

Cumulative Impacts in the Thelon Geological Basin

**Presentation to
Government of Nunavut
Uranium Workshop
28 March 2007, Iqaluit NU**

Presented by: Leslie Wakelyn, BQCMB Biologist

Overview

- **Information about the BQCMB**

- **Case study: proposed uranium exploration in upper Thelon watershed, NWT**
 - **Why the BQCMB is concerned about cumulative effects of mineral exploration and development across the caribou ranges**
 - **Specific concerns about uranium exploration**
 - **Recommendations**

- **Key caribou issues and questions regarding cumulative effects and caribou**

BQCMB:

**Beverly & Qamanirjuaq
Caribou Management**

Board

www.arctic-caribou.com



BQCMB

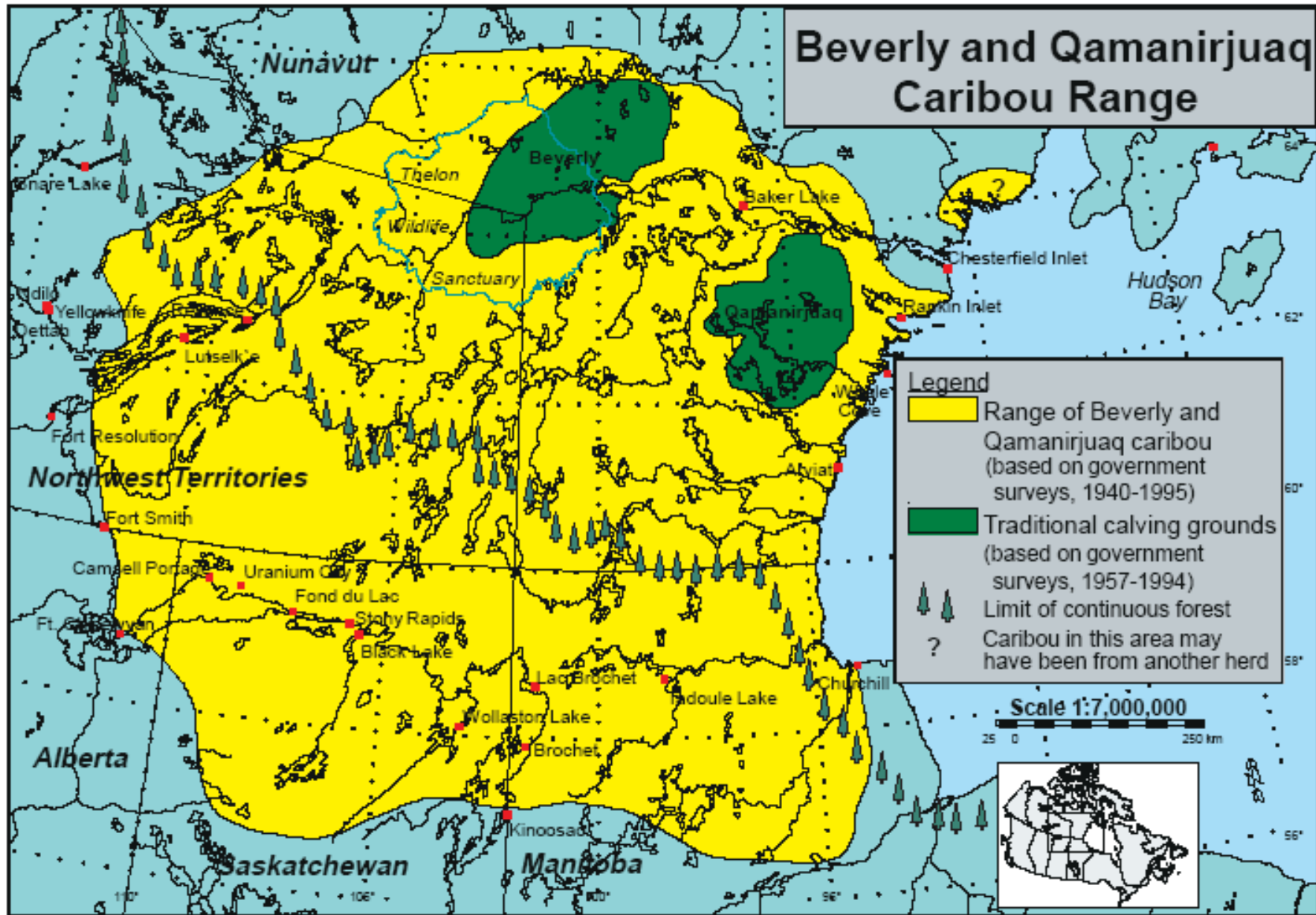
Membership:

- 5 governments:
 - federal (INAC), NU, NT, MB, SK
- communities from 4 jurisdictions (2-3 reps per territory/province)

Mandate:

Advise governments and communities on ways to protect the Beverly and Qamanirjuaq caribou herds and their ranges.

The range-wide context



The BQCMB perspective



The BQCMB brings a broad perspective to environmental assessment of development projects.

The BQCMB perspective

The BQCMB is *not* against mining

The BQCMB believes that we should *work together* to protect the caribou herds and their ranges.

