

Caribou Forever

Our Heritage, Our Responsibility

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



ENR Technical Presentation Overview

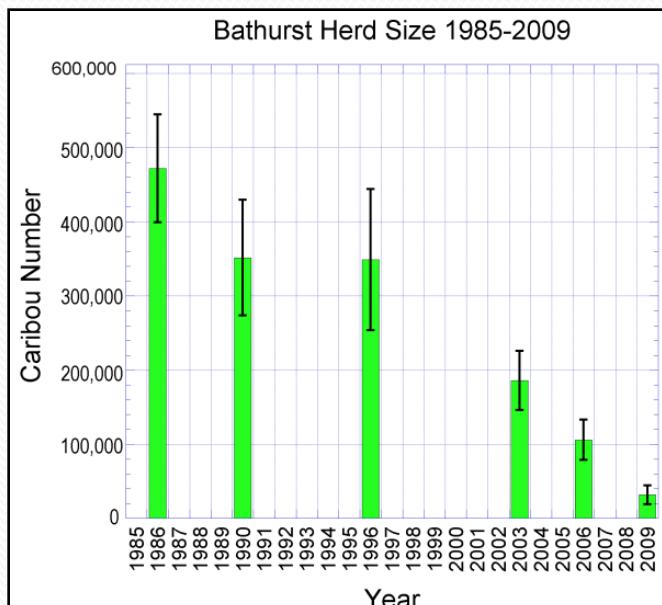


1. What is a herd (animation)
2. Herds as the basis for management
3. Natural long term caribou cycles
4. Current trends in herd size
5. Have caribou moved elsewhere?
6. Factors that affect herd size & trend
7. Recovery (Modeling, Risk Management)

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?

	ENR Approach	ARC Report
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

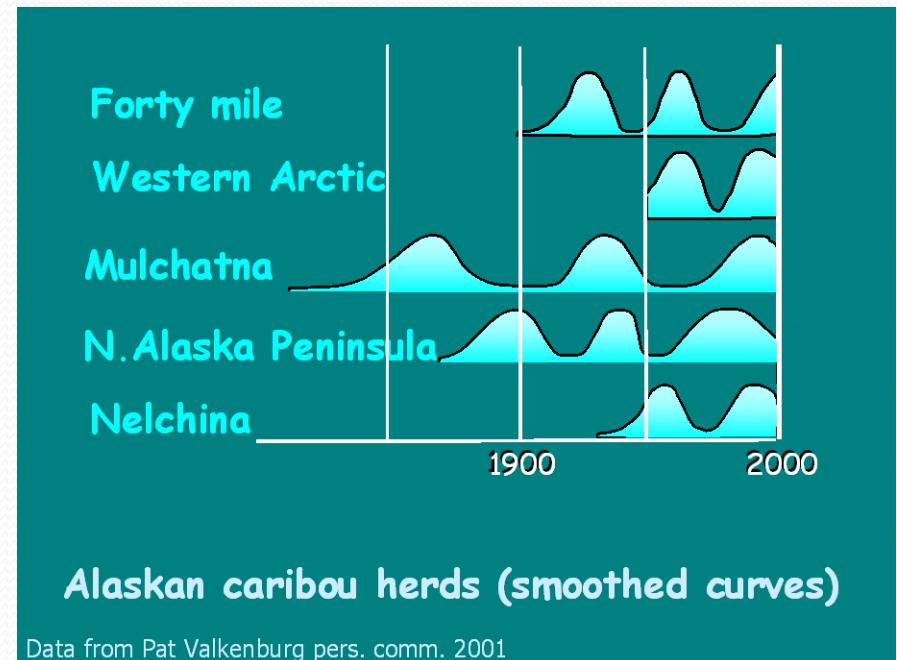
How do we know?

