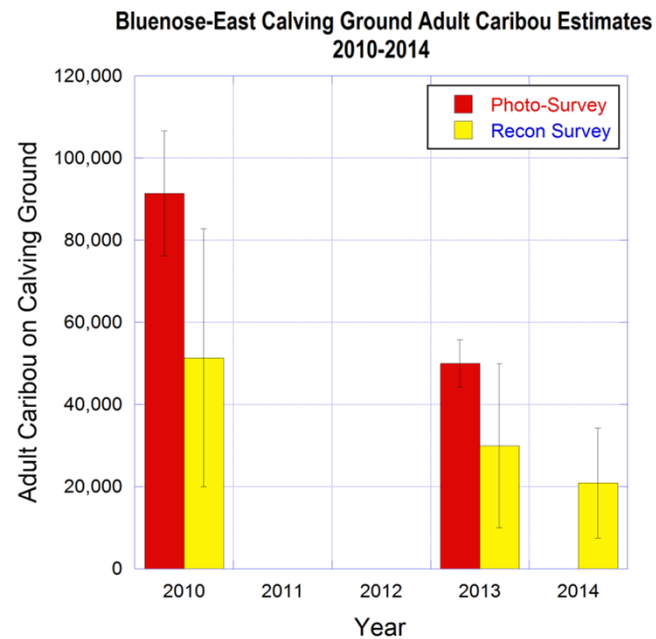


# Bathurst & Bluenose-East Caribou Herds: Overview of Population Trends 2009-2014

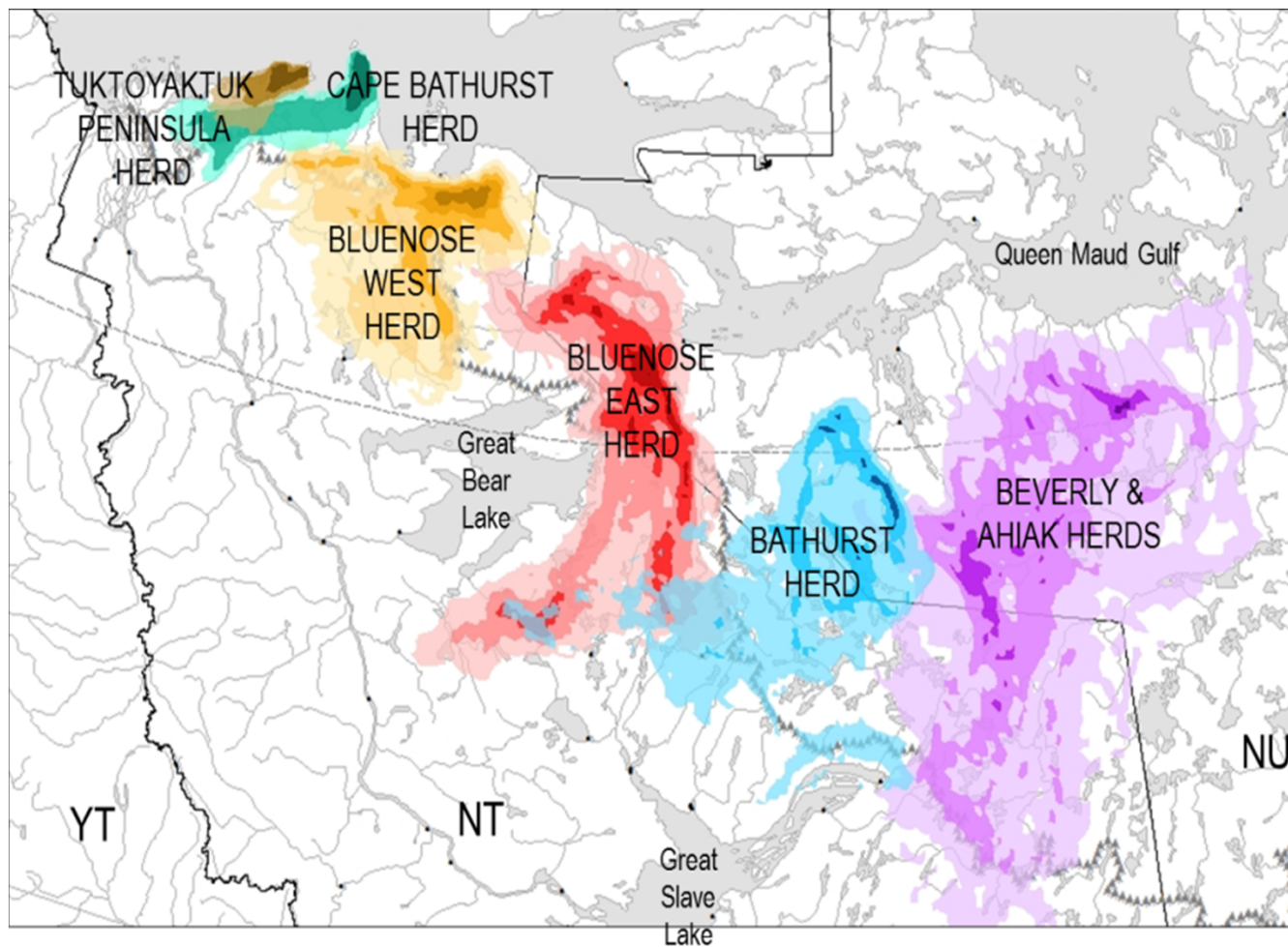
GNWT ENR, September 2014



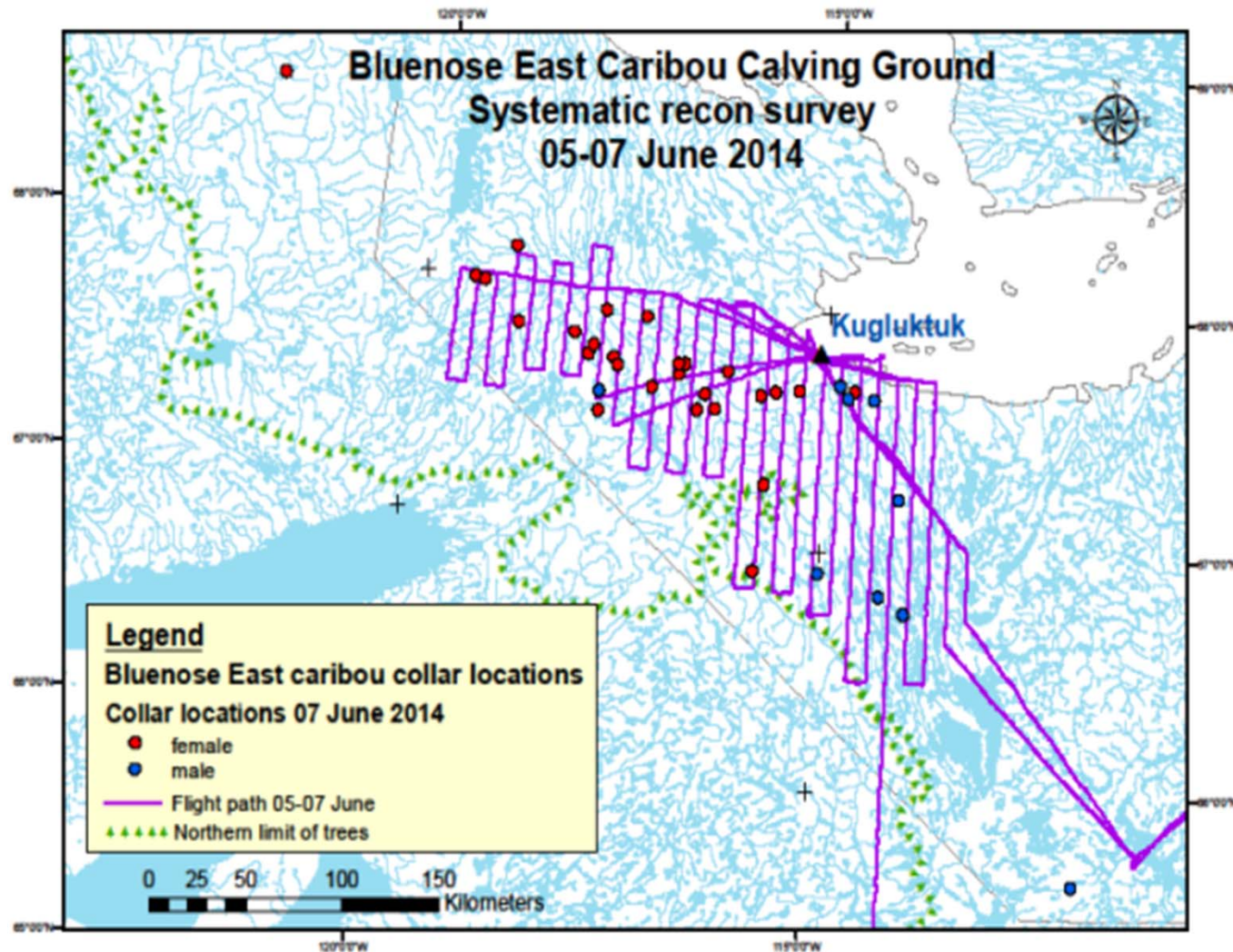
Photo A. Gunn



