



Distribution and abundance of Peary caribou (*Rangifer tarandus pearyi*) and muskoxen (*Ovibos moschatus*) on Devon Island, March 2016

Morgan L. Anderson ገለጻ ገለጻ

Department of Environment, Government of Nunavut, Igloolik, NU, Manderson@gov.nu.ca 867-934-2175

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INTRODUCTION

- Peary caribou and muskoxen are the only ungulates inhabiting the Queen Elizabeth Islands.
- Both are important sources of country food and cultural persistence for local communities. Resolute, Grise Fiord, and Arctic Bay harvest on Devon Island
- Severe winter weather (ground-fast ice) restricts access to forage and causes sporadic die-off events.^{1, 2, 3}
- Previous surveys have focused on muskoxen in the lowland areas where they are predictably found
- The most recent survey, in 2008, reported a minimum count of 17 Peary caribou and population estimate of 513 muskoxen (302-864, 95%CI)⁴



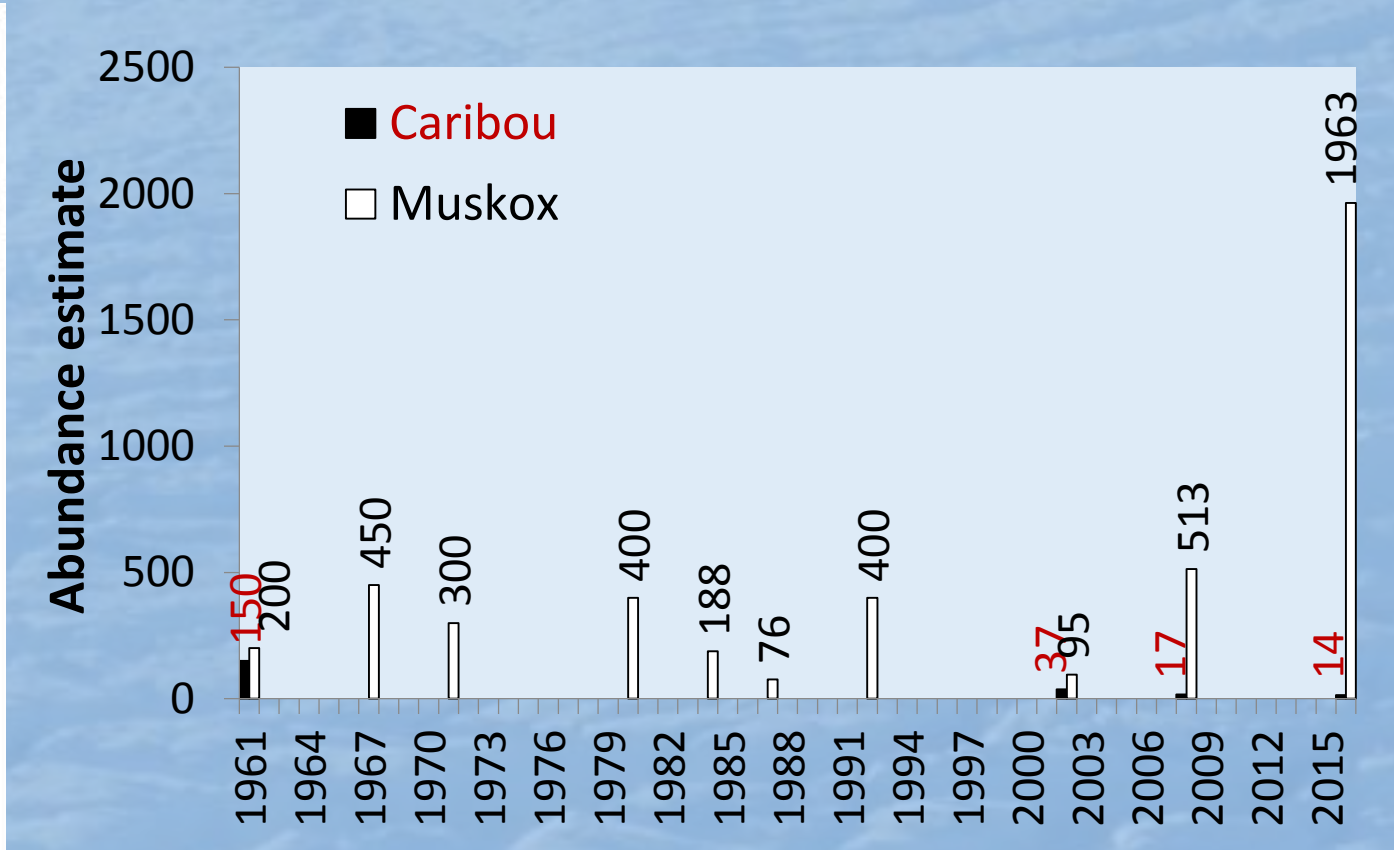
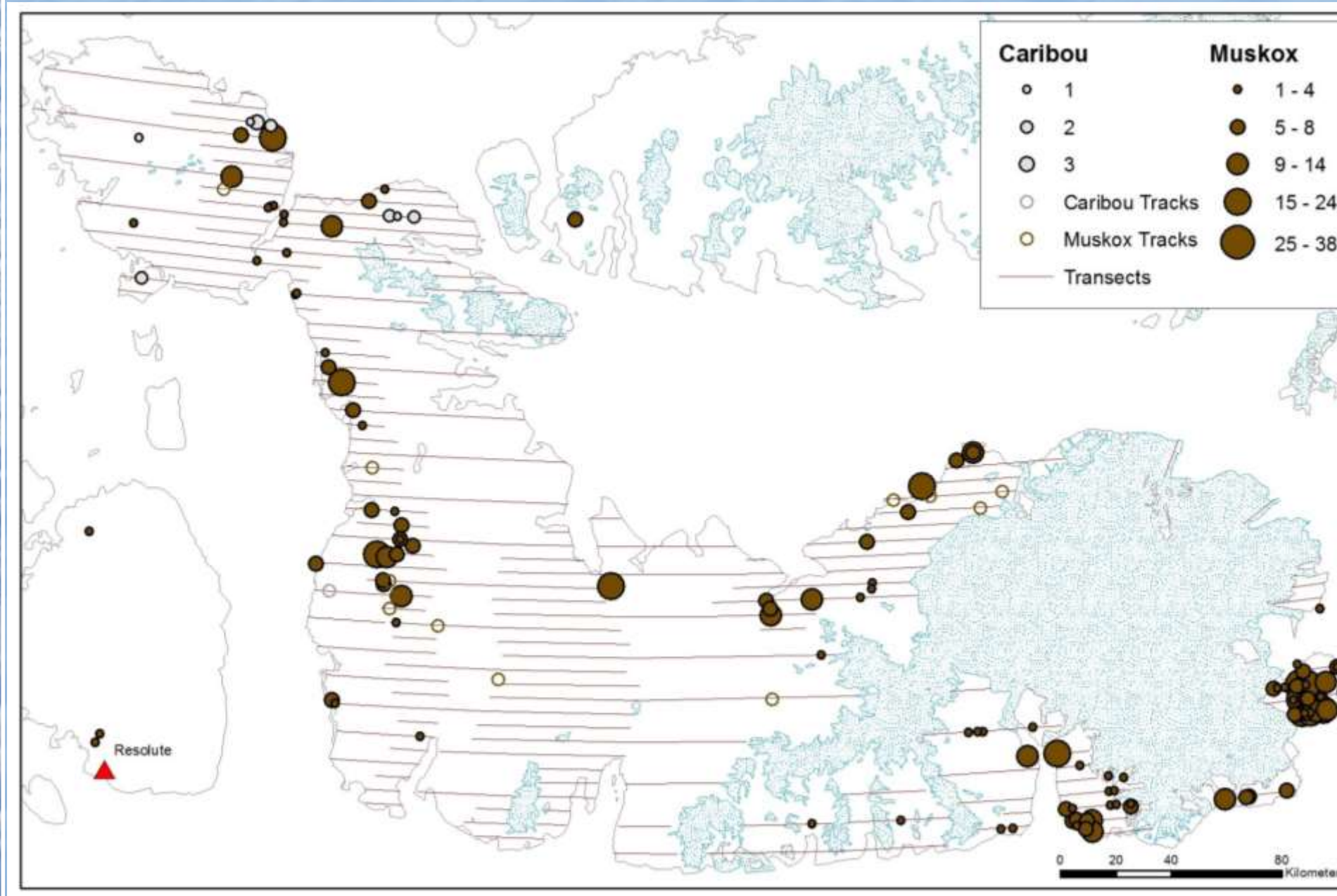
RESULTS

Muskoxen have increased to high population densities on Devon Island.

