

# Caribou Forever

## Our Heritage, Our Responsibility

Environment and Natural Resources  
Wek'eezhii Renewable Resources Board Public Hearing  
March 22, 2010



## ENR Technical Presentation Overview



1. What is a herd (animation)
2. Herds as the basis for management
3. Natural long term caribou cycles
4. Current trends in herd size
5. Have caribou moved elsewhere?
6. Factors that affect herd size & trend
7. Recovery (Modeling, Risk Management)

# 1. What is a herd?

- Animation of movements of NWT caribou herds to be inserted

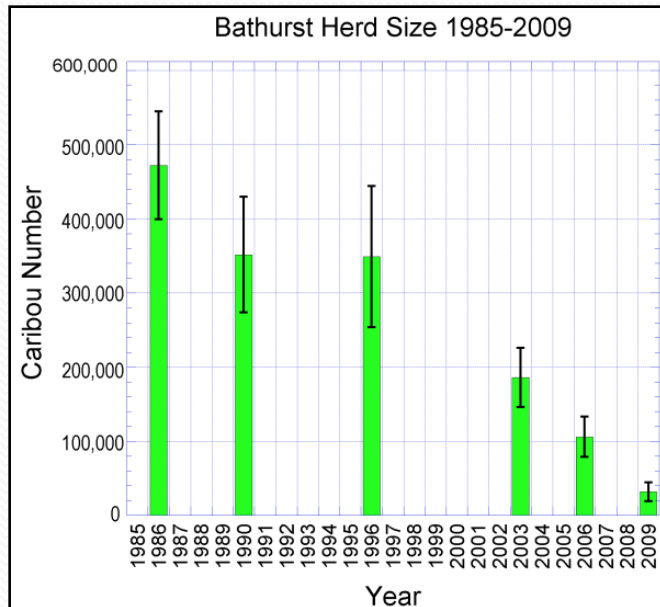
## 2. Herds as the Basis for Management



### Alberta Research Council (ARC) Peer Review 2008

#### What did ARC say about NWT caribou studies?

<i>ENR Approach</i>	<i>ARC Report</i>
1 Define herds by calving grounds	Agree
2 Survey methods used to estimate herd size are reliable	Same methods used by others.
3 Data analysis supports decline of herds	Agree



*“ARC’s independent review generally supports scientific validity of ENR’s survey program and conclusions regarding population declines, based on available data” (Executive Summary ARC Report)*

## 2. Herds as the Basis for Management cont'd



### *ARC Recommendations & ENR Follow-up (✓)*

1. More radio-collars on all caribou herds ✓
2. More regular population surveys, at same time;  
check calving against post-calving surveys ✓
3. Increase demographic data from all herds ✓
4. Use population modeling in management ✓
5. Peer review for all survey reports
6. Report survey, research results quickly &  
transparently
7. Develop Territory-wide approach to research,  
with central coordination ✓
8. Adaptive management in decisions about caribou ✓
9. Form partnerships to increase caribou research ✓



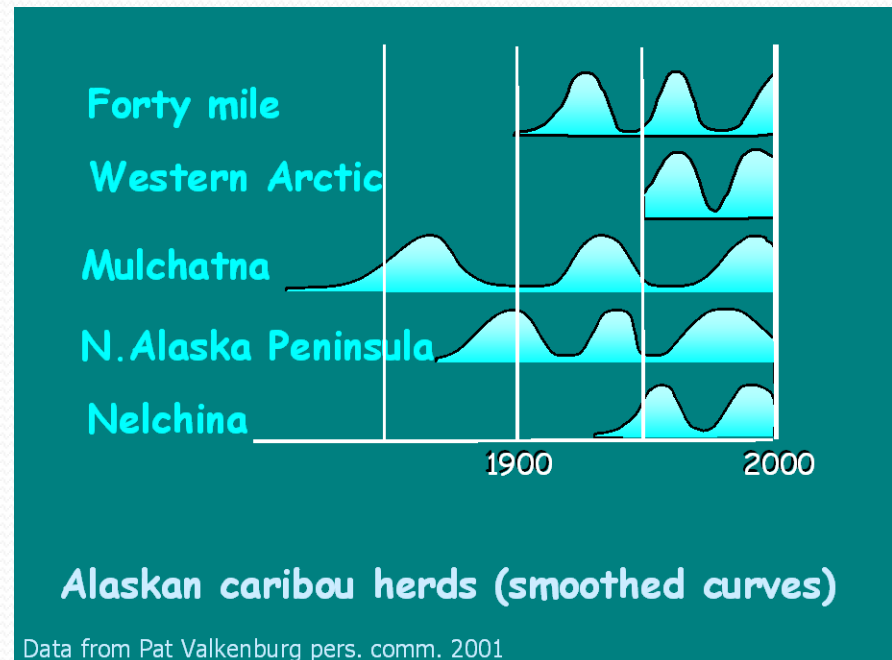
### 3. Natural Caribou Cycles

#### How do we know?

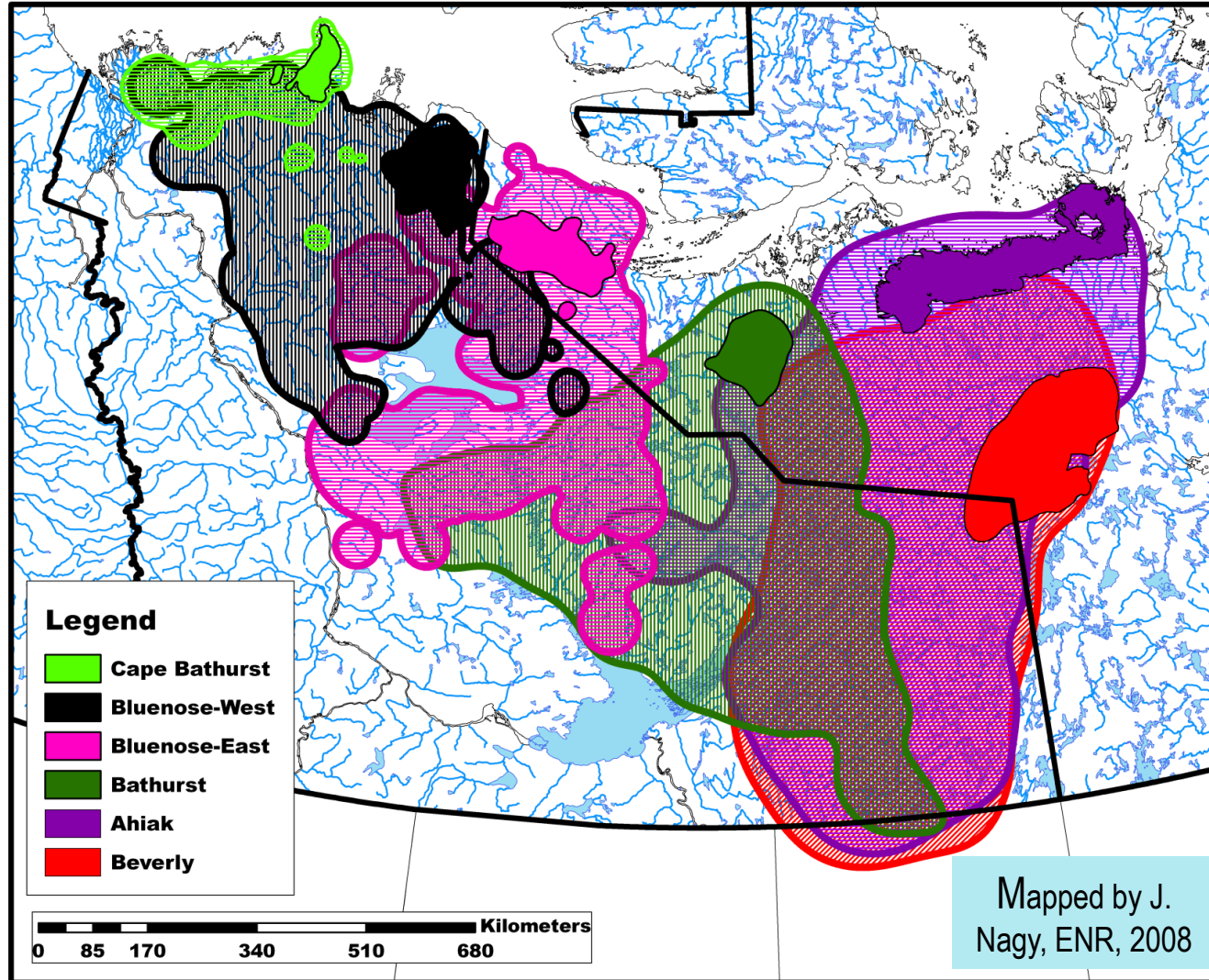
- *Traditional Knowledge from over 100 years (Tlicho, Chipewyan hunters and elders)*
- *Hunting success at traditional sites changes over time*
- *Scars on spruce roots on traditional caribou trails*
- *Surveys of NWT herd size since 1970's*
- *Cycles also seen in northern Quebec caribou*

