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# ᐃehdzo Got'IneGots'ėNákedı Sahtú Renewable Resources Board

Tłegóhłı (Norman Wells), February 20-22, 2024  
Public Listening Session  
Climate, Wildfire and Caribou

Information Request 1 – Submission  
Environment and Climate Change Canada (ECCC)  
& Natural Resources Canada (NRCan)  
January 31, 2024



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

Canada

## 1. What effects does government forestry management have on wildfires?

- In most of Canada's forests, provincial and territorial agencies have the responsibility for wildland fire management. National parks and military bases are examples of areas where federal government agencies are responsible. Agencies typically have agreements to respond to fires in each others' jurisdictions, for coordinating action by Provincial, Territorial, Federal and Indigenous Peoples' crews.
- Another part of the federal role in wildland fire is to manage fires on federal lands, to support provinces and territories with fire science and technology development, and through emergency management planning and to provide additional support during emergency situations.
- To establish a balanced approach to fire management, federal, provincial and territorial governments developed the [Canadian Wildland Fire Strategy](#). The strategy charts the future of fire management, and includes measures to mitigate hazards and improve fire preparedness, response and recovery capabilities. For example, FireSmart Canada is a national program under the Canadian Interagency Forest Fire Centre that helps Canadians increase neighborhood resilience to wildfire and minimize negative impacts. FireSmart programming is focused around three key pillars: homeowner, neighbourhood and community. Logan Lake, BC, is an example of a successful FireSmart program where they have invested in protecting their community.
- Forest managers also have a range of tools for assessing fire danger, predicting fires and responding as necessary. Resources include:
  - The comprehensive [Canadian Wildland Fire Information System](#) (CWFIS) provides data and maps of fire danger conditions across Canada. Fire management agencies, forest companies and researchers are also increasingly using the [Canadian Forest Fire Danger Rating System](#) (CFFDRS) to assess the role and impact of fire in forest ecosystems.
  - Sustainable forest management requires analyzing a host of factors to evaluate options and assess the potential impacts of wildland fire across a range of forest values. Those values include timber supply, recreational opportunities and wildlife habitat. The Wildfire Threat Rating System (WTRS) assesses and maps four main components of fire risk: ignition, values at risk, suppression capability and expected fire behaviour. The system generates an overall fire-threat rating that helps forest managers determine how land-use decisions affect the fire threat in a given area.
  - The Canadian Forest Service has developed a diverse set of fire models and applications. The modelling tools range from hourly predictions of fire growth in forest stands, to assessments of the fire-susceptibility of landscapes over a single fire seasons or even over multiple years. These

tools help fire managers make better decisions about how and where to allocate firefighting resources. For example, the [Canadian Fire Effects Model](#) (CanFIRE) can be used to predict the behaviour of a wildland fire underway. This can help authorities plan daily suppression tactics.

The [Probabilistic Fire Analysis System](#) (PFAS) is a long-range fire growth model that predicts the potential extent of a wildfire if it were allowed to grow unimpeded for weeks or even months. The model combines the probability of a fire's spread with the probability of its survival up until rain or snow puts it out naturally.

- Other important resources for fire managers are programs designed to encourage individuals, businesses and communities to become involved in fire management. For example, the [FireSmart](#)<sup>®</sup> initiative includes a risk reduction program for forestry companies. It identifies operational measures (for harvest scheduling, cutting, road layout, and regeneration and stand-tending activities) that will reduce the risk of damage from unwanted wildland fires. Forest companies can also assess fuel types and monitor fuel loads in their forests. These measures are also aimed at mitigating the risk associated with prescribed fire.

## **2. What are the impacts of climate change in the Sahtú Settlement Area on caribou and caribou habitat?**

- The longer-term effects of climate change on the upper Mackenzie Valley, with a focus on caribou habitat, were assessed by researchers using computer models. The models illustrate future changes in ecosystems and ecosystem components in response to environmental changes such as climate change. Researchers are from the Canadian Forest Service and several universities.
- Model results indicate that ecosystems will change in response to climate-induced changes in wildfires, permafrost, vegetation, precipitation and surface water conditions. Results suggest caribou habitat will shift north, although some areas in the southwest NWT will also become more suitable habitat. No significant changes in herds was shown with populations continuing on current trends, with those in decline continuing to decline. Protecting and restoring habitat will continue to be effective in building self-sustaining herds.
- For more details, see the infographic below as well as the list of references provided along with this submission.

