



Government of
Northwest Territories



SRRB Public Listening

Department of Environment and Natural Resources
April 2022

Speaking Notes

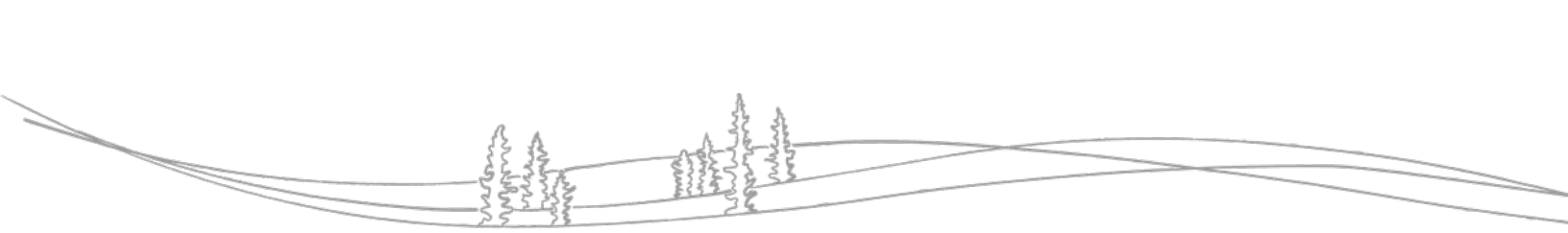


Slide 1

- Good Afternoon Mr. Chair, board members and staff, elders, community members and all participants at this hearing. We would like to thank ʔekw'ahtı́dá Leeroy Andre and the Délı́ne Got'ı́nę Government for hosting us.
- My name is Heather Sayine-Crawford, and I am the Director of Wildlife and Fish with the Department of Environment and Natural Resources, Government of the Northwest Territories.
- With me today are:
 - Brett Elkin, Assistant Deputy Minister, Environment and Natural Resources
 - Karin Clark, Manager of Wildlife Research and Management with the Wildlife Division
 - Jan Adamczewski, Caribou Biologist with the Wildlife Division
 - Kevin Chan, Regional Biologist in ENR's Sahtú regional office
 - Maria Cianco, Range Planning Biologist with Wildlife Division
 - Rohan Brown, Legal Counsel with GNWT Justice
 - Christine Glowach, Manager Legislation and Legal Affairs
 - Norman Boose, Senior Advisor Legislation and Legal Affairs
- We appreciate the opportunity to participate in this public listening session.
- A key role of ENR in the co-management of wildlife in the Sahtú is sharing information with the Sahtú Renewable Resources Board to help inform decision making.
- We hope that the information presented here today will help the SRRB as it considers ways to conserve caribou in the Sahtú, and assist communities as they develop community conservation plans.

Slide 2

- ENR recognizes that caribou in the Sahtú have complex relationships with other animals, plants, people and the land that have developed and evolved over thousands of years.
- Observations and information from Indigenous and community knowledge holders in combination with a range of scientific information provide valuable insights into how caribou interact with other species, including people.
- We also recognize that there are some areas where more information is needed to help us understand and inform wildlife management and stewardship.

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- Our presentation provides an overview of our written submission which is based on information available to ENR on the interactions between caribou in the Sahtú and three of the species that have important relationships with caribou - muskoxen, moose and wolves.
 - The presentation also provides examples of some actions people can take to support maintaining healthy ecological relationships between caribou and these other species.

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- Our presentation will be broken down into 3 parts
- In part one, we discuss muskox: the historical context for the current management of muskox, our current understanding of the distribution and abundance of muskox in the Sahtú.
- In part two we discuss moose: an overview of past and current monitoring efforts in the Sahtú, the interaction of moose with caribou and wolves, and the role of moose in management strategies for maintaining boreal caribou habitat.
- In part three we discuss wolves: our understanding of the behaviours of wolves in the NWT, the context for the current wolf harvest incentive program, and a review of management of wolves in the NWT.
- Collectively this will provide an overview of current monitoring and management of predators and competitors of caribou in the NWT.