#### Trends of NWT Herds

1970's	Declining
1980's	Increasing
1990's	High Numbers
2000's	Declining



## 4. Current Trends in Herd Size – NWT






Annual Range  
and Calving  
Area of NWT  
Herds



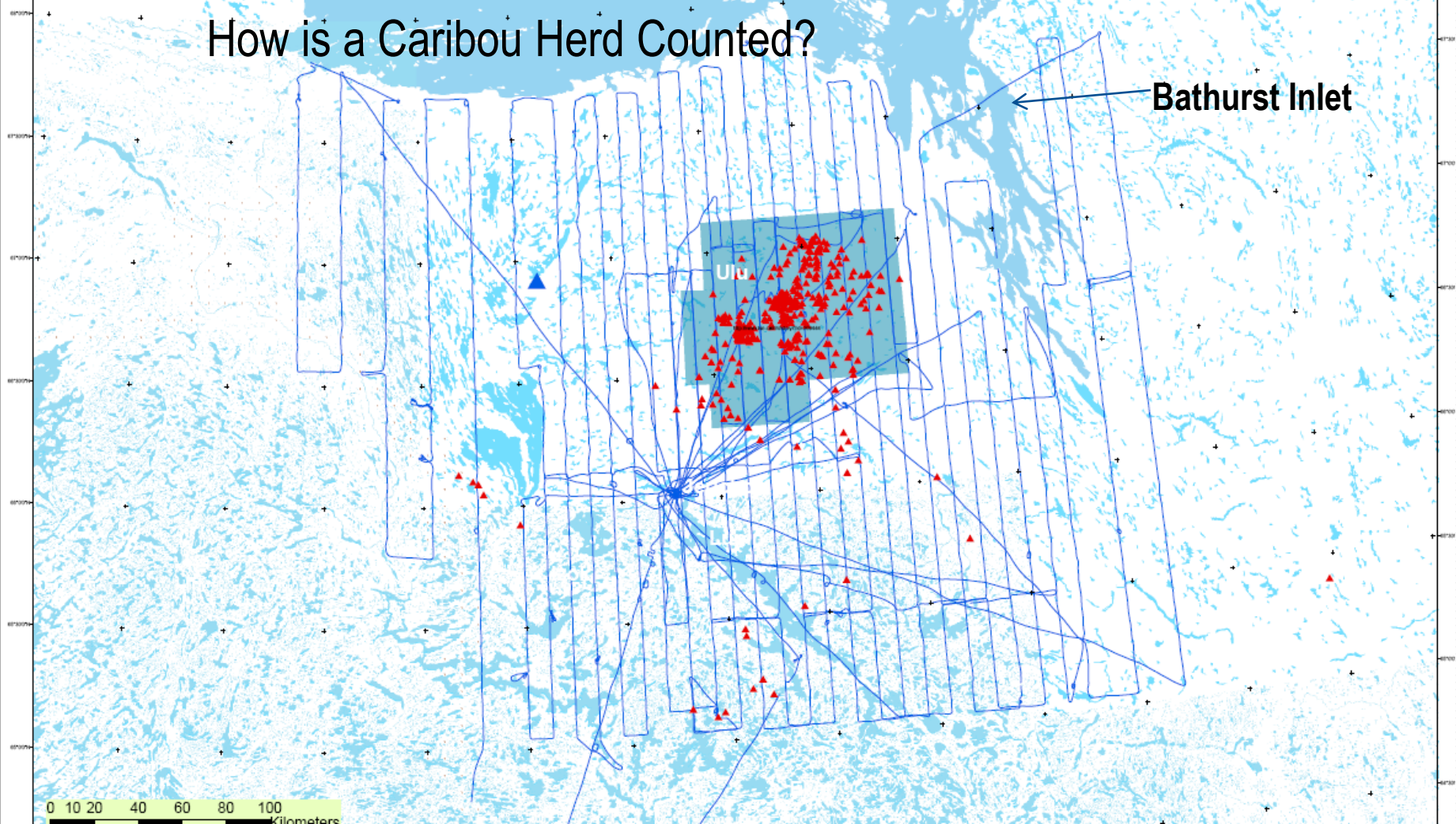
**Location of satellite collared Bathurst caribou females between 1996 and 2009 at peak of calving (June 8-12).**

**From Nagy et al. Use of Space by caribou: Subpopulation structure of caribou in Arctic and SubArctic Canada. In Prep.**

-  Location of Bathurst collared cows 1996 - 2009 at peak of calving
-  Extent of systematic reconnaissance survey in June 2009
-  Extent of the June 2009 PhotoCensus

## **4. Current Trends in Herd Size cont'd**

**How is a Caribou Herd Counted?**

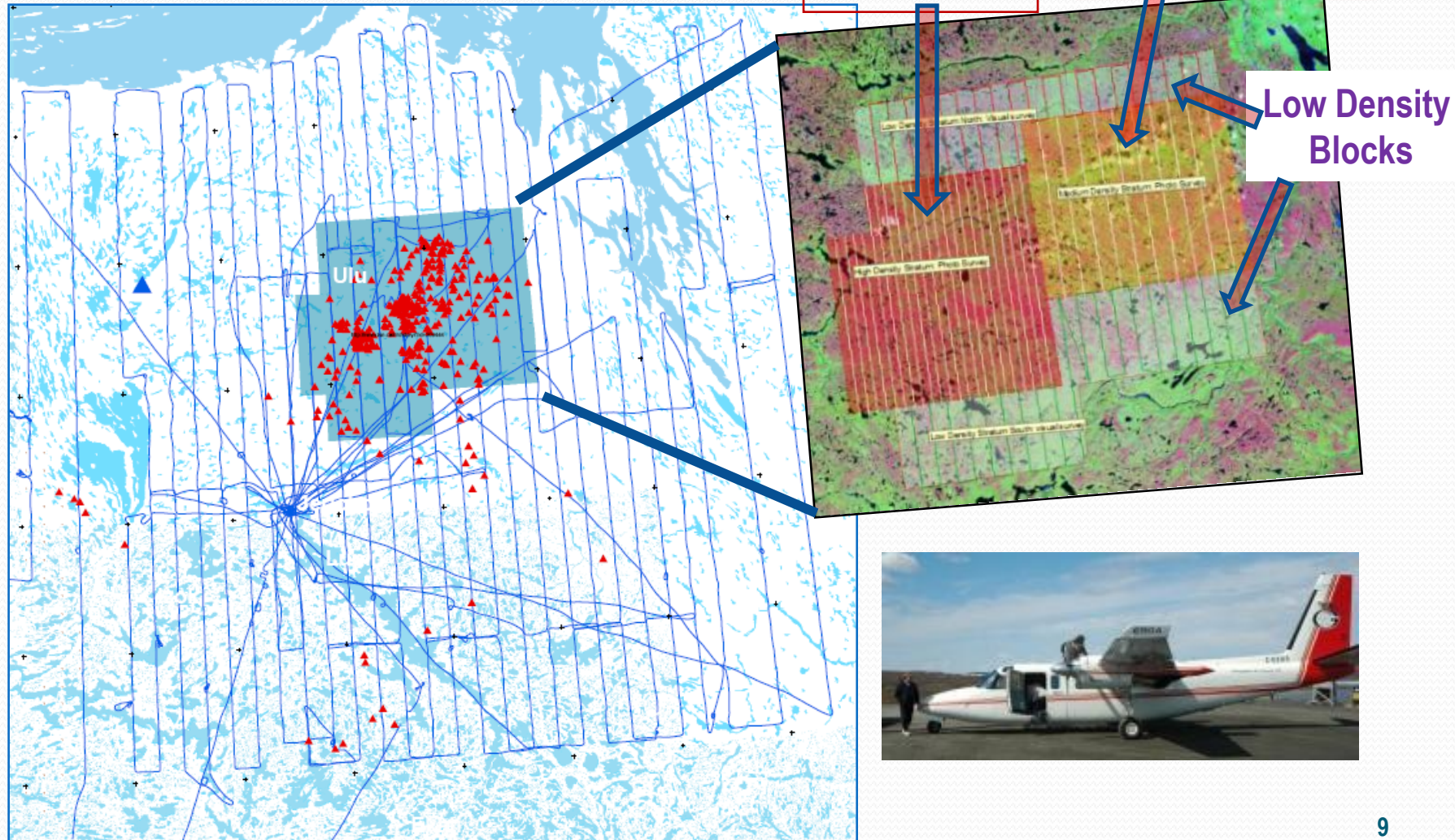




## 4. Current Trends in Herd Size cont'd

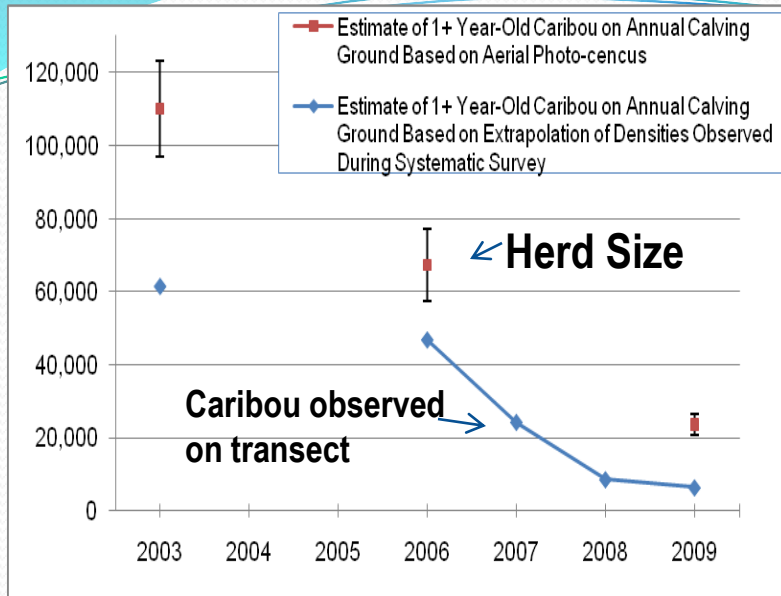
### How are Caribou Counted?