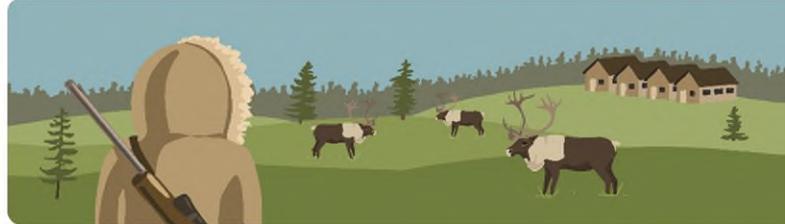
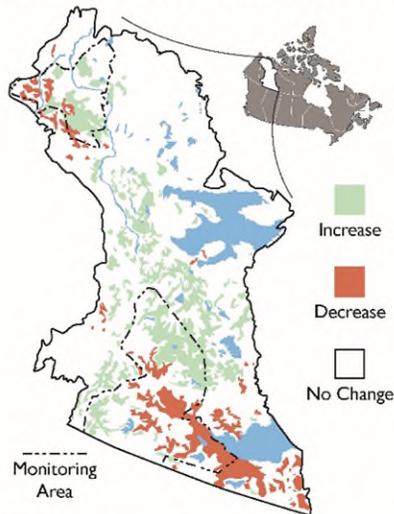
## WHERE WILL NORTHERN BOREAL CARIBOU LIVE AS THE CLIMATE CHANGES?

Stewart, Micheletti, et al. 2023. doi: <https://doi.org/10.1002/eap.2816> Contact: [fstewart@wlu.ca](mailto:fstewart@wlu.ca)

- We combined models to forecast where and when caribou habitat and populations will change in the Northwest Territories.

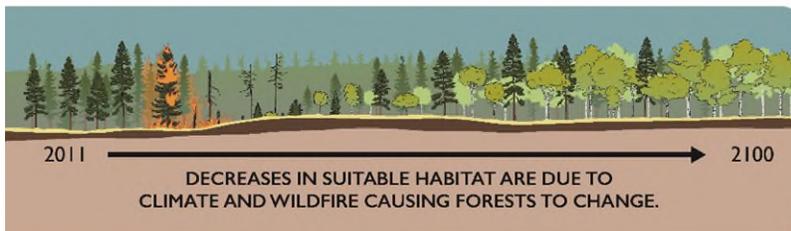
- We quantified how certain these changes are with climate change.

### PREDICTED CHANGE IN SUITABLE HABITAT



### WE FOUND

- Boreal caribou habitat will shift north, but there are areas in the southwest NWT that will become more suitable.
- Caribou populations will continue on their current trajectories - some will remain stable, and some will continue to decline.
- Protecting and restoring northern boreal caribou habitat despite climate uncertainty is important for many regions and people.



### 3. How are climate change plans or policies addressing caribou? Are other plans/policies anticipated?

- While Canada's climate plans do not directly address caribou conservation, we have provided an answer to this question that includes information on *Canada's 2030 Emissions Reduction Plan* and the *National Adaptation Strategy*, both of which identify key measures that Canada is implementing to mitigate and adapt to a changing climate.
- In both of these plans, Canada has committed to advancing an Indigenous Climate Leadership Agenda to enable stronger federal-Indigenous partnerships on climate

change and to support Indigenous-led climate action. Information on that initiative is also included in the response below.