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- Muskoxen have been in North America for about 90,000 years.
- When the last glaciers covered North America, about 21,000 years ago, muskoxen and caribou survived in ice-free areas in the northern Arctic islands and Greenland.
- As the ice melted, muskoxen spread throughout many areas of northern Canada and Greenland and westward into Alaska.
- Before 1900, muskoxen were found across much of the Northwest Territories including most of the Sahtú, and were traditionally harvested for food, clothing and tools.

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- In the 1800s there was significant heavy harvesting of muskox to provide hides for the commercial fur trade and food to commercial whaling stations.
- By 1870 the range of muskox in northern Canada was largely north of the red line shown on the map.

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- The size of the circles on the map represents the number of muskoxen hides brought into the Hudson's Bay company posts between 1861 and 1898.

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- By the early 1900s, muskoxen had disappeared from most of mainland NWT.
- The Canadian government put strict protection measures in place to conserve the species, starting with a hunting ban in 1917, with some limited exceptions for Indigenous harvesters.
- A complete hunting ban was imposed in 1924, after which hunting muskoxen, and possessing muskox meat or hides, became illegal.
- Small populations of muskoxen survived into the 1920s in areas such as the north shore of Great Bear Lake and the Thelon Game Sanctuary, shown in the hatched areas on the map. It is thought that there were less than 1000 muskoxen in total across these areas.

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- Populations of muskox that survived until the early 1900s recovered slowly and began to expand. The current distribution of muskox in the NWT is highlighted in green in this map.
- The current range and abundance of muskox is tracked across the NWT, including range expansions into new area. In July 2019 a muskox bull was shot near Ft Chipewyan, Alberta; this is the farthest south of any recent muskox observation.
- Muskox were also brought in to Alaska from Greenland in 1970 as part of a reintroduction effort on the North Slope, and those populations have spread eastward towards the Northern Richardson Mountains and along the Yukon Border in the Mackenzie Mountains.

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- In the Sahtú, recent muskox surveys have been conducted in 1997, 2020, and 2021.
- This map shows the results of the 2020 and 2021 surveys. The survey is outlined in blue, and the 2021 survey outline shown in red.
- The groups of muskoxen observed during the survey ranged from small groups of 1-2 individuals to the largest group seen at 60 individuals represented by the size of the circles on the map.
- There have been a small number of reports of muskoxen seen west of the Mackenzie River and south of the Great Bear River, however, these are rare and there are no indications that muskox populations have been established there as a result of crossing these rivers.
- The 2020 survey included areas west of the Mackenzie River and south of the Great Bear River, but did not observe any muskox in these areas.



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- By combining the observations from the 2020 and 2021 surveys, we estimated that within this combined survey area there were about 5800 muskoxen, but the uncertainty in our estimate suggests there could be anywhere from 3400 to 9900 adult muskoxen.
- The results of these recent surveys suggest the muskox population in the Sahtú is abundant and likely stable.

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- Even though the 2020 and 2021 surveys found an abundant population of muskox, we also found a low number of calves - around 5%.
- This means that for every 20 adult muskox seen we counted only 1 calf. Comparing this to the 1997 survey, they found that there were on average 3 calves for every 20 adults and a 2018 survey in the East Arm of Great Slave Lake has found that the population there has on average 6-7 calves for every 20 adults. The east arm population represents a population at near maximum growth rates.
- Low calf percentages don't necessarily mean that the population may decline, but suggest that the population may not respond well to increases in predation, harvest or disease.