99% of caribou on the calving area are in the high and medium density blocks



## 4. Current Trends in Herd Size cont'd

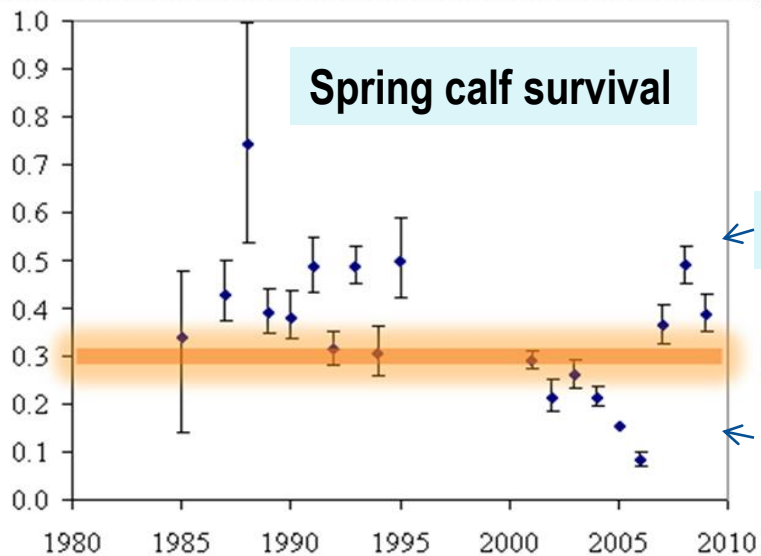
No. Caribou on Calving Ground at least 1 Yr old



### Other Indicators of Herd Trend

1. Calving Reconnaissance Surveys
2. Spring Calf: Cow Ratios
3. Bull: Cow Ratios  
Bulls are Important (Traditional Knowledge)
4. Smaller Range Used at Low Numbers (Traditional Knowledge)

Calves: 100 cows

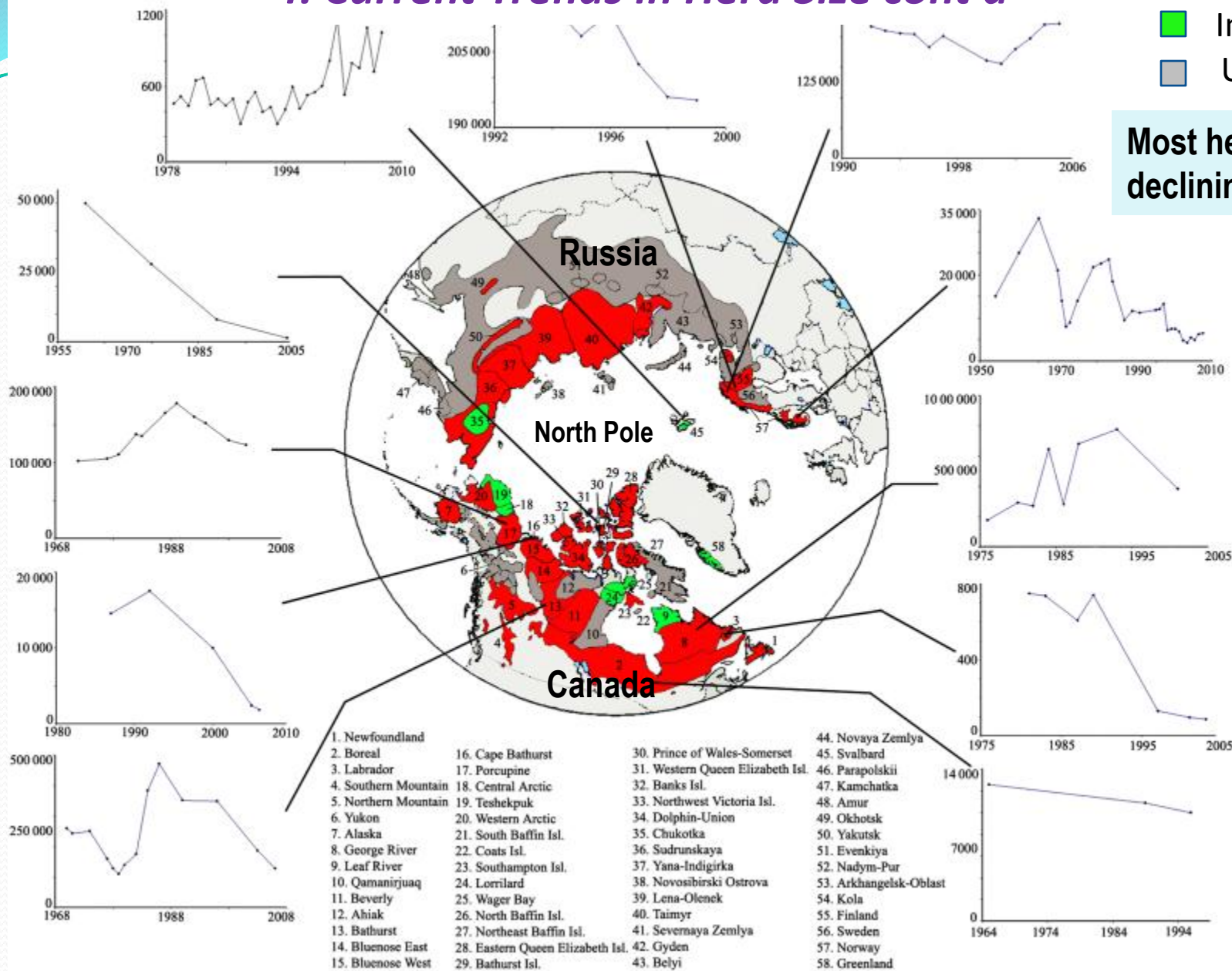




## 4. Current Trends in Herd Size cont'd

Declining  
Increasing  
Uncertain

Most herds are declining

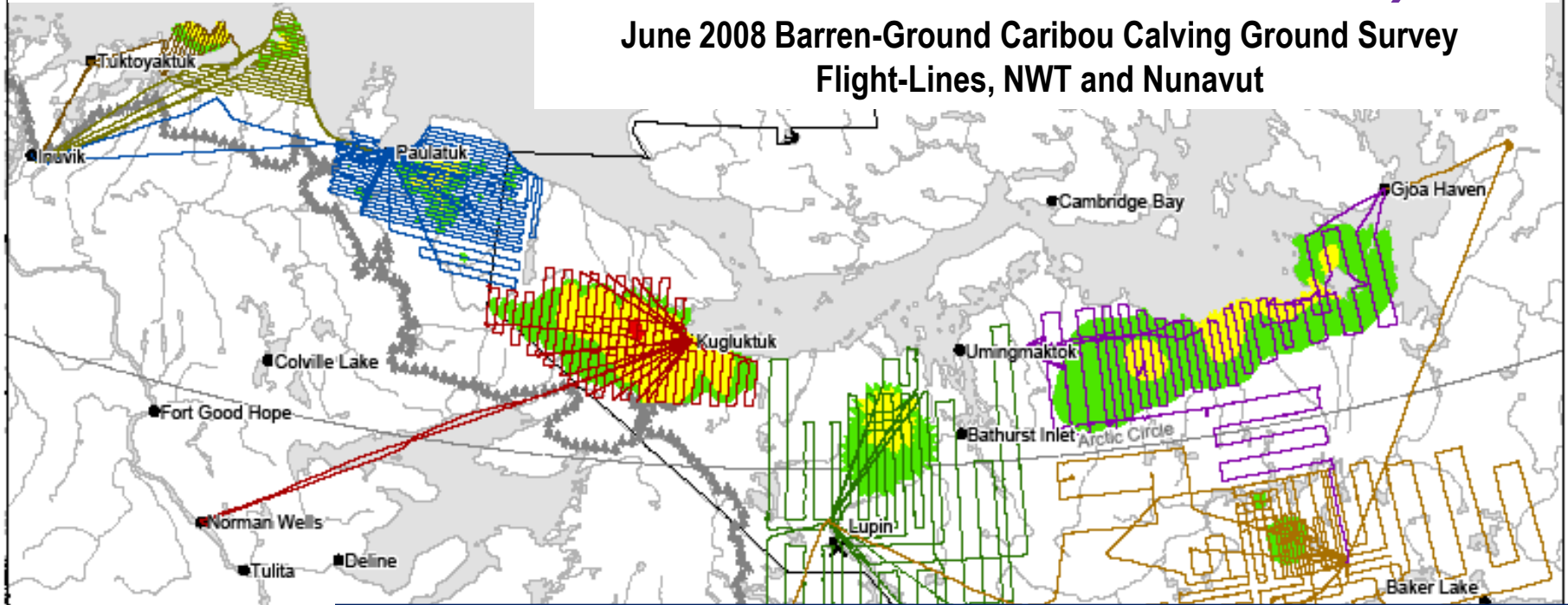


(From Vors and Boyce. 2009. Global declines of caribou and reindeer, Global Change Biology 15: 2626-2633)

