



BRITISH  
COLUMBIA

# Northeast Region – Caribou Population Monitoring Update 2024/2025

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**BC CARIBOU  
RECOVERY PROGRAM**



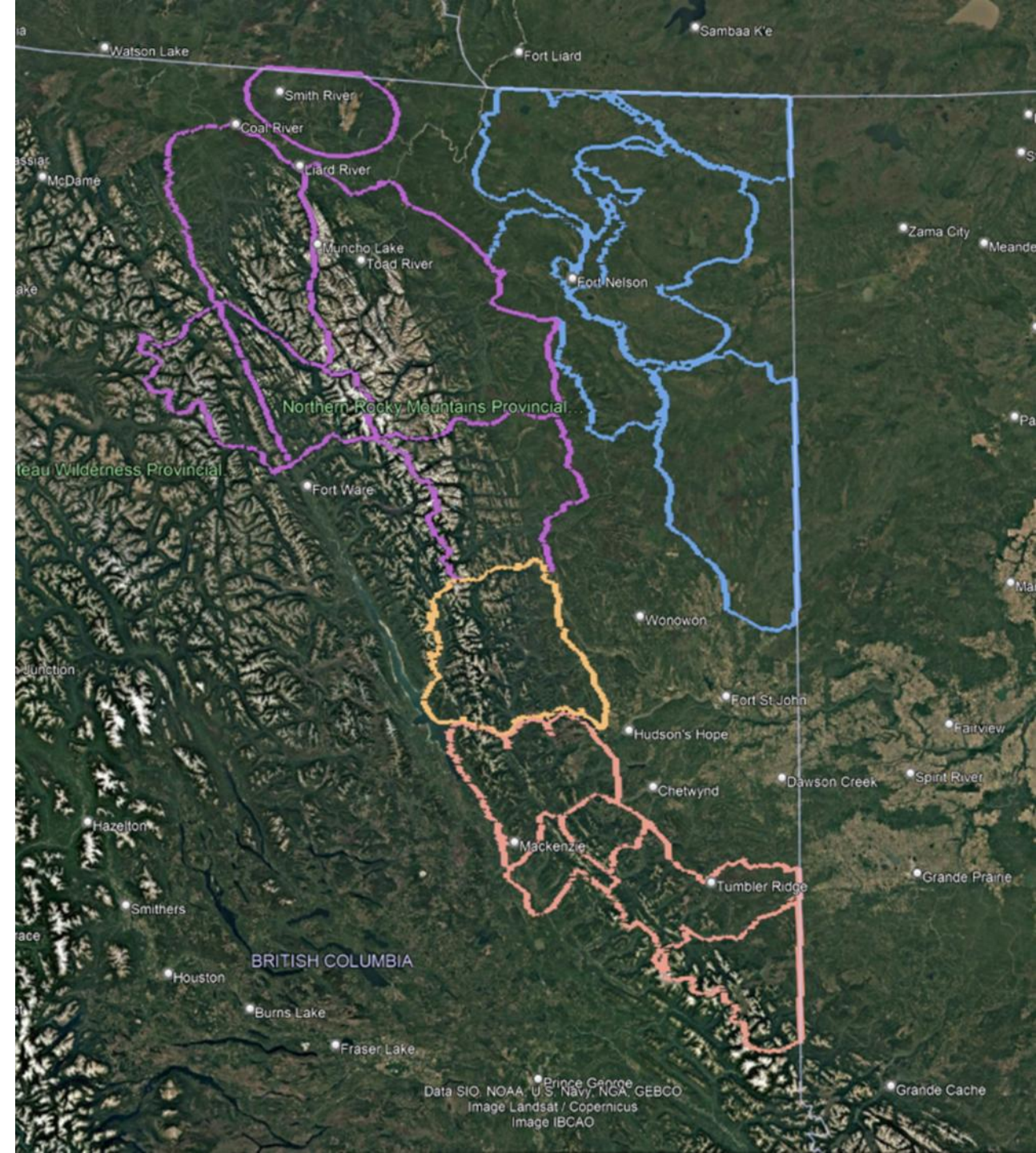
# Overview

- Intro to caribou in Northeast BC
  - Type
  - Status
- Intro to BC's Caribou Recovery Program
- Caribou Recovery Methods
- Methods of caribou population monitoring
  - GPS collars
  - Aerial Surveys (Mark-resight, Recruitment, Fecal DNA)
- Monitoring results from Winter 24/25



