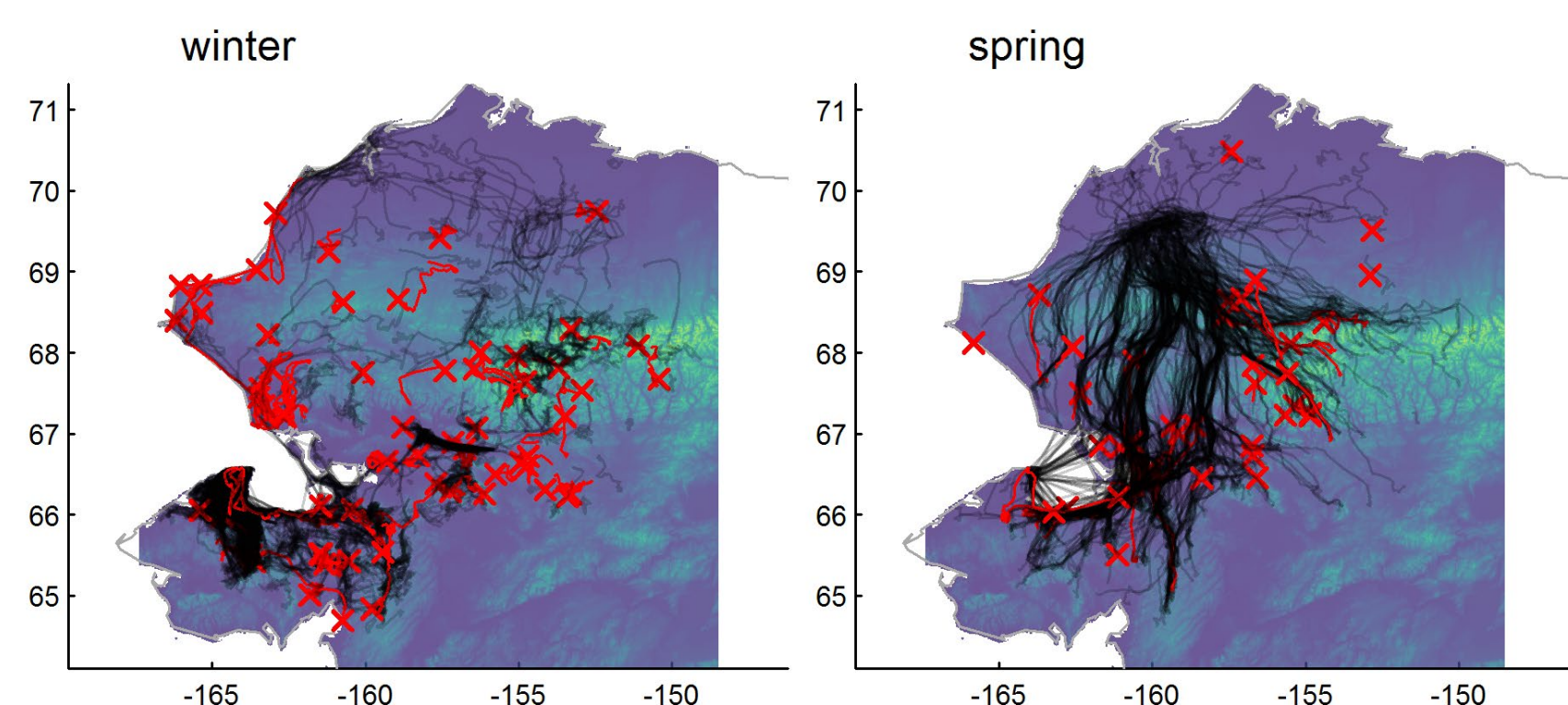


# Introducing: The Fate of the Caribou Project

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## Environmental and Social Drivers of Mortality



Red crosses are caribou from the Western Arctic Herd that died in winter and spring. Many deaths were among animals that were far from the herd.

