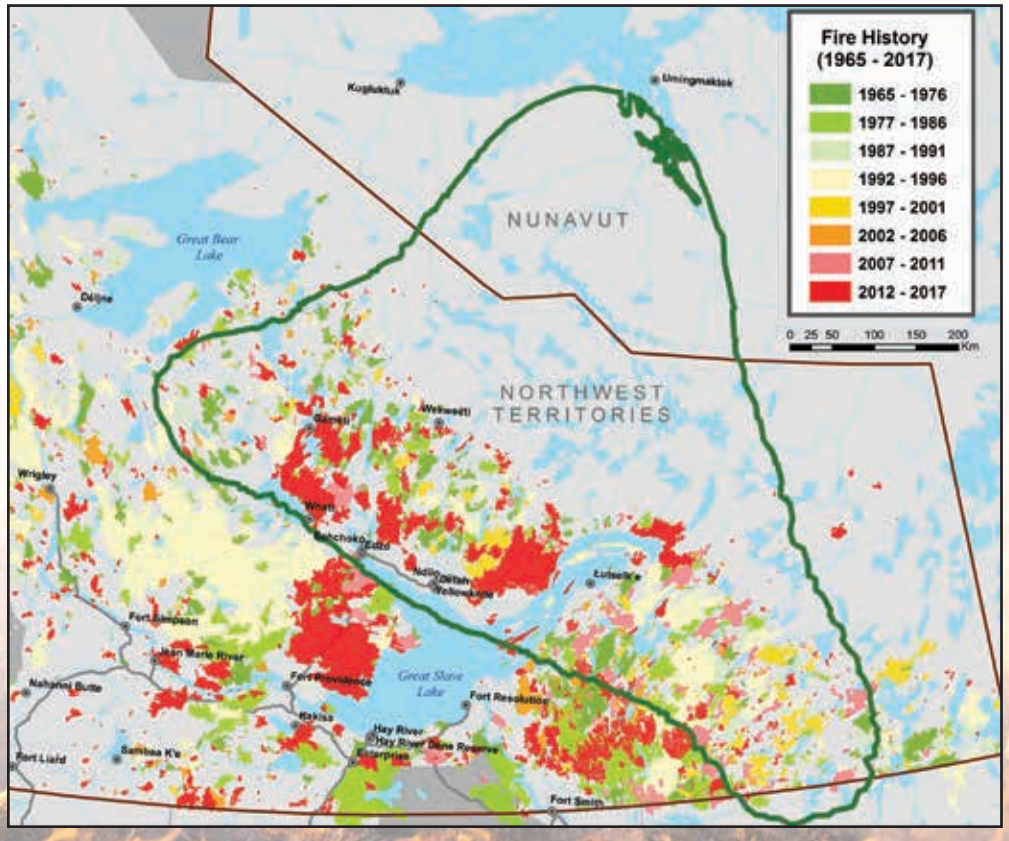
Barren-ground Caribou Habitat and Fire

Fire is a natural and important part of the boreal forest ecosystem. Northern plants and animals have adapted to the cycles of fire and regrowth, and barren-ground caribou have co-existed with the effects of forest fires on their winter range for thousands of years.

Fires do not burn uniformly across the landscape. Unburned patches and corridors often remain inside of large fires, and these unburned patches can still provide foraging areas for caribou as they move through burned areas.

On average, fires burn nearly 1% of the forest in the Northwest Territories (NWT) annually, with some areas affected by fire more frequently than others. It is common to experience several years with many small fires on the landscape before experiencing a fire season where very large fires occur, as we saw in 2014.



This map shows the history of fires on the Bathurst caribou herd's traditional range between 1965 and 2017. Most of the bright red burns are from 2014.

Government of
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How are fires affecting caribou today?

Fires can affect the forested portion of barren-ground winter ranges, impacting their movement and choice of habitat.

Caribou prefer to eat ground-based lichens as their main winter diet. Both traditional knowledge and science tell us caribou prefer to go where the best food is located, and will vary their winter range year to year to select areas where lichen is plentiful. These areas tend to be mature forests that are at least 50-80 years old.

While caribou generally use mature forests more often than recently burned forests, they do not always avoid burned areas or areas of new growth. Research on the Bathurst caribou winter range has shown substantial use of young forests and areas adjacent to burns by the herd.

Collar data has also shown us that, in recent years, some barren-ground caribou herds have not used their full historic ranges. Instead, they have used a smaller portion of their traditional range, choosing to winter near or above the tree-line in the tundra portion of their range.

What role does fire management play in caribou conservation?

Northerners have expressed concerns regarding the amount of recent fire activity within the caribou winter range, and the negative effect this could have on caribou feeding and movements. The Department of Environment and Natural Resources (ENR) continues to track and assess natural and human-caused land disturbances as part of decisions made to protect barren-ground caribou habitat in the NWT.

Forest fire response decisions are made based on a hierarchy of values-at-risk, where the protection of communities and infrastructure are top priorities. Important caribou habitat is also considered a value-at-risk, and ENR is looking at the feasibility of increasing fire response activities on key caribou winter ranges during the fire season.

ENR has also introduced new detection methods to find fires while they are still as small as possible. Recent improvements to fire modelling can help predict fire growth and show us where and how large a fire may spread. This information combined can help fire managers take actions to reduce the size of a fire before it gets too big. New research is also looking at how hot fires burn, as this can affect how quickly certain plants and trees regrow in an area.

Our approach to forest fire management is designed to be responsive to the needs of NWT residents, and to draw upon local and traditional knowledge. Through active engagement with communities, our wildlife and fire managers can determine important areas that are used by caribou. Key caribou habitat, such as corridors and unburned winter ranges, can be added as a value-at-risk and receive an appropriate response from fire managers. It's important that communities help us to identify values-at-risk before the fire season starts.

Working together to address challenges

Changes to the weather have added to the challenge of managing fires in some years. Warmer springs result in earlier snow melt and a quicker start to the fire season. Drier air and more wind help fires spread, making them harder to control and sometimes impossible to stop. Longer summers can result in drier ground and fires that burn deeper, making them harder to put out.

It is important to note that despite these changes, fire is still a normal and important part of the boreal forest ecosystem, and that fighting all fires is neither desirable, nor possible. Fire is needed to get rid of old fuels and regenerate forests, and the patchwork of young forests that grow following a fire help to keep new fires from getting too big. There are also practical limits to firefighting in remote areas. The NWT is large, and our limited resources must be prioritized for the protection of our residents above all else.

Today, wildlife and fire managers are working more closely together than ever before. Co-management partners, Indigenous governments and organizations, scientists and community members all contribute to making the best decisions regarding caribou and fire management. It is essential that all groups continue to work together to find the best path forward.