[2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy](#)

- Canada's 2030 Emissions Reduction Plan (ERP) was published in March 2022 and provides a detailed roadmap for reducing Canada's greenhouse gas emissions with measures across all sectors of the economy, including transportation, electricity, and heavy industry. The ERP also includes enabling measures like strengthening our workforce as we embark on the transition to a net-zero economy, and making the financial sector more sustainable.
- The 2030 ERP puts Canada on a path to achieve our national 2030 target of a 40-45 per cent reduction in greenhouse gas emissions from 2005 levels and our longer-term goal of net-zero greenhouse gas emissions by 2050.
- The 2030 ERP is an important deliverable under the *Canadian Net-Zero Emissions Accountability Act*, which codifies the Government of Canada's commitment to achieve net-zero greenhouse gas emissions by 2050 into law, and holds the Government of Canada accountable to deliver on this commitment in a transparent manner.
- The *Canadian Net-Zero Emissions Accountability Act* requires the federal government to take Indigenous Knowledge into account when setting emissions reduction targets, and to provide opportunities for Indigenous Peoples to make submissions as part of the processes to set targets and plans.

[Canada's National Adaptation Strategy: Building Resilient Communities and a Strong Economy](#)

- As climate impacts continue to intensify, the Government of Canada recognizes that a more ambitious, strategic and collaborative approach is required to adapt and build resilience to the impacts of climate change. This is why the Government of Canada has developed Canada's first National Adaptation Strategy (NAS) to set a common vision and direction for whole-of-society efforts. Effective adaptation requires that we all understand and prepare for climate impacts in our homes, communities, and regions. The Strategy was developed in collaboration with provincial and territorial governments, Indigenous partners, the private sector, non-governmental organizations, adaptation experts, and youth.
- The NAS is being implemented by the federal government, by provincial and territorial governments and by Indigenous partners across Canada.
- The [Government of Canada Adaptation Action Plan \(GOCAAP\)](#) was released in June 2023 as the federal contribution to advancing the goals, objectives and targets in the NAS. The GOCAAP includes over 70 new and ongoing actions by federal departments and agencies, illustrating the depth and breadth of adaptation action being taken.

These actions address the climate risks that matter most to Canadians, such as wildfires, floods and extreme heat. It also strengthens the federal role on adaptation and helps ensure the Government is complementing the critical actions being led by provinces, territories, municipalities, Indigenous communities, and businesses across the country.

#### *Indigenous Climate Leadership*

- Canada committed to advancing an Indigenous Climate Leadership Agenda through the Strengthened Climate Plan, the 2030 Emissions Reduction Plan, Budget 2022, the National Adaptation Strategy and the *United Nations Declaration on the Rights of Indigenous Peoples Act (UNDA) Action Plan*.
- The ICL Agenda is led by ECCC and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) with First Nations, Inuit and Métis partners, but it is a whole-of-government initiative to strengthen the Crown-Indigenous relationship on climate and advance reconciliation.
- The goal of the ICL Agenda is to implement a model of partnership for climate action between the federal government and Indigenous Peoples that:
  - Empowers self-determined climate action;
  - Leverages the transition to a net-zero economy to support overarching efforts towards self-determination, the alleviation of socio-economic inequities, and the implementation of the *United Nations Declaration on the Rights of Indigenous Peoples*; and,
  - Supports the inclusion of Indigenous Knowledge in national climate policy through appropriate governance arrangements, the promotion of Indigenous perspectives on climate change, and the ethical and equitable consideration of both Indigenous and non-Indigenous knowledge systems and science.
- Canada has established partnerships with over 30 Indigenous governments and regional organizations across the country to support an inclusive process that recognizes the right to self-determination and reflects the diversity of First Nations, Inuit, and Métis realities and priorities. Canada is providing funding to many of these partners to advance unique engagement plans, each with different methods of collecting input from their citizens and communities, including targeted working groups, in-person and virtual meetings, public consultations in communities, and larger regional conferences.
- In the Sahtú Settlement Area specifically, ECCC and CIRNAC are in conversation with the Sahtú Land Use Planning Board (SLUPB) about the opportunity to establish a contribution agreement to enable the SLUPB to conduct engagement in the Sahtú Settlement Area on climate priorities in the region.