Historic surveys generally estimated 300-500 muskoxen on Devon Island and although some surveys only covered the productive lowlands, those were where most muskoxen were located in the 2016 survey as well. We estimated 1,963 ±343 SE muskoxen; almost a fourfold increase from 2008.

Peary caribou on Devon Island are likely stable at low densities.

We only observed 14 Peary caribou. Previous surveys also indicated low density of caribou, and local knowledge suggest that they occupy patchy habitat areas even at low densities. Caribou were observed in the same areas as in previous surveys, although not in the Truelove Lowlands where Grise Fiord harvesters sometimes see them.



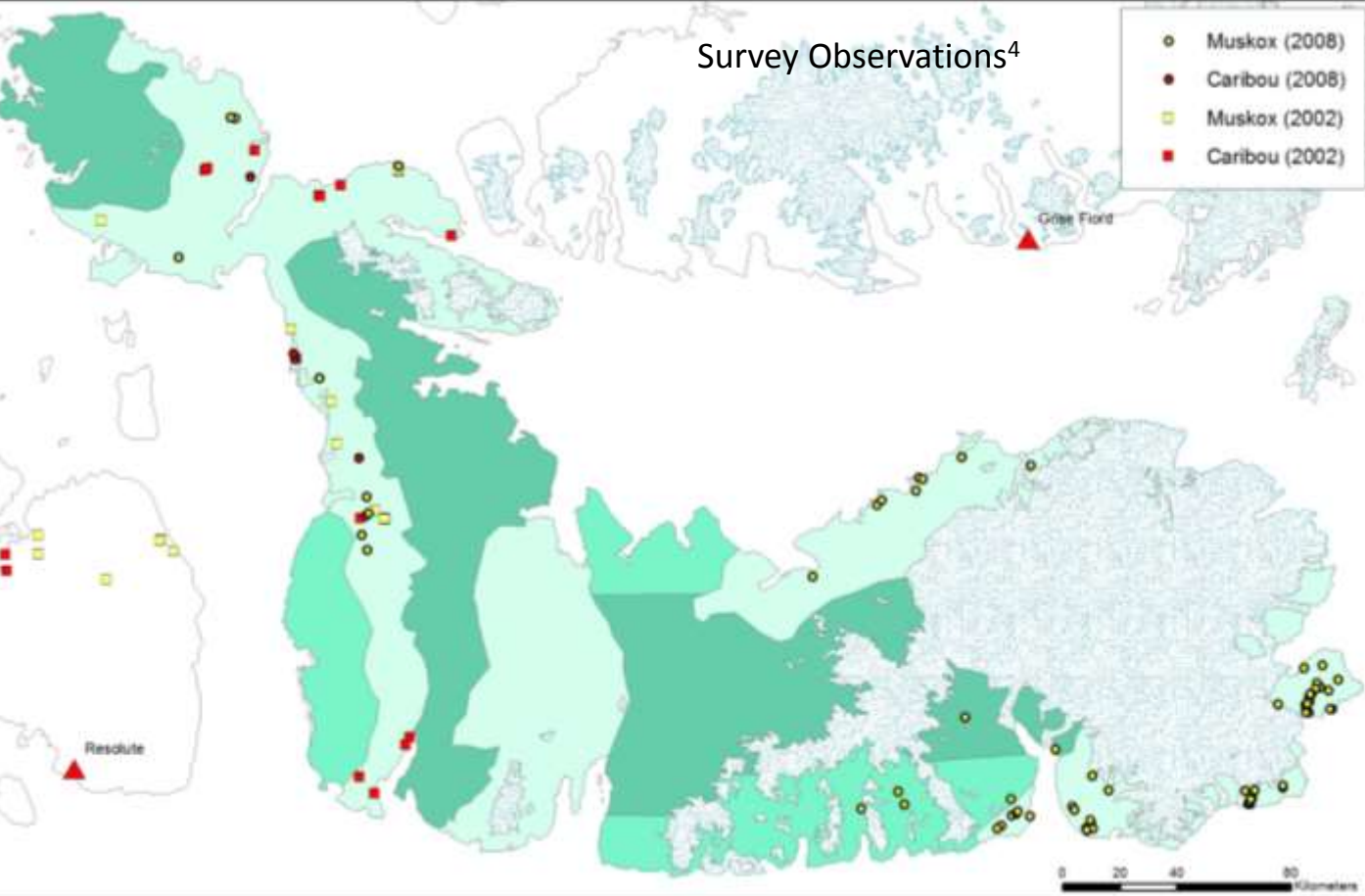