- 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



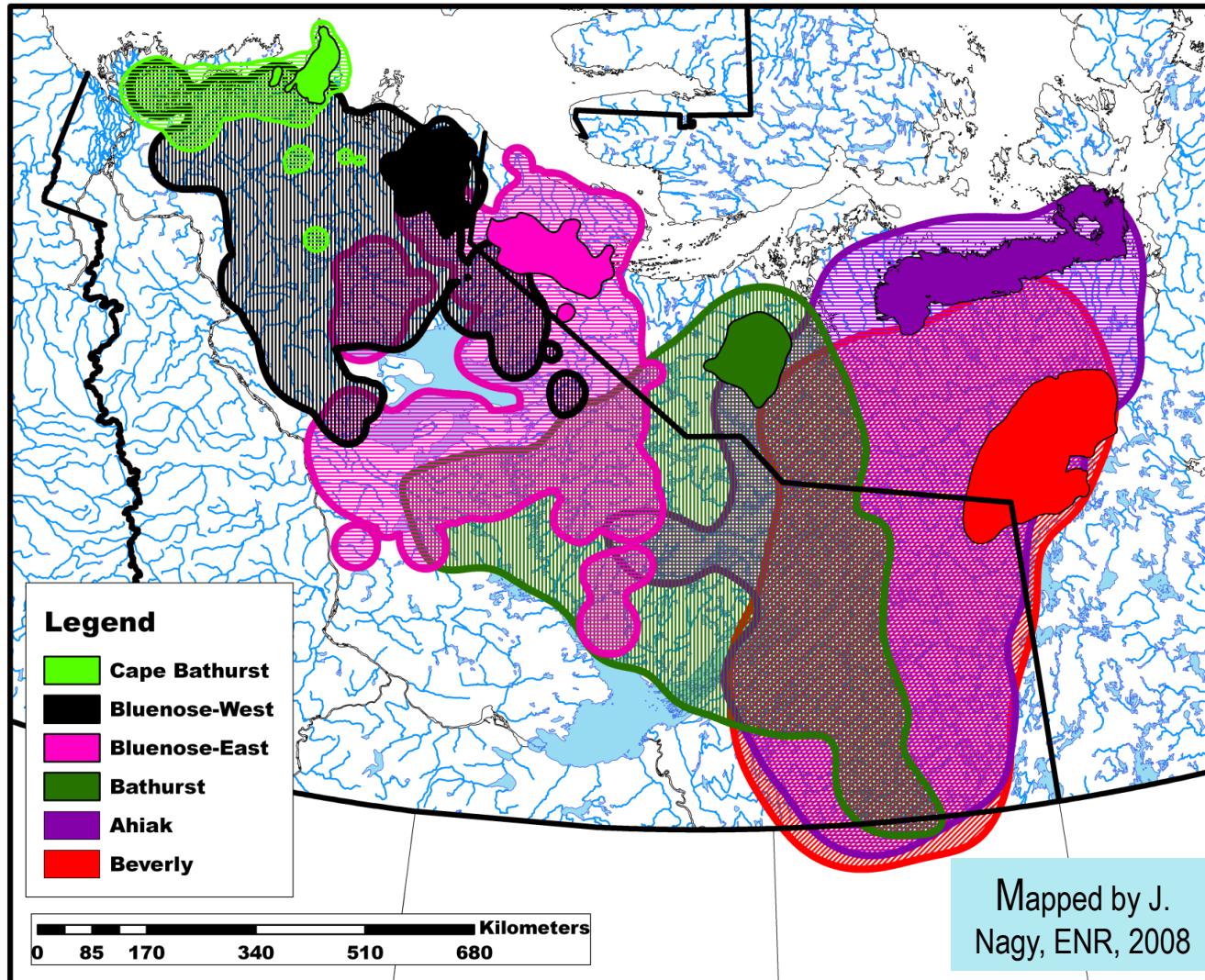
Trends of NWT Herds

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



Data from Pat Valkenburg pers. comm. 2001

4. Current Trends in Herd Size – NWT

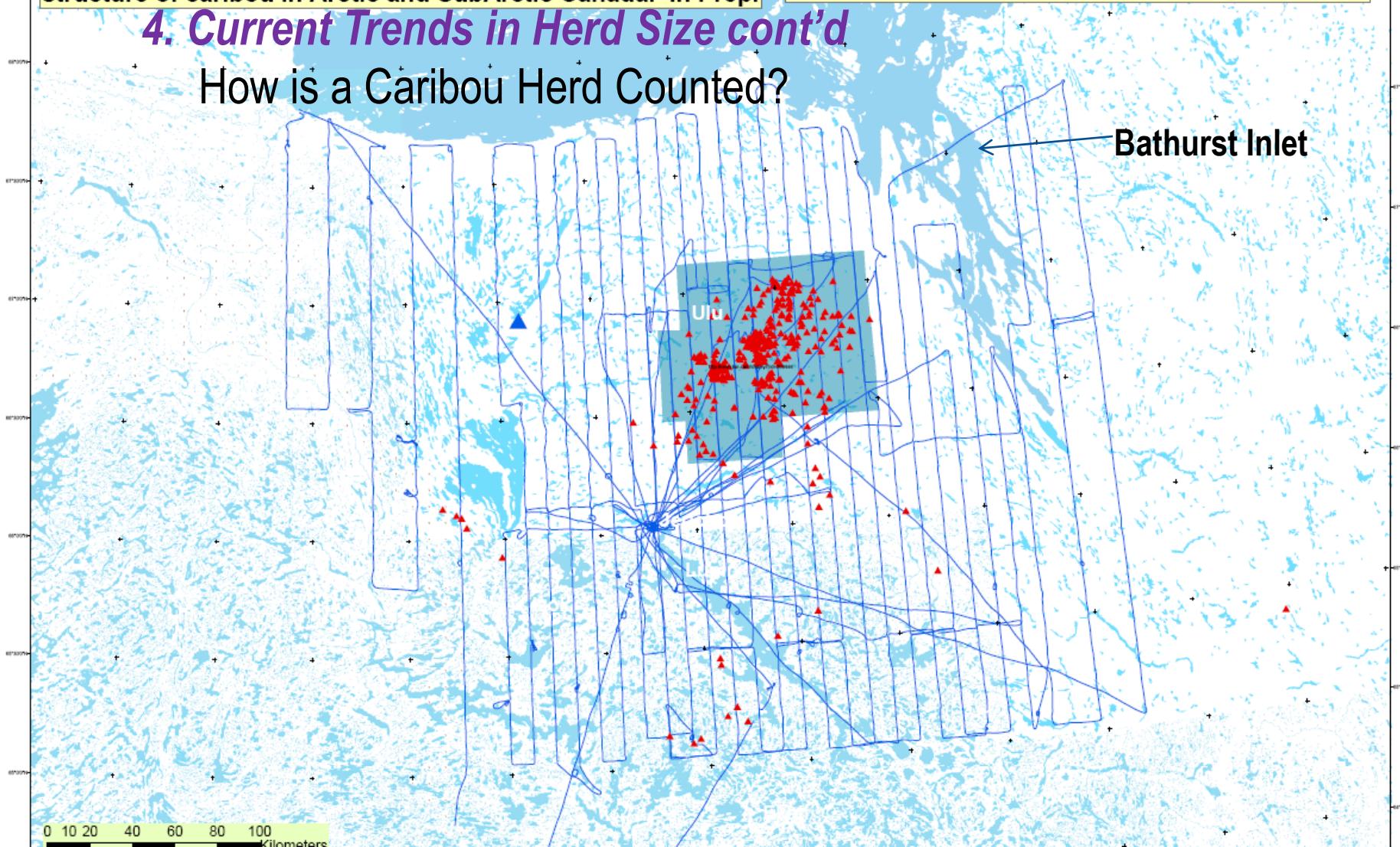


Location of satellite collared Bathurst caribou females between 1996 and 2009 at peak of calving (June 8-12).
From Nagy et al. Use of Space by caribou: Subpopulation structure of caribou in Arctic and SubArctic Canada. In Prep.

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

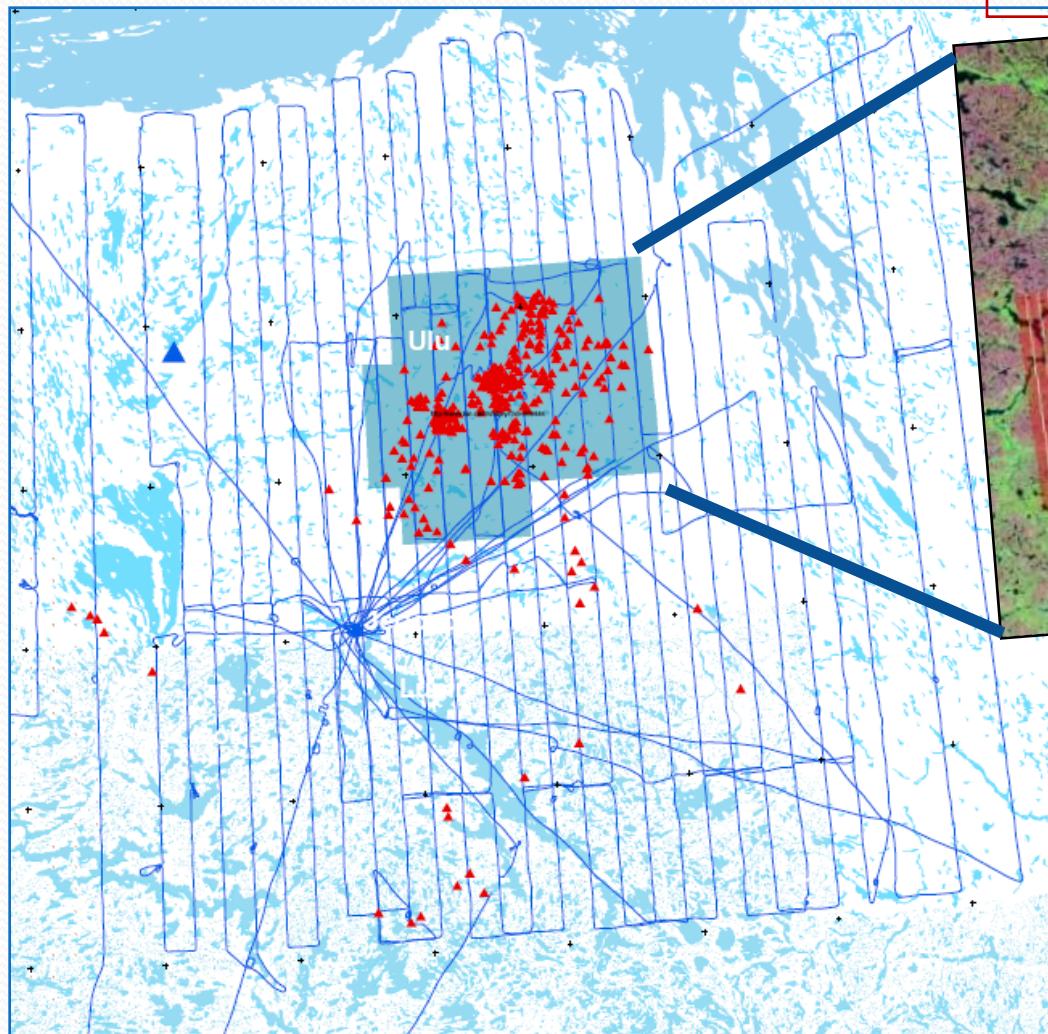
How is a Caribou Herd Counted?



4. Current Trends in Herd Size cont'd

How are Caribou Counted?