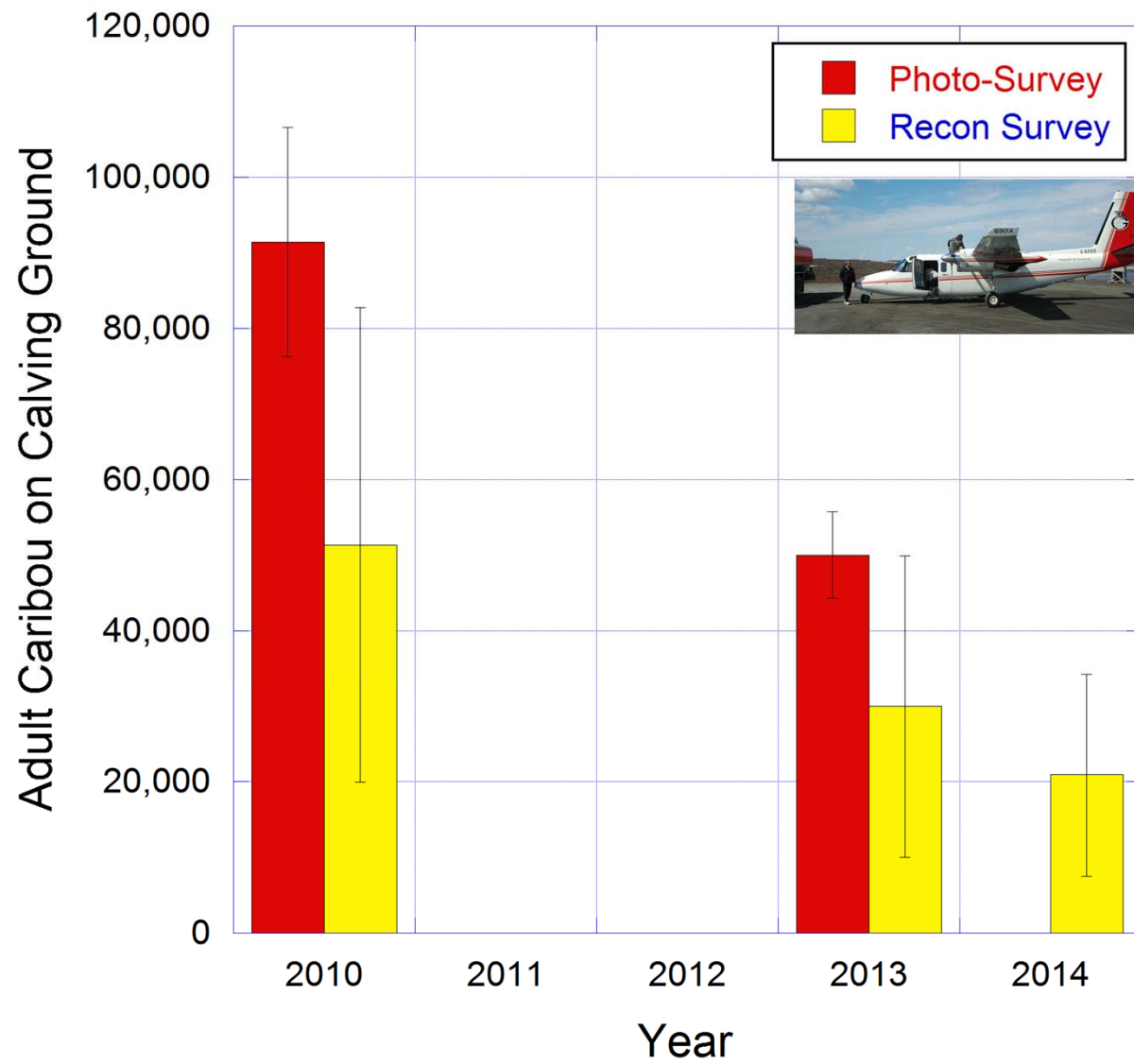
**Ranges of Barren-Ground Caribou Herds in NWT  
and eastern NU 2006-2012 (based on collared caribou)**



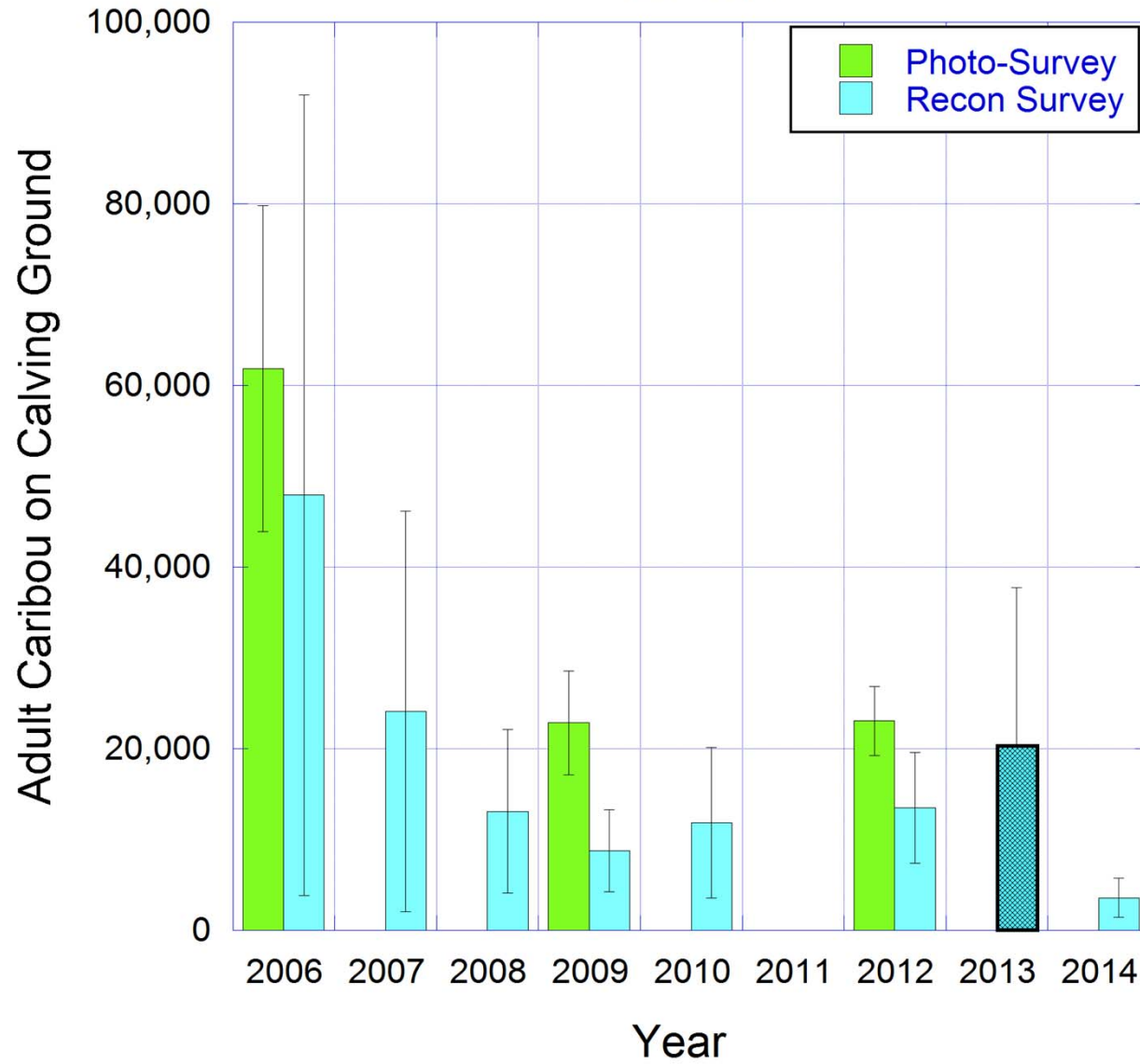
## Bluenose-East Calving Reconnaissance Survey June 2014



