruce), low shrub forest cover composition that are relatively undisturbed and unfragmented and are interspersed with wetlands and lakes within the range. These areas generally do not support high densities of moose and white-tailed deer, and thus provide refuge from wolves and black bears. High Use areas are typically nested within these Seasonal Ranges, and are dependent on the refuge function provided at this larger spatial scale. Seasonal Ranges have a moderate tolerance to alteration. The conifer forest cover composition and associated attributes that support the refuge function at this scale is most often associated with lower productivity and shallow soils in upland areas (or richer soils with long term conifer occupancy), and swamp, bog and fen complexes in lowland areas. More aggressive fire regimes in the western portion of the Ontario Shield ecozone generally result in the shorter renewal of forest cover by fire than in the east. Less change is observed in the black spruce wetland complexes in the claybelt region of northeastern Ontario and the James Bay ecoregion. Caribou typically occupy different portions of Seasonal Ranges at different times of the year, and some variability in habitat selection is observable across the Province. Despite differences in methodologies, most analyses of home range size and seasonal movements of boreal caribou identify 4-6 distinct seasons. These seasons are based on changes in movement patterns and behavioural changes (Brown et al. 2003; Ferguson and Elkie 2004a; Hazell and Taylor 2011; Basille et al. 2012) and generally divide the year into a summer calving and post-calving season, a late winter season where caribou were more sedentary, and spring and early winter seasons where caribou made much larger and directional movements. In the northern portions of the Ontario Shield ecozone, caribou have smaller home ranges than in other parts of the Province. Average home range size has been estimated at 1148 km^2 (Shuter and Rodgers 2011), with caribou moving an average of 37.2 km between areas of summer and winter distribution (Shuter 2010). In the portion of the Ontario Shield ecozone in northeastern Ontario, home range sizes varied from 3000 to 5000 km^2, with caribou travelling 34-53 km average distances between seasons (Brown 2005). Caribou in the James Bay ecoregion have large home-ranges (15000 to 75000 km^2) and move large distances between summer and winter ranges (31 km to 384 km: Hazell and Taylor 2011). These differences appear to be reflective how caribou use different landscapes within the Province. Maintaining the function of seasonal ranges may mean considering larger tracts for Seasonal Ranges in the James Bay ecoregion and the portion of the Ontario Shield ecozone in northeastern Ontario. These regions are dominated by black spruce lowlands with a much less aggressive fire regime than upland areas in the boreal shield
3 – Yellow: Remaining areas within the range	The remaining areas within the range support caribou indirectly by maintaining the overall refuge function within the range. Category 3 areas generally have the biophysical features and forest composition consistent with seasonal ranges, yet are currently young or disturbed (< 40 years old). These areas are generally not currently occupied for long periods of time, however caribou may travel through them. In an early-successional state, these areas generally do not support high densities of alternate prey and predators for long periods if the forest cover composition is dominated by jack pine and black spruce and the area is not fragmented by roads or other disturbance. Based on the ecological processes within a natural disturbance driven boreal forest landscape with which caribou have evolved, it is predicted that the biophysical features typical of High Use Areas that are nested in these younger disturbed areas will become used when forest cover matures and connectivity with other currently occupied seasonal ranges is restored within the range.

	These areas have a higher tolerance to alteration when compared to other, currently occupied sub-range habitat features. However, permanent or long term anthropogenic disturbances such as large linear corridors and other disturbances that fragment or alter forest cover composition, will diminish their future function. The future provision of seasonal ranges (with nested potential high use areas) is critical to long-term caribou persistence within a range. The remaining areas within the range that have the highest tolerance to alteration within the range do not have the biophysical features and forest composition consistent with Seasonal Ranges (i.e. tracts of high productivity soils that are shrub rich and deciduous dominated forest composition). Caribou typically avoid these areas due to increased risk of predation. While these areas may already support higher densities of alternate prey and predators, additional anthropogenic disturbances that lead to further increases of these species may exacerbate predation risk to caribou in adjacent areas. The apparent current absence of caribou in these areas is expected, and it is important that these areas be considered and managed as part of the broader landscape within the range.

Table J4. Range Management Policy in Support of Woodland Caribou Conservation and Recovery: Integration of range condition into the Activity Review and Assessment process for caribou (MNR, 2014).