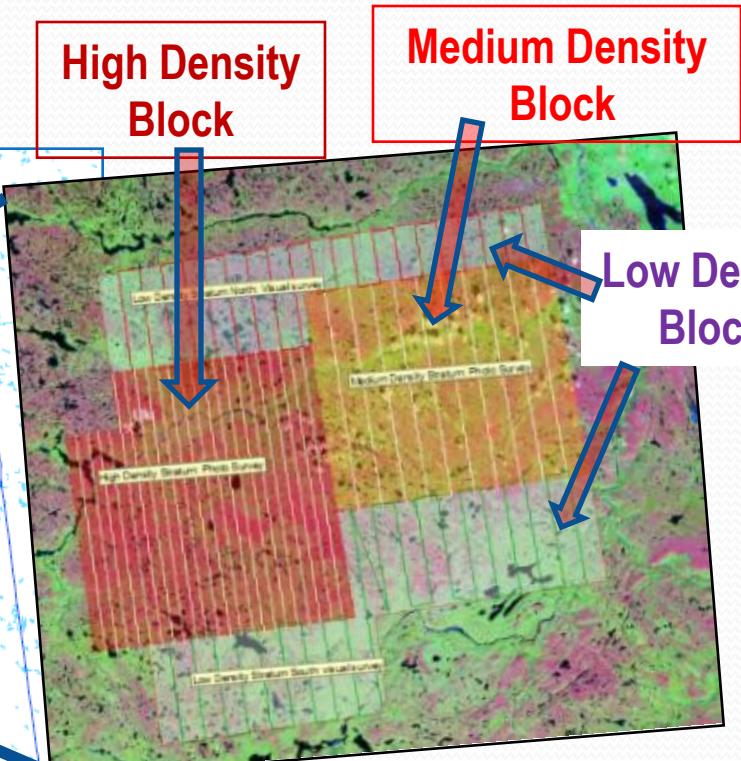
99% of caribou on the calving area are in the high and medium density blocks