## Bluenose-East Calving Ground Adult Caribou Estimates 2010-2014

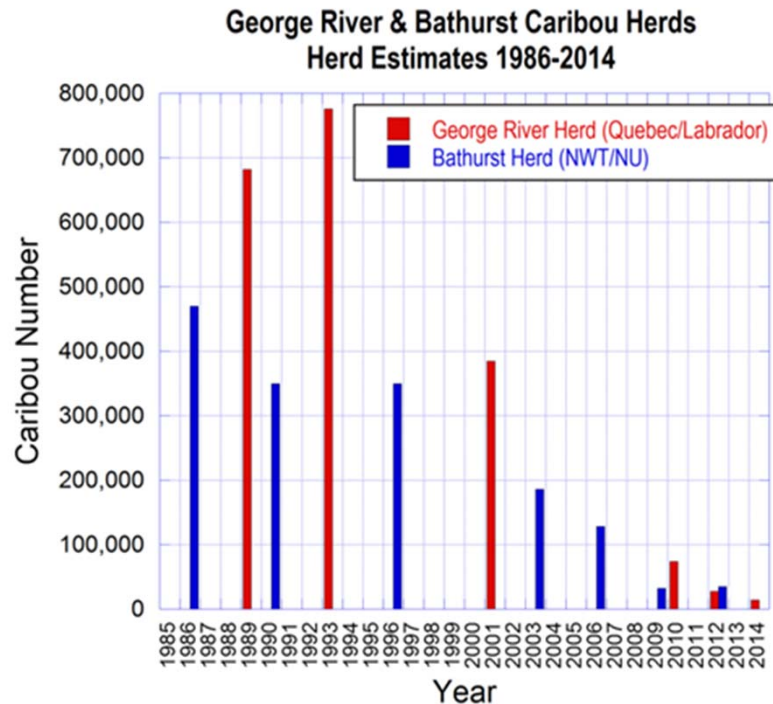


## Bathurst Calving Ground Adult Caribou Estimates 2006-2014





## Long-Term Caribou Fluctuations (Cycles): Complex



### Caribou Cycles: Multiple Factors at Work

1. Weather/Climate: all seasons  
e.g. summer range: pregnancy  
winter: snow, access to food
2. Weather Effects at Lower Numbers:  
NWT herds 2000-2006/2008
3. Caribou Grazing Effects (v. high numbers)  
(e.g. George River Herd 1990s)
4. Predators: Affect Caribou at high & low numbers  
probably most important at lower herd size
5. Harvest: Effects mostly at lower herd size  
Especially in herd declining naturally

## Declining Caribou Herds: Demographic Indicators

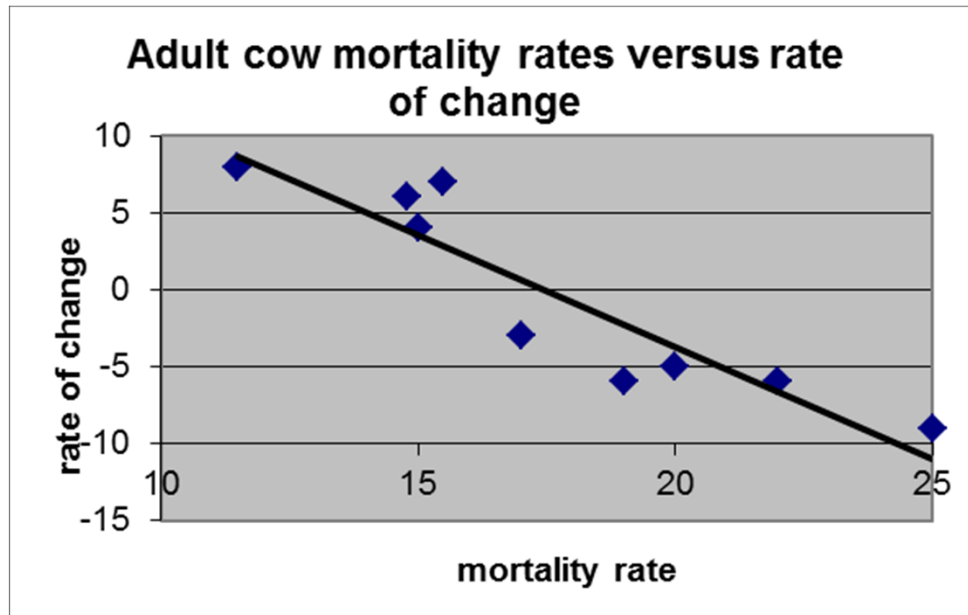
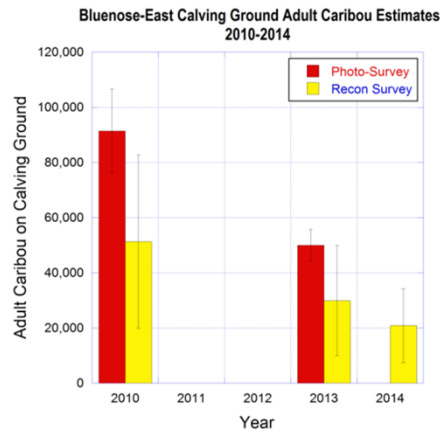


Photo A. Gunn

### Demographic Indicators in the George River Herd: Increasing vs. Declining Herds

Indicator Herd	Increasing Herd (1970s)	Declining (early 1990s)
Cow Survival Rate	90-95%	80-84
Spring Calf:Cow Ratio	28-60:100	9-19:100
Pregnancy Rate	89-100%	59-78%

## Bluenose-East Herd: Demographic Indicators: Cow Survival Rate

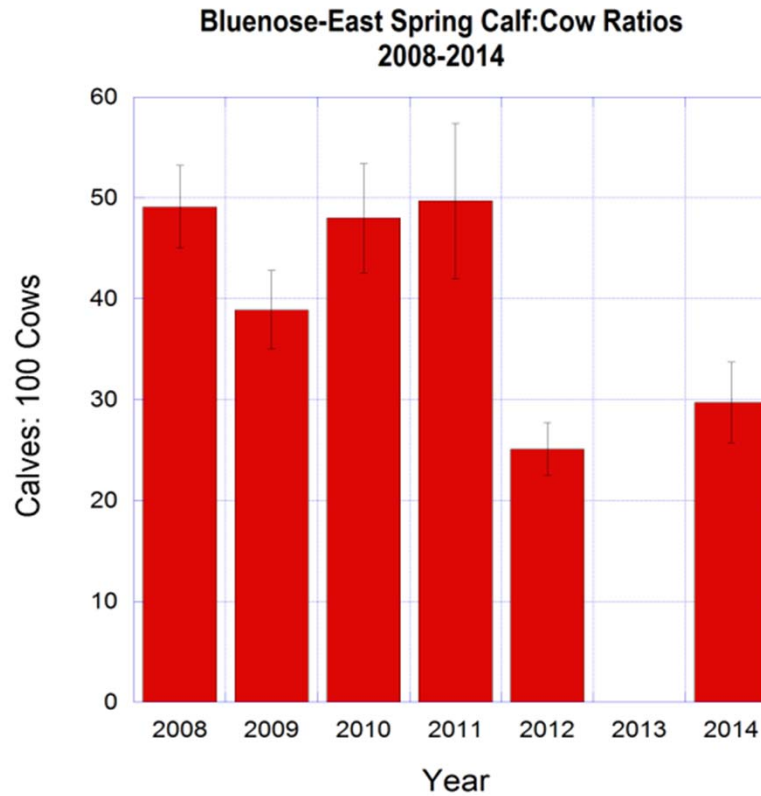
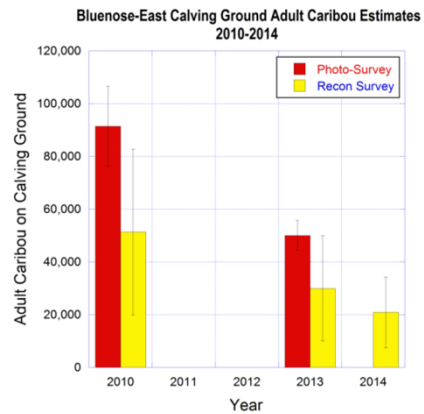


Adult cow caribou mortality rate compared to population rate of change in barren-ground caribou herds (courtesy of D. Russell, pers. comm. 2009)