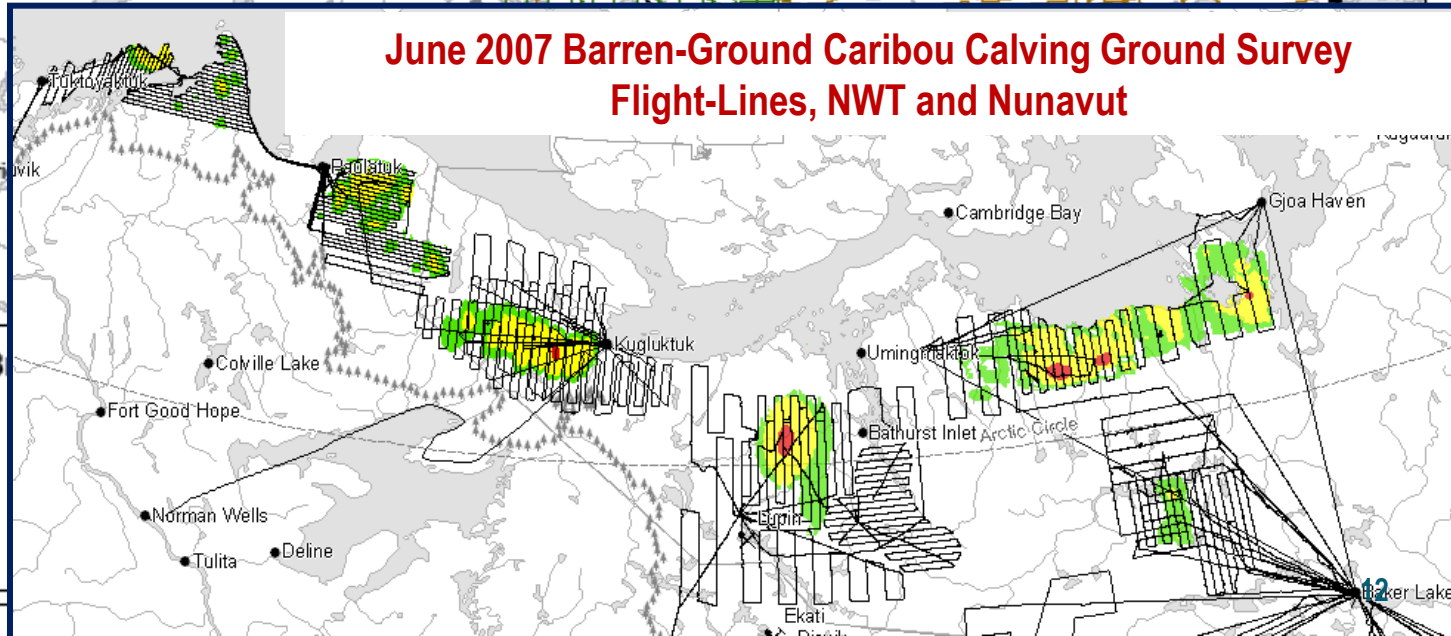


## 5. Have Caribou Moved Elsewhere? all tundra area surveyed

June 2008 Barren-Ground Caribou Calving Ground Survey  
Flight-Lines, NWT and Nunavut



June 2007 Barren-Ground Caribou Calving Ground Survey  
Flight-Lines, NWT and Nunavut



### Herd

- Tuk Peninsula
- Cape Bathurst
- Bluenose West
- Bluenose East
- Bathurst
- Ahik
- Beverly

## 5. Have Caribou Moved Elsewhere?

*Collars indicate very low rate of exchange between calving grounds*

Rates of Switching in Radio-Collared Cows Between Calving Grounds

**1996-2009 (153 Caribou)**

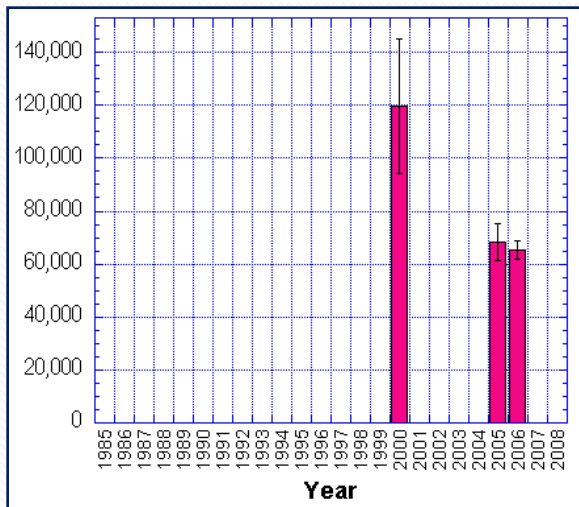


## 5. Have Caribou Moved Elsewhere?

*no NWT herds are increasing*

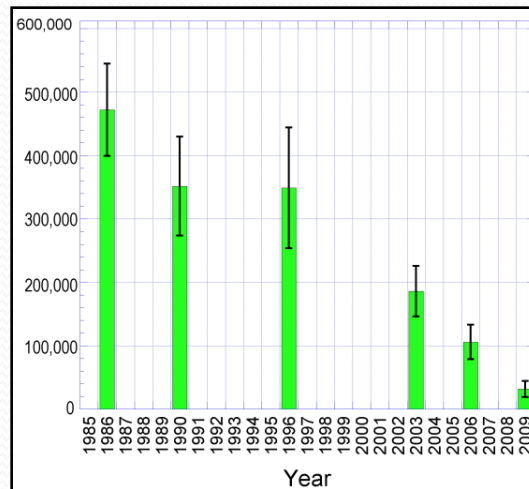
### Trend of Herds in North Slave Area

**Bluenose East Herd 1985-2009**



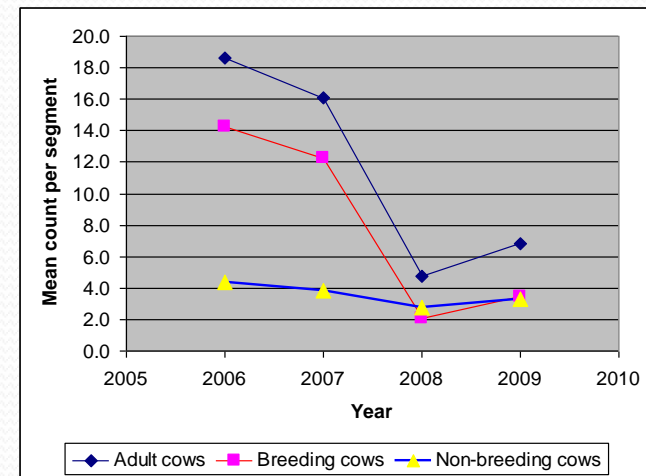
**Declining**

**Bathurst Herd 1985-2009**



**Declining**

**Ahiak Herd Trend 2006-2009**



**Declining**



## ***5. Have Caribou Moved Elsewhere? No***

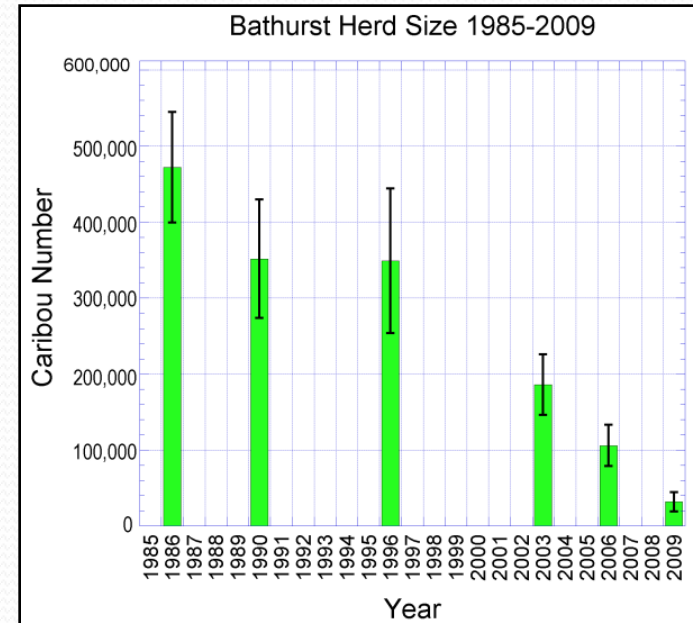
1. All Calving Grounds flown in June 2007 and 2008 and Areas Between
2. Radio-Collars – Confirmed on Each Calving Ground in June
3. Low Rates of Collar Switching between Calving Grounds
4. No Herds Increasing