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- Disease is one of the factors that can affect muskox populations. In the arctic islands several diseases have been linked to disease cases and outbreaks in muskoxen on Banks and Victoria Island.
- Outfitters in the Sahtú have not reported signs of sickness or disease in the muskox populations surrounding Great Bear Lake, but in 2020/2021, two disease related muskox deaths were reported between the communities of Tulít'a and Fort Good Hope and two other reported muskox deaths are suspected to be related to disease.
- With climate change, we may see changes in the distribution and frequency of diseases and parasites in muskox populations in the Sahtú, including new diseases from other areas.

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- Reporting observations and collecting sample kits from harvesters is an important tool that co-management partners use to manage and monitor muskox and other wildlife populations.
- ENR and the University of Calgary have been collecting muskox sample kits to monitor and track muskox health in the Sahtú, and to identify diseases of importance to both wildlife and people.
- These sample kits are not mandatory but complete muskox sample kits submitted to the wildlife health monitoring program will be reimbursed \$150.

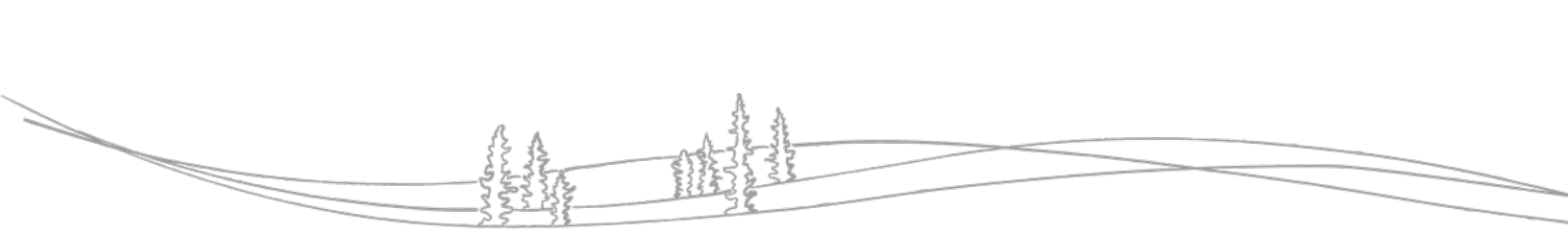


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- Sahtú communities are concerned that if muskoxen expand into areas south of the Great Bear River or west across the Mackenzie River there could be negative impacts for caribou, moose, and Dall's sheep.
- Recorded Indigenous and community knowledge about muskox-caribou interactions (in a report by Winbourne and Benson; muskox traditional and community knowledge in 2021) indicates that NWT communities have a diversity of views about muskoxen and caribou. Some people believe caribou may be competing for food and space with muskoxen, and avoiding muskoxen. However, other people believe they co-exist and do not compete.
- The most recent and comprehensive scientific study on caribou-muskox interactions has been on the Yukon North Slope, where researchers studied caribou and muskox collar locations collected between 2016 and 2019.
- The researchers found muskox and caribou have limited interaction during the summer and very little overlap in the type of habitat selected by each species. Caribou tended to select mid-elevations while muskoxen tended to prefer either low or high elevation habitats and strongly avoid the tussock habitat commonly used by caribou. Muskox and caribou did overlap in wetland areas.
- Studies on Banks Island in the 1990s suggested that overlap in muskox habitat use and foods was limited.
- A study on the Alaskan Seward Peninsula in the 1990s found that “although muskoxen and reindeer overlap in their use of feeding areas, they select forage plants differently from each other.”

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- An important tool used by co-management partners to manage wildlife populations is through harvest management and monitoring.
- The severe declines in muskox populations in the late 1800s and early 1900s and the history of muskox management in the NWT has had long term effects on Dene relationships with muskoxen. As a result, knowledge on how to hunt and use muskoxen has been affected, and this important historical relationship between muskox and people is being re-established.
- Because muskox populations in the Sahtú are likely stable with limited conservation concern, harvest has been permitted for Aboriginal, resident, and non-resident hunters since 1994.
- Currently, Sahtú participants and General Hunting Licence holders can harvest muskoxen between August 1 and April 15 each year, with no restrictions on the number of animals harvested.