Range Condition	**Habitat Protection**	**Activity Details**	**Assessment of adverse effects on species (s. 9) and habitat (s. 10) protection under the ESA**
Insufficient	**Category 1** High Use Areas • Lower tolerance to alteration.	• Location and Extent • Proximity • Timing • Intensity • Duration and persistent effects • Frequency • Permanency	Increased likelihood of compliance
Uncertain	**Category 2** Seasonal Ranges • Moderate tolerance to alteration.	• Location and Extent • Proximity • Timing • Intensity • Duration and persistent effects • Frequency • Permanency	Moderate likelihood of compliance, contravention
Sufficient	**Category 3** Remaining areas of the range • Higher tolerance to alteration.	• Location and Extent • Proximity • Timing • Intensity • Duration and persistent effects • Frequency • Permanency	Increased likelihood of a contravention

Table J5. Range Management Policy in Support of Woodland Caribou Conservation and Recovery: Relative risk to caribou and tolerance to alteration, based on range condition and habitat categorization (MNR, 2014).

	Range Condition – Insufficient	**Range Condition – Uncertain**	**Range Condition – Sufficient**
Habitat categorization - High use areas	Increased risk and decreased tolerance to alteration	Increasing risk and decreasing tolerance to alteration	Decreased risk and increased tolerance to alteration
Habitat categorization - Seasonal ranges	Increased risk and decreased tolerance to alteration	Increasing risk and decreasing tolerance to alteration	Decreased risk and increased tolerance to alteration
Habitat categorization - Remaining areas of the range	Increased risk and decreased tolerance to alteration	Increasing risk and decreasing tolerance to alteration	Decreased risk and increased tolerance to alteration

Appendix K: Ontario-Canada Conservation Agreement recovery planning

Table K1. Conservation measures (ECCC, 2022a).

Theme	Goal	Conservation measure	Timelines	Performance measures to be achieved in 5 years
1. Monitoring and Science	Improved understanding of the current and projected future status of Boreal Caribou at a Range-scale	1.1 Boreal Caribou Monitoring Program - Ongoing Range-scale Boreal Caribou monitoring, modelling, and reporting in all Ranges	Ontario will: Years 1- 2 • develop an ongoing monitoring program for Boreal Caribou that builds on past investments (e.g., including criteria for Range prioritization, timelines, methods, logistics, Indigenous engagement and participation, reporting) and provides opportunities to engage northern and Indigenous communities and enhance caribou conservation capacity in Indigenous communities • implement monitoring program starting in key Ranges (e.g., Brightsands, Churchill, and Kesagami) in 2022/23 and as identified through Range prioritization that includes consideration of risk to the species Years 3-5 • ongoing implementation of monitoring program as identified through Range prioritization	• An ongoing Boreal Caribou Range-scale monitoring program is established and is being implemented in prioritized Ranges • Monitoring results, including Local Population and current and projected habitat states are reported and used to inform implementation of other Conservation Measures and the need to adjust existing policies, where appropriate (e.g., prioritization of species or habitat management efforts; refining Range boundaries)
1. Monitoring and Science	Ranges are defined in a manner that supports Boreal Caribou conservation	1.2 Boreal Caribou Range Boundary Review and Updating - Review and, as appropriate, adjust Range boundaries informed by existing and new science, including Indigenous traditional and community knowledge, and consideration of relevant factors including climate change	Ontario will: Years 1-2 • prepare foundational information - review and summarize existing relevant information (e.g., delineation criteria, cross-jurisdictional methodologies, science, Indigenous traditional and community knowledge) and information obtained through Boreal Caribou	• Existing relevant information summarized • Approach to reviewing Range boundaries developed and applied, with incorporation of new Range-scale monitoring data, science/research and Indigenous traditional and community knowledge

			population surveys and monitoring program under 1.1 • develop an approach to reviewing boundaries informed by independent experts, stakeholders and Indigenous communities and organizations, that includes consideration of risk to the species Years 3-5 • apply the Range boundary review approach • ongoing review and analysis of existing information and incorporation of new monitoring data and science/research • apply results to refining federal and provincial Range boundaries if results warrant with Canada	• Federal and provincial Range boundaries refined, if deemed appropriate
1. Monitoring and Science	Improved habitat through implementation of effective and efficient Habitat Restoration approaches at a Range-scale	1.3 Habitat Restoration Assessment Initiative - Assessment of the effectiveness and efficiency of Habitat Restoration approaches in contributing to Self-sustaining Local Populations and managing cumulative disturbance at a Range-scale and application of the recommendations of the assessment	Ontario will: Years 1-2 • design the assessment approach informed by independent experts, stakeholders and Indigenous communities and organizations Years 3-4 • implement the assessment approach and report on results as they become available. Year 5 • assess the effectiveness of the assessment approach, determine next steps, and apply results to inform policies and approaches	• Approach to assessing effectiveness and efficiency of Habitat Restoration approaches established and implemented, including engagement with stakeholders and Indigenous communities and organizations • Information on the effectiveness and efficiency of Habitat Restoration approaches reported, guiding the implementation of legislation and policies, and being applied on the ground
1. Monitoring and Science	Further enhance the evidenced-based foundation	1.4 Boreal Caribou Science Plan for Ontario – Develop a Boreal Caribou science plan that	Ontario and Canada will: Years 1-2	• Assessment of current status completed, gaps and priorities identified at