## 6. Factors that affect herd size and trend

### Indirect Factors

- Weather & Environmental Conditions
- Fire on the Winter Range
- Mining, Disturbance & Cumulative Effects
- Health (Parasites & Disease)
- Condition & Pregnancy Rate



### Direct Factors

- Predators (wolves & bears)
- Hunter Harvest



## Weather: Potential Effects on Caribou:

- Timing of green-up of plants
- Good/poor summer plant growth
- Timing of freeze-up
- Mild/severe insect season
- Deep/shallow snow (early/late in winter)
- Ice layers in snow

## Recent Trends, Bathurst Range, 1985-2009:

- Increasing Temperatures
- Longer growing season
- Less lichen on winter range (fire)
- Increasing number of high insect years
- Later peak of calving

## 6. Factors that affect herd size and trend cont'd





## 6. Factors that affect herd size and trend cont'd

### Fire on Caribou Winter Range



Photos T. Barrier

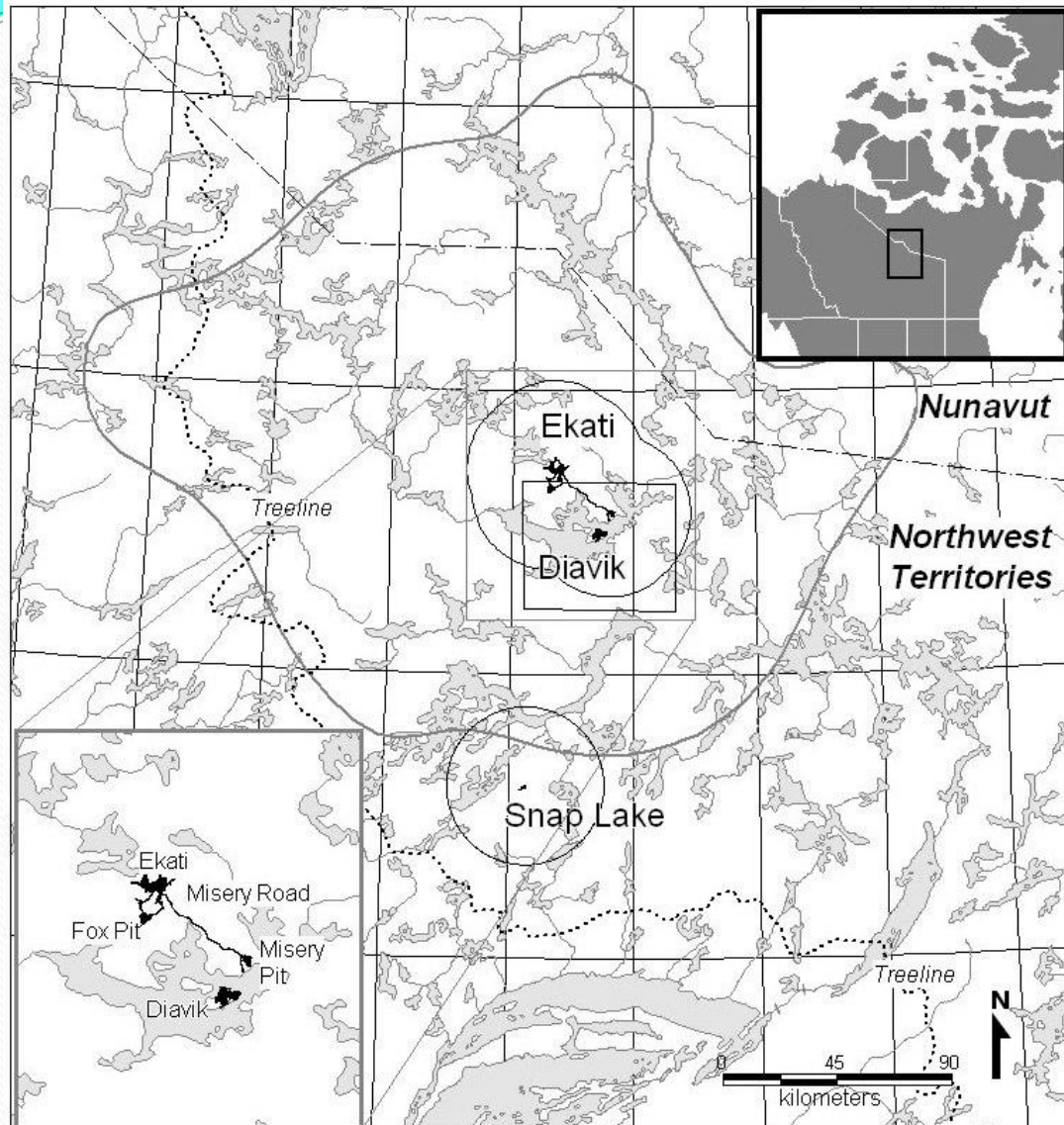


#### Key Points:

- Fire a natural part of the boreal forest ecosystem
- Caribou co-existed with fire for 1000s of years
- Study on Bathurst winter range & fire
- Community concern: protect caribou ranges
- GNWT Fire Program Review 2010 provides opportunity to map key winter habitat and migration corridors

## 6. Factors that affect herd size and trend cont'd

### Disturbance, Mining and Cumulative Effects



- 3 Diamond Mines in Bathurst Range
- Caribou Avoidance to 14-20 km (4-5% of Summer Range)
- Traffic on Winter Roads to Mines
- Mineral Exploration
- Declines also in Herds with Little or No Development
- Need for Further Monitoring of Cumulative Effects





## 6. Factors that affect herd size and trend cont'd

### Health, Condition & Pregnancy Rate



#### Health & Condition collected during Community Hunts (2007-2009)

Hunter Estimates of Fat on Caribou	Good to Very Good
Pregnancy Rates	Normal (95%)
Parasites (Warbles, Besnoitia, etc)	Normal

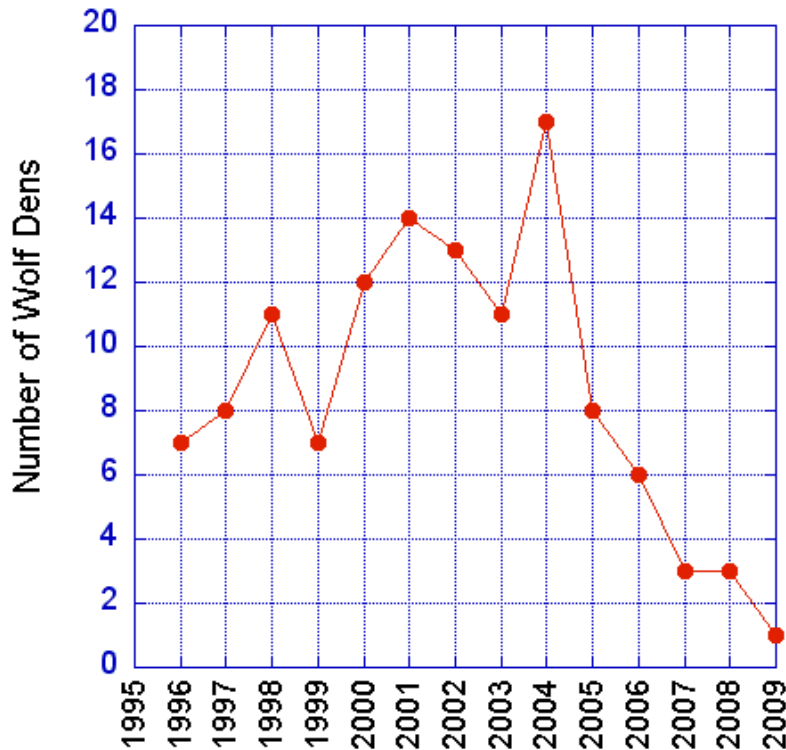




## 6. Factors that affect herd size and trend cont'd

### Wolves

Number of Wolf Dens Still Active  
in August, Bathurst Range, 1996-2009



#### Wolf Den Surveys in Bathurst Range

- Area Surveyed: 400 km x 250 km
- over 100 den sites checked every summer
- 17 dens active in Aug. 2004, 1 in Aug. 2009
- Average number of adults at dens declined last 5 years to 1
- No caribou seen near den sites last 3 years