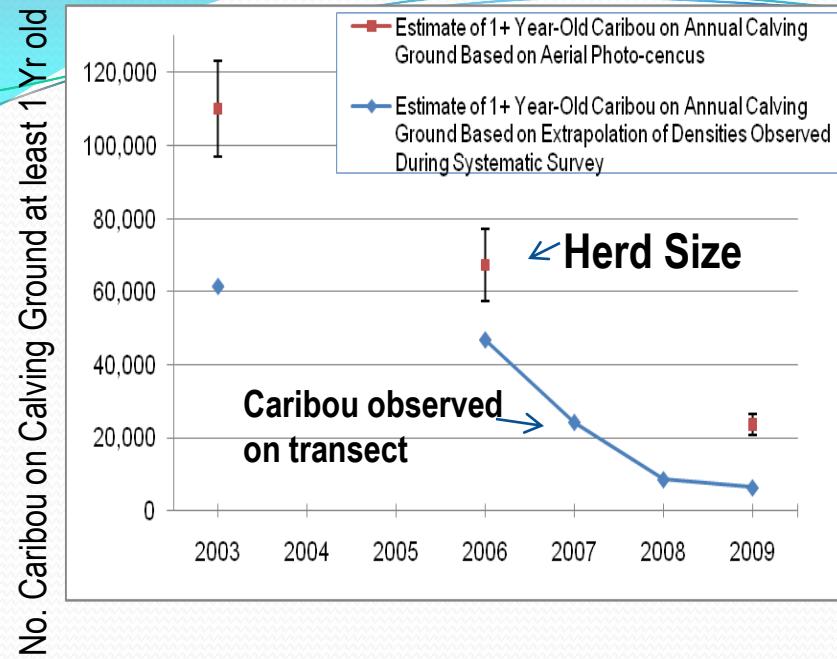
High Density Block

Medium Density Block

Low Density Blocks

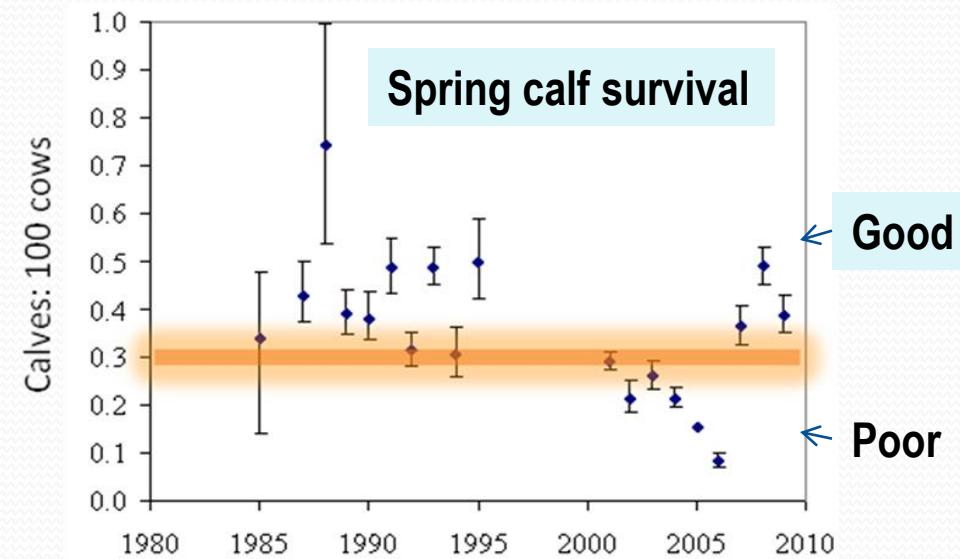


4. Current Trends in Herd Size cont'd



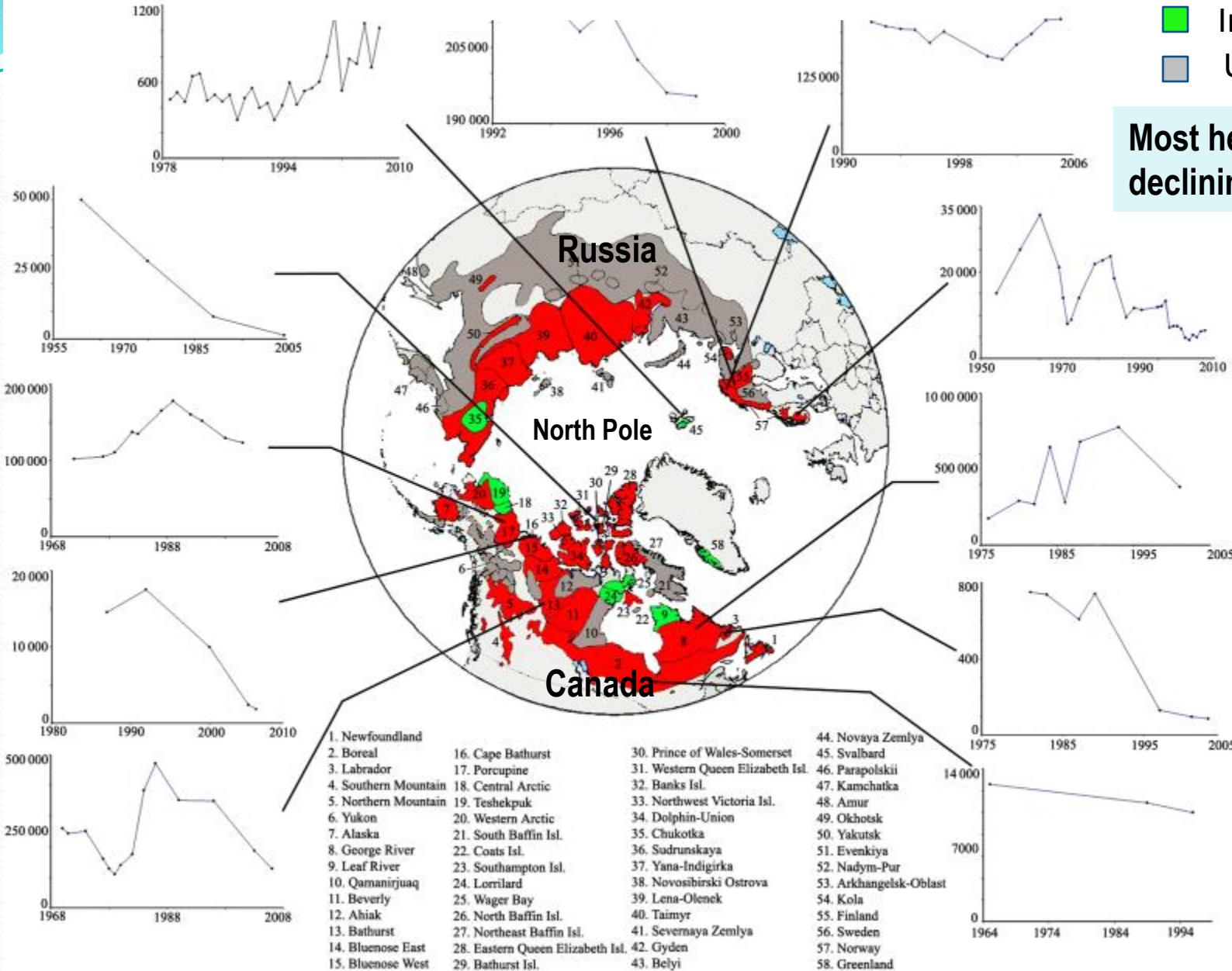
Other Indicators of Herd Trend

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)



4. Current Trends in Herd Size cont'd

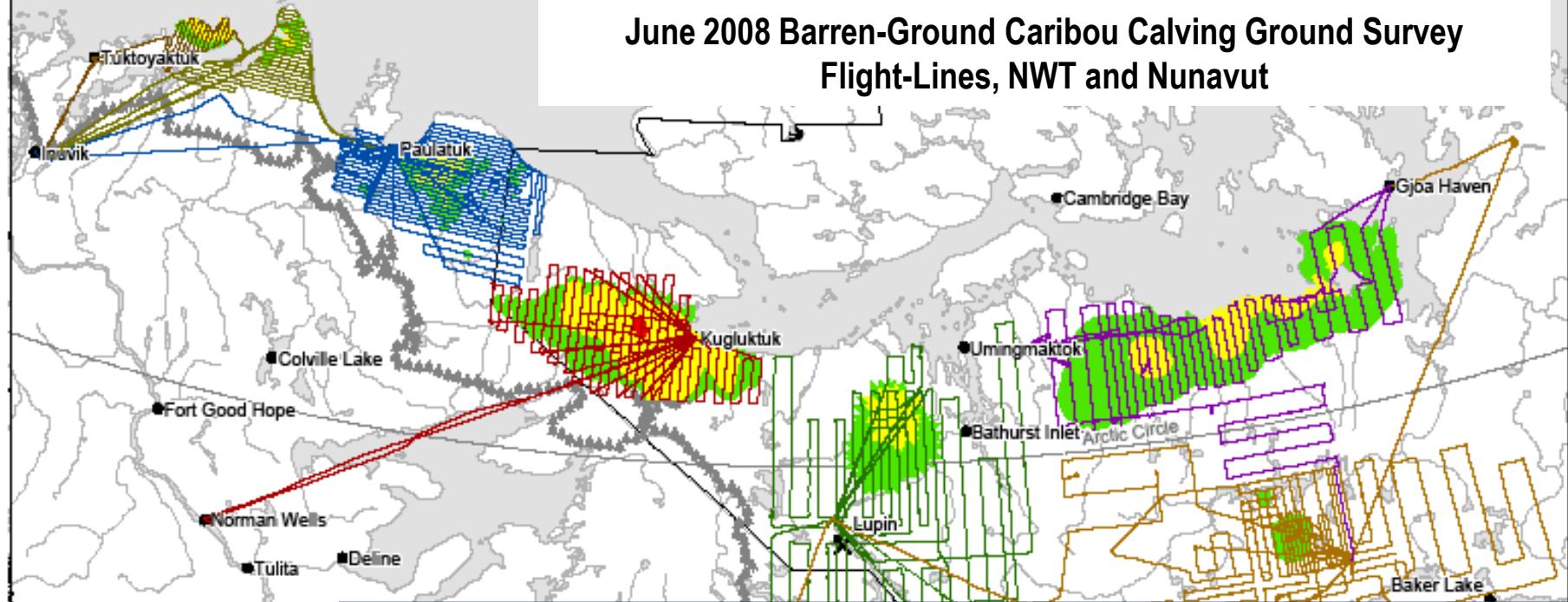
- █ Declining
- █ Increasing
- █ Uncertain



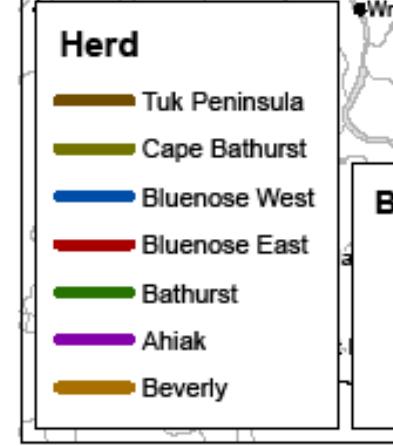
(From Vors and Boyce. 2009. Global declines of caribou and reindeer, Global Change Biology 15: 2626-2633)

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



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

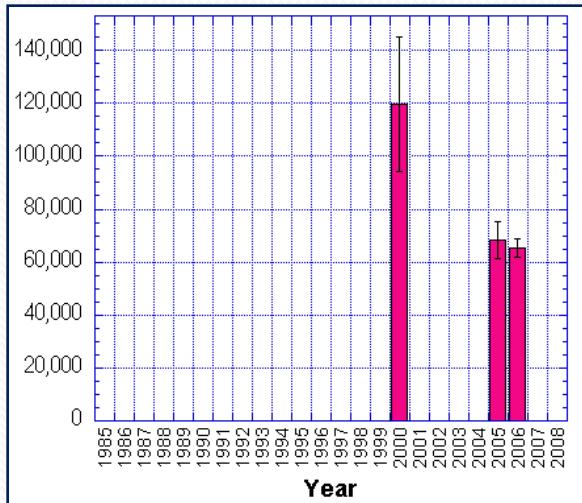
1996-2009 (153 Caribou)



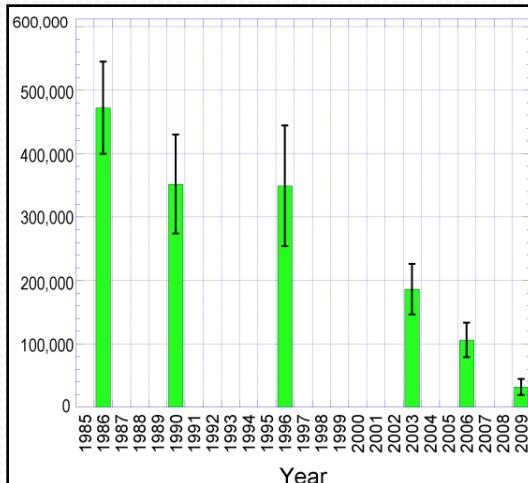
5. Have Caribou Moved Elsewhere? no NWT herds are increasing