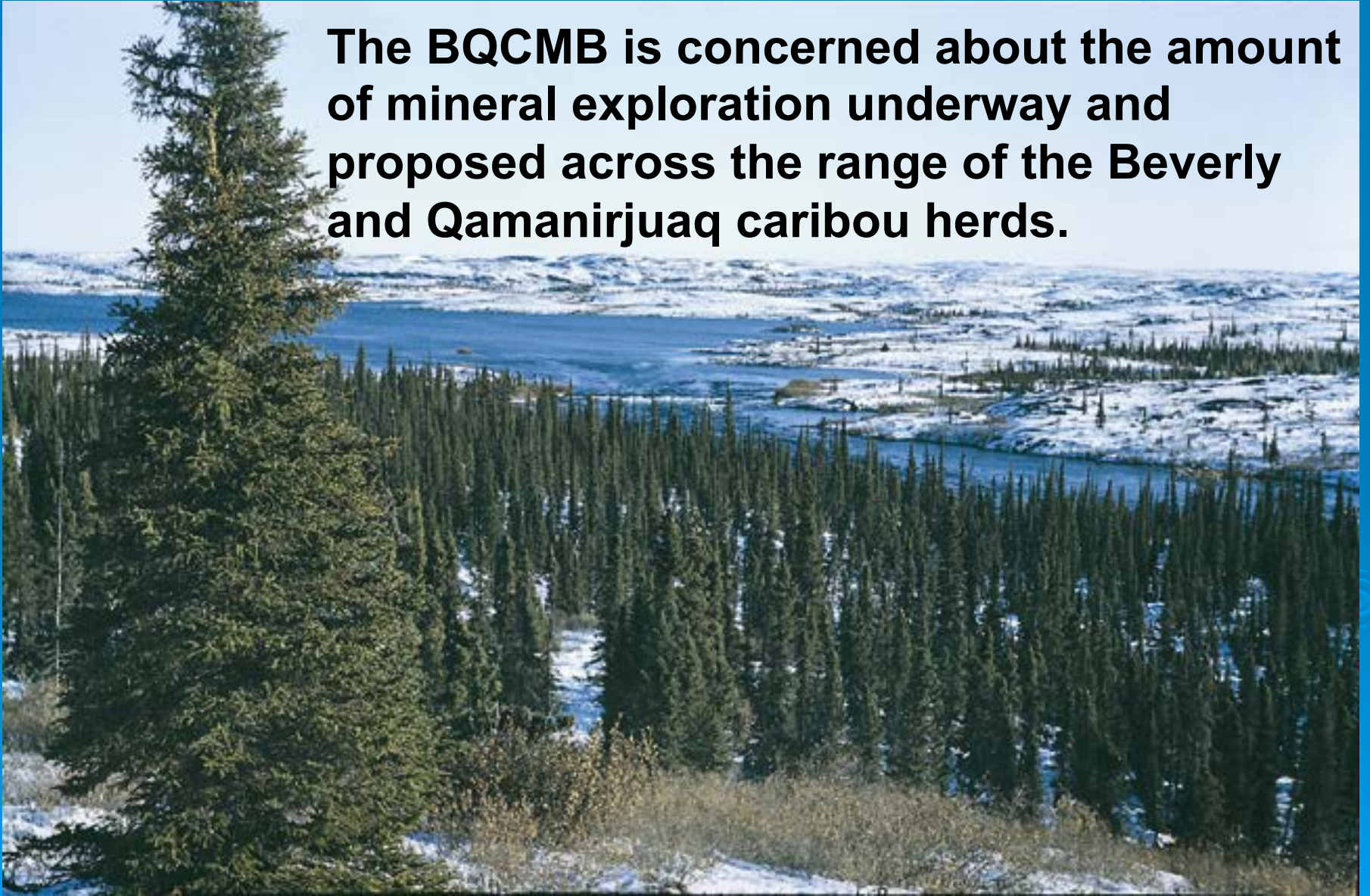


Caribou for the future



Cumulative Effects and Caribou:

The BQCMB is concerned about the amount of mineral exploration underway and proposed across the range of the Beverly and Qamanirjuaq caribou herds.



Case study:

**Proposed uranium
exploration &
barren-ground
caribou**

**(Ur-Energy at Screech
Lake, upper Thelon
watershed, NWT)**



Mineral Exploration in the Upper Thelon Watershed

Key issues for this environmental assessment:

- barren-ground caribou
- cumulative effects

Why is this important?

Value of barren-ground caribou

- economic, social, cultural
 - essential for traditional way of life
- 

Mineral Exploration in the Upper Thelon Watershed



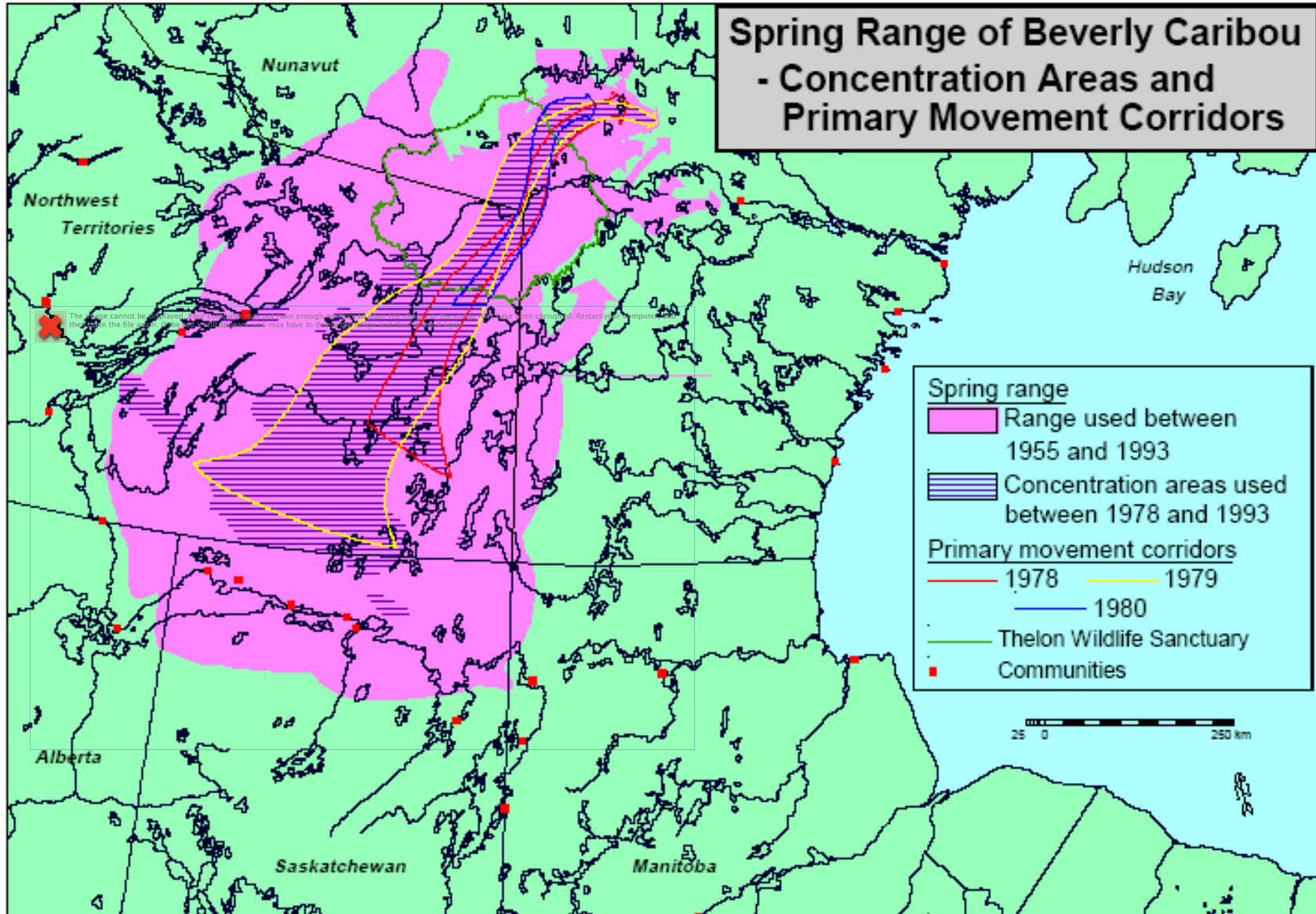
- a) Importance of the area to caribou
- b) Potential impacts
- c) Assessment of potential cumulative effects
- d) Recommendations

a) Caribou use of the project area

How do biologists know about caribou use of the proposed project area?