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- Tags to hunt muskoxen in the Sahtú are available to resident and non-resident hunting licence holders under a quota system.
 - Five resident tags are available through an annual draw. Thirty-five additional tags are issued to resident, non-resident and non-resident alien hunters who have approval from a Renewable Resource Council.
 - These tags are valid between August 1 and April 15 and harvest of muskoxen must be reported.
 - Non-resident and non-resident alien hunters must hunt with a licenced guide and outfitter, and are limited to hunting bulls only.
 - Changes to hunting regulations can be made as required based on the number and health of muskox in the area on recommendation by SRRB.
 - Hunting regulation changes can also be made by the Minister, before which the timely advice of SRRB on those proposed changes must be sought.

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- Currently, ENR is working with research partners to try to understand why some populations of muskox in the north are declining and why populations in the south below treeline are expanding.
- ENR looks forward to input and ideas from participants in the Public Listening Session, which will help inform ongoing discussions and collaboration on future wildlife research, monitoring and management work.
- We will now move on to part 2 of our presentation.

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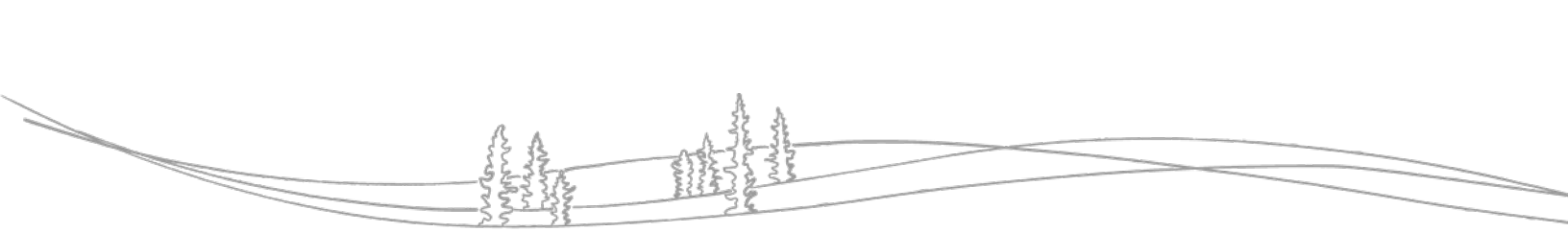
- Moose are found almost everywhere in the NWT, mostly in forests and to a lesser extent on the tundra, but prefer to be near shallow lakes, ponds and rivers.

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- In the Sahtú, moose are most common along the Mackenzie River valley where they are frequently seen on the islands of the Mackenzie River during November and December, where there are lots of sandbar willows to feed on.

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- Moose can also be found in the alpine valleys of the Mackenzie Mountains.
- They are attracted to areas that have recently been disturbed by fire, flooding or human activity, and their numbers may increase in disturbed areas once new willows begin to sprout.

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- This may begin two or three years after a disturbance and continues to provide prime habitat for moose for 10-25 more years.
 - Fire is the most significant influence that increases available habitat for moose in the boreal forest.

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- In the Sahtú, Community members from Tulita, Norman Wells, Fort Good Hope and Colville Lake have reported seeing more moose than they have in the past.
- In order to assess moose populations, ENR has previously monitored at long term study areas (here shown in hatched areas) from 1984 to 2001.
- ENR conducted muskox surveys in 1997 and 2020-2021 but also recorded data on moose which are shown here as the brown dots.
- The 1997 and 2021 survey overlapped in this area that is being highlighted and showed a substantial increase in moose numbers. In 1997 28 moose seen compared to 121 moose seen in 2021. This echoes what community members in Fort Good hope and Colville lake have reported.