**Bluenose-East Herd: Estimated Cow  
Survival Rate 2010-2013: 73-75%  
(mortality rate 25-28%)**



## Bluenose-East Herd: Demographic Indicators: Spring Calf:Cow Ratios

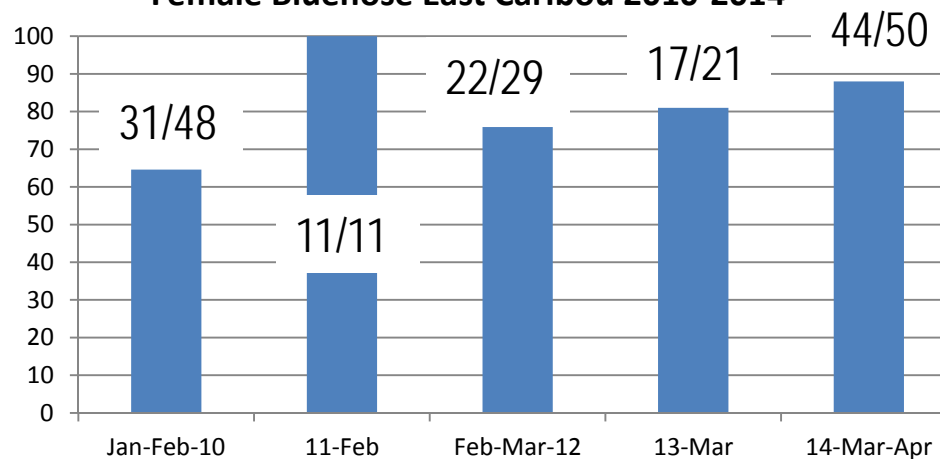


## Bluenose-East Herd: Demographic Indicators: Pregnancy and Condition

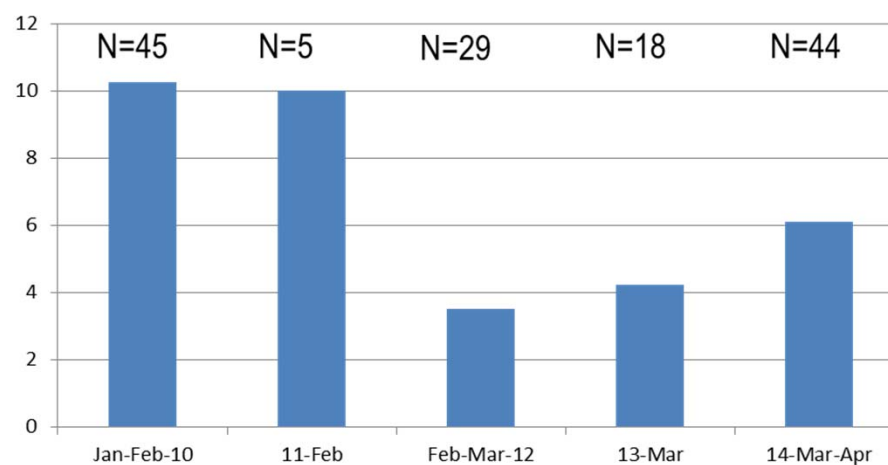
Pregnancy Rate 2012 NWT-wide: Captured Cows

	Blood collected (females)	# Pregnant	Pregnancy Rate
Bathurst	13	12	92.3
BNEast	42	27	64.3
Beverly	27	16	59.3
BNWest	34	17	50.0
CB	12	7	58.3
TP	10	5	50.0
Totals	138	84	60.9

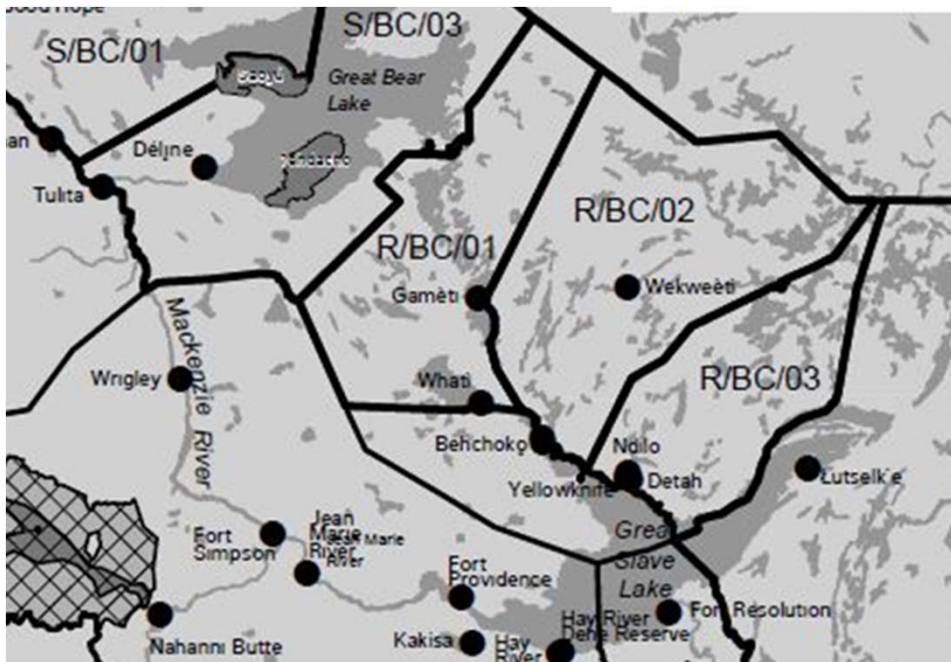
Pregnancy Rate (%) in Hunter-Killed  
Female Bluenose East Caribou 2010-2014



Late Winter Back Fat Thickness (mm)  
Adult Female Bluenose East Caribou



## Bluenose-East Herd: Harvest Estimates 1998-2005 and 2010-2013



### Bluenose-East Harvest Estimates

#### 1998-2005:

Deline 1260/year, 60% cows (SRRB)  
Limited harvest NU, Tlicho

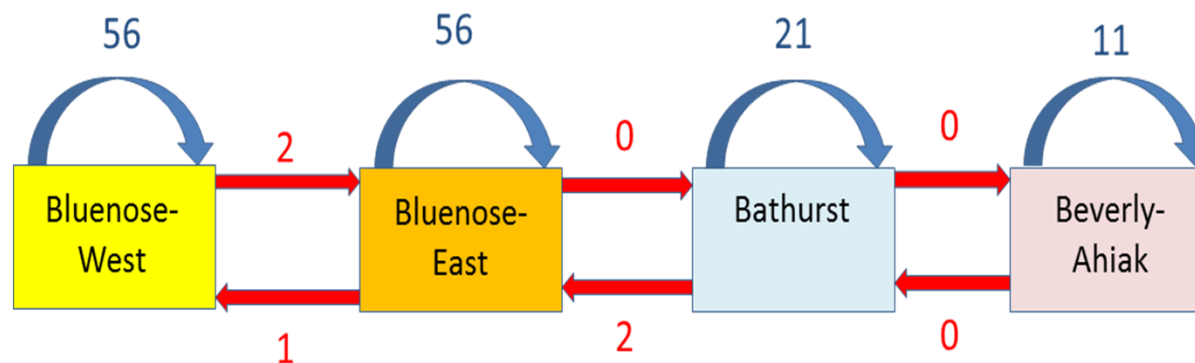
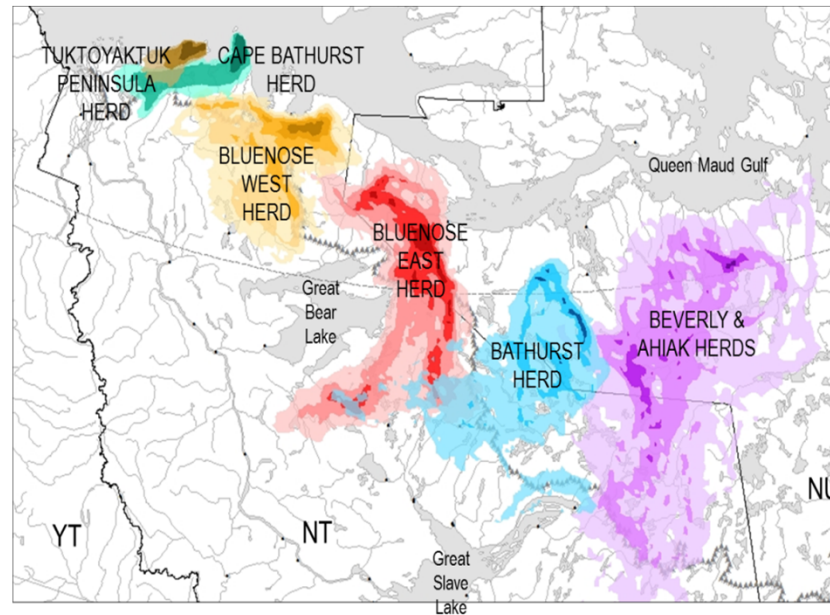
#### 2009-2013\*:

Monitors, officers, check-stations  
Primarily zones RBC01 & SBC03

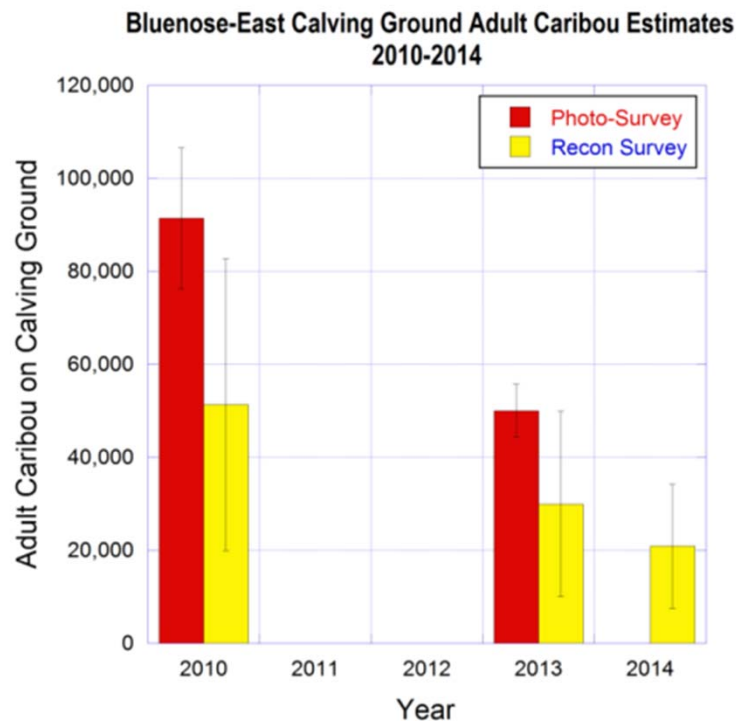
Year	Estimated	% cows
2009-2010	3,466	65
2010-2011	2,918	65
2011-2012	1,766	65
2012-2013	2,562	65
Average	2,678	65