**4. What programs or supports are available to communities for adaptation or mitigation measures related to climate change or wildfire impacts? Bring back to caribou.**

- While funding opportunities may not be tied specifically to caribou, there are many federal funding programs that are available to support First Nations, Inuit and Métis climate action for a safer and cleaner environment for future generations.
- For a searchable list of federal programs that support Indigenous climate action and clean energy projects, see [Indigenous climate and environmental funding - Canada.ca](#).
- Below, we have provided information on some programs that may be of particular interest to communities in the Sahtú Settlement Area, broken out by department. Where we have data on previous funding provided to recipients in the Sahtú Settlement Area, we have also included that information.

*Crown-Indigenous Relations and Northern Affairs*

- [Climate Change Preparedness in the North](#) provides support to Indigenous and northern communities and governments in the North to help them adapt to climate change impacts. Funding supports projects such as vulnerability and risk assessment of climate change impacts, development of hazard maps and adaptation plans and options, and implementation of non-structural and structural adaptation measures.
- [Engaging Indigenous Peoples in Climate Policy](#) provides capacity funding to support National Indigenous Organizations, their regional affiliates and other regional organizations to engage in climate policy discussions. The program also supports capacity and engagement projects with regional organizations, modern treaty organizations and other unrepresented groups.
- [The Harvesters Support Grant](#) supports food sharing within the immediate community by increasing the number of community harvesting and food sharing initiatives as well as the number of harvesters engaging in these activities.
- [The Indigenous Community-Based Climate Monitoring Program](#) provides funding to support Indigenous Peoples in the design, implementation, or expansion of long-term community-based climate monitoring projects. The program supports community-led projects to monitor climate and the environmental effects of climate change on communities and traditional territories.
- [The Northern Responsible Energy Approach for Community Heat and Electricity program](#) (Northern REACHE Program), supports northern and Indigenous communities in Yukon, Northwest Territories, Nunavut, Nunavik and Nunatsiavut in their transition to renewable, sustainable and affordable sources of energy. Stream 1 Funds renewable energy and energy efficiency projects, and related capacity building and planning in the North. Stream 2 Funds the feasibility and planning stages of hydroelectricity and grid interconnection projects in the North.

*Environment and Climate Change Canada*

- [The Indigenous Leadership Fund](#): The Low Carbon Economy Fund (LCEF) supports projects to reduce Canada’s greenhouse gas (GHG) emissions, generate clean growth, build resilient communities, and create good jobs for Canadians. LCEF currently has four streams: the Low Carbon Economy Challenge, which supports the use of proven, low-carbon technologies to reduce GHG emissions, the Low Carbon Economy Leadership Fund, which supports provinces and territories to help them deliver on commitments to reduce GHG emissions, the Indigenous Leadership Fund, which supports clean energy and energy efficiency projects led by First Nations, Inuit, and Métis governments, communities, and organizations, and the Implementation Readiness Fund, which supports activities and investments that increase the readiness of GHG emissions reduction projects.
- Applications are closed for [Indigenous Guardians](#) and [Indigenous-led Natural Climate Solutions](#); however, the programs may be of interest due to their focus on stewardship and conservation. For both programs, details about future application processes are in development with Indigenous partners using a distinctions-based approach with First Nations, Inuit and Métis and more details will become available on the programs’ websites.
  - [Indigenous Guardians](#) supports Indigenous rights and responsibilities in protecting and conserving ecosystems; developing and maintaining sustainable economies; and continuing the profound connections between natural landscapes and Indigenous cultures. The program is eligible to Indigenous communities, Indigenous Nations, governments, and representative organizations. Non-Indigenous recipients for the program represent recipients contracted by one Indigenous recipient to exceptionally receive and administer the funds on their behalf.
  - [Indigenous-led Natural Climate Solutions](#) funding supports First Nations, Inuit and Métis Nations, communities and organizations to build capacity and to undertake on-the-ground activities for ecological restoration, improved land management, and conservation. These activities aim to effectively sequester carbon and maximize co-benefits for biodiversity, climate resiliency, and human well-being.