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- Another measure of moose population health is the calf:cow ratio. This is a measure of how many calves there are compared to the number of cows.
- The calf:cow ratio gives an idea of how many new animals are coming into a population and whether the population is declining, stable or growing. A ratio of 25 calves for every 100 cows (2:8) is considered the minimum number of calves for a stable moose population.
- The average number of calves to cows observed in eight moose surveys done in the Sahtú between 1984 and 2001 was 62.5 calves per 100 cows. These ratios can be different in different areas.
- Observations from non-resident hunters in the Mackenzie Mountains from between 1999-2017 reported an average of about 37.5 calves for every 100 cows.

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- The ratio of bulls to cows is also monitored because low bull numbers can indicate a declining population.
- In other jurisdictions, 30 bulls for every 100 cows is considered the minimum ratio for a healthy moose population.

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- Data from the previous 8 surveys and non-resident hunter observations in the Sahtú both indicate that the bull cow ratio is approximately equal (10 per 10).

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- Moose are an important source of food and clothing in the Sahtú. Currently, Sahtú participants can hunt moose anywhere in the Sahtú with no restrictions on season or number of animals.
- General hunting licence holders can also hunt moose unrestricted except in the special harvesting area, which has a limited season for non-participants.
- Resident hunting licence holders can harvest one moose a year between September 1st and January 31st in the Mackenzie mountains outlined by the outfitter zones. Outside of the mountains (S/MO/01) resident hunting is allowed between September 1st and November 30th.
- Non-resident hunters can harvest one moose a year between September 1st and October 31st in one of the outfitter areas. Non-resident hunters must use the services of a licenced guide and outfitter.
- Hunting regulations can be used to maintain the balance between moose and caribou populations.
- Changes to hunting regulations are typically made as a result of recommendations by SRRB.
- Hunting regulation changes can also be made by the Minister, before which the timely advice of SRRB on those proposed changes must be sought.

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- The main reason for concern with moose is that their range in some of the boreal forest in the NWT, in the Mackenzie River valley, overlaps with boreal caribou.
- An analysis of scientific research across Canada showed that boreal caribou need a large amount of their habitat (65%) left undisturbed for their populations to be healthy.
- Boreal caribou tend to be found in areas with dense pine or spruce forest, or in areas of muskeg where they prefer to feed on lichen, especially during winter.
- This habitat that caribou need differs from the habitat and leafy plants typically chosen by moose and their preferred habitats don't overlap. Caribou prefer older forests while moose prefer younger forests.



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- Fire and land clearing can change the forest to younger leafy forests that support more moose. These moose can bring in and support more wolves to an area because the wolves now have more food.
- This has happened in the boreal forest in the provinces but wolf numbers in the NWT boreal forest tend to be much lower than in the south.

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- Roads and cutlines also disturb the forest and make pathways that allow predators like wolves to travel faster and access areas that they weren't able to before.

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- The end result on populations of wildlife is that as forests become more and more disturbed and

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- Slowly shift to younger mixed forests with more shrubs and open habitat.

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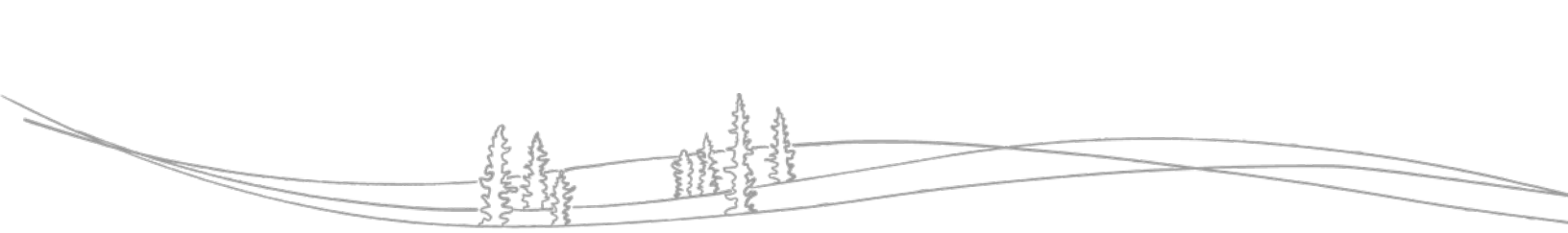
- This new habitat is more suitable for species such as moose and we begin to see increases in the moose population