\* Considered under-reported

## Bluenose-East & Bathurst Herds: Movement to Other Ranges?



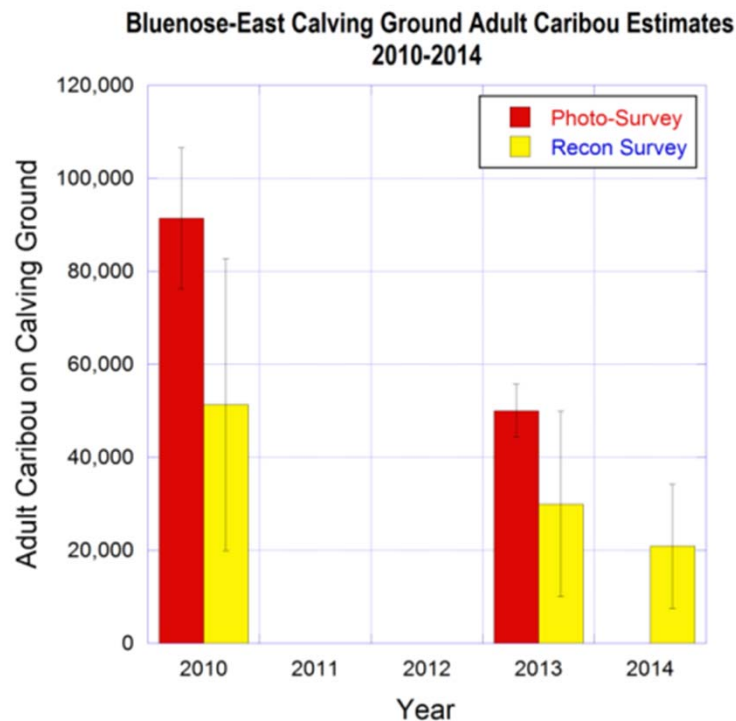
## Bluenose-East Herd Recon Survey 2014: Possible Survey Issues



### Potential Biases in June 2014 recon survey:

Issue	Likelihood
1. Low coverage, low precision: Inaccurate estimates	Possible
2. Low pregnancy rate, fewer cows on calving ground	Low
3. Low sightability on survey, caribou missed	Low
4. Breeding cows outside main calving ground, missed	Low

## Bluenose-East Herd Recon Survey 2014: Possible Biological Factors

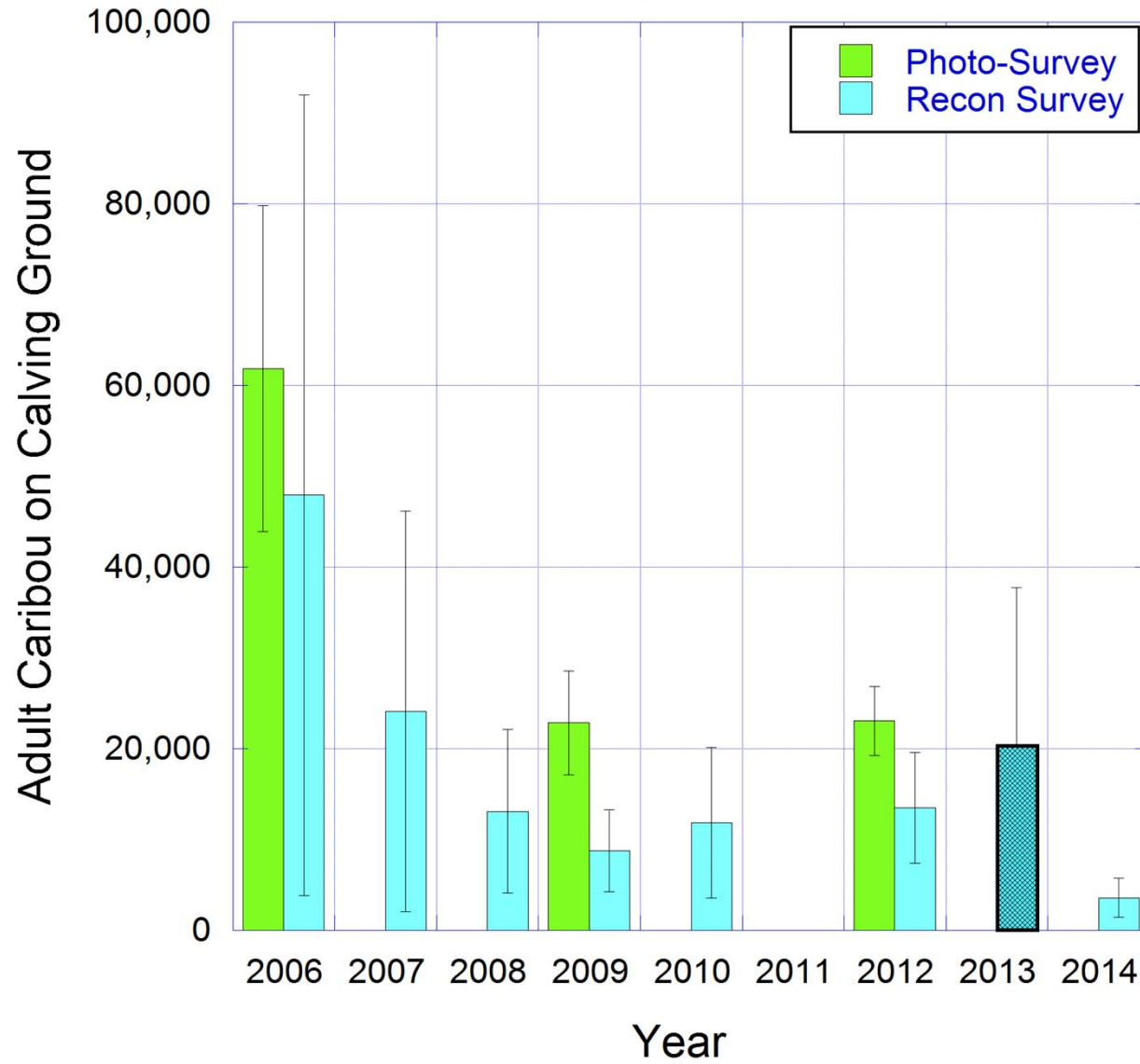


### Biological Reasons for Lower Caribou Numbers:

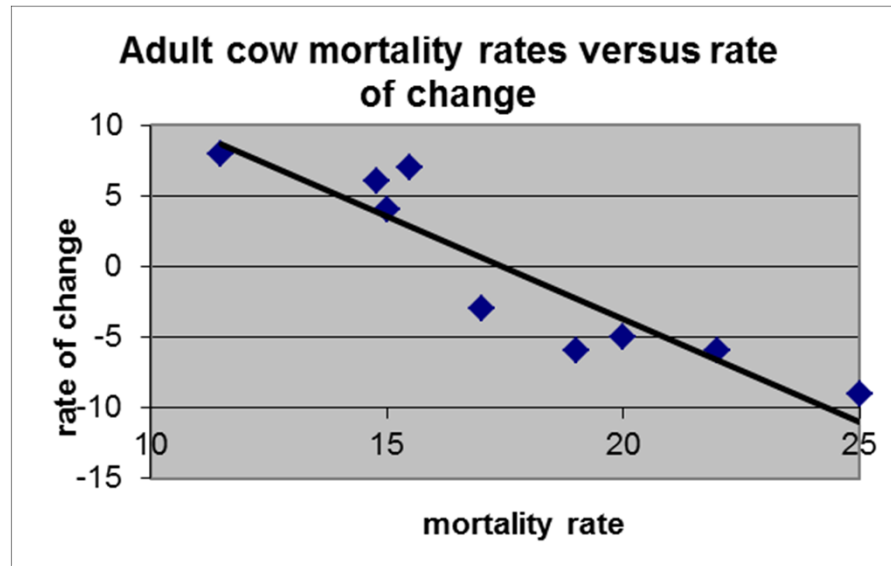
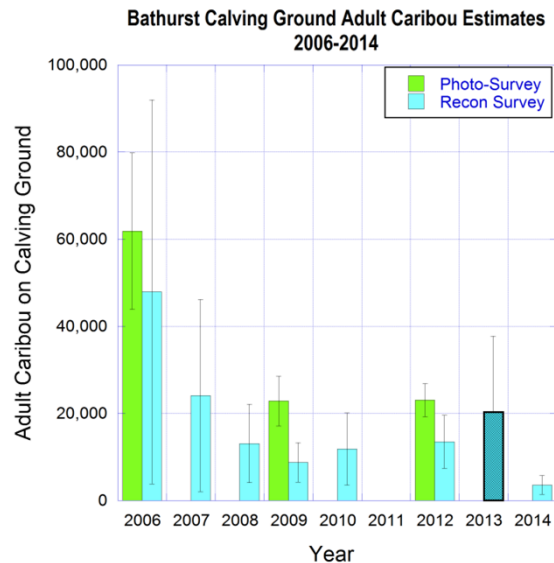
Issue	Likelihood
1. Low overall cow survival rate:	Probable
2. Low natural cow survival rate:	Probable
3. Harvest mortality decreased overall cow survival rate further	Probable
4. Low pregnancy rate in 2 years linked to low calf survival	Possible
5. Reduced calf recruitment 2012-2013 affected survey	Possible
6. Large-scale movement to other ranges	Low