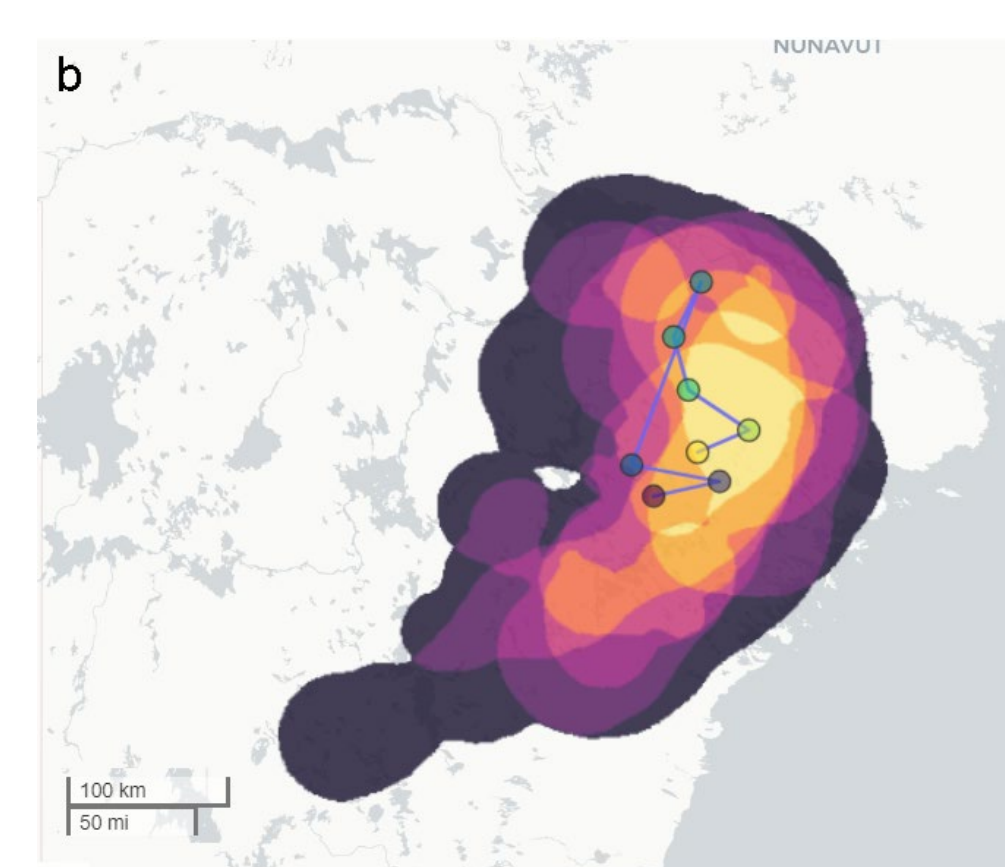
The causes for population declines of caribou remain mysterious. We are looking at the direct influence of **environmental** variables – temperature, wind, snow – **sociality** and **migration** on adult survival. *Lead: Chloe Beaupré*

## Acoustic disturbance & insect harassment

Measuring how caribou respond to sound disturbance and insect harassment can be difficult with traditional GPS collars. We are using **animal-borne sensors** and acoustic recorders that allow us to measure their exposure to both disturbances in **real time**, while also **inferring body condition, calf survival and energy budgets**. *Lead: Megan Perra*