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- This larger moose population is able to support more wolves which then prey on the now vulnerable caribou populations.
- This is a process known as apparent competition because it appears that competition between moose and caribou is causing caribou declines even though they may not share the same habitat or food.
- The true cause is that better habitat for moose helps to support more predators and increases the predation on caribou.
- What we don't know is whether other species such as muskox also contribute to increasing numbers of wolves and the apparent competition cycle.
- It is important to note that many of the studies of moose, wolf, caribou interactions are from southern Canada where moose and wolf densities are much higher than those found in the NWT. It isn't certain whether or not these interactions may have as large of a role in the NWT.

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- The process of returning young disturbed forests into old growth habitat that caribou need is long and takes many, many years.

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- And therefore managing with the goal of keeping the majority of the landscape undisturbed is the preferred approach.

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- This is the goal of the Sahtú Todzi Nene Plan (Boreal caribou range plan): a co management plan being developed together by ENR and the SRRB to identify the best way to help maintain healthy relationships between moose, wolves and caribou by managing landscape changes in a way that ensures there is always enough undisturbed habitat available to boreal caribou.
- Keeping in mind that boreal caribou need about 65% of their habitat left undisturbed for their populations to be healthy.
- The Sahtú Todzi Nene Plan will be a long-term, living document to help communities, decision-makers and land resource users manage activities on the land in a way that supports healthy Todzi (boreal caribou) populations using a combination of Indigenous knowledge and western science.

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- This brings us to the final part of our presentation on Wolves.

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- Wolves are pack animals, living in groups that range from two to 16 members. Large groups of up to 30 - 40 wolves have sometimes been reported by community residents, but these are rare. Alaskan studies indicate that really big wolf packs are not stable, i.e. they don't last long.
- Throughout the winter, wolf packs travel long distances, feeding where they find prey and resting when they are tired, or when extreme temperatures and storms cause them to seek shelter.
- Wolves are hard to see from the air, especially in forested areas.
- Their tendency to be found in groups or packs in some areas and not at all in other areas, make it hard to estimate wolf numbers over large areas.
- Aerial surveys for other species can be used to get a rough idea of wolf numbers by calculating how many wolves are seen per hour of flying.
- For example, the 2021 muskox survey observed approximately 1 wolf for every 8-9 hours of flying compared to 1 wolf for every 6 hours of flying in the 1997 survey.



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- In the absence of good aerial survey methods, biologists sometimes count wolf tracks, use collared wolves to find packs and get counts of pack members, or use known densities to get an idea of wolf numbers in a specific area.

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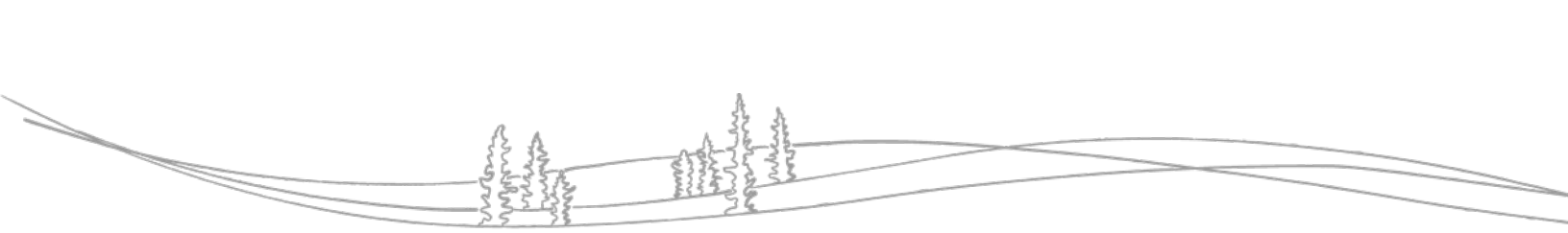
- There are 2 types of wolves in the NWT and Sahtú region: boreal wolves and migratory tundra wolves.
- Boreal wolves live in the forests and mountains, and sometimes are found near communities.
- These wolves have year-round home territories where they live, travel, hunt, breed, and raise pups.
- They hunt a variety of prey species and depend largely on non-migratory prey like moose as well as boreal and mountain caribou.
- The red line show on the map displays movements of a male boreal wolf from April 1st to March 31st