Trend of Herds in North Slave Area

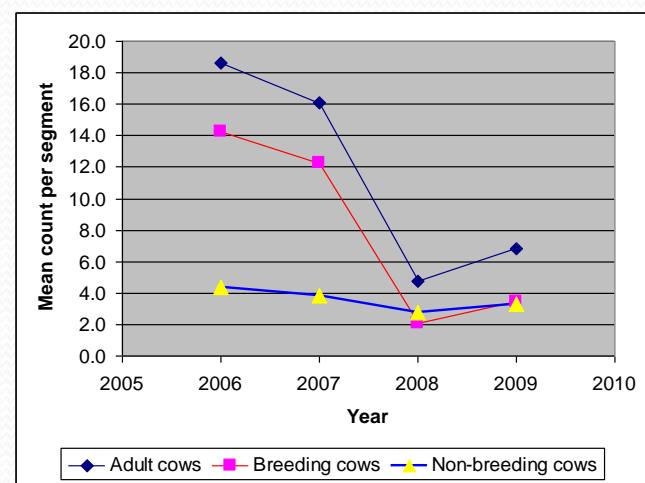
Bluenose East Herd 1985-2009



Bathurst Herd 1985-2009



Ahiak Herd Trend 2006-2009



Declining

Declining

Declining

5. Have Caribou Moved Elsewhere? No

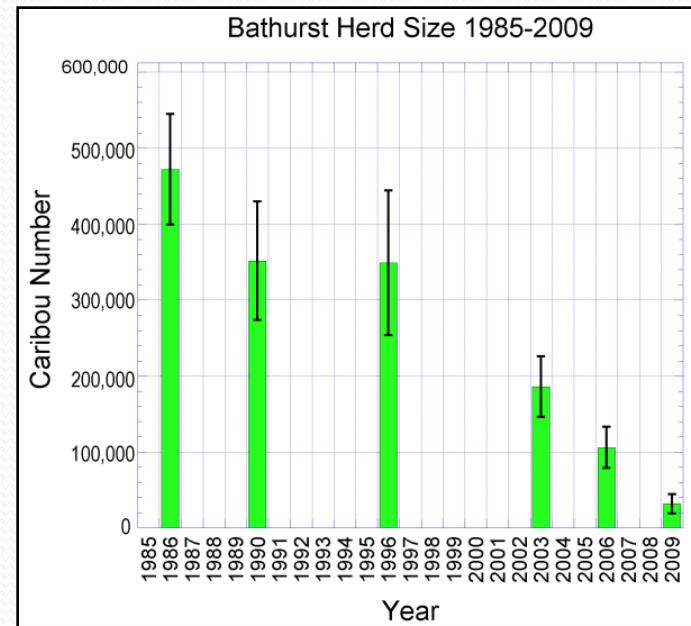
1. All Calving Grounds flown in June 2007 and 2008 and Areas Between
2. Radio-Collars – Confirmed on Each Calving Ground in June
3. Low Rates of Collar Switching between Calving Grounds
4. No Herds Increasing



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

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



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

Fire on Caribou Winter Range



Photos T. Barrier

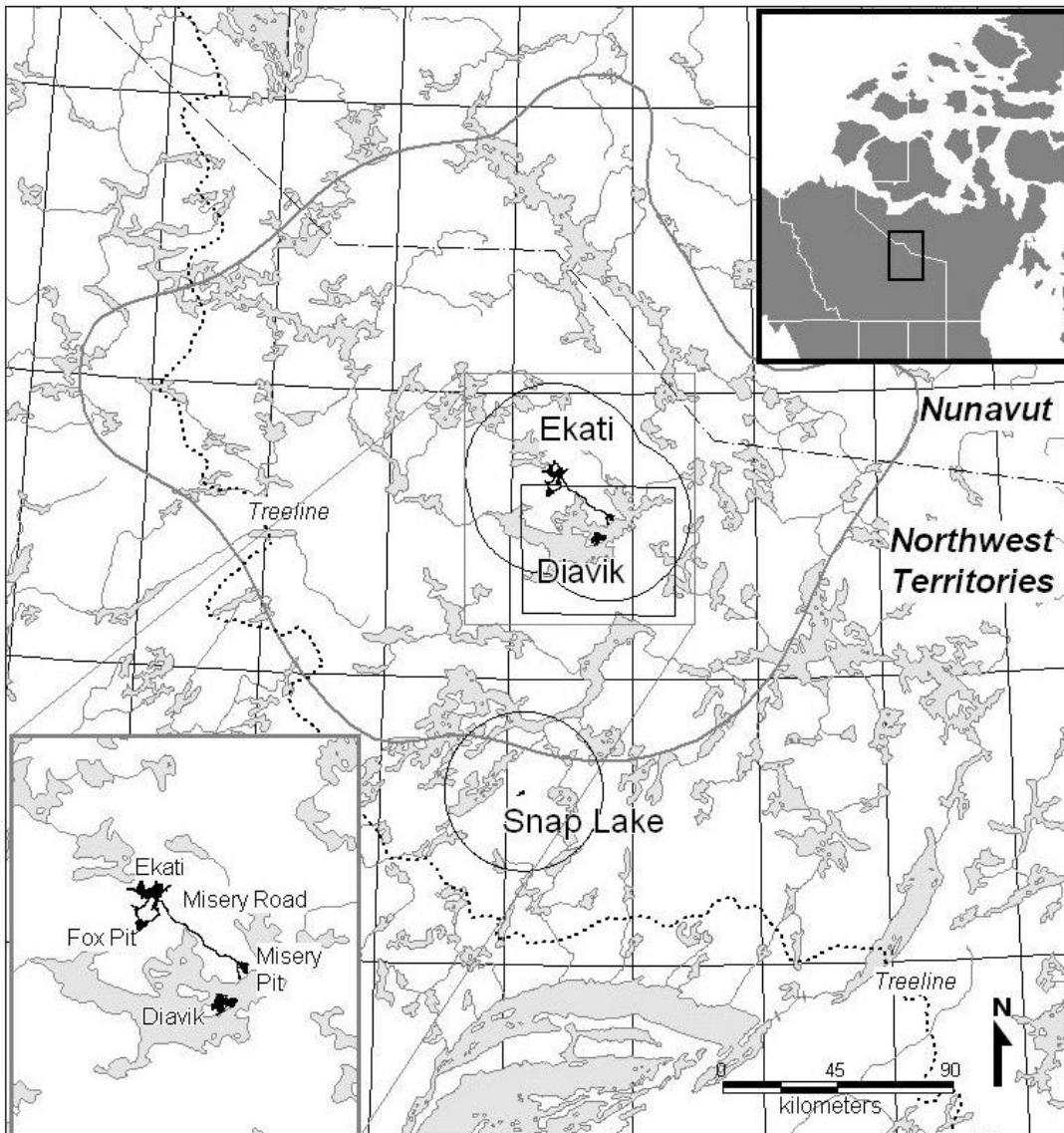
Key Points:

- 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



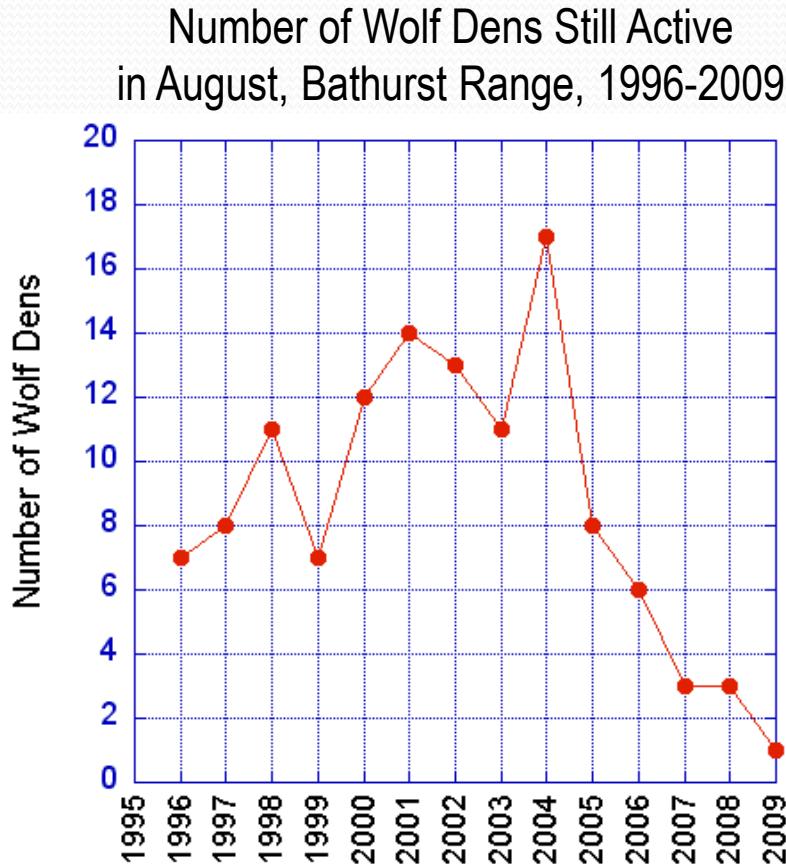
Health & Condition collected during Community Hunts (2007-2009)