	of Boreal Caribou conservation decision-making at a provincial and Range-scale	identifies current state of provincial knowledge, gaps, priorities from a provincial and Range-scale perspective, including in regard to the relationship between climate change, other natural processes such as predation and disease, and Boreal Caribou habitat, working with stakeholders and Indigenous communities and organizations, and implement the plan working with these partners	• assess the current status of federal and provincial science related to Boreal Caribou and identify gaps • design the approach for developing a Boreal Caribou science plan informed by independent experts, stakeholders and Indigenous communities and organizations Years 3-4 • work with partners to implement the priorities of the Boreal Caribou science plan Year 5 • report on progress and identify next steps	provincial and Range-scales • Boreal Caribou science plan developed and implementation underway on priorities working with stakeholders and Indigenous communities
1. Monitoring and Science	Available data and information is shared between Ontario and Canada at no charge to support Boreal Caribou conservation decision-making	1.5 Data sharing – Develop a bilateral Canada-Ontario data sharing agreement for the Boreal Caribou	Ontario and Canada will: Year 1 • develop a bilateral data sharing agreement including information on the status, conservation, and recovery of Boreal Caribou in Ontario, including population state, habitat protection, Habitat Restoration and other Conservation Measures; and information pertaining to mapping of general habitat under the ESA and Critical Habitat under SARA Ongoing • continue to share available data and information as it becomes available	• Ontario and Canada provide each other at no charge with available data and information relevant to the implementation of the Agreement, as appropriate and subject to any applicable data sharing agreements, confidentiality considerations (section 9.2)and their respective legislation that would prevent them from doing so.
2. Habitat protection and restoration	Improve Boreal Caribou habitat by decreasing fragmentation and cumulative disturbance	2.1 Habitat Restoration Initiative – Develop a prioritized list of public land locations for all Ranges and implement Habitat Restoration activities in select locations, including through support of existing and new stewardship approaches. Ensure legislative and policy mechanisms exist to secure locations of Habitat Restoration.	Ontario will: Years 1-2 • develop a prioritized list of public land locations for Habitat Restoration: including consideration of risk to Boreal Caribou, appropriate scale, priority ranges and prioritized types of restoration, as well as social and economic considerations; and informed by independent experts, stakeholders and	• Prioritized list of locations developed, made publicly available, and used to inform the implementation of Habitat Restoration activities • Legislative or policy mechanisms confirmed or established to secure Habitat Restoration sites

			Indigenous communities and organizations Years 2-4 • communicate prioritized list to those able/required to take action • implementation of Habitat Restoration activities, including through Stewardship identified in Conservation Measure 5 Year 5 • continued implementation and evaluation of next steps	• Priority projects undertaken to decrease fragmentation and cumulative disturbance of habitat within Ranges in priority areas
2. Habitat Protection and Restoration	Enhance protection of Boreal Caribou habitat through protected areas using a Range-scale approach	2.2 Protected Areas Initiative – Applying a Range-scale approach, enhanced consideration of Boreal Caribou within existing protected areas and on other public lands; and exploration and implementation of opportunities to increase protection of Boreal Caribou habitat through expanded and new protected areas, effective area-based measures, and in addition supporting private endeavors to accomplish similar goals	Ontario will: Years 1-2 • apply a Range-scale approach, and explore opportunities to increase protection of Boreal Caribou habitat through the expansion of existing, and the establishment of new, protected areas, such as through the regulation of remaining Ontario Living Legacy sites (i.e., public land areas that were identified in 1999 as part of Ontario's Living Legacy Land Use Plan to expand the province's protected areas system.) intersecting with the distribution of Boreal Caribou or through other effective area-based measures or other approaches or tools • applying a Range-scale approach, with Canada, will explore opportunities to enhance consideration of Boreal Caribou within existing protected areas (e.g., through management planning and wildland fire management) and on other public lands • consider social and economic considerations and advice from independent experts in undertaking this exploration Years 3-5	• Opportunities to increase protection of Boreal Caribou habitat through protected areas explored considering a Range-scale. • Initiate implementation of action based on identified opportunities