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- However tundra wolves prey primarily on barren-ground caribou and follow them on their annual migrations.
- They do not have regular territories during most of the year but are thought to den and raise their pups in the same area year after.
- The blue line represents movements of a male tundra wolf from April 1st to March 31st of the following year showing how much more ground tundra wolves cover.

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- If we zoom in on this Tundra wolf, the locations are color coded with red showing movements in April 2021 and greenish-blue showing movements in March 2022.
- The red dots represent the spring migration with the wolf following caribou into the barren lands.
- In orange we see a cluster where the wolf keeps coming back for about 2 months in May and June and this is likely a denning area.
- One of the main defences that migratory caribou have against migratory wolves is that wolves with pups cannot move too far away from their den, so sometimes caribou can distance themselves from some of their predators.

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- In late summer, pups are generally able to keep up with adults and this is when we see movement up towards the coast. By fall, the tundra wolf is following the migration back towards the treeline. This fall migration is seen here in yellow.
 - By winter the tundra wolf is on the caribou wintering grounds.
 - Because barren-ground caribou numbers are so concentrated and so mobile, there isn't really a benefit to wolves spending energy maintaining territories to keep other wolves away.

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- As most people are aware, the Bathurst and Bluenose-East barren-ground caribou herds used to be numerous but declined at an alarming rate.
- The Bathurst herd has declined by over 98% from a high of 470,000 caribou in the mid-1980s to a low of 6200 caribou estimated in June 2021.
- The Bluenose-East caribou herd has declined dramatically from 120,000 in 2010 to approximately 19,000 in 2018, a decline of about 78%. However, the herd estimate in 2021 indicates the herd has stabilized and indicators like the calf-cow ratio and bull-cow ratio have improved.

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- In 2019, the Wek'èezhii Renewable Resources Board (WRRB) indicated the steep rate of decline for the Bathurst and Bluenose-East herds was so serious that waiting any longer to implement wolf management would make recovery of the herds even more difficult.
- In response to these concerns, the Tłı̨chǫ Government and the GNWT subsequently implemented a wolf management program over the past three years in the North Slave Region.
- The program was reviewed and approved by the Wek'èezhii Renewable Resources Board in August 2020.
- The program focuses on support for wolf harvesters and the traditional economy, harvester training, and enhanced research and monitoring on the herds winter range in the North Slave Region.

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- A wolf harvest incentive area is defined in January of each year based on where the Bathurst and Bluenose-East caribou have moved into for the winter. The incentive area for 2021 is shown here.



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- When a wolf is harvested within the incentive area indigenous and resident harvesters can receive \$1200 when they return the carcass.
- For indigenous harvesters, wolves that are handled traditionally for the fur auction will return a total of \$1600.
- If the wolf meets the requirement for a prime fur bonus then the total amount they can receive is \$1950 per wolf.
- Nunavut Inuit harvesters have a traditional use area overlapping parts of Wek'èzhii. Nunavut Inuit hunters that submit wolf carcasses harvested in the incentive area to ENR also receive an incentive of \$900 per wolf.