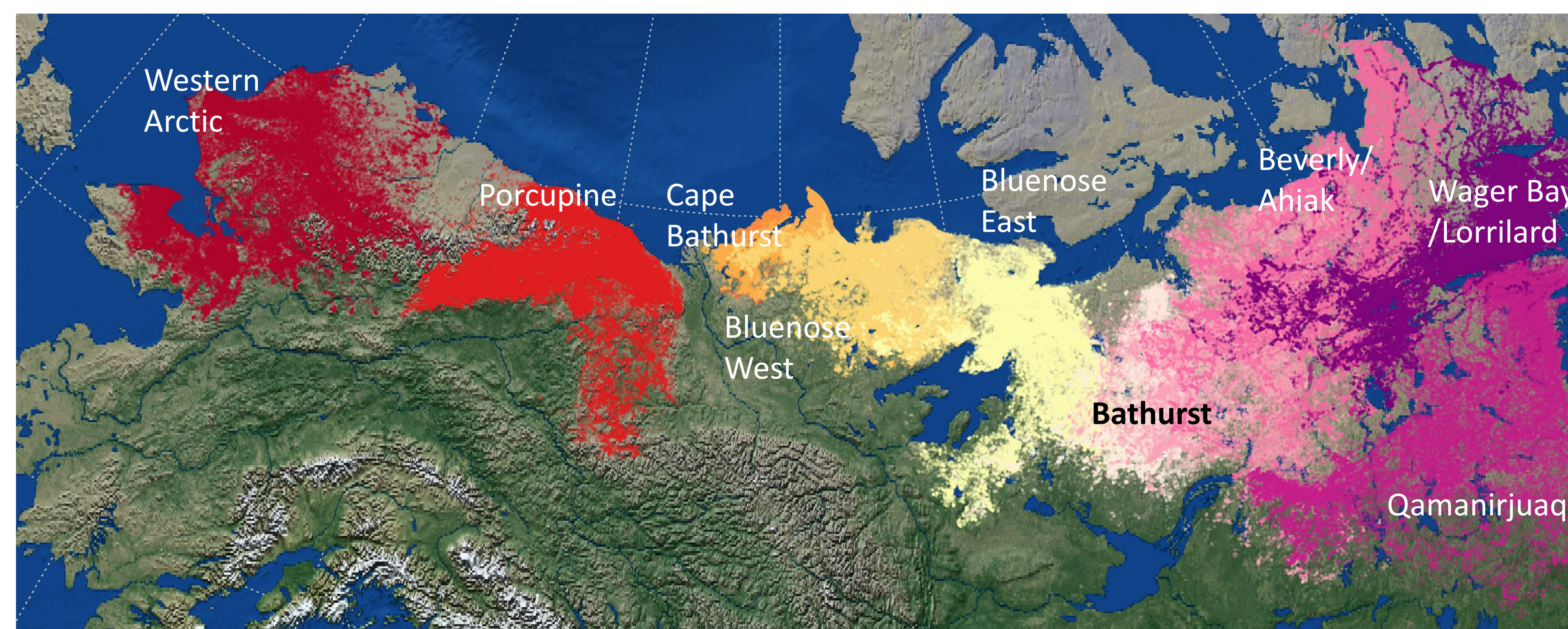


## Identifying calving grounds and calving timing



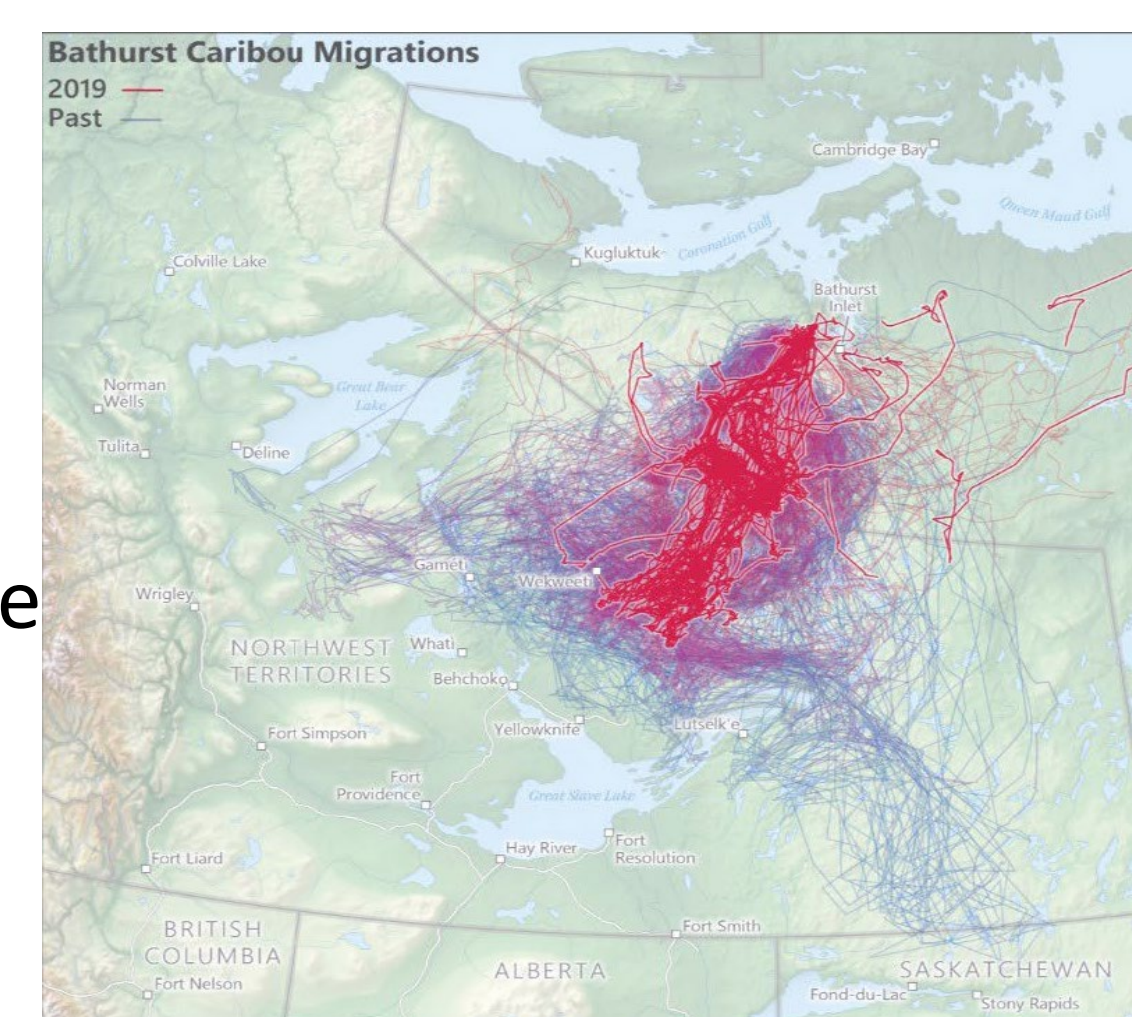
Protecting calving and early rearing grounds is central to caribou stewardship. We are using innovative **movement modeling tools** to detect parturitions and develop ecologically meaningful definitions for **calving grounds**. *Lead: Ophélie Couriot*