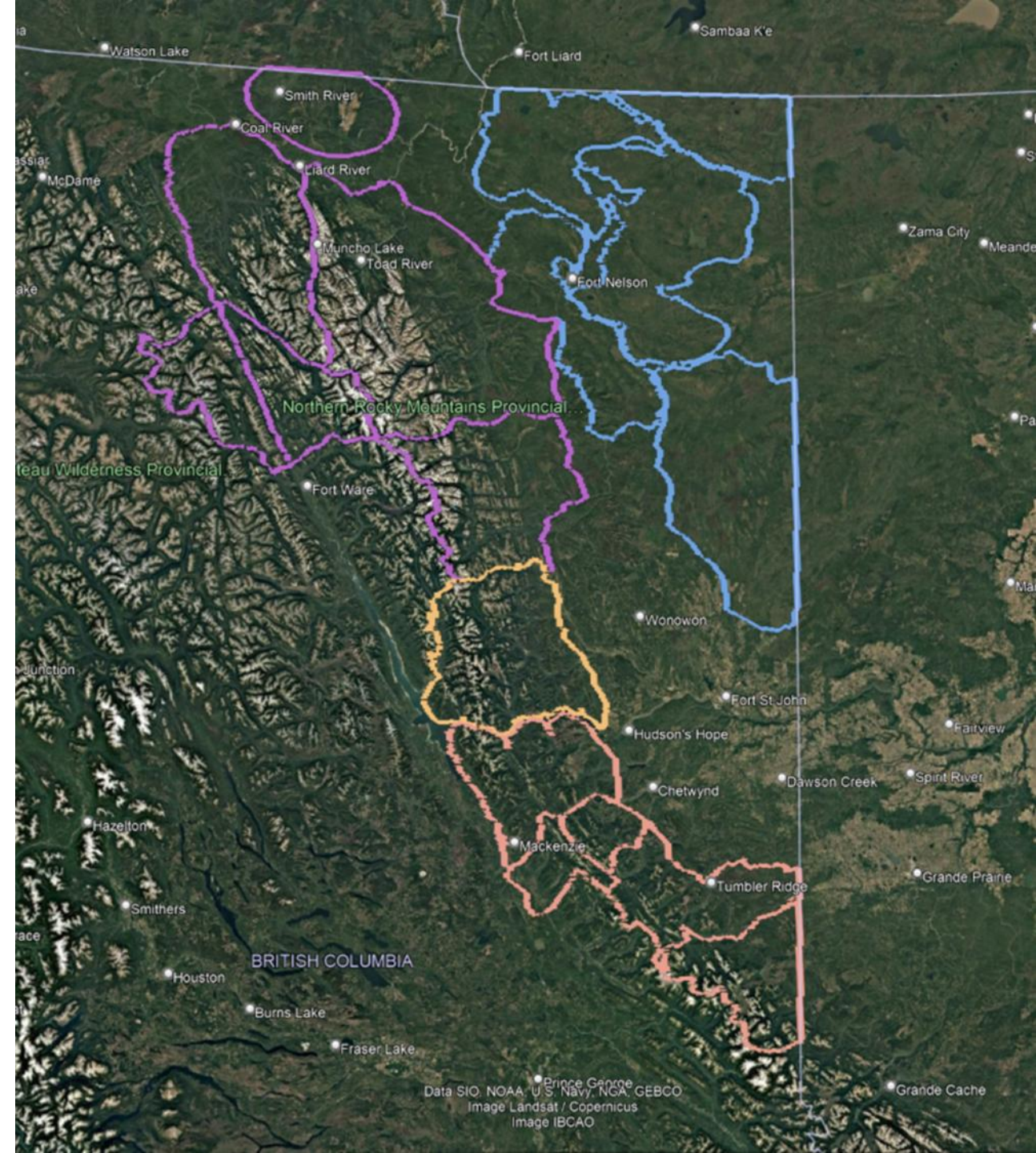
# Caribou in Northeast BC

- All caribou in BC are 'woodland caribou' (a forest dwelling sub-species of caribou)
- Caribou are further broken down into eco-types (ecotypes = distinct group within a species adapted to a particular habitat)
- NE BC is home to 3 ecotypes:
  - Boreal caribou
    - adapted to living in low elevation peatlands and boreal forests
  - Northern Mountain caribou
    - adapted to living primarily in alpine and subalpine habitat, with seasonal migrations to lower elevations
    - Found in the North (Northern BC, NWT, Yukon)
  - Southern Mountain caribou
    - Similar habitat and behaviour to Northern Mtn but found further south
    - Further broken down into groups (Northern, Central, Southern groups)