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



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



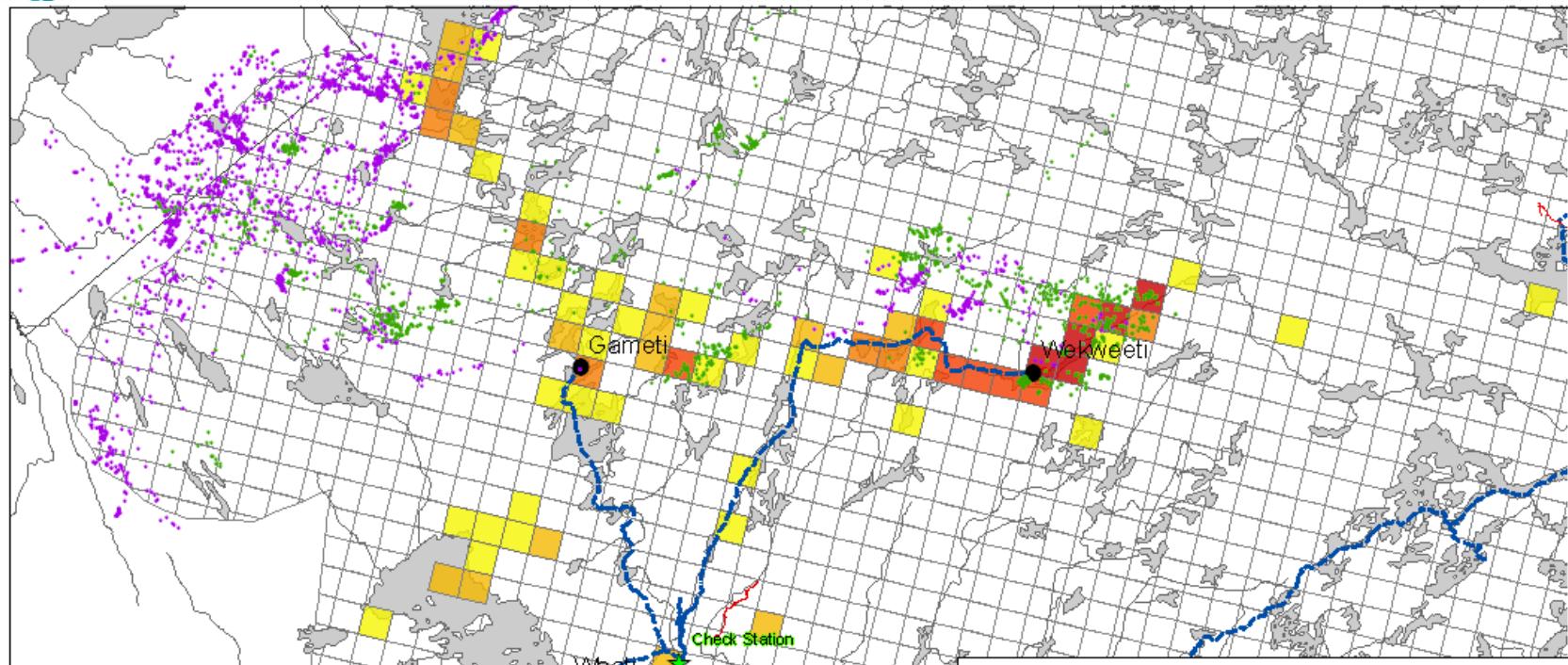
6. Factors that affect herd size and trend cont'd

Hunter Harvest

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

Bathurst herd cannot sustain this level of harvest

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



Location of Harvest is influenced by Winter Roads

2008/09 Barren-ground caribou winter harvest in Wek'eezhii

Reported Harvest in grid cells

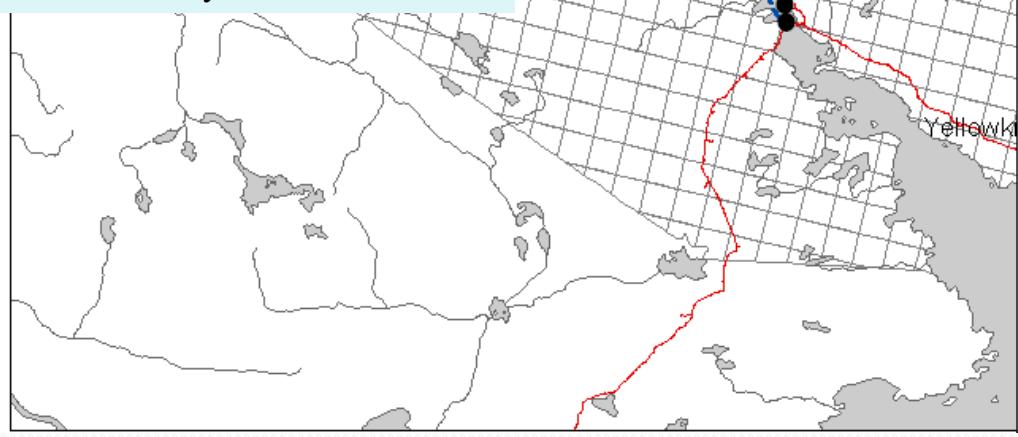
- 2 to 13
- 14 to 28
- 29 to 53
- 54 to 101
- 102 to 384

Locations of collared BG caribou cows (Jan-Apr)

• Bluenose East

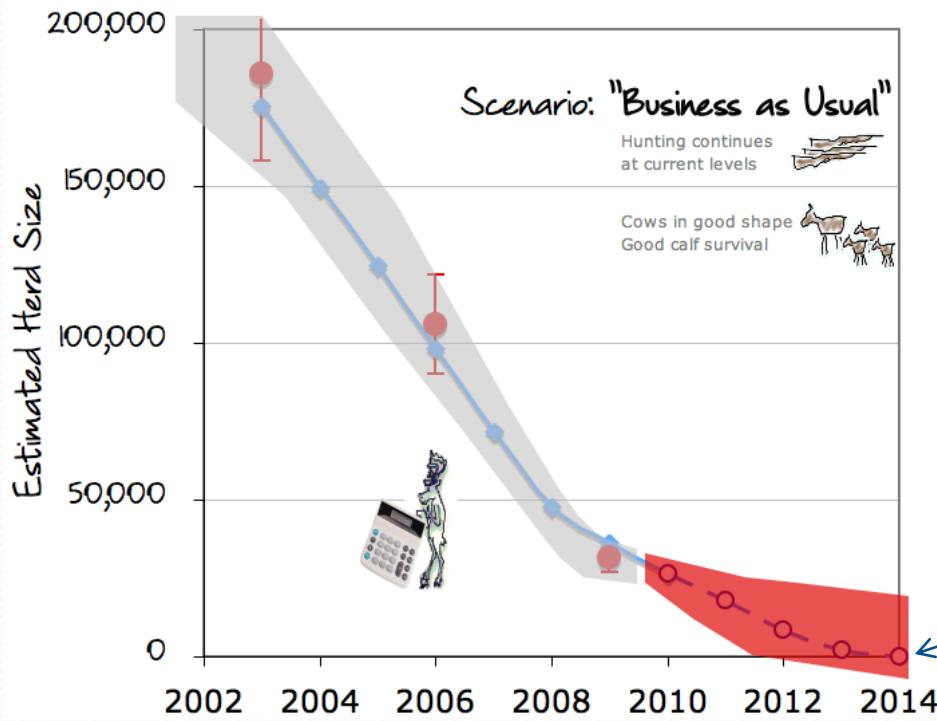
• Bathurst

— winter road



7. Recovery: Modeling and Risk Management

Modeling (Caribou Calculator)