- Surveys (1955-1993)
- Data from collared caribou (1995-2006)
- Traditional knowledge

Information from surveys

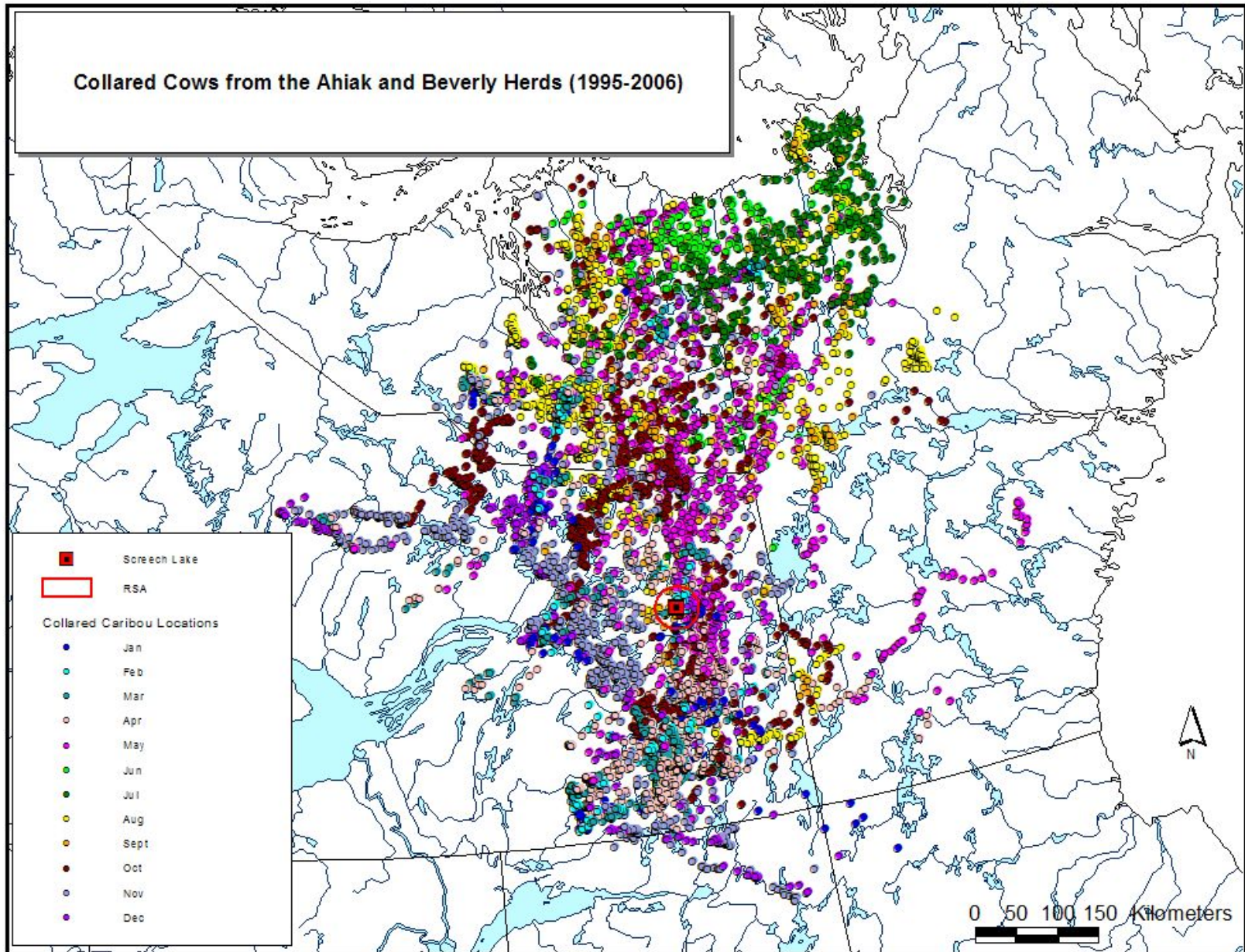


Information from collared caribou

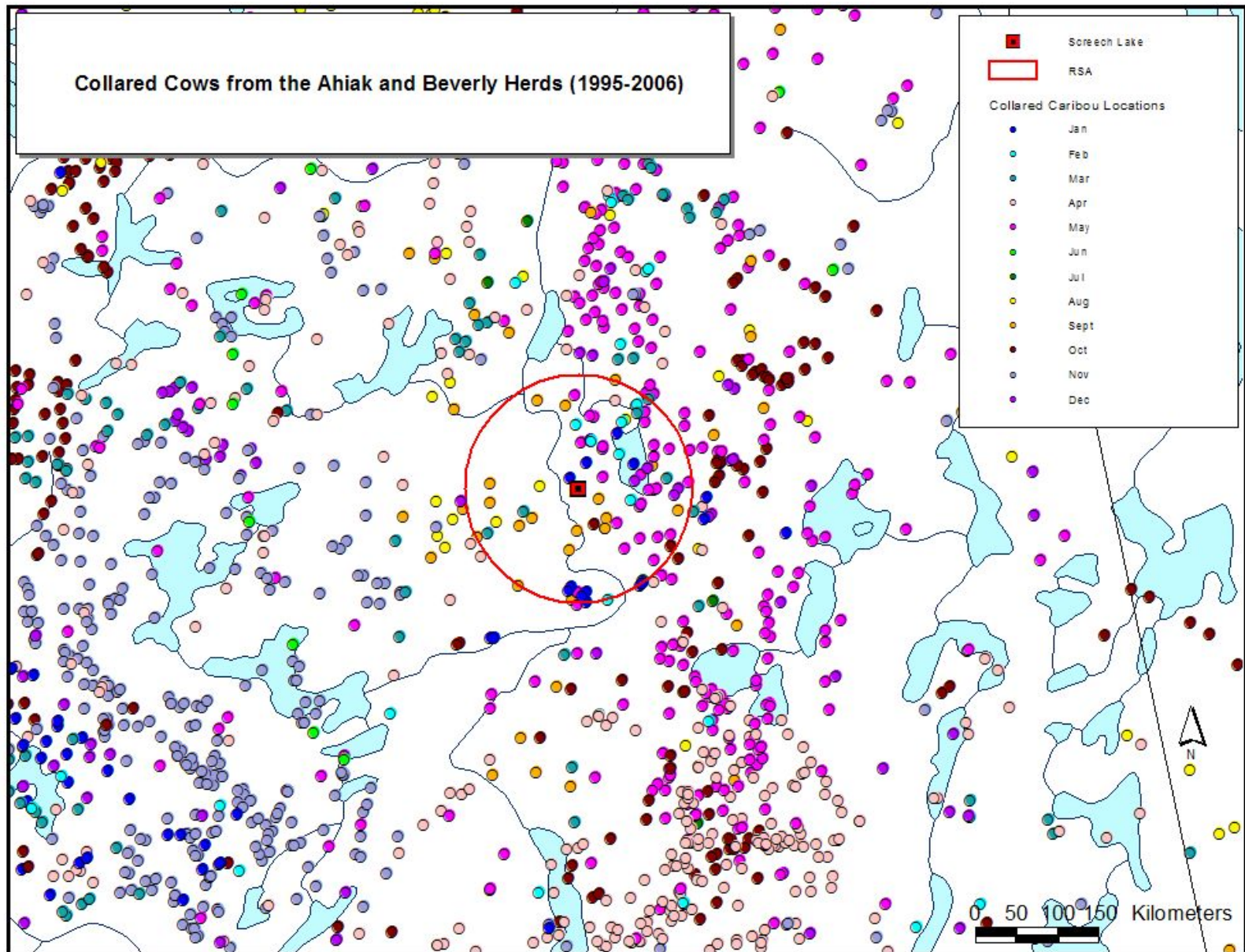
- Area is used most frequently by **Ahiak** and **Beverly** cows
- Area is used rarely by Qamanirjuaq and Bathurst cows



Monthly locations of collared caribou

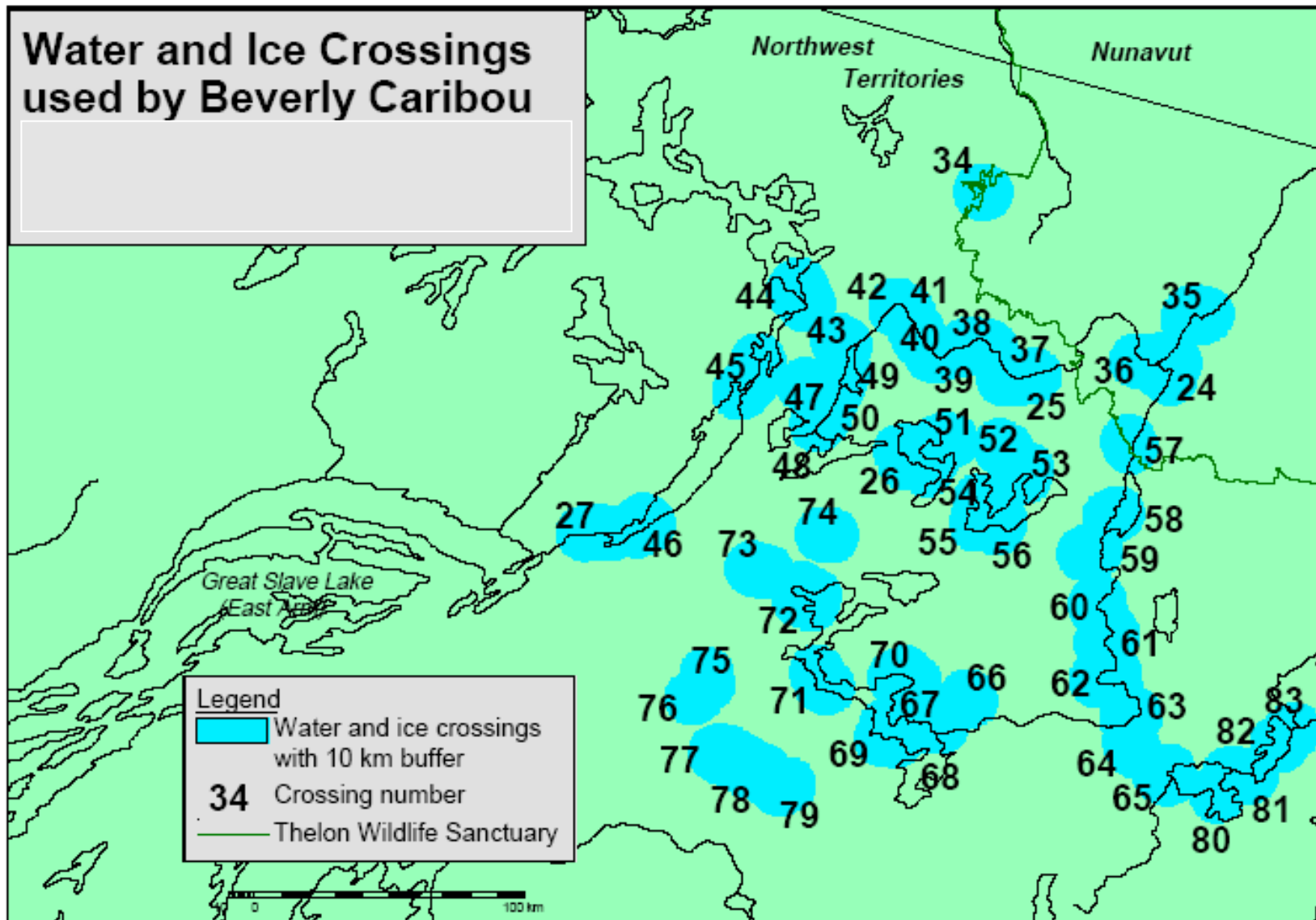


Monthly locations of collared caribou



Other information

Water and Ice Crossings used by Beverly Caribou



Importance of the area to caribou

Most valuable to caribou as:

- Spring migration route
- Undisturbed water crossings

We need more information to ensure we make good decisions for caribou conservation.



b) Potential impacts of the proposed project on caribou

➤ Types of impacts:

- Disturbance
- Habitat loss (direct and indirect)
- Contamination (food or water)



What makes individual caribou sensitive to impacts?