## Bathurst Calving Ground Adult Caribou Estimates 2006-2014



## Bathurst Herd: Demographic Indicators: Cow Survival Rate



Adult cow caribou mortality rate compared to population rate of change in barren-ground caribou herds (courtesy of D. Russell, pers. comm. 2009)

### Bathurst Herd: Estimated Cow Survival Rates 1985-2012:

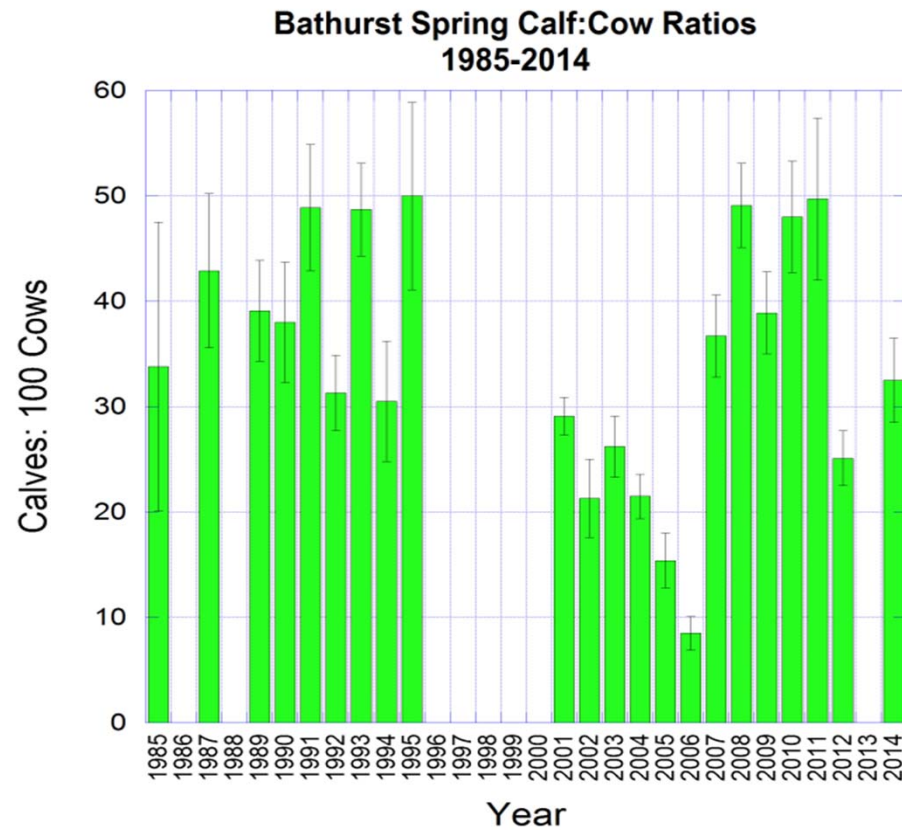
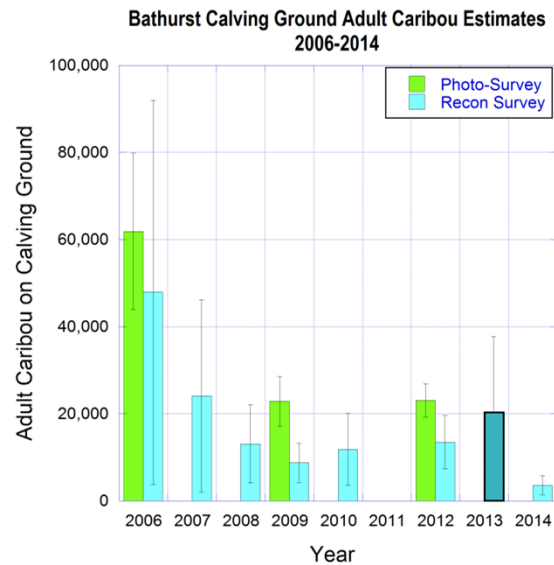
**1985: 86%**

**2007-2008: 73%**

**2009: 67%**

**2009-2012: 78-79%**

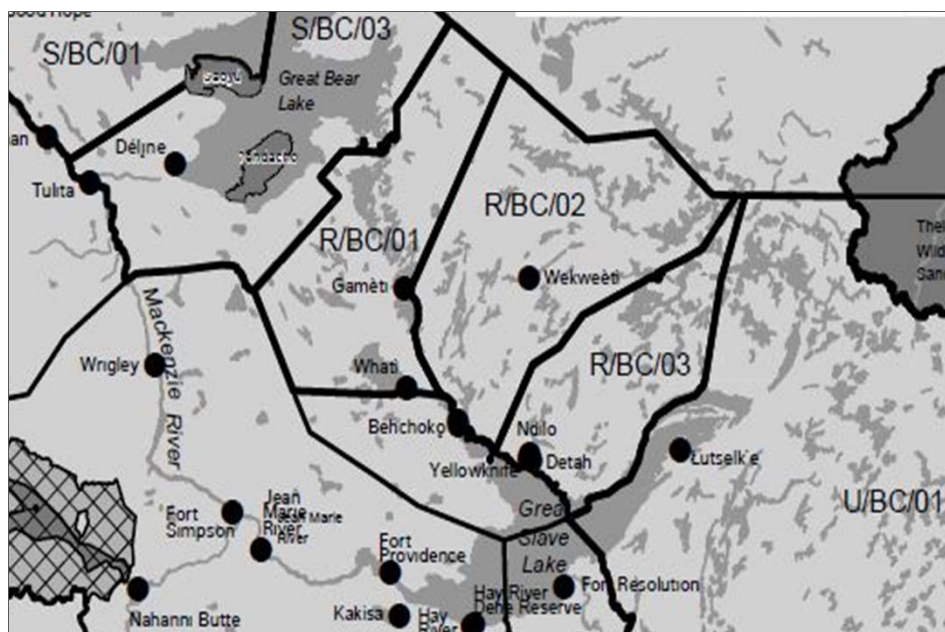
## Bathurst Herd: Demographic Indicators: Spring Calf:Cow Ratios



## Bathurst Herd: Demographic Indicators: Pregnancy

Date	Hunter kits/Collections	Collaring	Combined
March 2014	n/a	9/13	
March 2013	Adult Cows: 5/5		
March 2012	n/a	13/14	
February 2011	Adult Cows: 20/25 (80%)	12/14	32/39 (82.0%)
March 2010	Adult Cows: 10/14 (71.43%)	12/14	22/28 (78.6%)
April 2009	Adult Cows: 25/28 (89.29%)		
March 2008	Adult Cows: 26/26 (100%)		
March 2005	Adult Cows: 95/150 (63.33%)		
March 1995	Adult Cows: 10/13 (76.92%)		
March 1994	Adult Cows: 107/116 (92.24%)		
March 1992	Adult Cows: 11/14 (78.57%)		
March 1991	Adult Cows: 6/10 (60%)		
March 1990	Adult Cows: 10/10 (100%)		

## Bathurst Herd: Harvest Estimates 2007-2009 and 2010-2013



### Bathurst Harvest Estimates

2007-2009:

4000-6000/year, mostly cows

2009-2013\*:

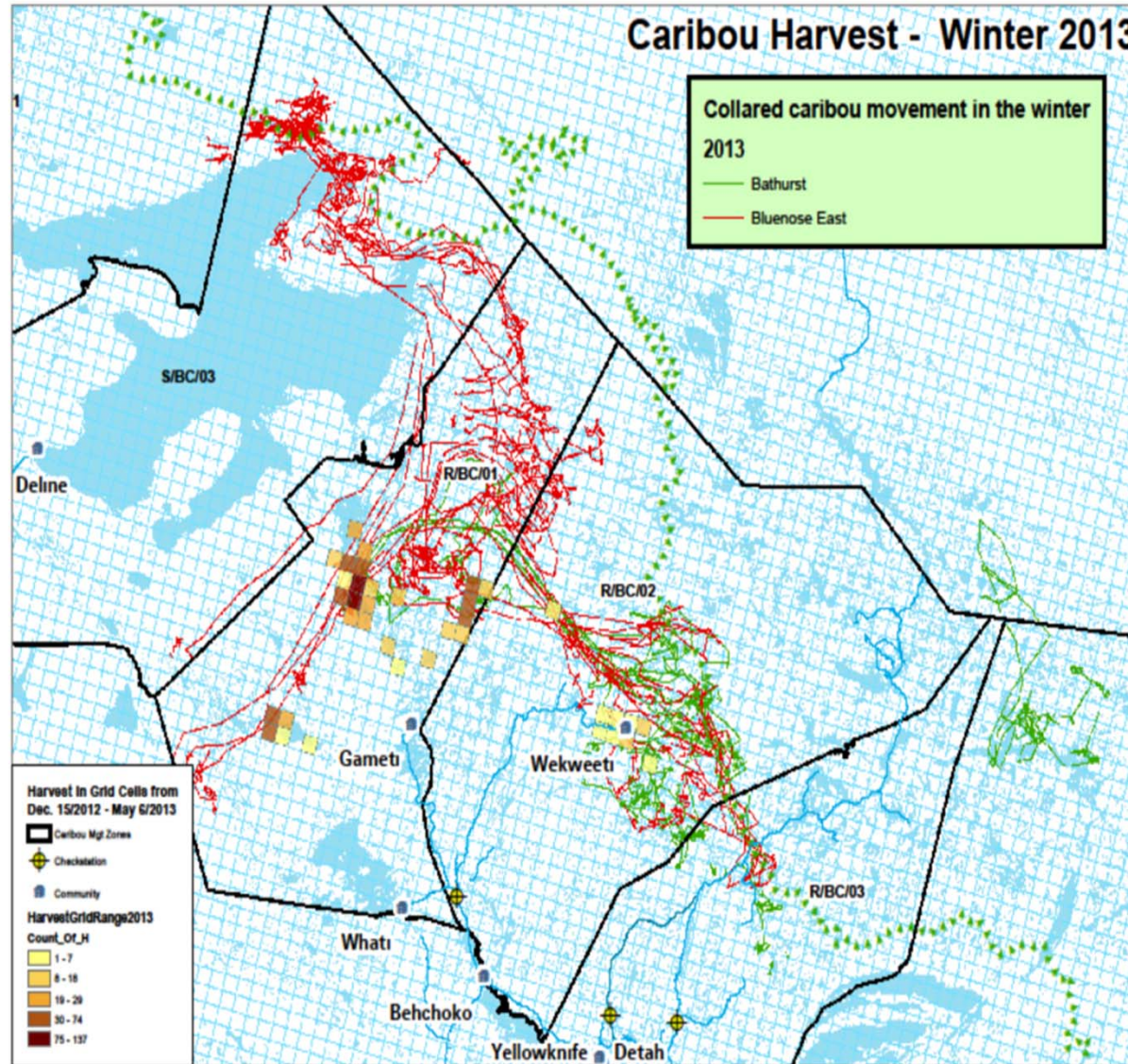
Monitors, officers, check-stations

Year	Estimated	% cows
2009-2010	300	65
2010-2011	213	58
2011-2012	87	82
2012-2013	166	42
Average	191	62

\* As reported for RBC02 and RBC03;  
total harvest may be under-reported

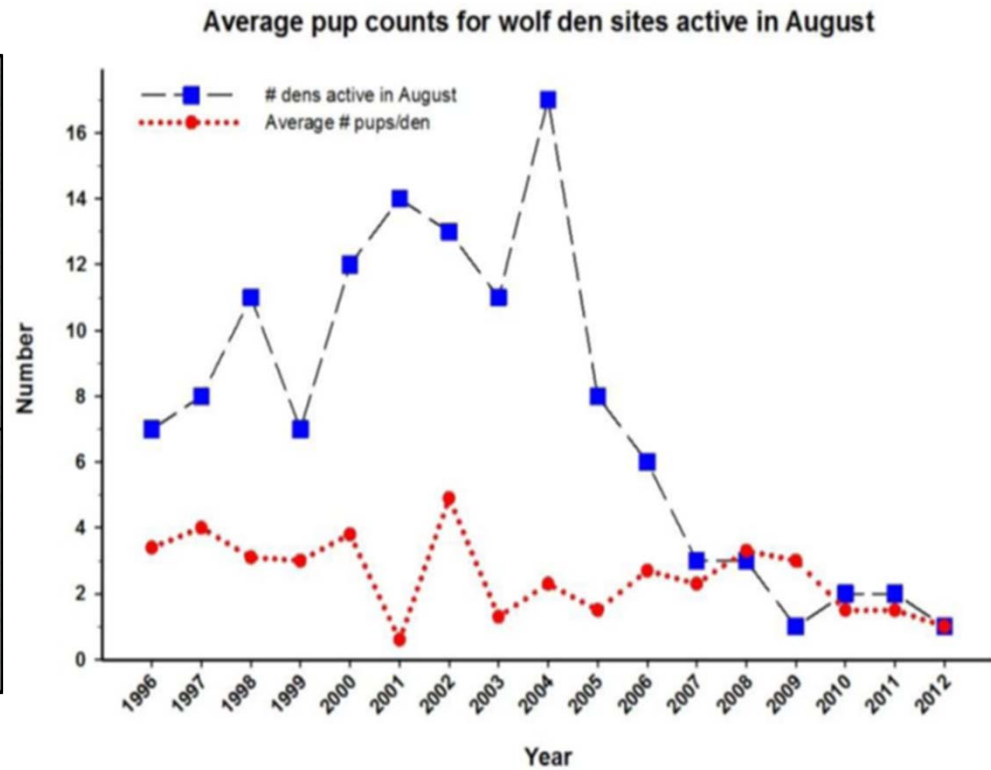
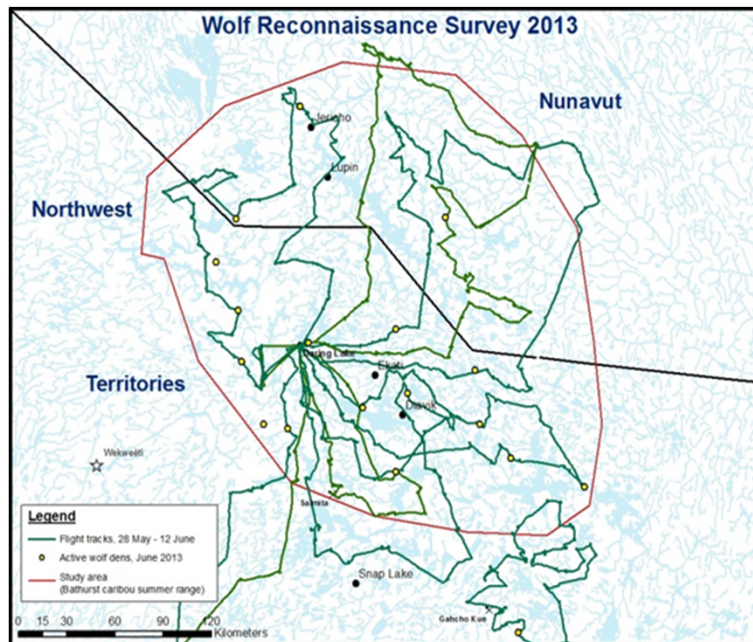


## Bathurst & Bluenose-East Collared Caribou and Harvest, Winter 2013

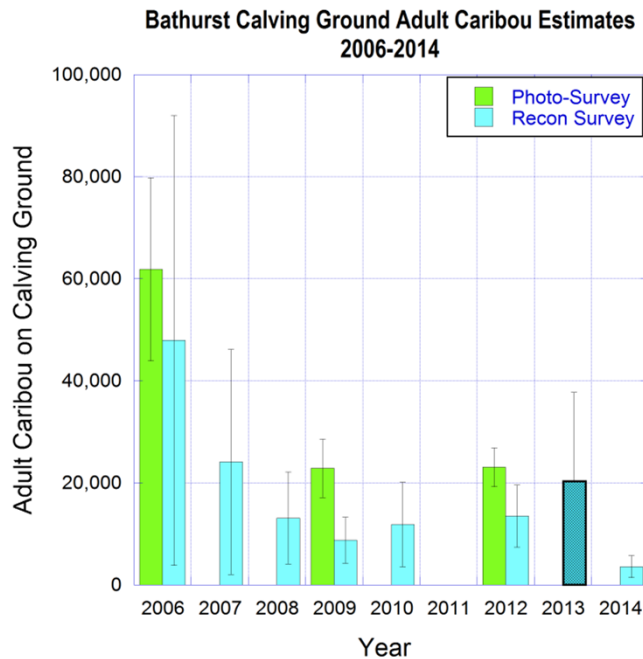




# Wolf Monitoring in Bathurst Caribou Range 1996-2012



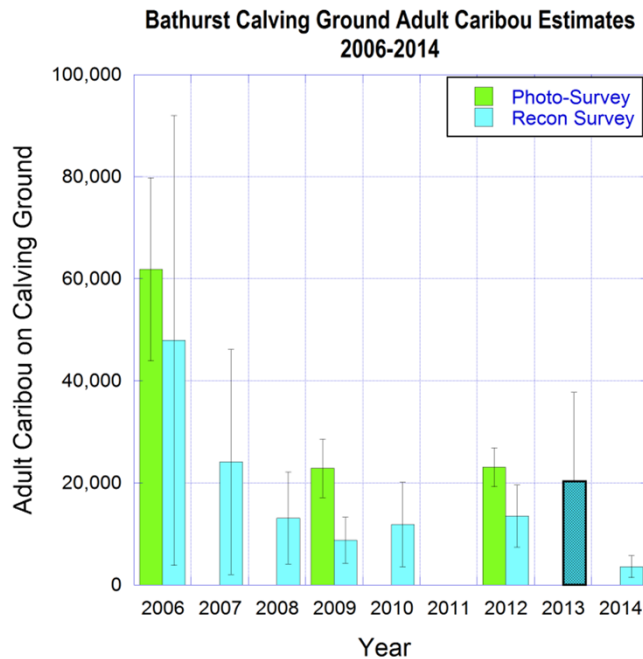
## Bathurst Herd Recon Survey 2014: Possible Survey Issues