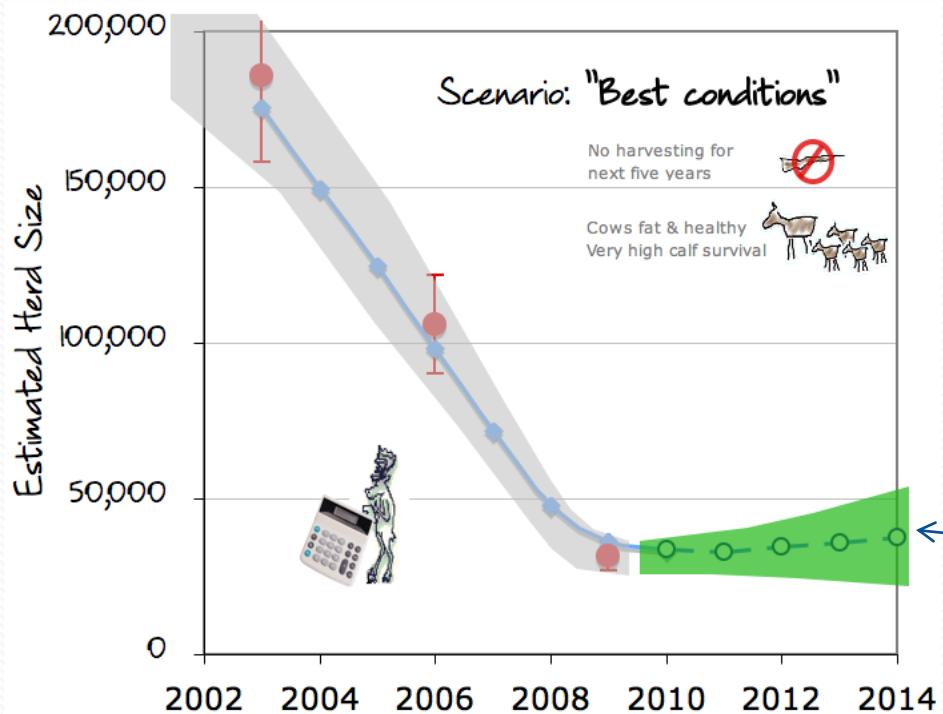
High Risk of Decline and Loss of Herd in 5 years

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)



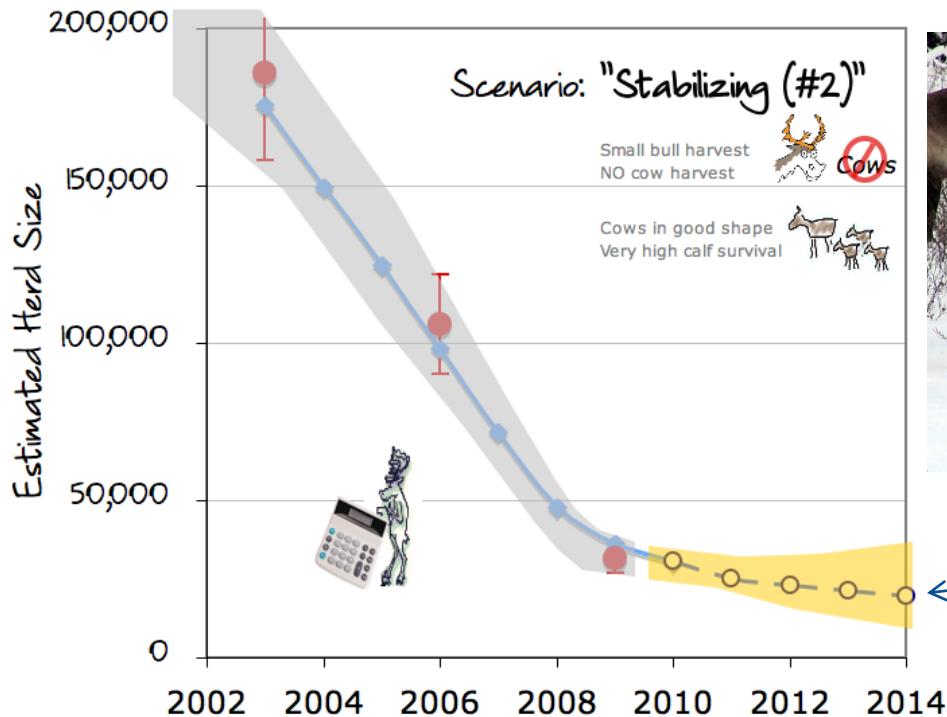
Best Chance for Recovery

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
No Harvest	Slow-Medium Decline	Stable Herd	Slow Increase
200 Caribou (100% bulls)	Slow-Medium Decline	Slow Decline	Stable Herd
500 Caribou (80% bulls)	Medium Decline	Slow Decline	Stable Herd
1000 Caribou (75% bulls)	Medium Decline	Slow-Medium Decline	Slow Decline
5000 Caribou (40% bulls)	Fast Decline	Fast Decline	Fast Decline
7000 Caribou (29% bulls)	Fast Decline	Fast Decline	Fast Decline

Projected Herd Size <16,000

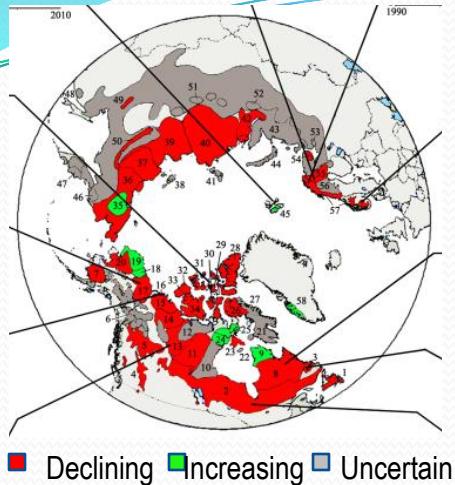
Projected Herd Size 16,000-23,000

Projected Herd Size 23,000-32,000

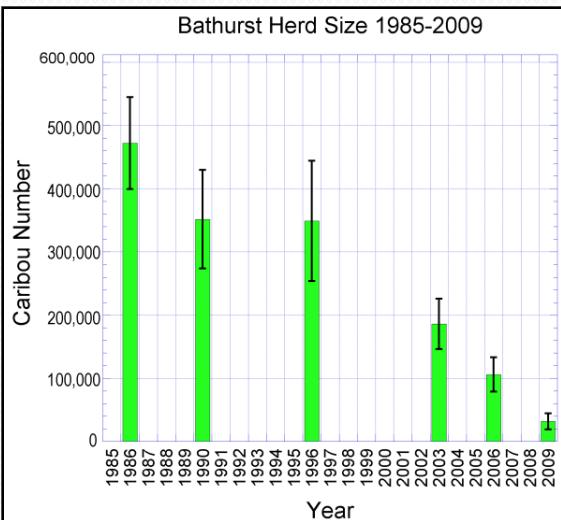
Projected Herd Size 32,000

Projected Herd Size 32,000-44,000

ENR Bathurst Caribou Technical Presentation: Summary



■ Declining ■ Increasing ■ Uncertain



- 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

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.

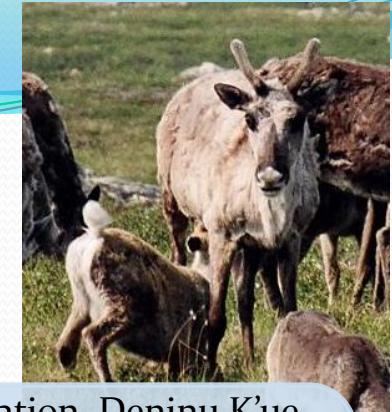
Status in 2009 - No further decline. Good calf survival.