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- This map shows where wolves were harvested in 2021. The total harvest of wolves in the incentive area was 135 wolves with 38 hunters participating in the program.
- The Tłı̨cho Government supported a wolf harvest camp at Roundrock Lake from end of January to end of March last winter. The cluster of wolf harvest you can see on the map around Wekweèti was from that camp.
- The cluster of wolves harvested up near Point Lake and the Nunavut border was from hunters travelling from Kugluktuk.

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- The wolf management actions undertaken in the North Slave region by the Tłı̨chų Government and GNWT were in response to community concerns about the number of wolves on the landscape and their impact on barren-ground caribou.
- ENR currently has no plans to implement enhanced wolf management actions in the Sahtú region and would not consider any enhanced actions unless there was support from Sahtú communities and the SRRB.

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- In the Sahtú, a harvester can turn in a wolf carcass to ENR for a \$200 reimbursement.
- This carcass is then provided to a local skinner to be prepared for the Fur auction.
- When a wolf is processed with traditional handling, ENR will reimburse the trapper \$450 for the fur and the skull.
- If the wolf meets the requirement for a prime fur bonus then the total amount they can receive is \$800 per wolf.



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- In the Sahtú, participants can hunt and trap wolves throughout the Sahtú all year round, with no limit on the number of wolves they can harvest.
- General Hunting Licence holders can also hunt and trap an unlimited number of wolves between August 15th and May 31st in the Sahtú.
- Resident hunting licence holders can hunt but not trap wolves between August 15th and May 31st in the Sahtú. A tag is needed for each wolf harvested but there is no limit on the number of tags available to each hunter.
- Non-resident and Non-resident Alien hunters can hunt up to 2 wolves each season in the outfitter zones between July 25th and April 15th, and one wolf in S/WF/01 between August 1st and April 15th. A tag is needed for each wolf harvested and the hunter must use the services of an NWT outfitter and guide.

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- Wolves and boreal caribou are part of a complex predator-prey system that includes moose, muskoxen, barren-ground caribou and grizzly bears, black bears, lynx and other prey species.
- Boreal wolves prey mostly on moose but are also an important predator on boreal caribou when there is an opportunity.
- Changes in numbers of prey species like moose can impact predation rates of boreal caribou.

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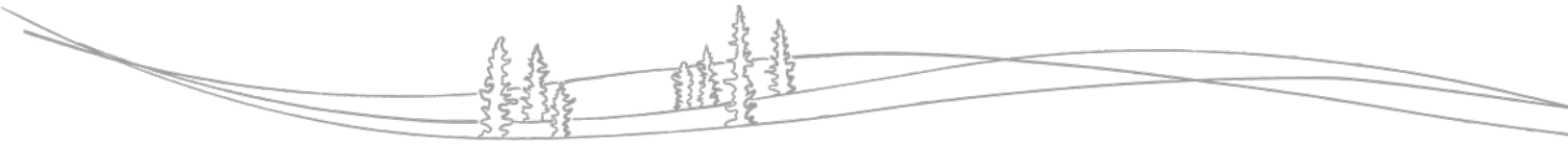
- And as mentioned previously, The Sahtú Todzi Nene Plan (Boreal caribou range plan) is being developed together by ENR and the SRRB to identify the best way to help maintain healthy relationships between moose, wolves and caribou by managing landscape changes in a way that ensures there is always enough undisturbed habitat available to boreal caribou.

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- A key role of ENR in the co-management of wildlife in the Sahtú is to provide information to the SRRB to help inform decision making.
- It is hoped that the information presented here will be useful to the SRRB as it considers recommendations to conserve caribou in the Sahtú, and to communities as they develop community conservation plans.

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- This concludes our presentation. We would like to thank everyone for allowing us the opportunity to speak and participate in the shared responsibility of maintaining wildlife populations in the Sahtú.



- Mahsi Cho. And we would be happy to respond to any questions you may have.