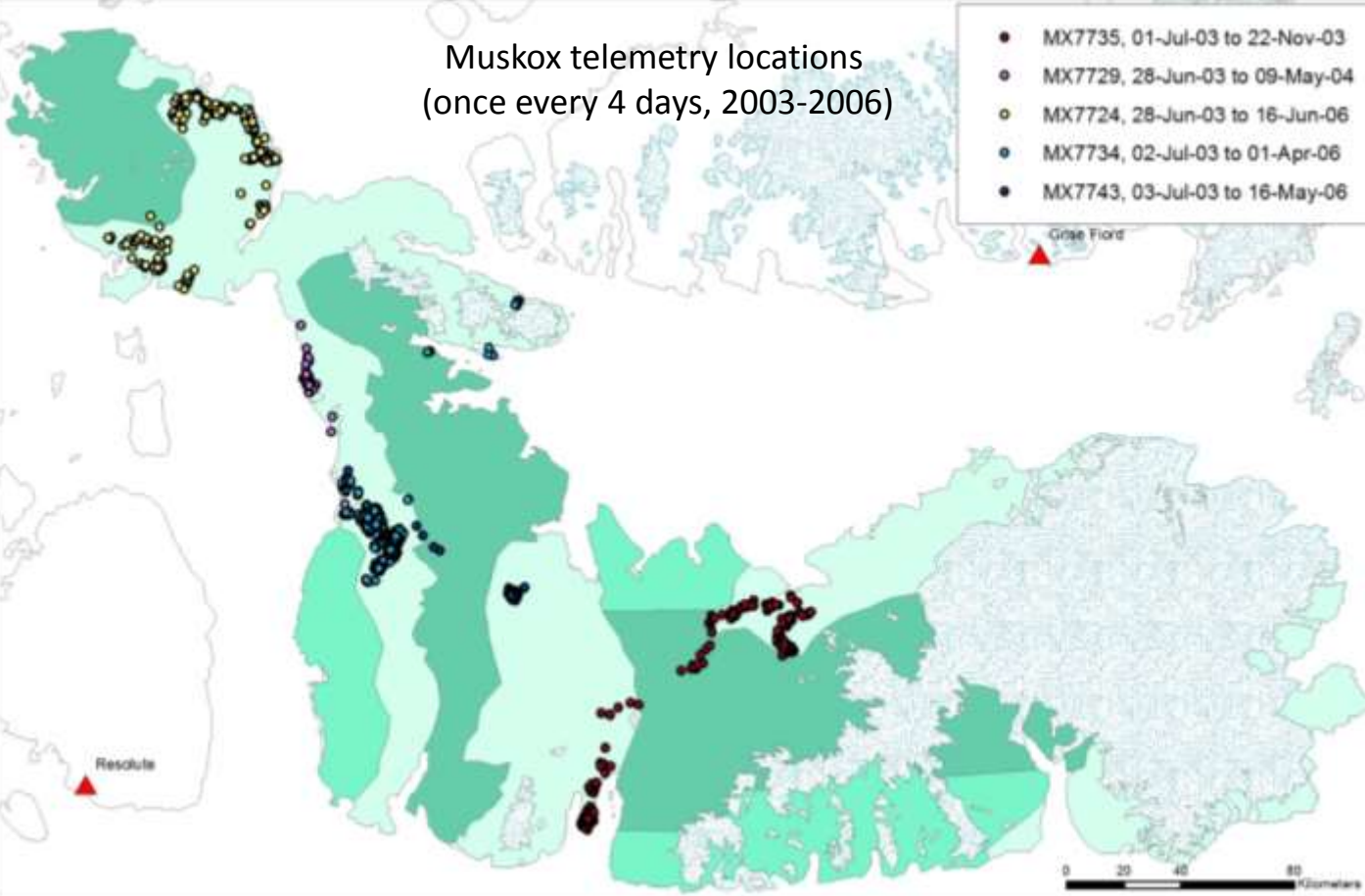
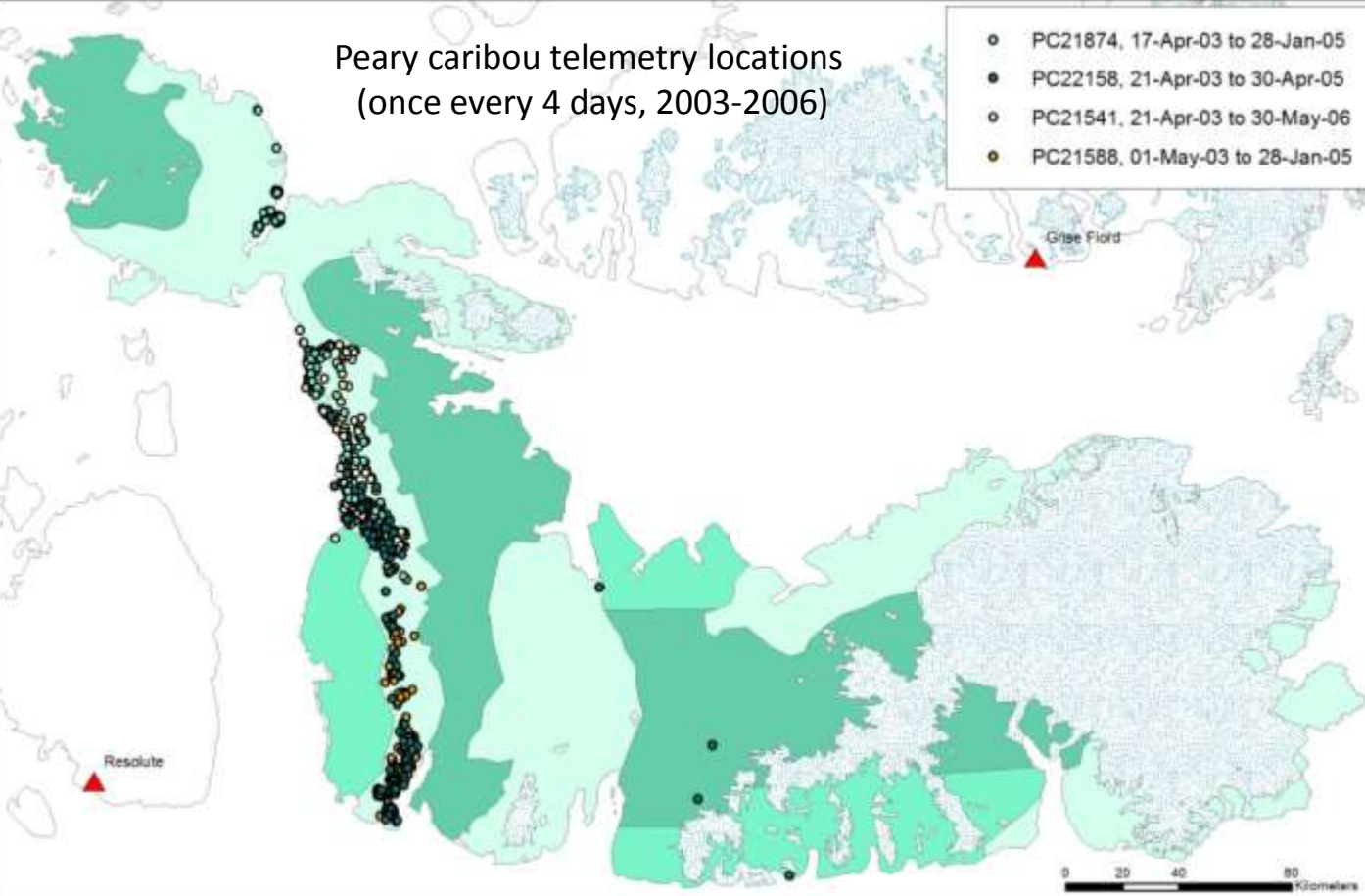
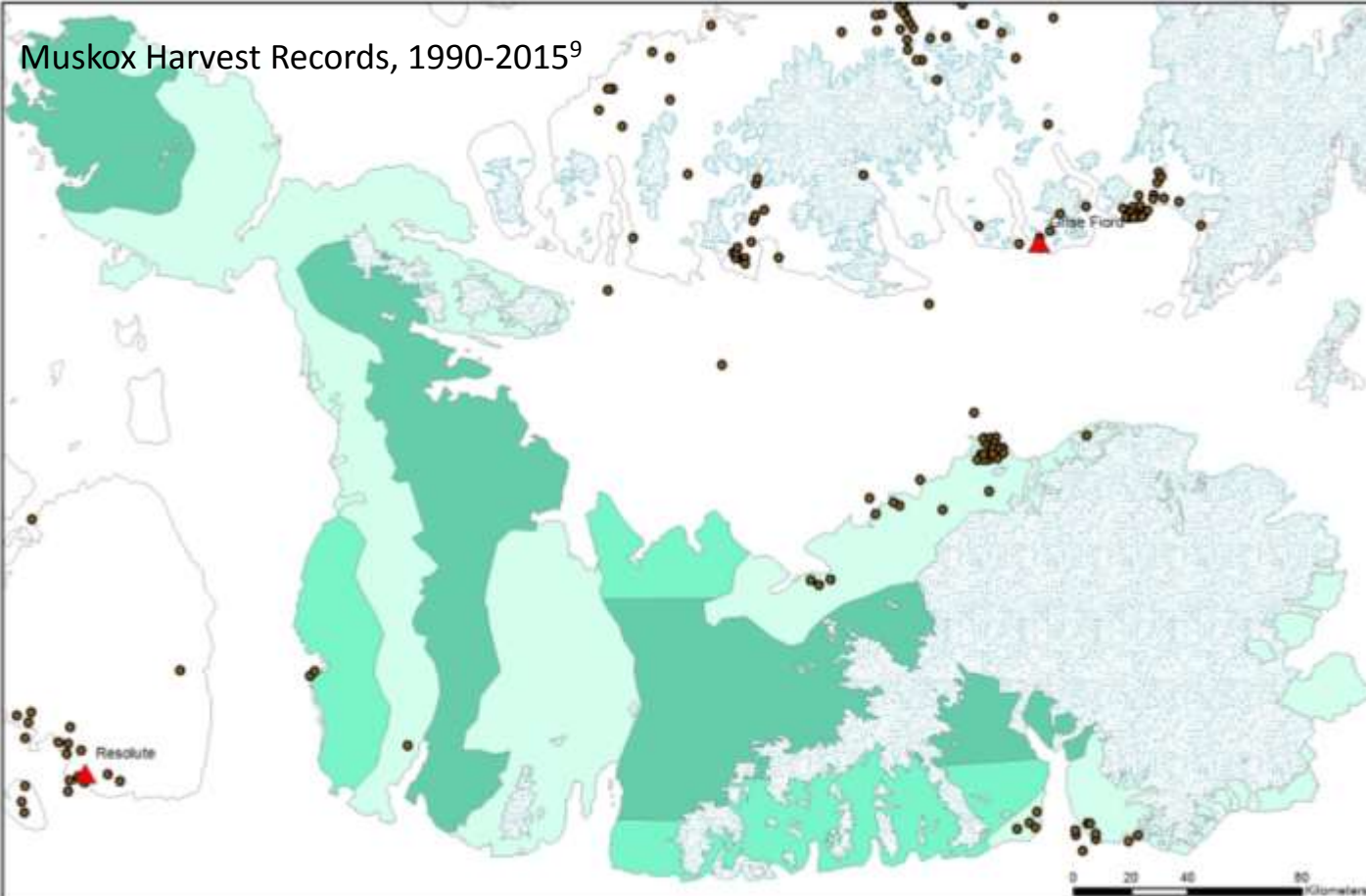
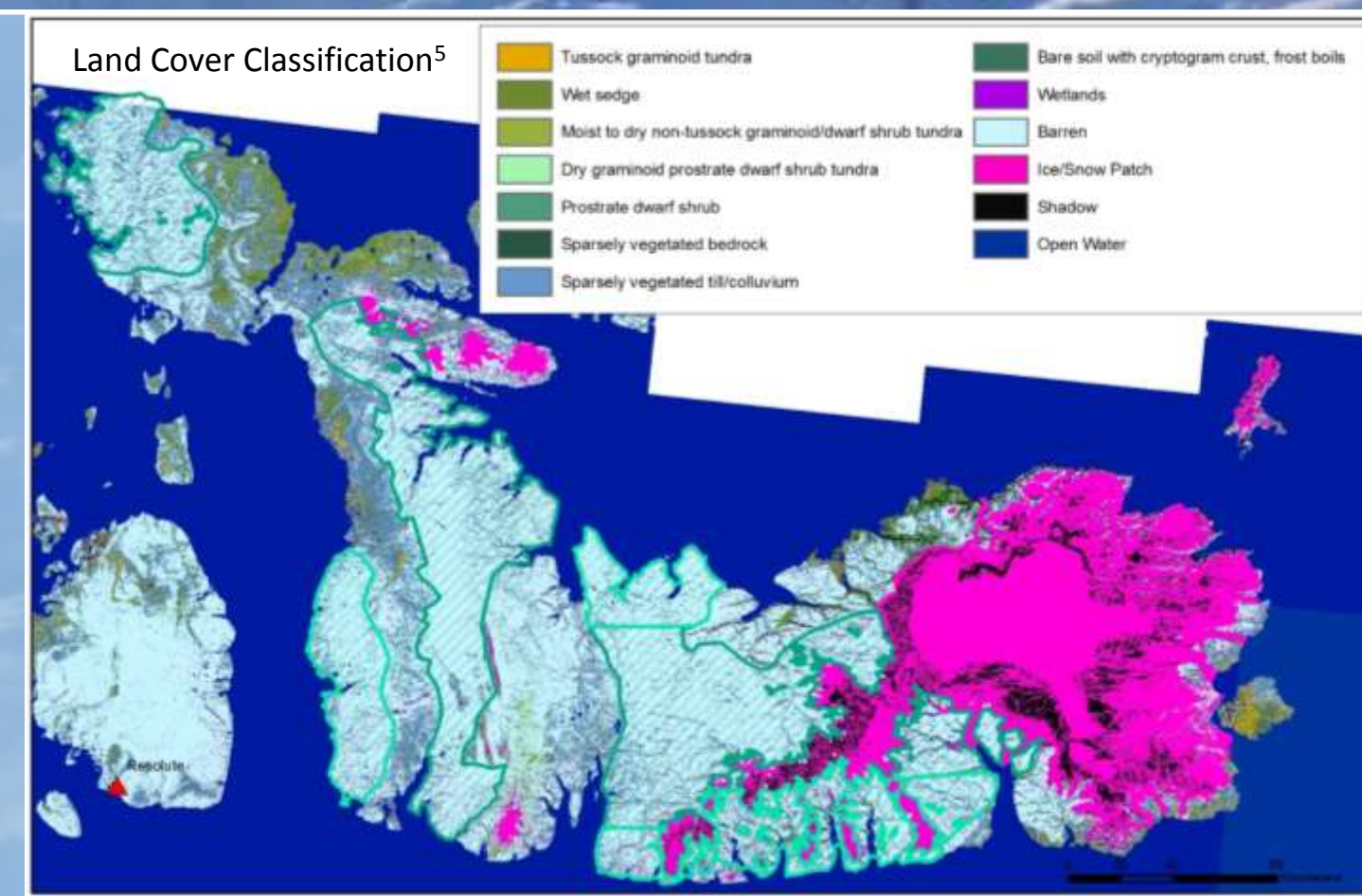
Summary of population estimates for muskoxen and Peary caribou on Devon Island. Muskox estimates prior to 1980 were extrapolations from minimum counts^{10, 11, 12, 13, 14} followed by minimum counts¹⁵ and then systematic surveys covering part or all of Devon Island.⁴ Caribou estimates are guesses¹⁰ or minimum counts⁴.