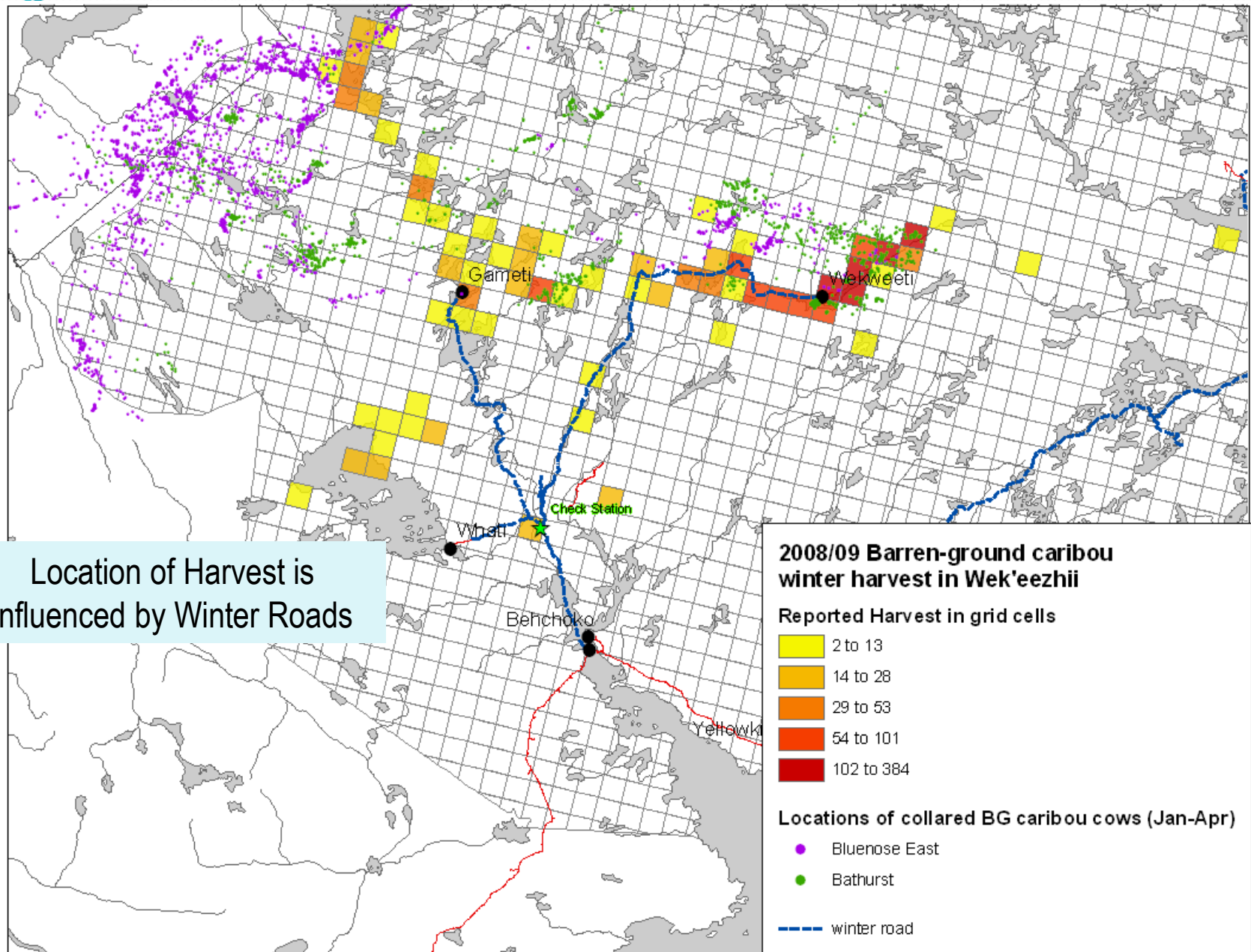
## 6. Factors that affect herd size and trend cont'd

### Hunter Harvest

	Estimated Annual Harvest (1990s)	Estimated Annual Harvest (late 2000s)
<b>Residents</b>	900-1600 (bulls & cows)	<200 Bulls
<b>Outfitters</b>	300-700 Bulls	600-400-200 Bulls
<b>Aboriginal Hunters</b>	8,000-20,000 (53% Cows) (Dogrib Harvest Study)	3000-5000 Cows, 1000-2000 Bulls (Check-Station, Interviews)
<b>Totals</b>	<b>9,200-22,300</b>	<b>4,400-7,800</b>
<b>Herd Size</b>	<b>(1996) 350,000</b>	<b>(2009) 32,000</b>
<b>Harvest as % of herd</b>	<b>(1996) 2.6-6.4%</b>	<b>(2009) 13.8-24.3%</b>

Bathurst herd cannot sustain this level of harvest

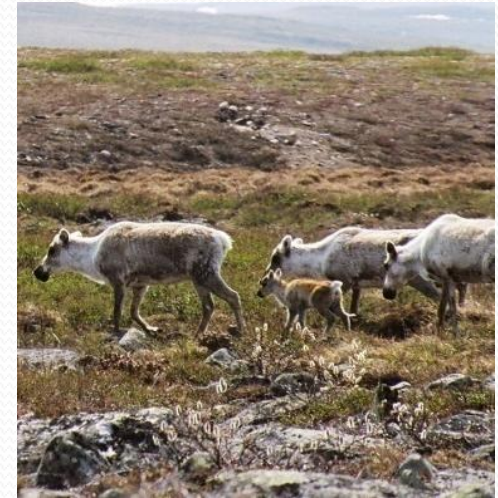
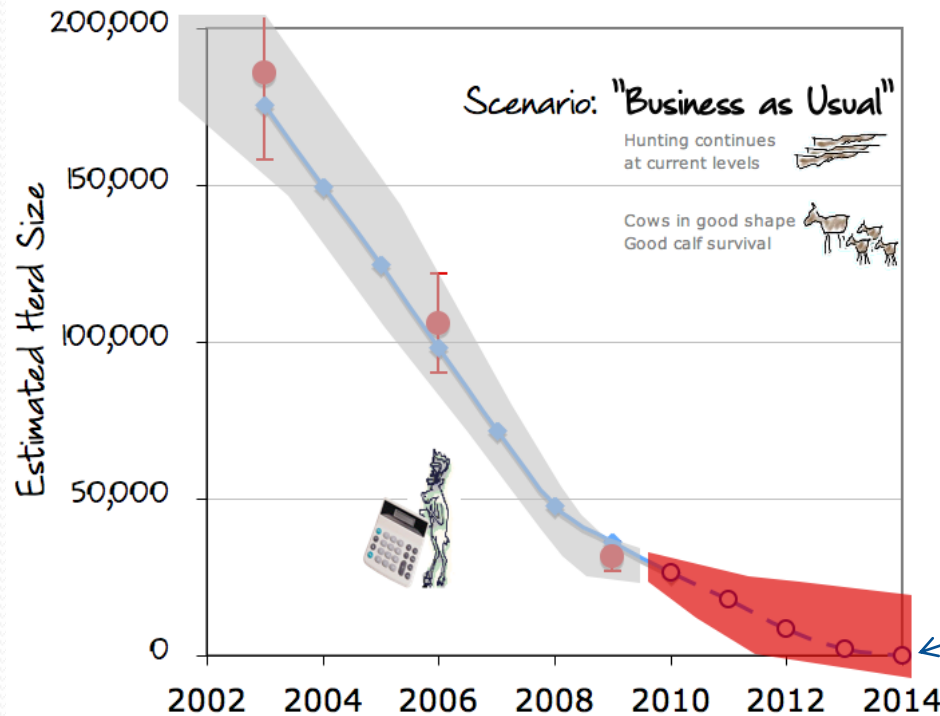
## 6. Factors that affect herd size and trend cont'd





# 7. Recovery: Modeling and Risk Management

## Modeling (Caribou Calculator)



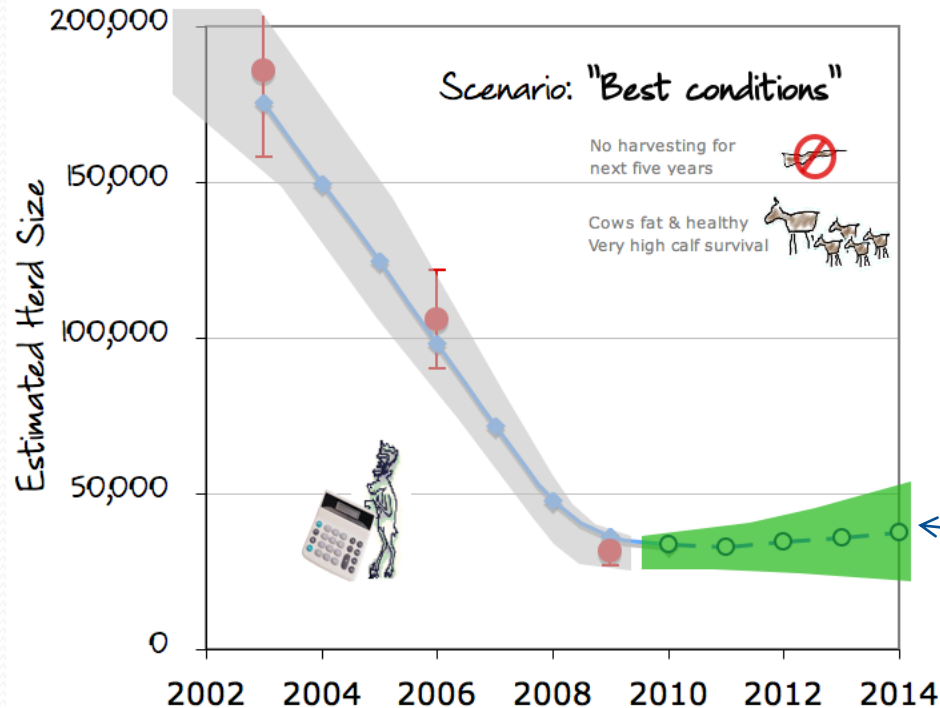
High Risk of Decline  
and Loss of Herd in 5  
years