Calving grounds of Qamanirjuaq Herd caribou in Nunavut drift slowly across years.



## Shrinking numbers, shrinking ranges

Our partnerships with Indigenous governments and caribou co-management boards are leading to an **online story-map** (an interactive storytelling and data visualization platform) and brochure. The story-map is the **Bathurst herd's declining abundance and changing seasonal ranges** told through animated maps and graphics. *Lead: Anna Brose*



## Traditional Knowledge database

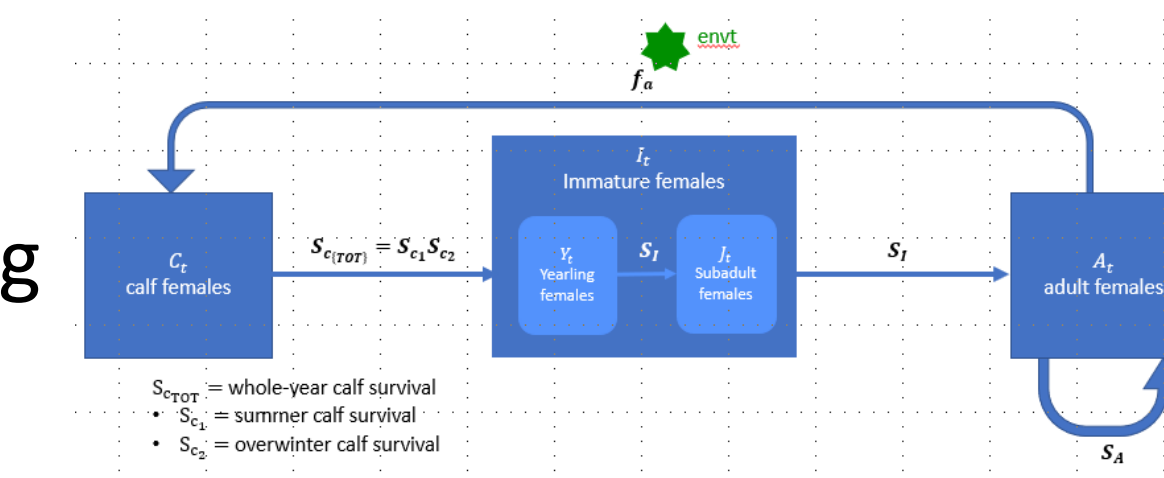
Existing reports and documents have a wealth of **local caribou observations and Indigenous knowledge** across northern Alaska and Canada. Our goal is an online, searchable **repository of these observations** that can be available to research partners and the public. *Lead: Chloe Beaupré*