			• if/where opportunities are identified, initiate action to implement them	
3. Planning and Management	Forest operations conducted in Crown Forests are undertaken in accordance with an approved forest management plan under the CFSA in a manner that supports the maintenance or recovery of Self-sustaining Local Populations	3.1 Forest Management Planning - Continue to integrate the direction in the Forest Management Guide for Boreal Landscapes (BLG) into forest management plans (FMPs) that intersect with Ranges and review forest management guide direction to assess the effectiveness of existing direction in supporting the shared outcome of Self-sustaining Local Populations	Ontario will: Year 1 • depending on individual plan renewal dates, initiate, continue, or complete forest management planning to incorporate the BLG into FMPs Years 2-5 • describe and communicate the plans to assess the effectiveness of existing direction in supporting the maintenance or recovery of Self-sustaining Local Populations • ongoing planning, approval, and implementation of FMPs to incorporate the BLG • implement the plan to assess the effectiveness of existing direction and evaluation of next steps	• BLG integrated into all 20 Forest Management Plans that intersect with Ranges by 2027. To date, BLG direction has been fully incorporated into 18 of the 20 Forest Management Plans that intersect caribou ranges • Methodology to assess the effectiveness of existing BLG direction developed and assessment being undertaken • Results are reported and used to inform the need to adjust existing policies where appropriate
3. Planning and Management	Mineral exploration and mining development activities are undertaken in a manner that supports the maintenance or recovery of Self-sustaining Local Populations	3.2 Mineral Exploration and Development Initiative - Continue to implement existing best management practices when undertaking mineral exploration and development activities, while also examining the effectiveness of current practices in supporting the maintenance or recovery of the shared outcome of Self-sustaining Local Populations, and adjusting as appropriate	Ontario will: Year 1 • develop a plan to assess the effectiveness of current best management practices for site recovery and review of historic sites for natural recovery working with stakeholders Year 2 • assess the effectiveness of current best management practices, identify gaps and priorities Years 3-5 • take action to update and implement best management practices	• Methodology to assess the effectiveness of existing best practices developed and being applied • Best management practices updated and being applied
3. Planning and Management	Clarity on the management approach for	3.3 Lake Superior Coast Range Management Plan - Develop and implement a management	Ontario will: Years 1-2	• Finalization and implementation of a Management Approach for

	Boreal Caribou in the Lake Superior Coast Range	approach for the Lake Superior Coast Range and Discontinuous Distribution (Management Approach)	• consult on the draft Management Approach; and • finalize the Management Approach Year 3 • implementation of the Management Approach Years 3-5 • ongoing implementation of the Management Approach	the Lake Superior Coast Range and Discontinuous Distribution
4. Updates to Boreal Caribou Conservation Frameworks	Refined evidence-based approaches to managing for Self-sustaining Local Populations	4.1 Evidence-based approaches - Refine existing evidence-based approaches to manage for Self-sustaining Local Populations in Ranges and integrate them into provincial and federal Boreal Caribou Conservation Frameworks, where appropriate	Ontario and Canada will: Years 1-2 • collaborate to review and refine existing and alternative evidence-based approaches to maintain or move towards Self-sustaining Local Populations within Ranges • validate, including through review by recognized experts, and integrate accepted evidence-based approaches, into provincial and federal Boreal Caribou Conservation Frameworks, that achieve equivalent outcomes (i.e., self-sustaining local populations) where appropriate Years 3-5 • ongoing collaboration to further refine existing evidence-based approaches	• Refined evidence-based management approach for Ontario recommended and opportunities identified for integration into the provincial and federal Boreal Caribou Conservation Frameworks to guide implementation of legislation, policies, etc. with respect to managing Boreal Caribou and its habitat
4. Updates to Boreal Caribou Conservation Frameworks	Up-to-date and aligned policy frameworks in Ontario and Canada	4.2 Updating federal and provincial policy frameworks – Ontario and Canada to review updated relevant information (e.g., monitoring, science/research) as it is generated under the Agreement and consider adoption into federal and provincial Boreal Caribou conservation policies and approaches	Ontario and Canada will: All Years • consider the adoption or incorporation of relevant information as it becomes available, including as a result of Conservation Measures under this Agreement Year 3 • Canada to review final Management Approach for the Lake Superior Coast Range and Discontinuous Distribution,	• Relevant federal and provincial Boreal Caribou Conservation Frameworks are up-to-date, incorporating best available information, as appropriate, including to support alignment between provincial and national approaches