*Indigenous Services Canada*

- The [Climate Change and Health Adaptation Program](#) (CCHAP) funds the efforts of First Nations and Inuit communities to identify, assess, and respond to the health impacts of climate change. There are 2 streams for the program: Climate Change and Health Adaptation Program North and Climate Change and Health Adaptation Program for First Nations South of 60°N. This program is designed to build capacity for climate change and health adaptation by funding community-designed and

- driven projects. Both streams operate with external, First Nation and Inuit-led governance committees responsible for selecting funding recipients. All First Nations and Inuit communities are eligible for funding, including Band Councils, Tribal Councils, Indigenous Associations, and governments of self-governing First Nation and Inuit communities, including councils and boards formed under these agreements.
- In partnership with First Nations communities, provincial and territorial governments and non-government organizations, Indigenous Services Canada's [Emergency Management Assistance Program](#) (EMAP) helps communities on reserve access emergency assistance services. EMAP provides funding to First Nations communities so they can build resiliency, prepare for natural hazards and respond to them using the 4 pillars of emergency management: mitigation, preparedness, response and recovery. EMAP support wildland fire non-structural mitigation and preparedness initiatives through the FireSmart Funding stream.

*Natural Resources Canada*

- While not specifically tied to caribou, the Wildfire Resilient Futures Initiative will provide investments in research, demonstration, and knowledge mobilization for the prevention and mitigation of wildland fire. Research themes include: wildfire risk assessment, wildfire risk mitigation and adaptive forestry practices. The anticipated launch of the grants and contributions research program is early 2024.

**5. What are the different predicted impacts of climate change for this region?**

- The ecosystems in the region will change due to multiple factors, including but not limited to changing wildfires, permafrost, vegetation, land cover, water conditions and more. As mentioned in the answer to question two, scientists at the Canadian Forest Service and at Canadian universities have been conducting research and using an ecological forecasting framework to conduct climate-sensitive projections of habitat and demography for boreal caribou monitoring areas within the Northwest Territories. For more details, see the list of references provided along with this submission.

**6. What are adaptations or mitigations need to be planned?**

*Mitigation*

- Since the release of the 2030 ERP in March 2022, the Government of Canada has worked with its partners to turn ideas into concrete and effective action, taking steps to implement the more than 140 measures of the ERP. These include:
  - phasing out inefficient fossil fuel subsidies;

## INFORMATION REQUESTS – ECCC – JANUARY 26, 2024

- increasing the national carbon pollution price while returning increased federal fuel charge proceeds to households in more provinces where it applies;
  - finalizing the Clean Fuel Regulations;
  - releasing draft Clean Electricity Regulations;
  - releasing Canada’s Methane Strategy to cut emissions across the economy;
  - launching formal engagement on two potential regulatory options to cap and reduce oil and gas sector GHG emissions;
  - releasing the Carbon Management Strategy;
  - accelerating the deployment of zero-emission vehicles, with the release of draft regulations for new light-duty vehicles and the launch of the incentives for Medium- and Heavy-duty Zero-Emission Vehicles (iMHZEV) program;
  - announcing the government’s plan to build a clean economy, including the introduction of five investment tax credits aimed at spurring the shift to a low-carbon economy and the implementation of the Canada Growth Fund, a \$15 billion arm’s length public investment vehicle that will help attract private capital to build Canada’s clean economy;
  - incentivizing the development and uptake of clean technologies; and
  - supporting the shift to a net-zero economy along with the creation of sustainable jobs.
- The Government of Canada acknowledges that achieving our goal of net-zero emissions by 2050 requires a whole-of-society approach. The Government has launched engagement to set the 2035 emissions reduction target, and invites those living in the Sahtú Settlement Area to provide a submission to this process to inform the Government of any forward-looking mitigation priorities. Further detail on the engagement process and where to provide submissions can be provided if this is of interest.

### *Adaptation*

- The [National Adaptation Strategy](#) (NAS) will be implemented through a series of action plans. The [Government of Canada Adaptation Action Plan](#) is the federal contribution to the priorities identified in the NAS. Federal-provincial and federal-territorial action plans will be developed to support bilateral cooperation, at a pace aligned with provinces and territories shared priorities and capacity.
- Recognizing the unique contexts and climate impacts facing northern communities, the Government of Canada is committed to working with territorial governments and Indigenous Peoples to identify and advance key local and regional priorities and improve the accessibility of federal adaptation programs in the region, in alignment with the Indigenous Climate Leadership Agenda.

