

# The muskox



## A prehistoric-looking animal that lives in Québec

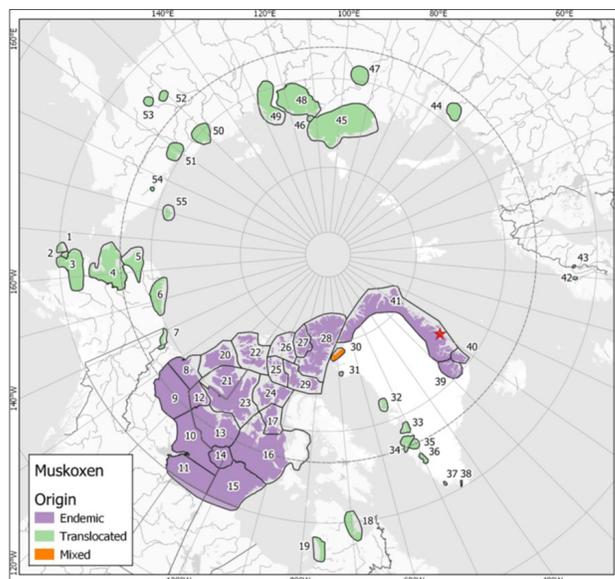
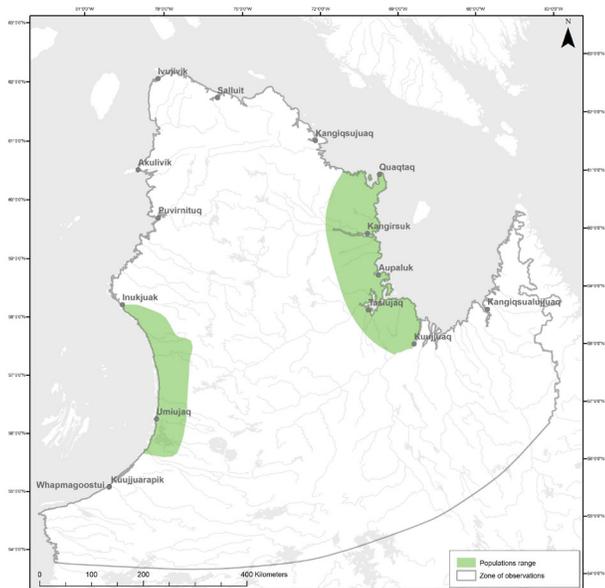
For thousands of years, muskoxen have been found near the highest latitudes on Earth. They have lived alongside the woolly mammoth, a species that disappeared from its continental habitat over 10,000 years ago, and still frequent the migratory caribou in the Arctic tundra.

In Québec, however, there is no fossil evidence of their natural presence; the population in Nunavik is introduced. In 1967, 15 young muskoxen were captured on Ellesmere Island in the Canadian High Arctic and kept in captivity near Kuujuaq. A few years later, between 1973 and 1983, 54 animals were released around the villages of Kuujuaq and Tasiujaq.

Today, Nord-du-Québec is home to over 10,000 muskoxen. They range mainly along the Ungava Bay and Hudson Bay coasts. The species is amazingly adapted to northern conditions and has become part of the arctic landscape of Nunavik.

### Where can you find muskoxen around the world?

There are 55 natural and introduced muskox populations around the Arctic. In total, the world population numbers around 170,000 animals, spread across Canada, Greenland, Alaska, Scandinavia, and Russia.



Source: From Cuyler et al. 2020.

## An animal unafraid of extreme weather

The muskox is a mammal perfectly adapted to life in the North. Its stocky, compact body is covered by a long coat of hair that protects it from the ever-present Arctic wind. Its real secret, however, lies right against its skin: the *qiviut*.

*Qiviut* is a thick, dense wool that insulates the animal from the arctic chill, keeping it comfortable even when winter temperatures reach  $-40^{\circ}\text{C}$  with an arctic wind.

The muskox is a cousin of the mountain goat and the bighorn sheep. It's surprisingly agile, traversing rocks and rocky cliffs with ease. It has short, sturdy legs with half-moon hooves that spread out to give the animal a better grip and distribute its weight on the snow.

In winter, muskoxen use their sense of smell to locate vegetation under the snow. They break the ice and clear the snow with their hooves to reach their food, helped by their horns and hairy snouts. Their movement is limited by deeper snow, so they mainly stick to the coast, where the grassy and shrubby tundra is kept naturally clear by the wind.