MANAGEMENT IMPLICATIONS

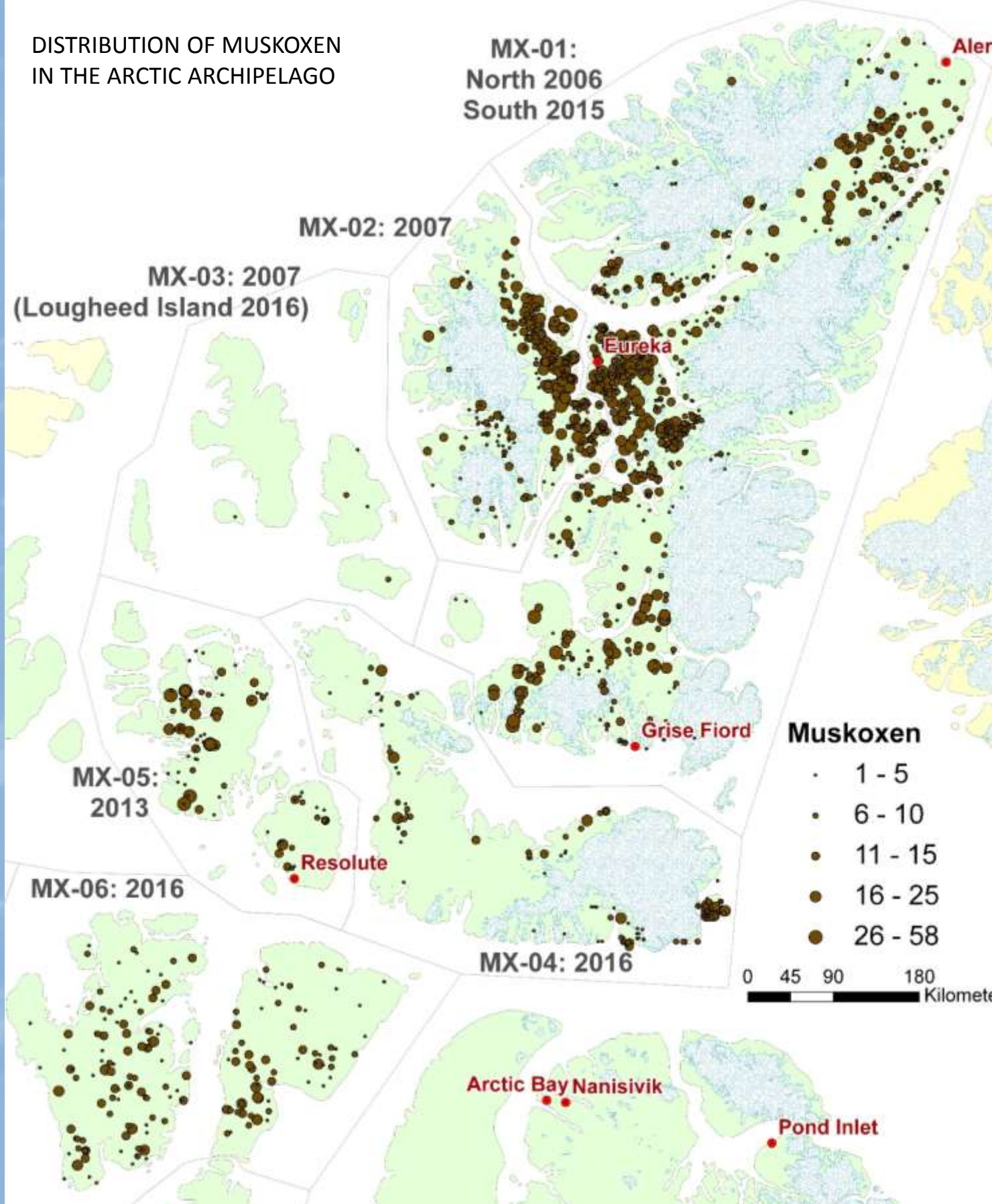
- The muskox population is currently high and could support more harvesting than the Total Allowable Harvest (TAH) of 15 currently allocated to Grise Fiord (4), Arctic Bay (4) and Resolute (7).
- In September 2015, the Government of Nunavut provided this information and communications with communities to the Nunavut Wildlife Management Board, to increase the TAH to 100 (~5% of the population), with the possibility of community hunts or temporary lifting of the TAH for Inuit harvest.
- Pond Inlet, which does not currently have tags, has expressed interest in harvesting muskoxen on Devon Island, and Arctic Bay, which has not harvested there recently, also has a renewed interest in harvest opportunities (Baffin Island caribou, a major source of country food for Baffin Island communities, are currently at very low numbers and a TAH is in effect)
- Careful monitoring of harvest is important since sporadic die-offs occur regardless of muskox density and muskoxen are located only in discrete suitable habitat patches.

METHODS

- Flew 58 hours by Twin Otter, 2 observers each side, March 22-30, 2016, at 180 kph and 150 m above ground with a 1-km fixed-strip width
- Survey area was stratified into low, medium, and high density strata with east-west transects spaced 15, 10, and 5 km apart respectively
- Stratification was based on harvest locations 1990-2015, previous surveys and historic habitat delineation, local knowledge, telemetry locations from 5 muskoxen and 4 caribou collared 2003-2006, and land cover classification developed from Landsat imagery 1999-2002.⁵
- Population estimates were calculated based on the observed densities of muskoxen on transect^{6,7,8}
- Since only 14 caribou were seen, no population estimate was calculated for Peary caribou



No TAH is currently set for Peary caribou and no management plan has been implemented. Residents of Grise Fiord and Resolute have a history of regulating harvest on Devon Island, and harvest is not currently considered a threat to Peary caribou in the region.



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