- The Indigenous Climate Leadership Initiative will be the primary mechanism for implementation of the NAS with Indigenous Peoples, based on the self-determined priorities.

*Indigenous Climate Leadership*

- The ICL Agenda presents an opportunity for Indigenous Peoples and the federal government to work together to develop a roadmap for how to improve the Crown-Indigenous partnership on climate. This would include opportunities for the federal government to hear directly from those living in the Sahtú Settlement Area on what adaptation and mitigation priorities are most important and find ways to better support local and self-determined action.

**7. Does your government distinguish between the terms “wildfire” and “forest fire”? If so, does your government have internal policies or guides about when it is appropriate to use one term over the other?**

- Canada does not distinguish through policy or guidelines between the terms “wildfire” and “forest fire.” Forest fires or wildfires are fires that occur in forests, shrub lands and grasslands. Some are uncontrolled wildfires started by lightning or human carelessness. A small number are prescribed fires set by authorized forest managers to mimic natural fire processes that renew and maintain healthy ecosystems. Colloquially, a wildfire is an unplanned fire, a forest fire only refers to wildfires in forests not shrubs or grasslands, and the term wildland fire encompasses all non-structural fires.
- Some definitions of different types of wildfires exist, including:
  - *Crown fires* burn trees up their entire length to the top. These are the most intense and dangerous wildland fires.
  - *Surface fires* burn only surface litter and duff. Duff refers to forest floor organic horizons. Litter is the top layer, and below the litter are more decomposed layers. In wildfire terms, the more decomposed organic layers are collectively referred as the "duff". These are the easiest fires to put out and cause the least damage to the forest.
  - *Ground fires* (sometimes called underground or subsurface fires) occur in deep accumulations of humus, peat and similar dead vegetation that become dry enough to burn. These fires move very slowly, but can become difficult to fully put out, or suppress. Occasionally, especially during prolonged drought, such fires can smoulder all winter underground and then emerge at the surface again in spring.

**8. Do you have modelling programs for future fires?**

- The Canadian Forest Service has several modeling programs for future fires. The models used for operational fire management (i.e., emergency fire management, which are used to predict how fast or far the fire will spread and how intensely it will burn) require a lot of weather, fuel and topographical data and they excel at short time scales (daily, weekly), with some applications at yearly forecasting. Some models help to predict the higher risk areas for the upcoming fire season (CWFIS seasonal forecast), and others may help to identify areas on the landscape that are more prone to wildfires than others (BurnP3+, FireSense). The CFS also runs a coarse scale model called Bigfoot, as well as Pandora. We also use other fire growth models created by other agencies in Canada such as FireSTARR, Prometheus.
- Natural Resources Canada (NRCAN), Canadian Space Agency (CSA, and Environment and Climate Change Canada (ECCC) will deliver the world's first purpose-built operational satellite system for monitoring wildfires- Target launch 2029.

**9. Do you have questions for other parties?**

- We do not have any questions for other parties at this time, but we look forward to participating in the listening session and learning more about the priorities and concerns of people living in the Sahtú Settlement Area.

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## Contacts

### *ECCC*

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- Ashley Campbell, Director, Indigenous Climate Policy and Engagement, [ashley.campbell@ec.gc.ca](mailto:ashley.campbell@ec.gc.ca).

### *NRCan*

- Michael Norton, Director General, Northern Forestry Centre, Canadian Forest Service, [michael.norton@nrcan-rncan.gc.ca](mailto:michael.norton@nrcan-rncan.gc.ca).
- Graham Stinson, Director, Forest Information, [graham.stinson@nrcan-rncan.gc.ca](mailto:graham.stinson@nrcan-rncan.gc.ca).
- Julienne Morissette, Director, Wildland Fire Research, [julienne.morissette@nrcan-rncan.gc.ca](mailto:julienne.morissette@nrcan-rncan.gc.ca).

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(all references can be found in the following google drive:

<https://drive.google.com/drive/folders/1SteoGxBW9eopdihg2rlcu4bMw7Te5oeL?usp=sharing>)

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