**Proposed period of operation:
March-May
(late winter
& spring migration)**

How seriously will individual caribou be affected?

- **Added stress to the cows may harm the health of the cow**
- **Stress to cows could decrease calf production or survival**



What proportion of each caribou herd may be affected?

Very difficult to predict

➤ **Ahiak and Beverly herds**

- Small to large portion of each herd may be affected in a given year

➤ **Qamanirjuaq caribou**

- Not likely to impact significant proportion of this herd

Why are we worried that impacts on individual animals will harm the herds?

a) Herd declines in the NWT

- Porcupine, Cape Bathurst, Bluenose West, Bluenose East and Bathurst herds
- likely Ahiak and Beverly; if so, then less able to cope with increased disturbance

b) Importance of calf survival

- low calf survival could contribute to population decrease, intensify a decline, slow down recovery from decline

c) Cumulative effects of proposed development on caribou

What do we mean by “cumulative impacts”?

- **Combined** environmental impacts from a series of similar or related activities that **accumulate over time and space**.
- **Effects add up**.



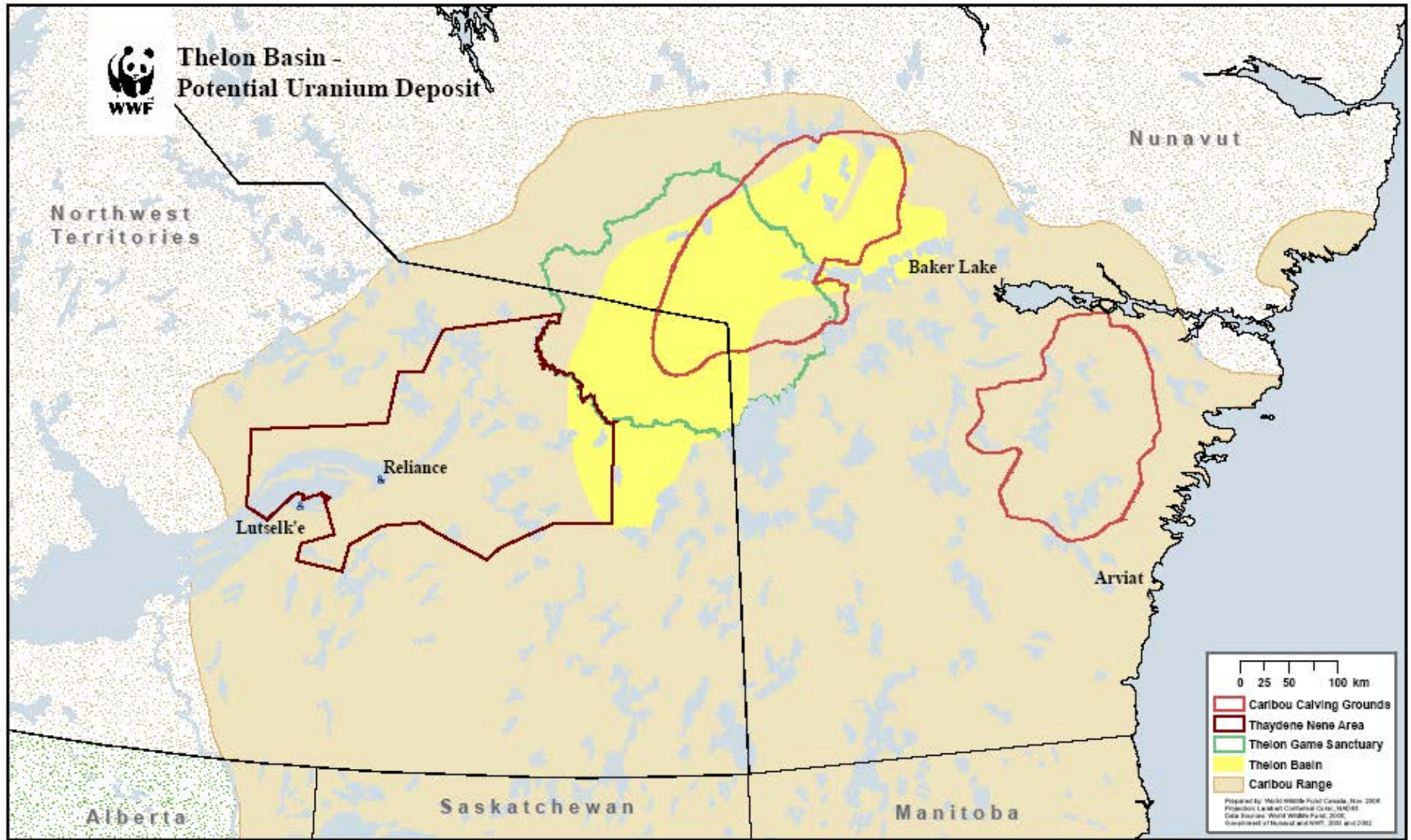
Why are we concerned about cumulative impacts on caribou?

- Barren-ground caribou are **wide ranging**.
- All impacts collectively influence the health of caribou and their **ability to cope** with stress and disturbance.
- Although the stress and disturbance from each land use activity may seem to be minor, **the combined effect of many impacts can be serious.**

Cumulative Effects and Beverly Caribou

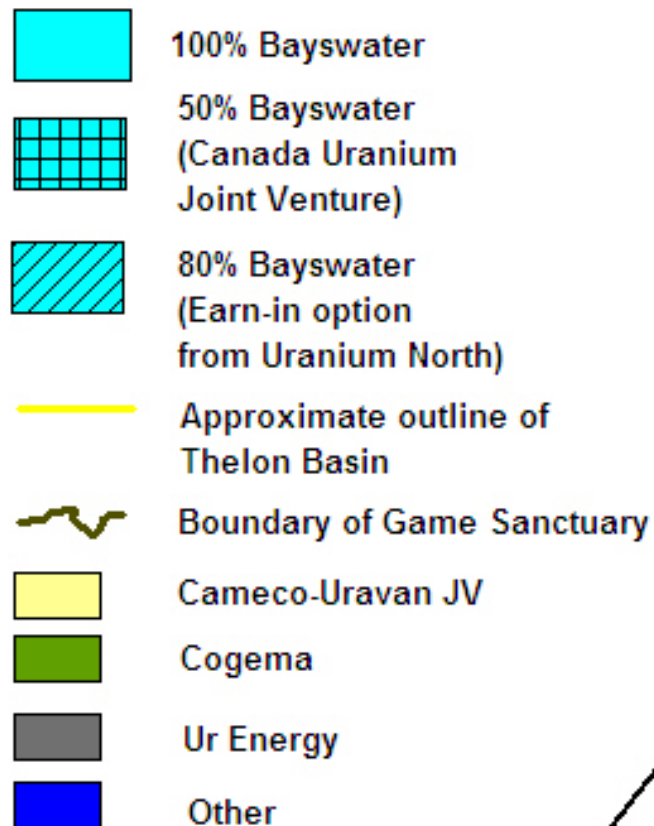
Land use activities across the Beverly caribou range