### Harvest Continues as Before

- Harvest continues at 4000 cows, 1600 bulls/year
- Calf survival same as in 2009
- Cows in good shape
- Herd goes to 0 in 4-5 years

# 7. Recovery: Modeling and Risk Management cont'd

## Modeling (Caribou Calculator)



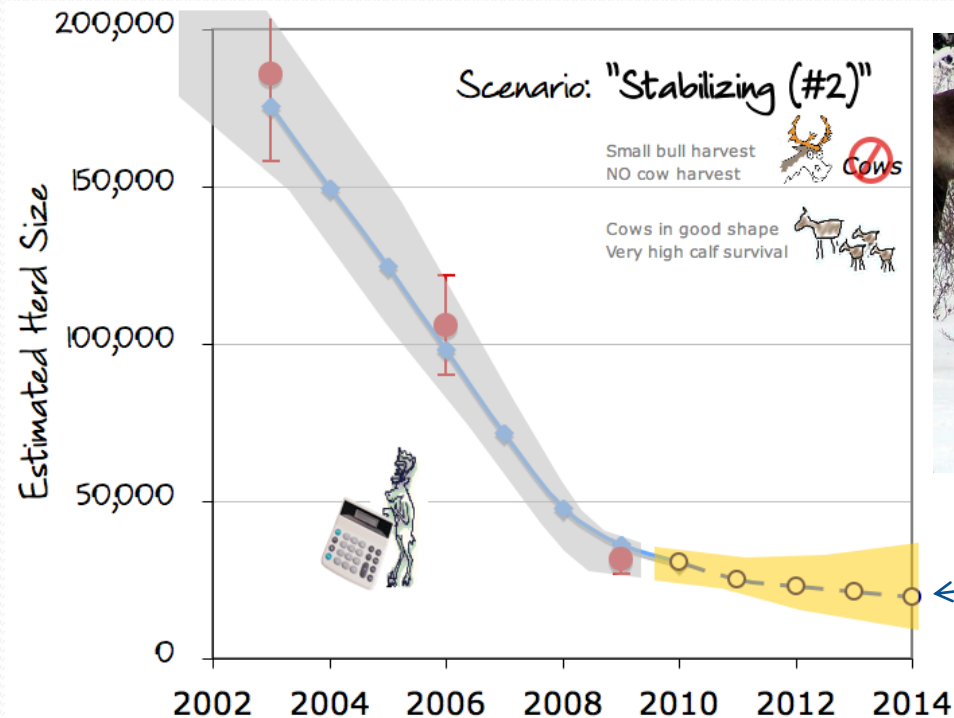
Best Chance for Recovery

### Best Conditions

- No harvest of cows or bulls
- Cows in very good shape
- Calf survival very good
- Herd could stabilize & start to increase

## 7. Recovery: Modeling and Risk Management cont'd

### Modeling (Caribou Calculator)



Smaller Risk of Decline



















#### Reduced Harvest – Slower Decline

- No cow harvest
- Harvest 1600 bulls/year
- Cows in good shape
- Calf survival is good
- Herd would decline but more slowly



## Recovery: Modeling and Risk Management cont'd

### Most Likely Trend, Bathurst Herd (6 Years)

Harvest	2009 Calf Productivity	Average Calf Productivity	Good Calf Productivity
<b>No Harvest</b>	Slow-Medium Decline 	Stable Herd 	Slow Increase 
<b>200 Caribou</b> (100% bulls)	Slow-Medium Decline 	Slow Decline 	Stable Herd 
<b>500 Caribou</b> (80% bulls)	Medium Decline 	Slow Decline 	Stable Herd 
<b>1000 Caribou</b> (75% bulls)	Medium Decline 	Slow-Medium Decline 	Slow Decline 
<b>5000 Caribou</b> (40% bulls)	Fast Decline 	Fast Decline 	Fast Decline 
<b>7000 Caribou</b> (29% bulls)	Fast Decline 	Fast Decline 	Fast Decline 



Projected  
Herd Size  
<16,000



Projected  
Herd Size  
16,000-  
23,000



Projected  
Herd Size  
23,000-  
32,000

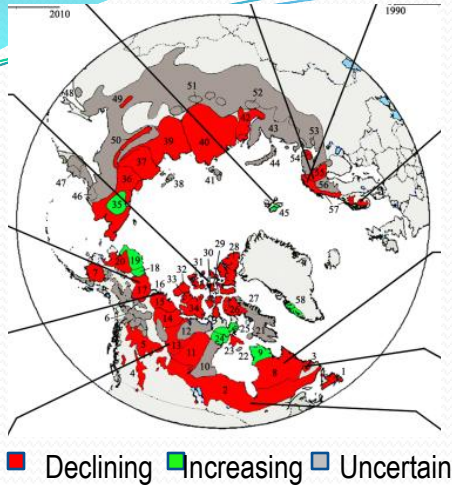


Projected  
Herd Size  
32,000



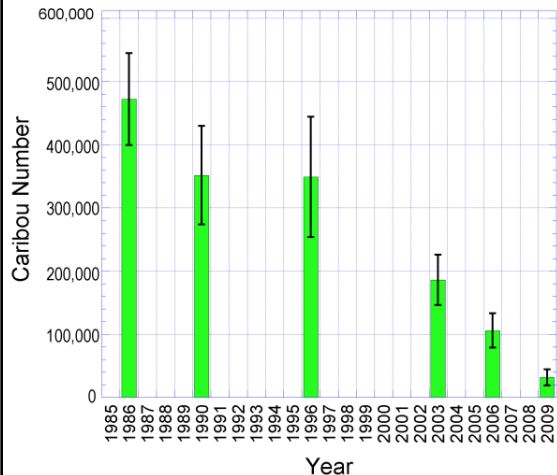
Projected  
Herd Size  
32,000-  
44,000

# ENR Bathurst Caribou Technical Presentation: Summary



- Bathurst decline more rapid than any other herd
- Most of world's reindeer & caribou declining
- Survey methods to estimate herd size are reliable
- Wolves in Bathurst range have declined in last 5 years
- Higher cow survival & better calf productivity needed for recovery
- Harvest at current levels cannot be sustained

Bathurst Herd Size 1985-2009



# Proposed Management Actions



## Overview

1. Actions in other NWT herds
2. Engagement and consultation
3. ENR recommendations
4. Next steps



# 1. What Caribou Management Actions have been taken in the NWT?

## Cape Bathurst

Action in 2007 -  
Stop all harvest

Status in 2009 - No  
further decline.  
Good calf survival.

## Bluenose- West

Action in 2007 -  
Total Allowable  
Harvest. Stop all  
resident and  
outfitted hunting.

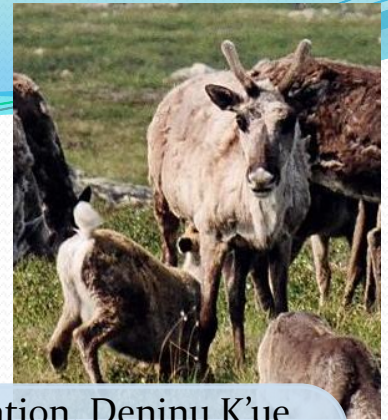
Status in 2009 - No  
further decline.  
Good calf survival.

## Bluenose- East

Action in 2006 -  
Sahtu voluntary  
Total Allowable  
Harvest. 2007- Stop  
all resident and  
outfitted hunting in  
Sahtu.