# Status of Caribou in Northeast BC

- Caribou have experienced widespread declines due to habitat alteration/loss/fragmentation
  - Depend on large, undisturbed areas for food resources, reproduction, predator avoidance
- Federal mandate to recover populations to self-sustaining levels
- The NE region has 17 delineated caribou populations:
- **SARA listed as 'Threatened', BC red-listed**
  - 5 Southern Mtn – Central group (Orange)
  - 1 Southern Mtn – Northern Group (Yellow)
  - 5 Boreal (Blue)
- **SARA listed as 'Special Concern', BC blue-listed**
  - 6 Northern Mtn (Purple)



# BC's Caribou Recovery Program

- Created in 2017 to centralize all caribou recovery efforts into one program
- Purpose: Develop, implement, and monitor caribou recovery management actions and provincial strategies to meet provincial and federal population and habitat objectives
- CRP broken down into teams (habitat, planning, science, population)
- Population – goal is to provide up to date population data to prioritize and assess the effectiveness of recovery actions



# Recovery Methods

- Main caribou recovery methods utilized in BC
  - Predator reduction
  - Maternal penning (Klinse-Za)
  - Supplemental feeding (Kennedy Siding)
  - Habitat protection
  - Habitat restoration
- My role with the population team involves monitoring caribou populations in response to these recovery methods.



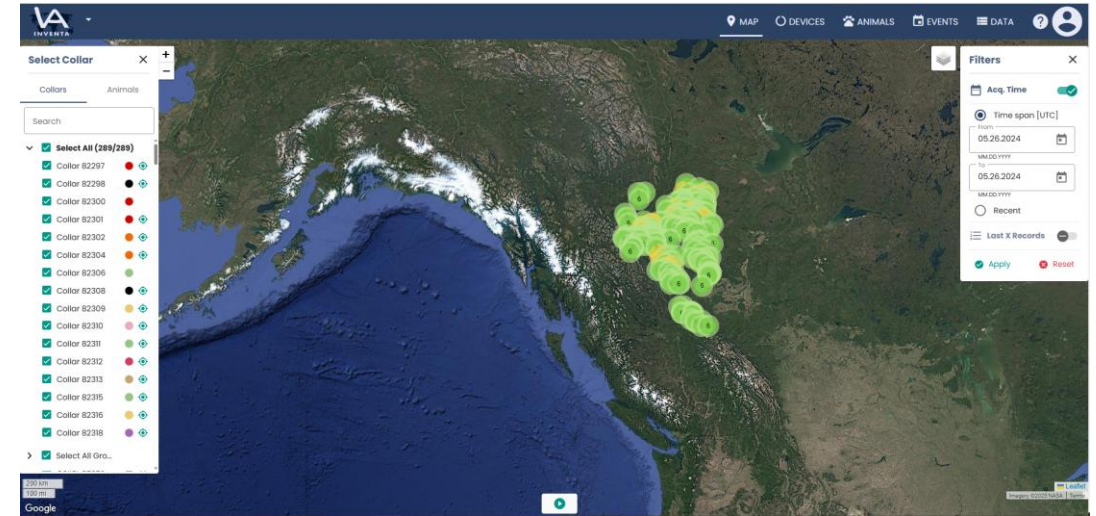
# Population Monitoring (GPS Collars)

- GPS collars are one of the key methods of monitoring caribou populations
- Collars deployed by capturing with net gun from helicopter
- We collar approximately 10% of the adult female caribou within a population
- Collars settings are customizable, but we typically set them to send a GPS fix every 8 hours and higher frequency during calving (May-July)
- Collars send a mortality notification if they haven't moved for a set period of time
- Collars give us insights into:
  - Cause-specific mortality
  - Yearly female survival
  - Health samples collected during capture
  - Spatial distribution and seasonal movements (core vs matrix habitat)



# NE Collaring Update

- We deployed 46 collars this past winter in various populations
- Currently there are 274 active collars spread out across the NE