- A quick description of ongoing activities, from south to north:
 - a) Athabasca region of northern SK
 - b) Thelon geological basin
 - c) Upper Thelon watershed
 - d) Beverly calving and post-calving areas



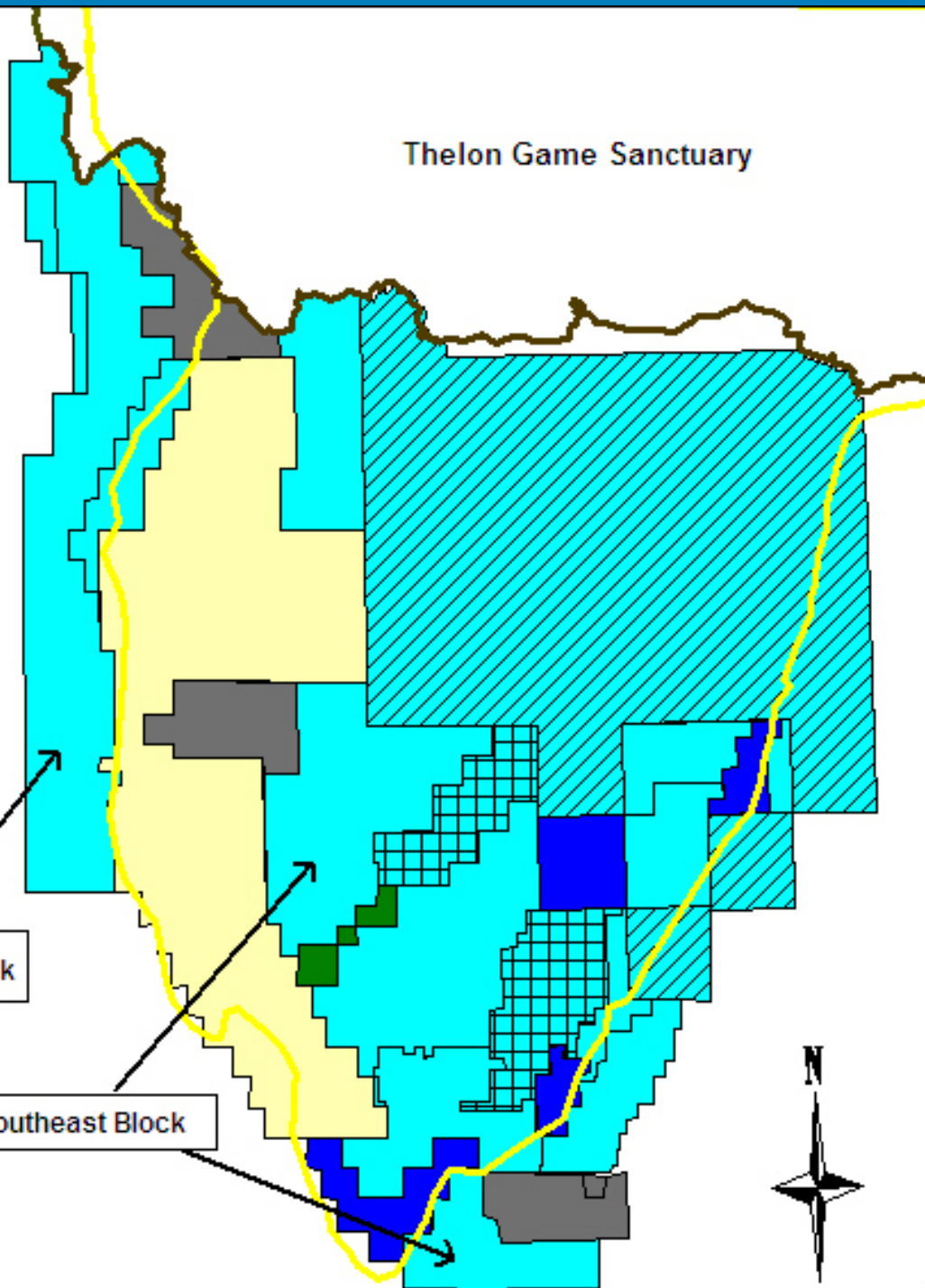
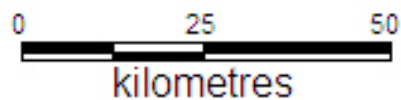
South Thelon Basin Mineral Claims

