



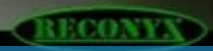
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# Lac de Gras Grizzly Bear DNA Study

CAMERA 77A



Department: Environment Operations  
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Last revised: December 1, 2013

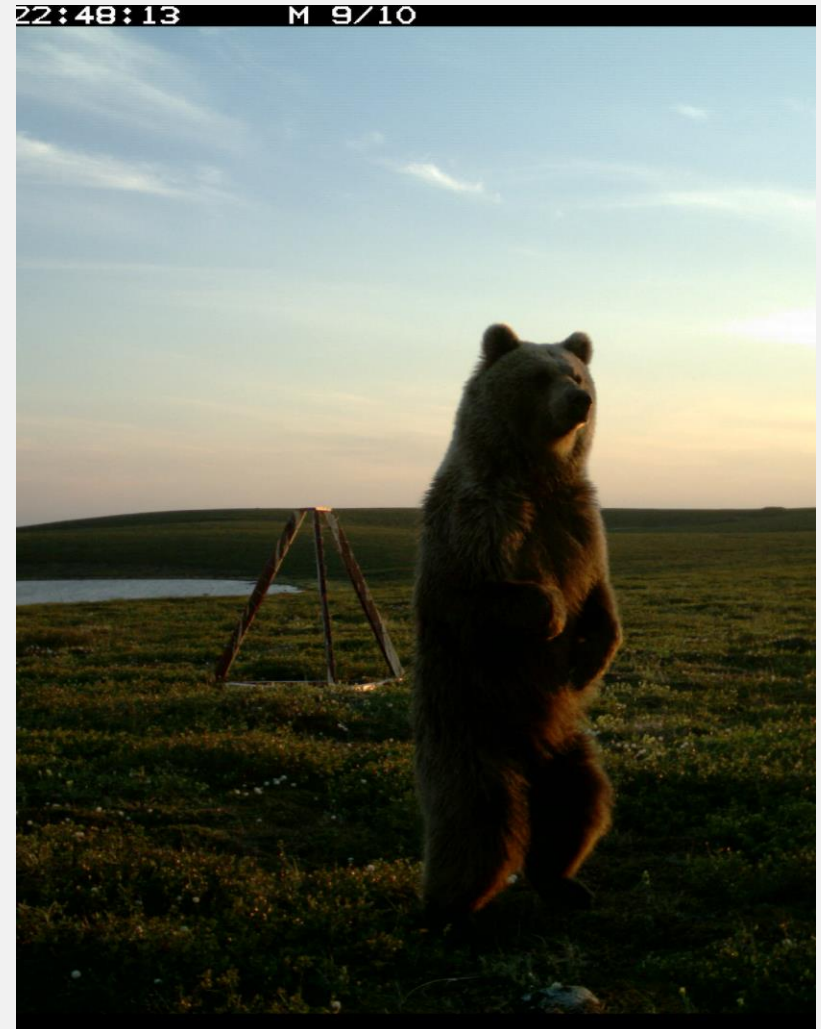
# Background

- Joint Effort between Ekati and Diavik Diamond Mines
- Response to community and technical sessions spanning 2009 and 2011
- ZOI – impossible to identify due to low density and large movements of grizzly bears
- We can identify potential changes in abundance and distribution in the area surrounding the mines.
- No information on population status since late 90's
- Concerns over cumulative effects on grizzly bears



# Objectives

- Generate a superpopulation estimate of grizzly bears for the DNA Study Area as baseline data for trend monitoring;
- Describe the spatial and temporal distribution of grizzly bears in the DNA Study Area;
- Identify overlap with grizzly bears that were sampled in areas outside of the DNA Study Area by other surveys;
- Provide recommendations regarding a standard grizzly bear monitoring protocol for the NWT.





# Design

- 113 Cells
- 12 x 12 km
- >16,000 km<sup>2</sup>
- Barbed wire tripods
- Post locations determined with assistance of elders and community land users
- Priority to eskers, riparian, upland meadow/tundra
- 6 sessions; 10-15 days/session
- Late June – Early Sept
- Novel lures every session: Blood, fish oil, sweet synthetics



# Results 2012



- 1 in 3 sub-sampling
- DNA extraction success 68% compared to 80% in other northern studies
- 112 grizzly bears
- 42 males, 70 females
- 6 from Nunavut
- Number bears estimated to be in the Study Area:
  - 91 females (95% CI 81 – 108)
  - 53 males (95% CI 47 – 66).

## 2013 Results

- 23 posts without a hit in 2012 were repositioned
- 6 sessions; 9-13 days
- Sessions 1 & 2 longer
- 4,705 samples, an increase of 2.5x
- 60 M & 76 females identified
- 38 “new bears”
- 2 new bears identified from 2012 samples
- Superpopulation:
  - 83 females (95% CI 80 – 91)
  - 65 males (95% CI 62 – 72).



# Camera Results



- 20 motion cameras placed randomly
- 57 bears photographed
- 33 identified by DNA
- 10 cases where a lone bear was photographed but not detected by DNA
- 10 family groups: 2 triplets, 7 twins



# Preliminary Conclusions

- Capture probability (0.22 & 0.35) supports 12x12 cell size
- Detection frequency is 9-11 bears per 1,000km<sup>2</sup>
- previous density estimates of 3.5 (central barrens) to 7 (Kitikmeot) bears per 1,000km<sup>2</sup>.
- “Density” on par with previous studies.
- Cameras indicate underestimate of population – We did not identify ever bear visiting a post.
- Study does not allow for density estimates