Tlicho elders sharing caribou observations

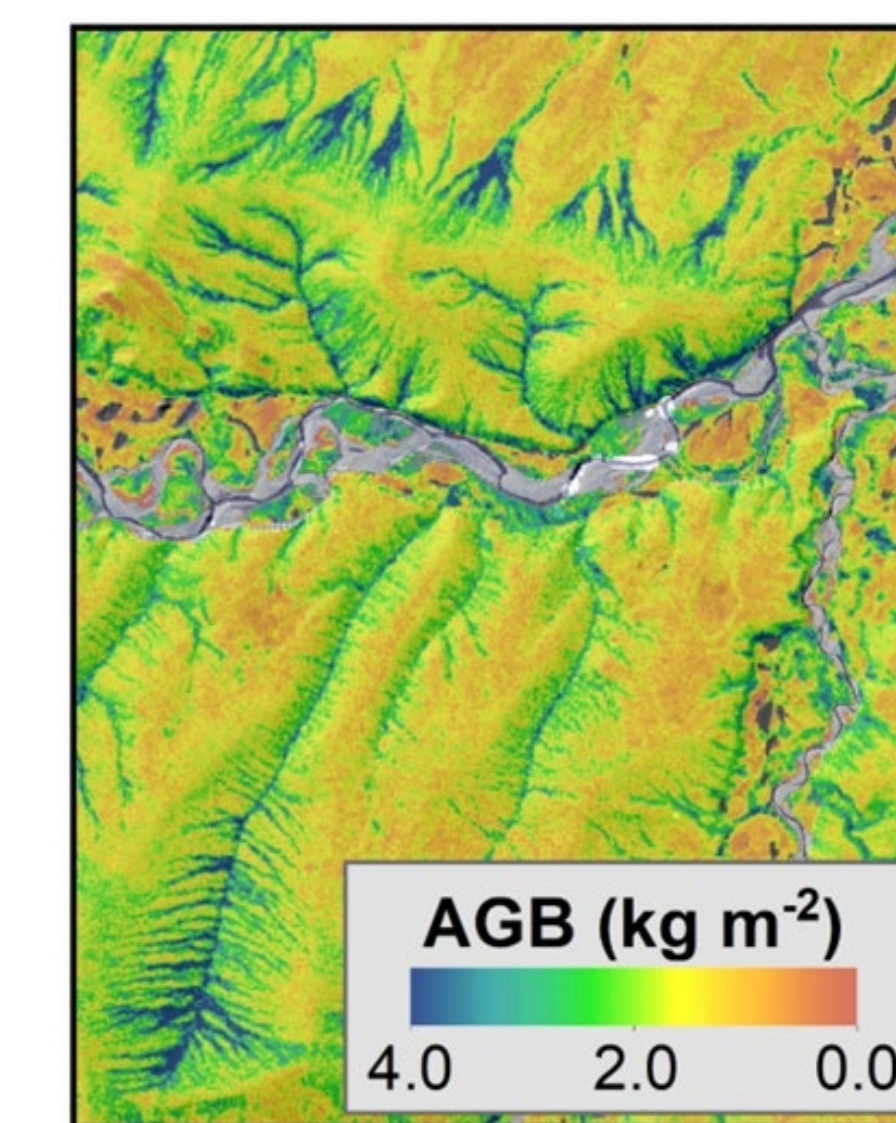
## Demographic modelling

We are seeking to understand patterns in and drivers of **caribou population dynamics** by accounting for **exogenous influences** and **underlying demography**. We integrate historical demographic surveys with modern remote sensing data to reveal causes of observed patterns and predict **future fluctuations** under various scenarios. *Lead: Marron McConnell*