Range	# of collars deployed Jan/Feb 2025	# of active collars May 2025
Calendar	1	19
Chinchaga	2	28
Hay River	3	7
Maxhamish	2	18
Snake-Sahtaneh	3	39
WSFN	1	13
Pink Mountain	11	31
Muskwa	0	33
Rabbit	0	10
Frog	0	10
Gataga	0	8
Liard Plateau	0	3
Graham	10	24
Quintette	5	11
Kennedy Siding/ Burnt Pine	5	10
Narraway	3	9
<b>TOTAL</b>	<b>46</b>	<b>274</b>

# Population Monitoring (Aerial Surveys)

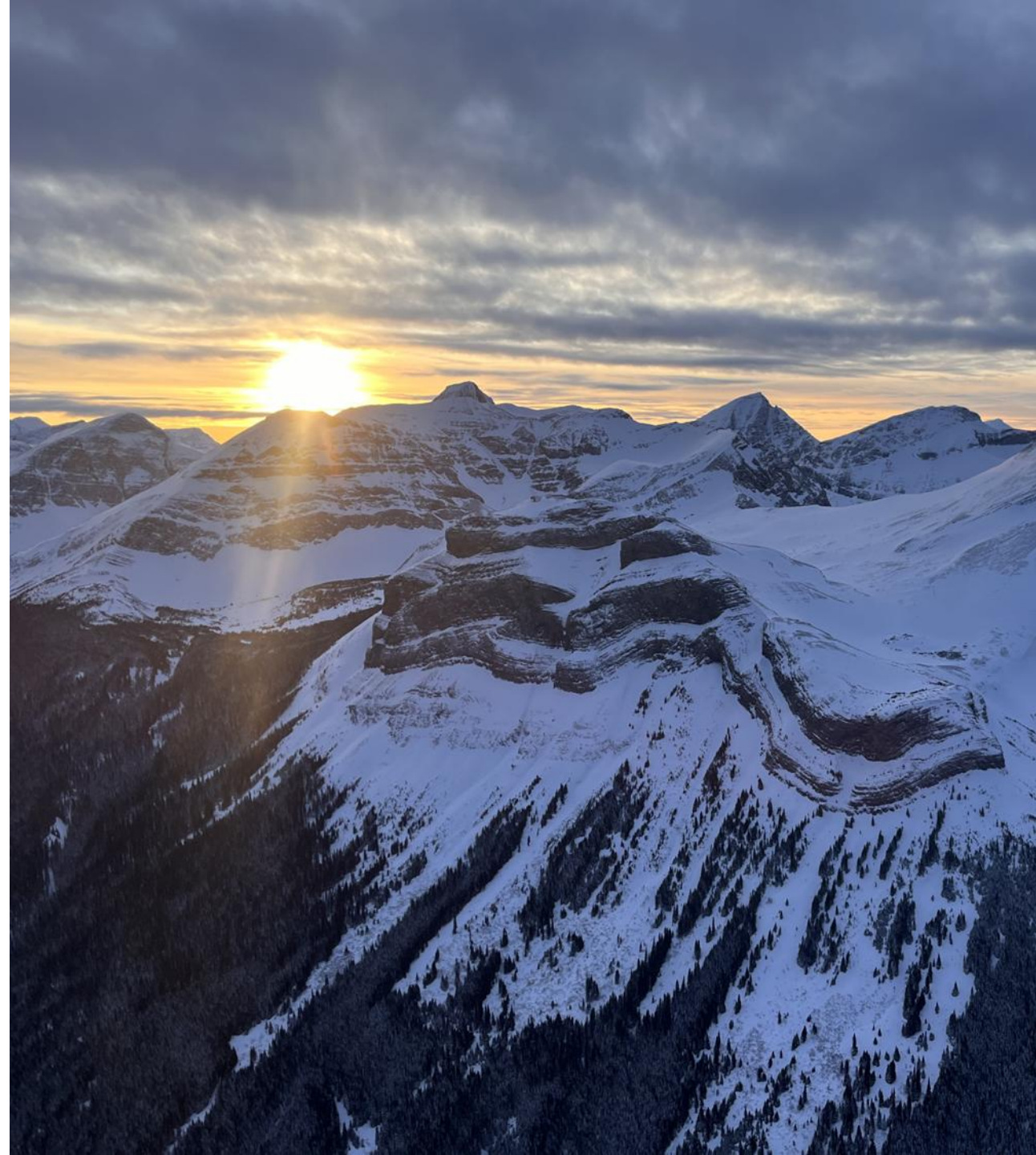
- Another key method of population monitoring is counting caribou via aerial surveys
- Typically done in late-winter when caribou are in high elevation habitat
- Most common method in BC is called a mark-resight survey
  - Involves flying contours around high elevation areas, counting and classifying caribou
  - A random portion of the population are 'marked' – GPS collared cows
  - Inevitably caribou are missed when counting from a helicopter, this method accounts for that
  - A proportion of the marked animals that are missed during the survey is used to estimate the total proportion of animals missed in the population