Thelon Game Sanctuary



Northwest Block

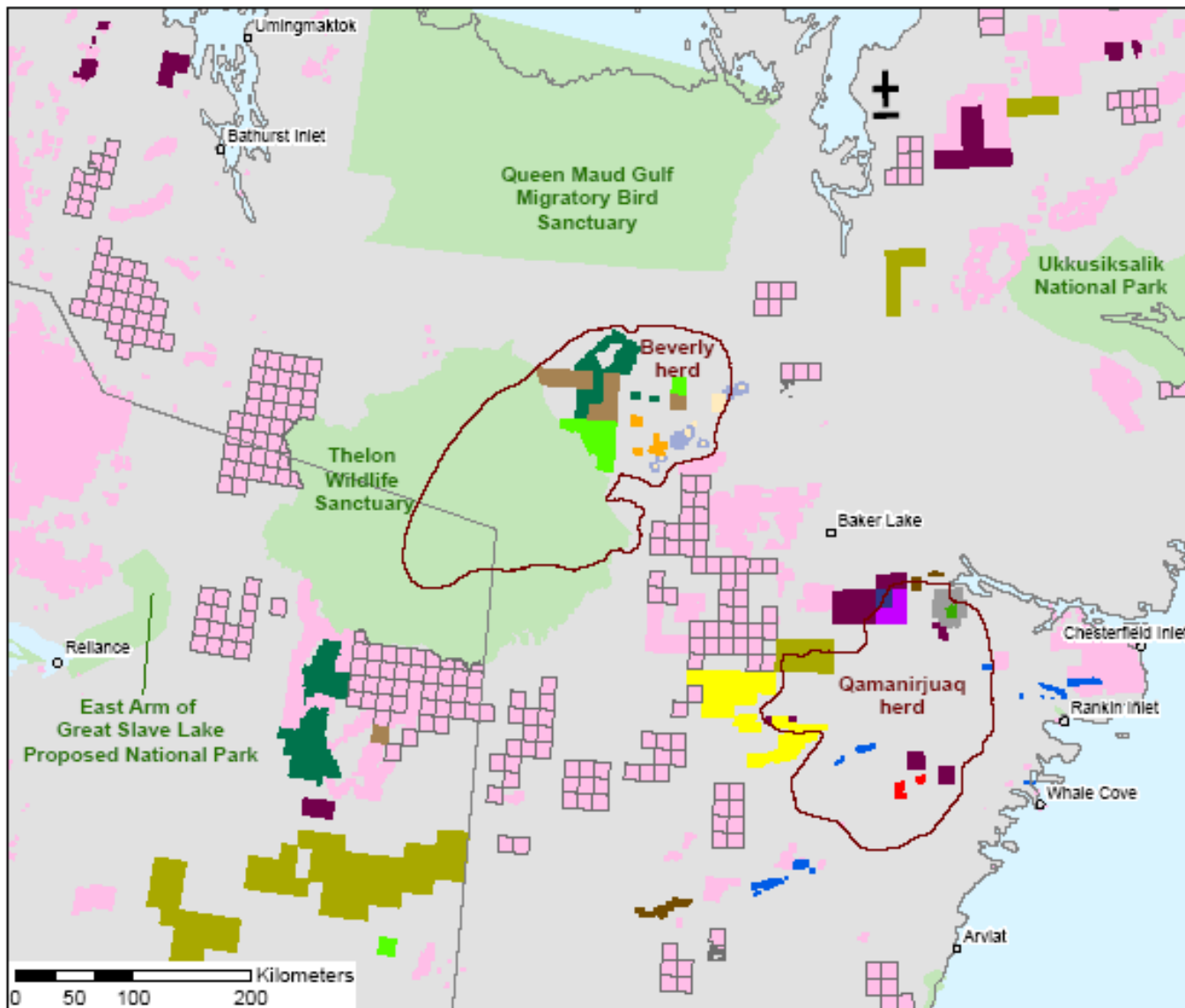
Southeast Block





Companies with Mineral Rights in the Calving Grounds of the Beverly and Qamanirjuaq Caribou Herds

(September 2006)



- caribou calving grounds
 - protected and partially protected areas
- Owners:
- 4579 Nunavut Limited
 - Barry, Lawrence
 - Carpenter, Rob
 - Cameco Corporation
 - Comaplex Minerals Corp.
 - Falconbridge Limited
 - Full Metal Minerals Ltd.
 - Kaminsky, Dr. Felix
 - Kennecott Canada Exploration Inc.
 - KM Diamond Exploration Ltd.
 - McMillan, Ronald
 - Ruby Hill Exploration Inc.
 - Starfield Resources Inc.
 - Strongbow Exploration Inc.
 - Titan Uranium Inc.
 - UraVan Minerals Inc.
 - Companies not in calving grounds

Prepared by: World Wildlife Fund Canada, Sep. 2006
Projection: Lambert Conformal Conic, NAD83
scale: 1:5,000,000
Data sources: Communities: Nunavut Geoscience Sampler, 2004, Prince of Wales Northern Heritage Centre, Government of Northwest Territories, 2002. Mineral claims, leases, permits: Department of Indian Affairs and Northern Development, 2006. The Department of Indian Affairs and Northern Development accepts no responsibility for any errors, inaccuracies and/or omissions in this data. Protected areas: Department of Sustainable Development, Government of Nunavut 2003. Calving ground boundaries: Beverly and Qamanirjuaq Caribou Management Board Map Atlas, 1999.

Cumulative Effects and Beverly Caribou

- *The potential for cumulative impacts on Beverly caribou must be assessed with consideration of all development activities across the caribou range.*
- **What are caribou already experiencing** as they migrate from their winter range in Saskatchewan north to the calving ground in Nunavut?

Why the BQCMB is concerned

Four main reasons re: mineral exploration

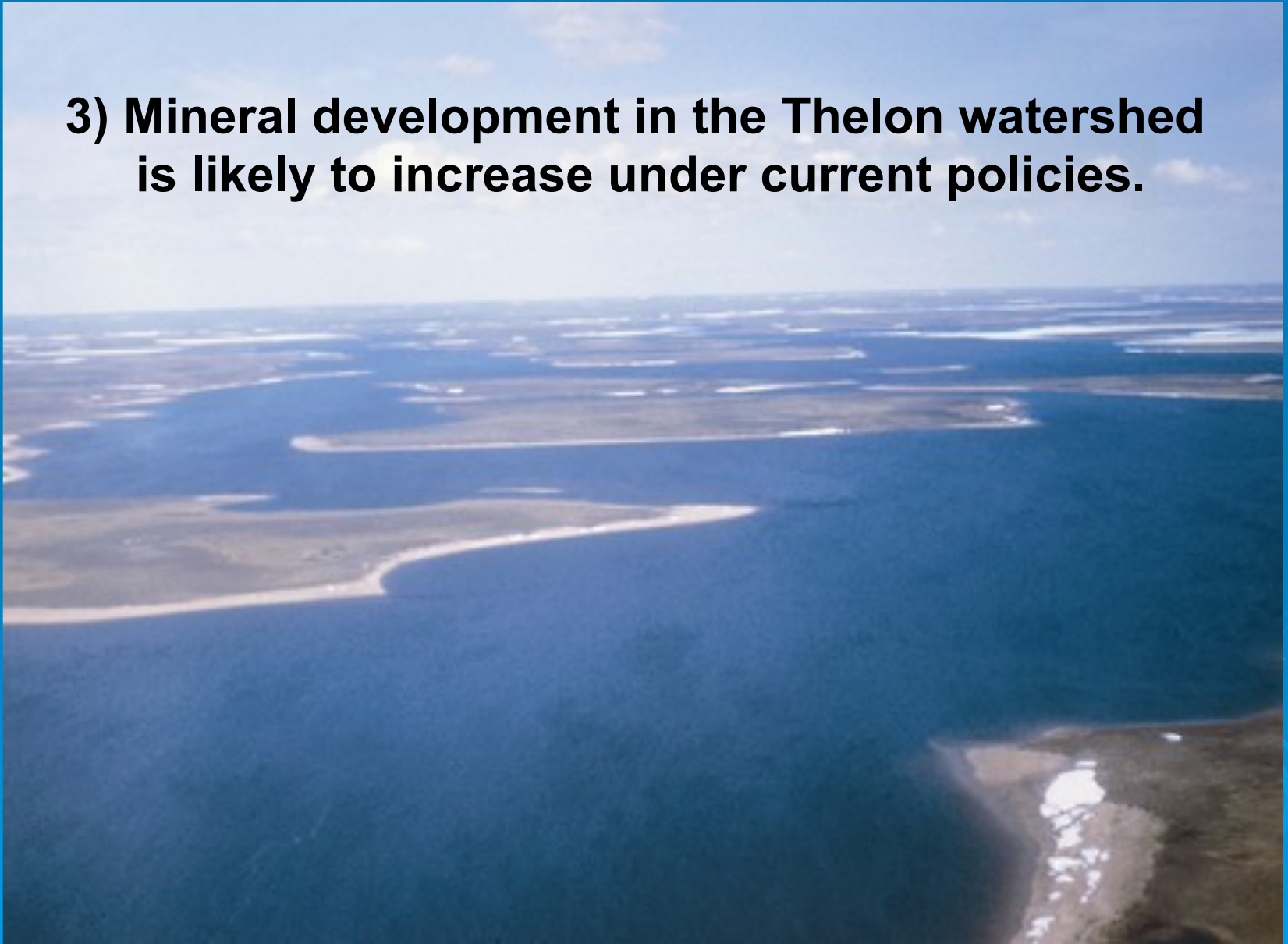
- 1) Certain areas and landscape features are very important