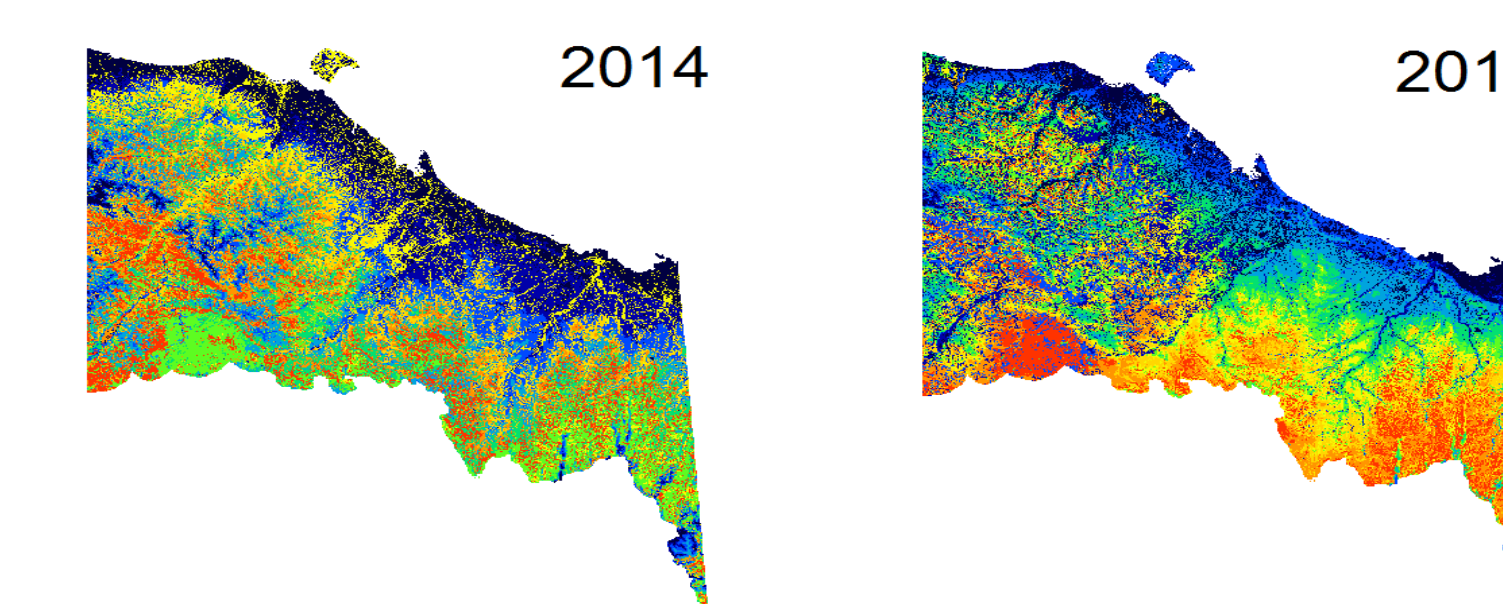
## Changes in Arctic vegetation

We are working to understand how caribou respond to **long-term changes in tundra vegetation** (e.g., shrubification) by linking caribou movement data with new **maps of vegetation** created from satellite observations. *Lead: Katie Orndahl*



Shrub aboveground biomass in part of the Western Arctic herd range

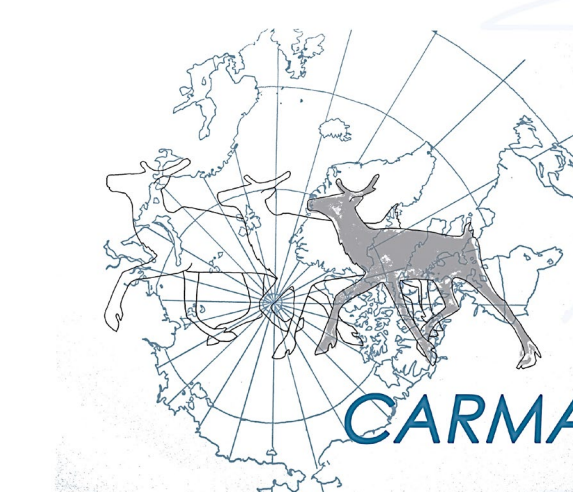
## Summer habitat use and preference



Summer habitat use of Porcupine Caribou changes from year to year (red colors: preferred, blue colors avoided)

We have developed **habitat selection maps** for Porcupine Caribou to inform the borders of a new proposed protected area in northern Yukon, Canada. We have also been monitoring **changes in habitat preference** across years, linking those to **weather-related drivers** and potential **vegetation shifts**. *Lead: Eliezer Gurarie*

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