			and consider incorporating or adopting outcomes into the federal framework	
5. Stewardship Collaborations and Funding	Support implementation of projects that contribute to maintenance or recovery of Self-sustaining Local Populations	5.1 Stewardship Collaborations and Funding - Support implementation of projects that contribute to adaptive management in Boreal Caribou conservation.	Ontario and Canada will: Year 1 • identify opportunities to support Boreal Caribou conservation initiatives including the priorities for Habitat Restoration identified in Conservation Measure 2.1 • implement identified strategic projects to further Boreal Caribou conservation • develop a catalogue of stewardship projects underway/proposed to support better collaboration and avoid duplication of effort Years 2-5 • ongoing identification and implementation of strategic projects to further Boreal Caribou conservation	• The Parties have collaborated to identify and fund projects, to further Boreal Caribou conservation in Ontario

Appendix L: Ontario-Canada Conservation Agreement implementation progress 2023 to 2024.

Table L1. Monitoring and science measures (MECP, 2024).

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
1.1 Boreal Caribou Monitoring Program	Improved understanding of the current and projected future status of Boreal Caribou at a Range-scale.	Ontario will: 2023–2024 • Develop an ongoing monitoring program for Boreal Caribou. • Implement monitoring program.	• Boreal Caribou Monitoring Program designed following consultations with stakeholders and Indigenous communities and organizations. • Aerial surveys undertaken in two ranges (Berens and Sydney) including outreach with Indigenous communities and organizations. • Fecal DNA mark-recapture study funded in Churchill Range under conservation measure 5.1.	On track	• 2024–2025 — Publish the results of the 2023 and 2024 aerial surveys. • 2024–2025 — Undertake procurement and other actions necessary for monitoring work in Y3 and undertake monitoring in priority ranges, including engagement with Indigenous communities. • 2024–2027 — Continue to implement the monitoring program and share the results.
1.2 Boreal Caribou Range Boundary Review and Updating	Ranges are defined in a manner that supports Boreal Caribou conservation.	Ontario will: 2022–2024 • Prepare foundational information. • Develop an approach to reviewing boundaries informed by independent experts, stakeholders and Indigenous communities and organizations, that includes consideration of risk to the species.	• Prepared foundational information and summarized existing relevant information for presentation to experts, stakeholders and Indigenous communities and organizations during engagement on approach to reviewing range boundaries. • Continued the development of an approach to review boundaries.	Partially completed. Anticipated to be on track in 2024–2025.	• 2024–2025 — Consult on and finalize approach to reviewing boundaries informed by independent experts, stakeholders and Indigenous communities and organizations, that includes consideration of risk to the species. • 2024–2027 — Undertake range boundary review. Apply results to refining federal and provincial range

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
					boundaries if results warrant, with Canada.
1.3 Habitat Restoration Assessment Initiative	Improved habitat through implementation of effective and efficient Habitat Restoration approaches at a Range-scale.	Ontario will: 2022–2024 • Design the assessment approach informed by independent experts, stakeholders and Indigenous communities and organizations.	• Continued progress on evaluating potential sources of information to inform design of the assessment protocol which will focus on evaluating results of past forest management practices in forest stands where the regeneration objective was to establish desirable conditions for Boreal Caribou. • A procurement of consultant services was completed to help inform technical aspects of the design. The consultant's final report was received in March 2024, and will be one source of information for the final design. • Initial engagement with Indigenous communities and organizations and stakeholders on the design of the assessment protocol is planned for May 2024. • Input from Indigenous and stakeholder engagement will be considered alongside results from the evaluation of potential information sources and recommendations in the consultant's final report to develop the final assessment protocol.	Partially completed. Anticipated to be on track in 2024–2025.	• 2024–2025 — Finalize the design of the assessment approach following engagement with independent experts, Indigenous communities and organizations, and stakeholders. • 2024-2026 — Implement the assessment approach and report on results as they become available. • 2026–2027 — Assess the effectiveness of the assessment approach, determine next steps, and apply results to inform policies and approaches.