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

- Tåîchô 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

Tåîchô Government

- July - Tåîchô 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



Tåîchô 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:

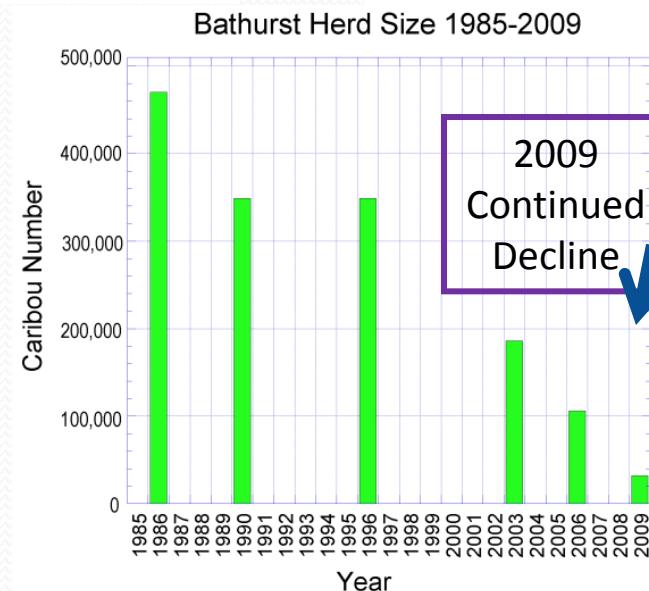
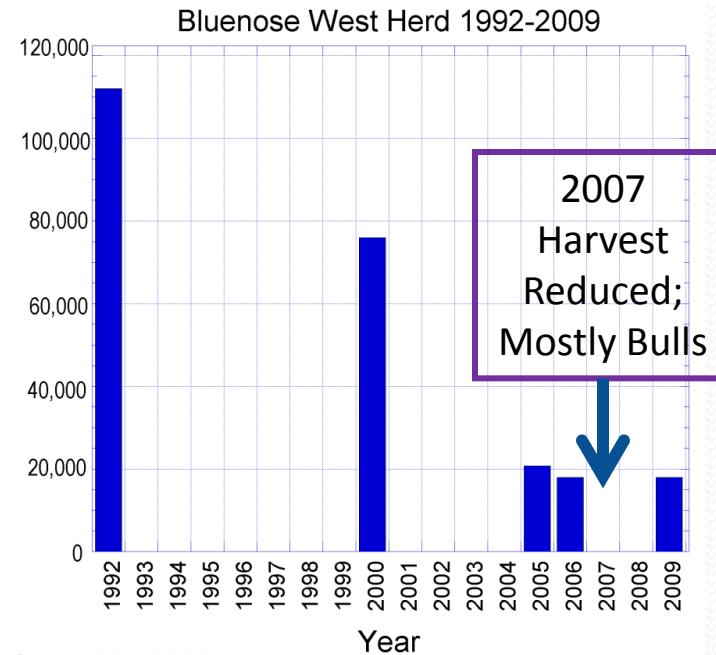
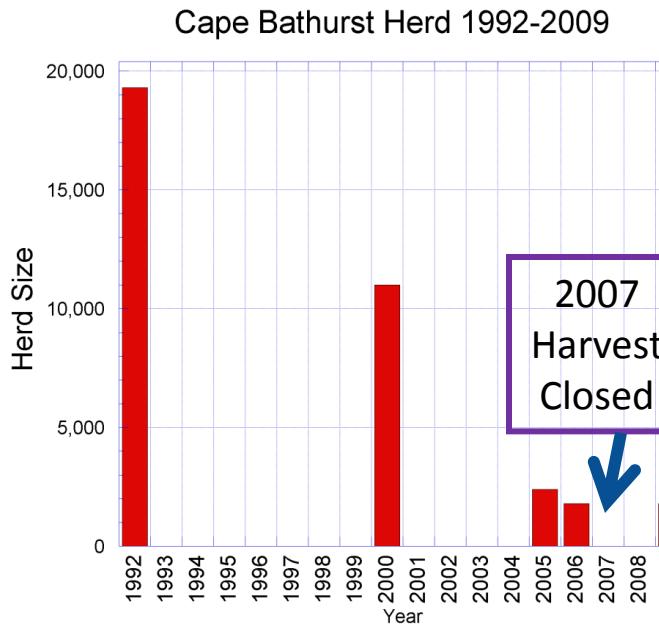
- No winter roads
- No maps of satellite collared caribou
- Dog teams for winter hunt
- Little use of aircraft
- No outfitting operations

Harvest affects rate of recovery



3. ENR recommendations cont'd

Harvest management of the Bathurst & Bluenose West Herds



**Caribou Forever:
Our Heritage
Our Responsibility**



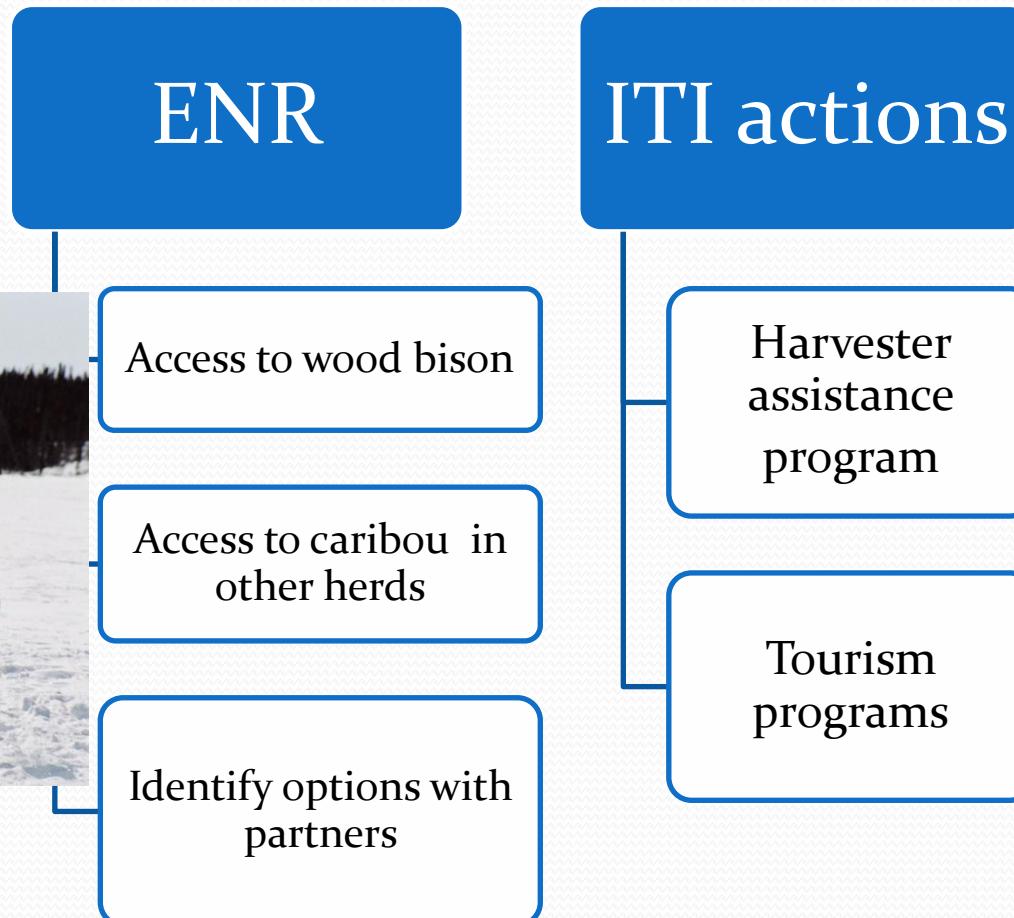
Options for Small Harvest of Young Bulls



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



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