**On February 3, 2024, the program *La semaine verte* aired an episode that took us to the Hudson Bay coast of Nunavik to see how muskoxen are being monitored.**

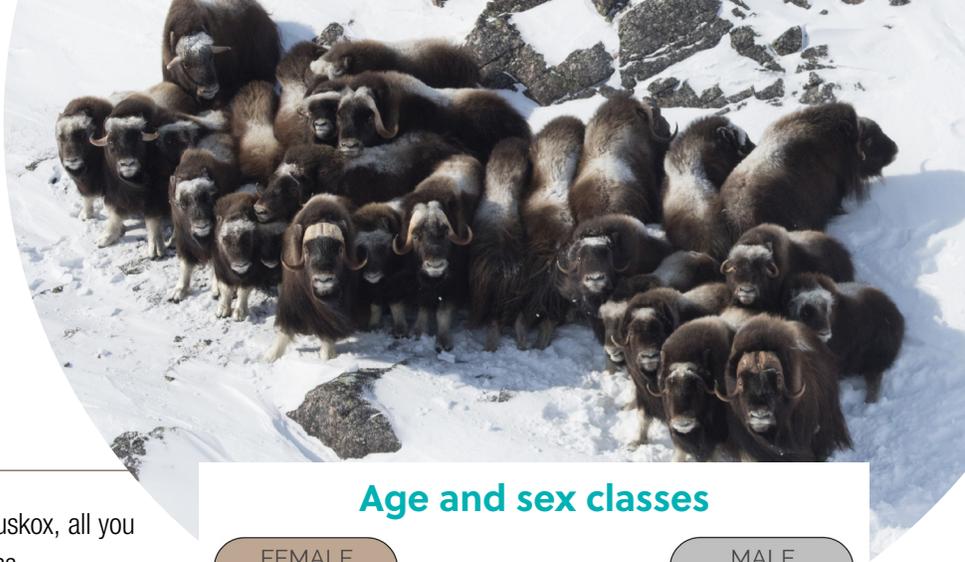
**The astounding footage captured for the episode, as well as the explanations from our experts, testify to the Ministry's scientific expertise on this northern species.**

**Watch the episode (in French only) here!**

<https://www.youtube.com/watch?app=desktop&v=dA13jrXTlp0>



## Male or female? Check the size and horns!



To tell the difference between a male and a female muskox, all you need to do is look closely at the animal's build and horns.

Adult males have a prominent dorsal hump. They're also bulkier, weighing up to 350 kg (around 770 pounds). Meanwhile, adult females are lighter, weighing around 250 kg (roughly 550 pounds). Beyond that, there's one other unique feature that sets them apart: the magnificent curved horns that crown the heads of both sexes.

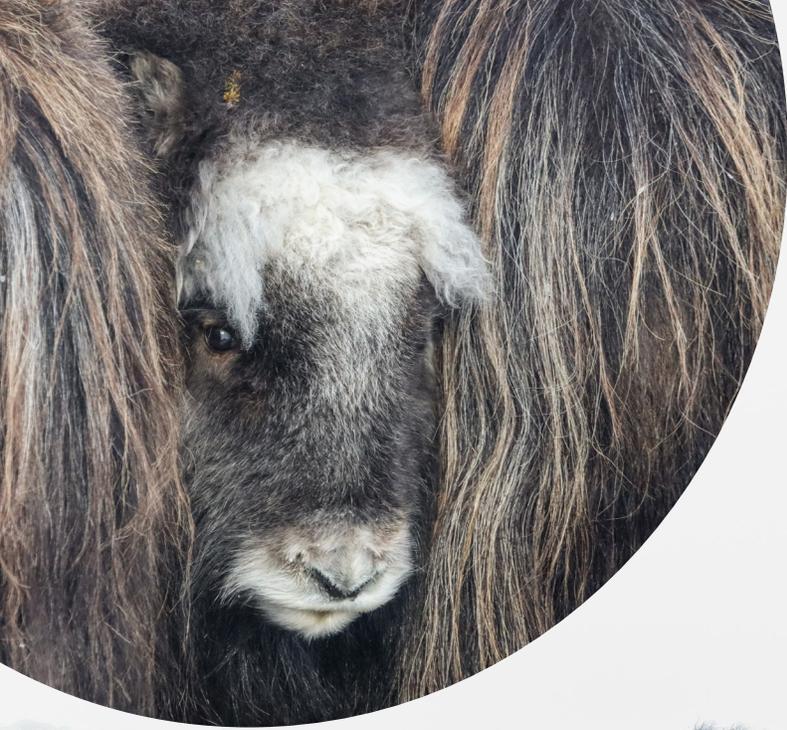
Unlike deer antlers, muskox horns grow continuously. They are composed of a bony base and a sheath of keratin, a group of proteins that also make up our nails and hair. The horns of the adult males completely cover the skull, while those of the adult females are more discreet, separated by a tuft of white hair.