Status in 2009 -  
Unknown

## 2. Engagement – Sharing Information



### October Modeling Workshops

- Tâichô communities, Lutsel k'e Dene First Nation, Deninu K'ue First Nation, Salt River First Nation (YK Dene invited)
- Northwest Territory Metis Nation, North Slave Metis Alliance, Dene Nation
- Deline, Kugluktuk, Prince Albert Grand Council (SK), NWT Barren-ground Caribou Outfitters Association

### Aboriginal Organizations

- July & October - Dene Nation Gathering, Dene Leadership
- August – North Slave Metis Alliance, Reliance Gathering

### Tâichô Government

- July - Tâichô Assembly and Summer Gathering
- September – Elders Workshop, Wildlife Workshop

### NWT Barren-ground Caribou Outfitters

- July
- October – modeling workshop

### Wildlife Co- Management Boards

- July & November - Wek'eezhii Renewable Resources Board
- December – Sahtu and Nunavut wildlife management boards

# 2. Engagement & Consultation

## – Joint Proposal



### Tăichô Government

- September – Elders Workshop, Wildlife Workshop
- October - Gameti

### Akaitcho First Nations

- November – Fort Providence Band
- December – Salt River, Smiths Landing, Lutsel k'e, YK Dene First Nation

### Metis Organizations

- November – NWT Metis Nation, Fort Providence Local
- December - Fort Resolution Metis Local
- January – Hay River Metis Local

### Other Aboriginal organizations

- November – Fort Providence Band, Deline
- December – Dene Nation leadership, Kugluktuk

### Other User Groups

- November – YK Mayor
- December - NWT Wildlife Federation



### 3. ENR Recommendations for Wek'eezhii area

- \* based on consultations

#### Bluenose-East

Stop resident and commercial  
hunts \*

Bull harvest only (GHL)

Assess further action after 2010  
survey in consultation with all  
users and boards

Complete management plan

#### Bathurst

Stop resident and commercial  
hunts\*

Mobile protection zone with  
possible small male harvest

Monitor calf survival, harvest &  
other factors. Reduce predators

New herd estimate in 2012

Management planning process



### 3. ENR Recommendations cont'd area east of Wek'eezhii

- \* based on consultations



## Bathurst

Stop resident and commercial hunts\*

Mobile protection zone with possible small male harvest

Monitor calf survival, harvest & other factors. Reduce predators

Management planning process with Nunavut and others

## Ahiak

Stop resident and commercial hunts\*

Bull harvest only (GHL)

Assess actions after 2010 survey

Management planning process with Nunavut and Saskatchewan and others

# Why is harvest management important today?

**Last time caribou were low in late 1970's, conditions were different:**

- No winter roads
- No maps of satellite collared caribou
- Dog teams for winter hunt
- Little use of aircraft
- No outfitting operations

**Harvest affects rate of recovery**

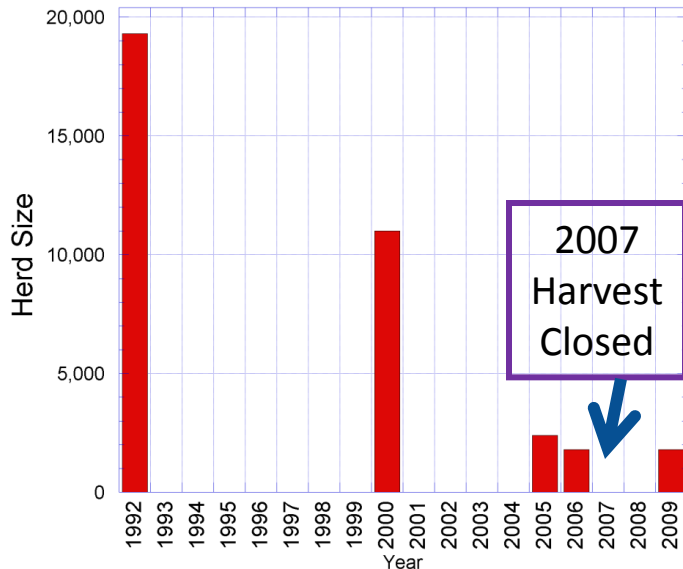




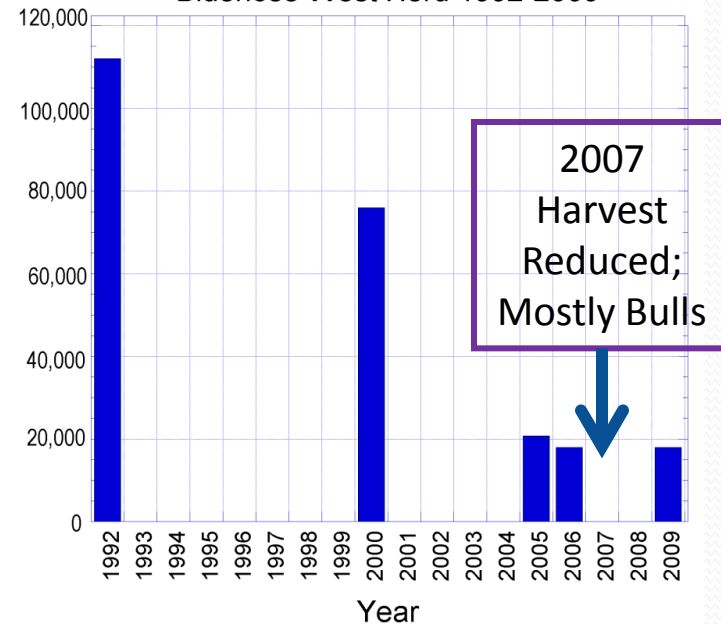
### 3. ENR recommendations cont'd

## Harvest management of the Bathurst & Bluenose West Herds

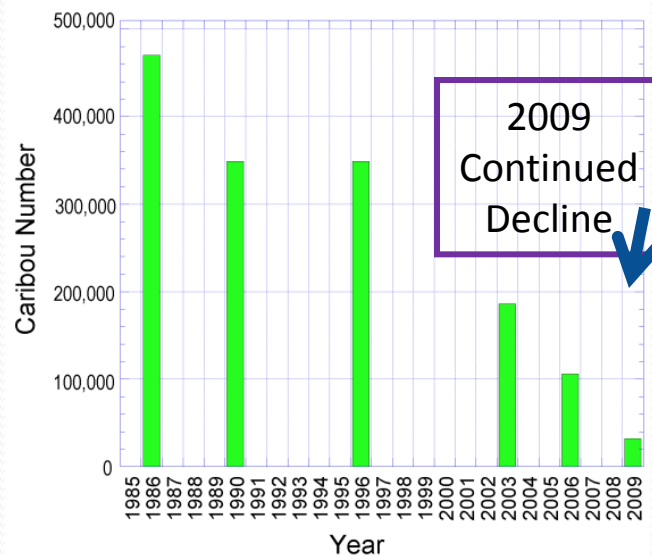
Cape Bathurst Herd 1992-2009



Bluenose West Herd 1992-2009



Bathurst Herd Size 1985-2009



**Caribou Forever:  
Our Heritage  
Our Responsibility**



# Options for Small Harvest of Young Bulls



1. Total Allowable Harvest – use tag system to implement. Allocate harvest among users inside and outside Wek'eezhii. Set up annual management zone where Bathurst caribou spend fall and winter.
2. Fall harvest; bull only – in the fall, caribou are less accessible. Ask communities to avoid areas where Bathurst caribou are. Require mandatory reporting.
3. Winter harvest; bull only - no hunting on winter roads for all hunters or transport of caribou on winter roads. Require mandatory reporting.

### 3. ENR Recommendations cont'd

# Addressing Hardships

## ENR



Access to wood bison

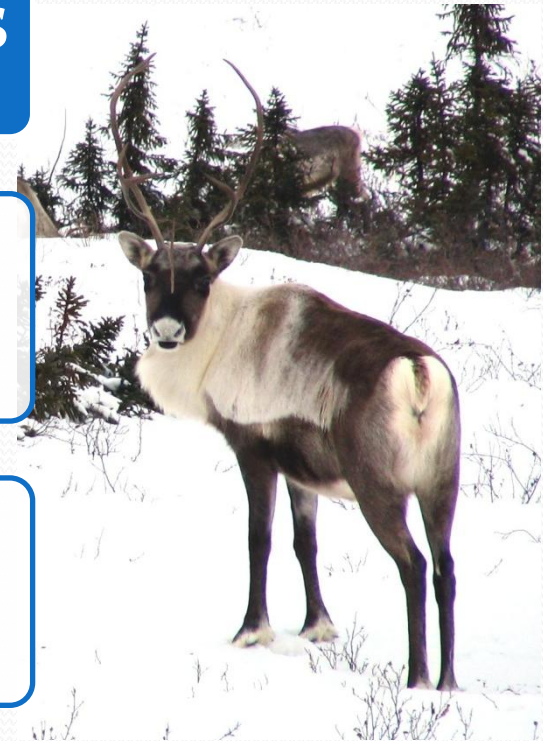
Access to caribou in other herds

Identify options with partners

## ITI actions

Harvester assistance program

Tourism programs





### 3. ENR Recommendations cont'd

# Managing Wolves

## ENR Actions

- Genuine Mackenzie Valley Fur Program - \$200 per well-handled wolf pelt
- ENR Wolf Carcass collection - \$100 per carcass
- Wolf tags for outfitted hunters increased
- Wolf tags for resident hunters unlimited
- ENR proposing study to improve estimate wolf trend in North Slave



- Current wolf harvest on caribou range in North and South Slave is over 400 wolves per year (outfitted, resident and trappers)

## Wolf Control?

- Wolf Control for Caribou Herds in Yukon & Forty Mile Herd in Alaska was not implemented until after hunter harvest restrictions did not lead to recovery of herds

## 4. Next Steps



### Bluenose- East

Summer 2010

Implement WRRB  
recommendations **in**  
**Wek'eezhii** with  
Tlicho Government

New Herd Estimate

Work with boards, TG  
and Nunavut on  
management plan

### Bathurst

Summer 2010

Implement WRRB  
recommendations **in**  
**Wek'eezhii** with  
Tlicho Government

Consult on WRRB  
recommendations  
**outside of**  
**Wek'eezhii**

Work co-operatively  
on management  
process

### Ahiak

Summer 2010

New Herd Estimate

Work with First  
Nations, Metis,  
Nunavut and  
Saskatchewan and  
boards on  
management process