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
1.4 Boreal Caribou Science Plan	Further enhance the evidence-based foundation of Boreal Caribou conservation decision-making at a provincial and Range-scale.	Ontario and Canada will: 2022–2024 • Assess the current status of federal and provincial science related to Boreal Caribou and identify gaps. • Design the approach for developing a Boreal Caribou science plan informed by independent experts, stakeholders and Indigenous communities and organizations.	• Recommendations to change the name of the product to Boreal Caribou Knowledge Plan were accepted. • A comprehensive knowledge review on the state of Boreal Caribou knowledge in Ontario was completed and shared widely. • Engagement with Indigenous communities and organizations and stakeholders occurred to draft the plan. • The advice of experts under conservation measure 4.1 was considered and is being incorporated. • The Boreal Caribou Knowledge Plan was drafted. • Implementation of the draft plan continued including: monitoring to improve understanding of population status, population trend and habitat state by range, including through aerial surveys, collaring, and fecal DNA analysis; evaluation of the relationship between vital rates and disturbance including evaluation of total, anthropogenic and natural disturbance and linear features; and telemetry-based analysis of spatial population structure.	On track	• 2024–2025 — Finalize and publish plan and continue implementation. • 2024–2027 — Continue to work with partners to implement the plan. • 2026–2027 — Report on progress and identify next steps.
1.5 Data Sharing	Available data and information is shared between	Ontario and Canada will: 2022–2023	• Data sharing continued between Ontario and Canada continued by	Partially completed.	• 2023–2027 — Continue to share available data and

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
	Ontario and Canada at no charge to support Boreal Caribou conservation decision-making.	• Develop a bilateral data sharing agreement including information on the status, conservation, and recovery of Boreal Caribou in Ontario, including population state, habitat protection, Habitat Restoration, and other Conservation Measures; and information pertaining to mapping of general habitat under the ESA and Critical Habitat under SARA.	request or through existing data sharing agreements. • Progress was made on the scope and terms of the data-sharing agreement.	Anticipated to be on track in 2024–2025.	information as it becomes available. • 2024–2025 — Finalize a bilateral data sharing agreement between Ontario and Canada and continue to share available data and information as it becomes available.

Table L2. Habitat protection and restoration measures (MECP, 2024).

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
2.1 Habitat Restoration Initiative	Improve Boreal Caribou habitat by decreasing fragmentation and cumulative disturbance.	Ontario will: 2022–2024 • Develop a prioritized list of public land locations for Habitat Restoration: including consideration of risk to Boreal Caribou, appropriate scale, priority ranges and prioritized types of restoration, as well as social and economic considerations; and informed by independent experts, stakeholders and Indigenous communities and organizations. 2023–2026 • Communicate prioritized list to those able/required to take action.	• Continued progress has been made on the development of a prioritized list of public land locations in Ontario for Boreal Caribou habitat restoration focused on compiling foundational information, including: potential strategies for habitat restoration; jurisdictional scan of approaches and techniques used elsewhere; and literature review of relevant existing and new science. • Criteria for prioritizing locations were discussed with several subject matter experts representing stakeholders and the provincial and federal governments as a prelude to broader engagement with	Partially completed. Anticipated to be on track in 2024–2025.	• 2024–2025 — Engagement of independent experts, stakeholders and Indigenous communities and organizations on the proposed approach to prioritizing locations. Application of the approach and finalized list. • 2025–2026 — Communicate prioritized list to those able/required to take action. Implementation of Habitat Restoration activities,