- 2) Caribou can be vulnerable to disturbance at certain times

Why the BQCMB is concerned

3) Mineral development in the Thelon watershed is likely to increase under current policies.



Why the BQCMB is concerned

Similar situations have occurred elsewhere in the North.

Two examples:

- i. Athabasca Basin of northern Saskatchewan*
- ii. Alaska's North Slope*



Why the BQCMB is concerned

4) Much remains unknown about Beverly (and Ahiak) caribou

- This prevents us from being able to predict the cumulative effects of mineral development and other human activities across the caribou range

We don't even have the most basic information about these herds.

Specific concerns about uranium exploration

- **Effects from exposure to radioactive uranium** *in addition to* potential effects of other types of mineral exploration
- **Lichen-caribou-human food chain interactions:**
 - Caribou can eat lichens, dust and soil that have accumulated radioactive substances
 - Caribou can absorb radioactive substances consumed into their organs

Specific concerns about uranium exploration

Lack of information to address concerns about uranium exploration:

- Many concerns raised
- No conclusive studies
- Concerns remain



Other issues

MVEIRB EIA guidelines state that the assessment of cumulative effects should include:

- “all other human activities that may substantially affect the valued components” .
- “**Distant developments** . . .if they affect a mobile resource that moves into the area of a development.”

This assessment has *not* been conducted by the developer.

Recommendations - Operations

IF MVEIRB APPROVES THIS PROJECT

permit conditions should include:

- Timing (Jan-Apr; perhaps June, not later)
- Need to shut down operations when caribou present (500 m)
- Hire caribou monitor from community
- Restrict low-level flights (above 300 m AGL)
- No activities within 5 km of Thelon water crossings
- Record sightings and provide info to GN

Recommendations re: Proposal

- 1) MVEIRB should suspend this environmental assessment until information and clarifications are received regarding:
 - a) what mitigative measures will be used to reduce impacts on caribou
 - b) their assessment of insignificant residual impacts on caribou.

Recommendations re: Proposal

2) MVEIRB should not accept the developer's unsupported conclusions regarding:

- Extent of impacts
- Significance of impacts
- Cumulative impacts.



Recommendations – Planning

3) Due to uncertainty, a ***precautionary approach*** must be applied.

This permit and others for exploration work in the upper Thelon watershed should *not* be issued until substantial work has been undertaken to allow MVEIRB to make informed decisions.

Recommendations – Planning

- 3 a) **Research** on Beverly and Ahiak caribou should be conducted
- by territorial and provincial governments (NWT, NU, SK) and other appropriate partners.



Recommendations – Planning

3 b) **Cumulative effects impact analysis** for proposed developments on barren-ground caribou should be conducted on the entire range of Beverly and Ahiak caribou rather than their study area

- by agencies responsible for cumulative impact assessment *in collaboration with* industry, communities and other relevant organizations

Recommendations – Planning

- 3 c) **Regional land use planning** that includes consideration of the value of caribou and caribou habitat should be initiated
- in each jurisdiction (in NWT, Kivalliq region of NU, Athabasca region of SK)
 - in conjunction with ongoing protected areas planning and regulatory frameworks

Recommendations – Planning

- 3 d) A **range-wide system of conservation planning** should be established to safeguard the Beverly and Ahiak caribou herds over the long-term across all seasonal ranges
- by federal, territorial and provincial governments (NWT, NU, SK) and the Nunavut Planning Commission

Planning for caribou *and* people that depend on caribou

Many of these recommendations follow from work the BQCMB has been doing for many years.



For more information:

www.arctic-caribou.com

Summary of key caribou issues

If uranium and other mineral exploration continues to proceed across the caribou ranges:

- the BQCMB is very concerned about the potential environmental costs, including impacts on:
 - barren-ground caribou
 - caribou range
 - the ability of caribou range communities to maintain traditional lifestyles based on caribou and other wildlife resources.

Summary of key caribou issues

- a) Caribou = valuable and irreplaceable resource
- b) Potential for significant impacts to caribou at specific times in certain important habitats (e.g., spring migration routes, calving grounds, post-calving areas, water crossings).



Summary of key caribou issues

c) Considerable uncertainty regarding cumulative effects at both the individual and herd level due to insufficient knowledge of:

- caribou
- the impacts of activities on caribou (e.g., disturbance, radioactive contamination).

d) Need for:

- conservation planning to provide a balanced approach and ensure options remain for the future.
- research to inform decision-making
(see preliminary list of research questions)

Questions re: caribou-human system

- 1) What level of accumulated impacts
→ reduced availability of caribou to
communities?

AND THEN . . .

- 2) How well can communities adjust to
reduced availability of caribou?
- 3) Economic loss to communities and
outfitters if caribou are not available for
harvest?
- 4) Can government respond to resulting
economic pressures?

Caribou for the future