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## Bathurst Herd Recon Survey 2014: Possible Biological Factors

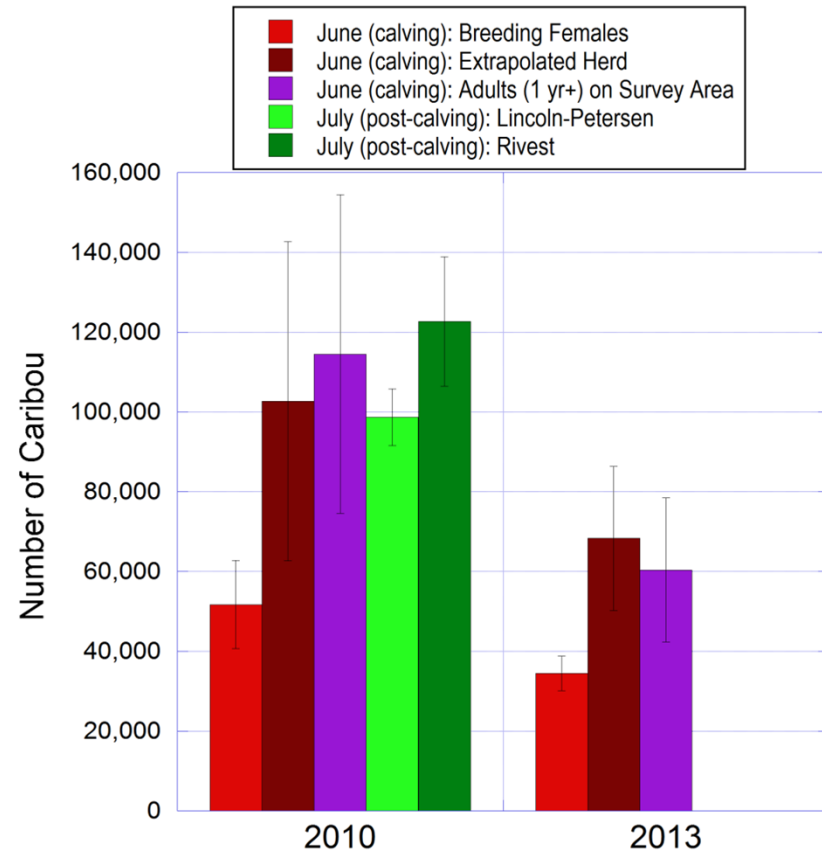
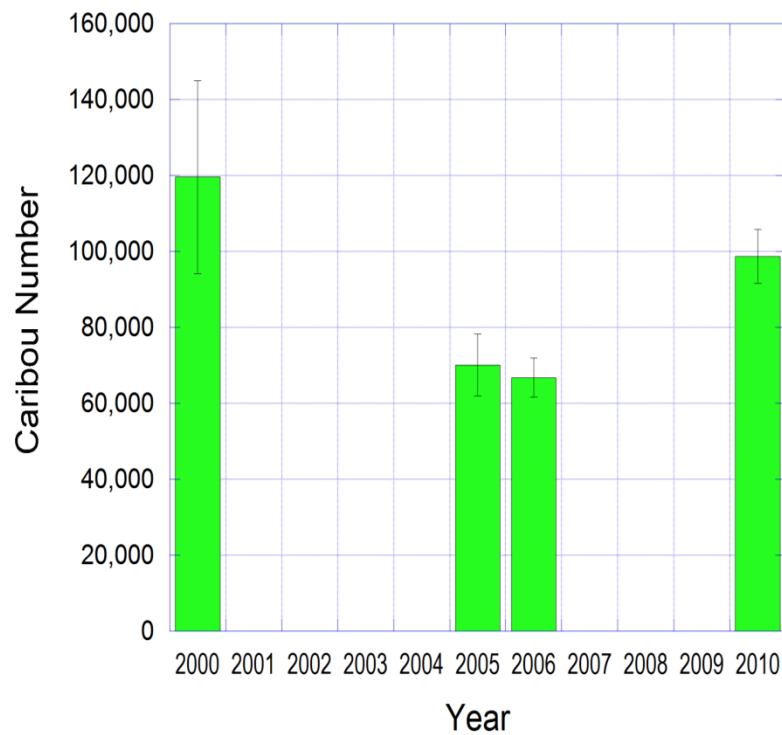


### Biological Reasons for Lower Caribou Numbers:

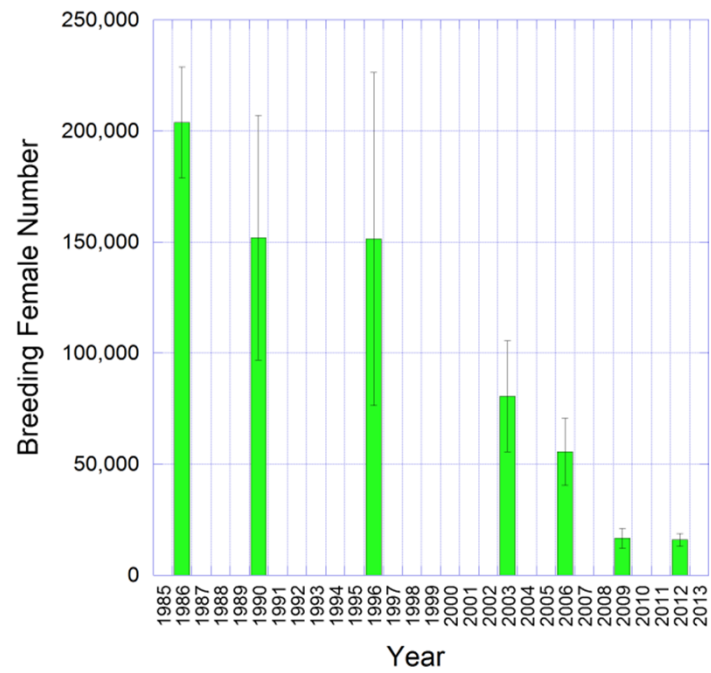
Issue	Likelihood
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5. Reduced calf recruitment 2012-2013 affected survey	Possible
6. Large-scale movement to other ranges	Low



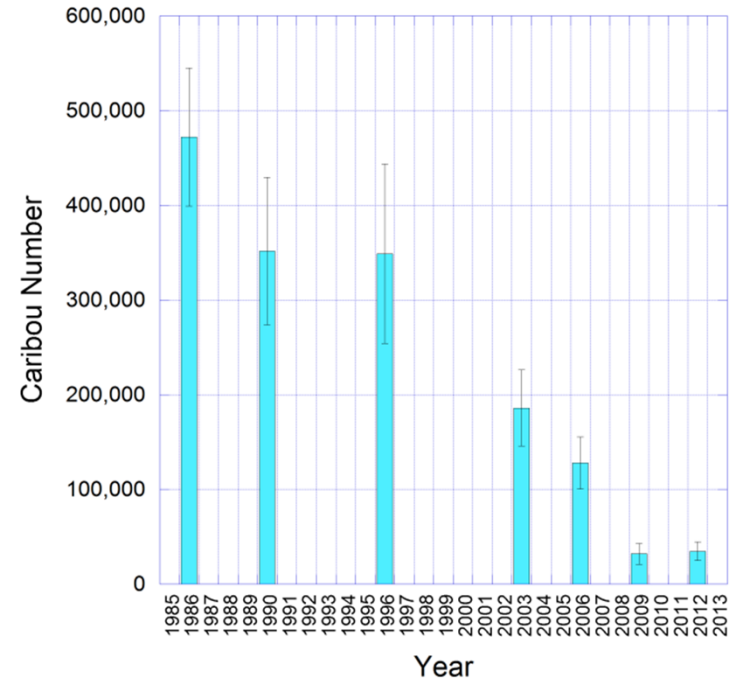
**Bluenose-East Post-Calving Estimates 2000-2010  
(Lincoln-Petersen Estimator)**



**Bathurst Caribou Herd Breeding Female Estimates  
1986-2012**



**Bathurst Caribou Herd Size Estimates  
1986-2012**





# NWT Fires 2014 and earlier: August 2014