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
		• Implementation of Habitat Restoration activities, including through Stewardship identified in Conservation Measure 5.1.	stakeholders and Indigenous communities and organizations.		including through Stewardship identified in Conservation Measure 5.1. • 2026–2027 — Continued implementation and evaluation of next steps.
2.2 Protected Areas Initiative	Enhance protection of Boreal Caribou habitat through protected areas using a Range- scale approach.	Ontario will: 2022–2024 • Apply a Range-scale approach, and explore opportunities to increase protection of Boreal Caribou habitat through the expansion of existing, and the establishment of new, protected areas, such as through the regulation of remaining Ontario Living Legacy sites (for instance, public land areas that were identified in 1999 as part of Ontario's Living Legacy Land Use Plan to expand the province's protected areas system.) intersecting with the distribution of Boreal Caribou or through other effective area-based measures or other approaches or tools. • Applying a Range-scale approach, with Canada, will explore opportunities to enhance consideration of Boreal Caribou within existing protected areas (for example, through management planning and wildland fire management) and on other public lands.	• Continued to explore opportunities to enhance the consideration of Boreal Caribou within existing protected areas: o Background information document for the Wabakimi Provincial Park planning process was posted on the Environmental Registry of Ontario to support the development of a management plan for the park. o Indigenous and public consultation for the Wabakimi Provincial Park management plan targeting 2024/2025. o Initiated review of the vegetation management plan for Woodland Caribou Provincial Park. • Continued to explore opportunities to increase protection of Boreal Caribou habitat through the expansion of existing, and the establishment of new, protected areas. Specifically park boundary expansion for Missinabi and Woodland Caribou Provincial Parks was considered. o Options were explored for the expansion of Woodland Caribou	Partially completed. Anticipated to be on track in 2024–2025.	2024–2025 • Pre-consultation notification to First Nation communities as part of Wabakimi Provincial Park management planning process. • Undertake Indigenous community and public consultations on the additional stages of the management planning process that includes consideration of Boreal Caribou. Develop the draft management plan for Wabakimi Provincial Park. • Continue to work with Ministry partners to explore opportunities to advance the regulation of sites within Woodland Caribou Provincial Park and Missinaibi Provincial Park. 2024–2027

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
		• Consider social and economic considerations and advice from independent experts in undertaking this exploration.	Provincial Park and Missinaibi Provincial Park. ○ Management options are also being developed for Wabakimi Provincial Park as part of the management planning process.		• If/where opportunities are identified for the expansion of existing, and the establishment of new protected areas, consider implementation

Table L3. Planning and management measures (MECP, 2024).

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
3.1 Forest Management Planning	Forest operations conducted in Crown Forests are undertaken in accordance with an approved forest management plan under the CFSA in a manner that supports the maintenance or recovery of Self-sustaining Local Populations.	Ontario will: 2023–2027 • Describe and communicate the plans to assess the effectiveness of existing direction in supporting the maintenance or recovery of Self-sustaining Local Populations. • Ongoing planning, approval, and implementation of FMPs to incorporate the BLG. • Implement the plan to assess the effectiveness of	• Boreal Landscape Guide (BLG) direction has been fully implemented in forest management plans (FMPs) within the continuous caribou distribution. The 2024-2034 Lac Seul FMP and the 2024-2034 Whiskey Jack FMP integrated the BLG and were approved in December 2023 and March 2024, respectively. All management units that intersect the continuous caribou distribution now have approved FMPs that fully incorporate BLG direction. • Project plans to assess the effectiveness of BLG direction have been developed and are being implemented.	On track	• 2024–2027 — Describe and communicate the plans to assess the effectiveness of existing direction in supporting the maintenance or recovery of Self-sustaining Local Populations to stakeholders and Indigenous communities. • 2024–2027 — Implement the plans to assess the effectiveness of existing direction and evaluation of next steps.

		existing direction and evaluation of next steps.			
3.2 Mineral Exploration and Development Initiative	Mineral exploration and mining development activities are undertaken in a manner that supports the maintenance or recovery of Self-sustaining Local Populations.	Ontario will: 2023–2024 • Assess the effectiveness of current best management practices, identify gaps and priorities.	• Site visits were completed to study caribou habitat use and the impacts of the application of BMPs where early exploration activities have occurred. • A literature review and jurisdictional scan were drafted.	Partially completed. Literature review anticipated to be finalized in 2024–2025. Work to assess effectiveness of current BMPs is ongoing.	• 2024–2025 — Finalize the literature review and jurisdictional scan. • 2025–2027 — Take action to update and implement best management practices.
3.3 Lake Superior Coast Range Management Plan	Clarity on the management approach for Boreal Caribou in the Lake Superior Coast Range.	Ontario will: 2022–2024 • Consult on the draft Management Approach. • Finalize the Management Approach.	• The Lake Superior Roundtable of stakeholders, Indigenous communities and organizations was established and discussed a draft management approach in March 2024. • Implementation of components of the draft plan were initiated including funding of stewardship projects and exploration of collaborative arrangements.	Partially completed. On track for 2024–2025.	• 2024–2025 — Undertake consultation and finalize the management approach. • 2024–2027 — Ongoing implementation of the Management Approach.

Table L4. Updates to boreal caribou conservation frameworks measures (MECP, 2024).