Distinguishing between the horns of both sexes is an important part of population monitoring. Every winter since 2019, our teams have photographed as many groups of muskoxen as possible to survey the Ungava Bay and Hudson Bay populations. Based on the photos, the animals are assigned to one of 10 age and sex classes. This classification provides valuable information such as the ratio of adult males to adult females and recruitment, or the number of calves per 100 adult females.

### Age and sex classes

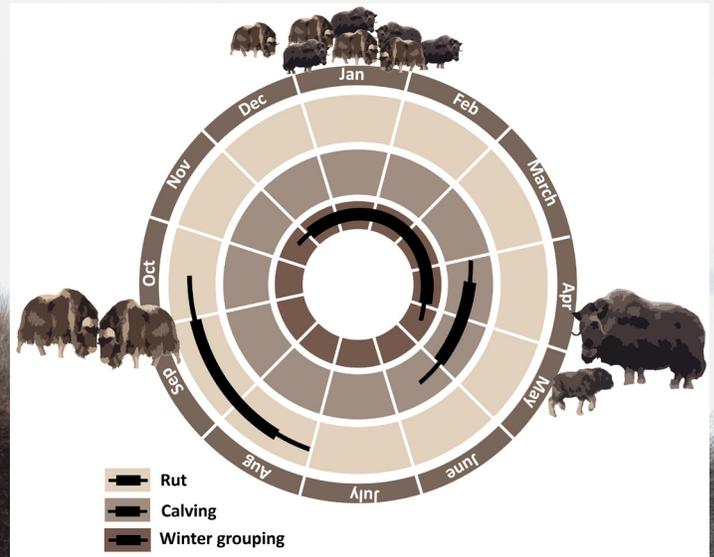
FEMALE		MALE
	Calf 0-1 year old	
	Yearling 1-2 years old	
	2-3 years old  Sub-adult	
	3-4 years old	
	Adult 4 years and older	





## Calving time

Around mid-August, the muskox rutting season, males dedicate their energy to gaining access to, and then defending, groups of females. They compare their imposing statures, intimidate each other by roaring and swinging their heads from right to left before rubbing their horns on the ground and in the bushes. Their goal: mate with the most females.



Around 8 to 9 months later, between late April and mid-May, little balls of short, fuzzy hair can be seen toddling near their mothers. This is calving season. The calves take refuge under their mothers, disappearing under the long coat of hair to drink milk. Newborns weigh around 9 to 11 kg. They learn to walk quickly, but remain vulnerable. At the slightest sign of threat—such as the approach of a wolf, their main predator—the adults form a defensive circle around the little calves.

The next winter, the calves become yearlings, distinguished by their youthful appearance, the tuft of white hair on their heads, their short or absent horns, and their playful attitude. They weigh around 70 kg at this point.

**Capture team immobilizing a muskox to fit it with a telemetry collar. Captures follow a strict protocol and are done by a team of trained wildlife technicians, a veterinarian, and a biologist.**



## Major population monitoring efforts since 2017

Over the past decade, Québec's Inuit communities have shared their concerns about the arrival of muskox in Nunavik's northern ecosystem. To address the issue properly, it was important to collect evidence-based data on the species.

Since 2017, more than 160 muskoxen have been captured and fitted with telemetry collars. The animals are tracked in real time, allowing scientists to see how muskoxen use the territory in different seasons. During captures, several measurements and samples are taken to establish a baseline of population health.

Based on aerial surveys carried out in 2019 and 2024 in the Ungava sector and in 2020 and 2025 in the Hudson sector, there are estimated to be at least 10,000 muskoxen in Nunavik. The population grew rapidly after its introduction to the area, and inventories and classifications confirm that the population continues to grow.

Classifications are carried out during surveys and captures to allow for detailed monitoring of group structure. During this process, each animal photographed in a group is assigned to one of 10 age and sex classes. This classification provides valuable information such as the ratio of adult males to adult females and recruitment, or the number of calves per 100 adult females. The information is essential for tracking changes in the muskox population. Distinguishing between the horns of both sexes is an important part of population monitoring.

### Research efforts and key partners

The data collected is used for various research projects. Follow-up work and research are carried out in close collaboration with Makivvik, Université Laval, and the Université de Montréal's Faculty of Veterinary Medicine.