Conservation measure	**Goal**	**Timelines in conservation agreement**	**Summary of results achieved in 2023–2024**	**Status**	**Next steps 2024–2027**
4.1 Evidence-based Approaches	Refined evidence-based approaches to managing for Self-sustaining Local Populations.	Ontario and Canada will: 2022–2024 • Collaborate to review and refine existing and alternative evidence-based approaches to maintain or move	• An expert group was established, reviewed information from Canada and Ontario and provided advice.	On track	• 2024–2027 — Ongoing collaboration to review and refine existing and alternative evidence-based approaches. Continue to take action aligned with the

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
		towards Self-sustaining Local Populations within ranges. • Validate, including through review by recognized experts, and integrate accepted evidence-based approaches, into provincial and federal Boreal Caribou Conservation Frameworks, that achieve equivalent outcomes (for instance, self- sustaining local populations) where appropriate.	• The report of the expert group was finalized in February 2024. • Ontario took action under several conservation measures in alignment with the recommendations of the expert group.		recommendations of the expert group.
4.2 Updating Federal and Provincial Policy Frameworks	Up-to-date and aligned policy frameworks in Ontario and Canada.	Ontario and Canada will: 2022–2027 • Consider the adoption or incorporation of relevant information as it becomes available, including as a result of Conservation Measures under this Agreement.	• Ongoing monitoring of results across Conservation Measures for consideration of adoption or incorporation into conservation frameworks.	On track	• 2024–2027 — Consider the adoption or incorporation of relevant information as it becomes available, resulting from the Conservation Measures under this Agreement. • 2024–2025 — Canada to review final Management Approach for the Lake Superior Coast Range and Discontinuous Distribution and consider incorporating or adopting outcomes into the federal framework.

Table L5. Stewardship collaborations and funding (MECP, 2024).

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
5.1 Stewardship Collaborations and Funding	Support implementation of projects that contribute to	Ontario and Canada will: 2022–2023 • Develop a catalogue of stewardship projects	• Conducted outreach including a public call for proposals and funded 16 additional projects bringing the total to 19 under the	Partially completed. Stewardship Catalogue on	• 2024–2025 — Launch a call for applications for stewardship funding and further identify and fund strategic projects. Enter

Conservation measure	Goal	Timelines in conservation agreement	Summary of results achieved in 2023–2024	Status	Next steps 2024–2027
	maintenance or recovery of Self-sustaining Local Populations.	underway/proposed to support better collaboration and avoid duplication of effort. 2023–2027 • Ongoing identification and implementation of strategic projects to further Boreal Caribou conservation.	Caribou Conservation Stewardship Program for a total investment of almost $8 million. • Continued work on the catalogue of stewardship projects.	track to be completed in 2024–2025.	into transfer payment agreements as projects are approved. • 2024–2025 — Finalization and publication of the catalogue of stewardship projects. • 2025–2027 — Ongoing identification and implementation of strategic projects to fund.

Appendix M: Interview Questions

Note that probing questions were also utilized based on respondent answers.

1. In your opinion, what are the current strengths of the boreal caribou conservation regime in Alberta and/or Ontario?

2. In your opinion, what are the main current obstacles for the conservation regimes in Alberta and/or Ontario?

3. In your opinion, will achieving the current boreal caribou conservation objectives of self-sustaining ranges across Alberta and Ontario require changes to the legal/political conservation regime? If yes, how so?

4. Boreal caribou are a particularly difficult case due to the overlap between their critical habitat and natural resource operations. The provinces of Alberta and Ontario have both aimed to incorporate boreal caribou conservation into the governance of their natural resource industries. From your experience with this issue, do you believe that the government(s) have done an adequate job harmonizing conservation and economic priorities within the boreal caribou conservation regime?

5. Four conservation agreements for boreal caribou have been made across Alberta and Ontario. However, the Alberta-Canada, Cold Lake First Nations-Canada, and Athabasca Chipewyan First Nation (ACFN)-Mikisew Cree First Nation (MCFN)-Canada conservation agreements applicable in Alberta have since expired and are lacking comprehensive progress reporting. Information on these agreements is hard to come by in the academic literature or general media. Do you have any insights or views regarding their implementation or current status?

6. What do you foresee for the future of boreal caribou in Alberta, Ontario, and/or Canada as pushes for economic sovereignty, increasing climate change impacts, and so forth increase stressors within boreal caribou habitat?

7. Are there are any additional points you'd like make, either about the boreal caribou, biodiversity conservation in Canada, or anything else relevant to what we've discussed today?