# Population Monitoring (Aerial Surveys)

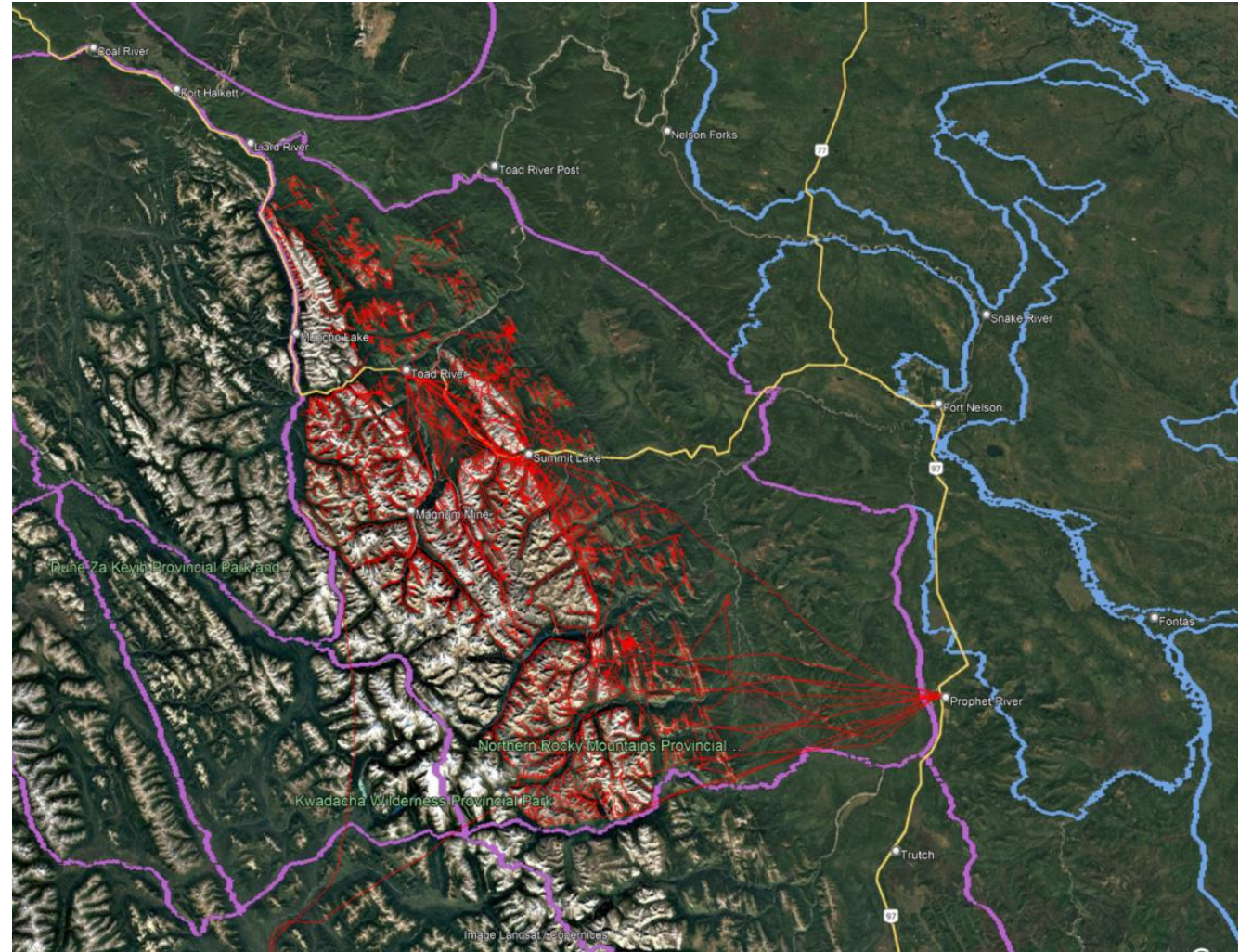
- Mark-resight surveys are logistically challenging (sufficient collar sample size, coordinate helicopters + survey crews, fuel caches, full snow coverage and enough visibility etc.)
- The key result is a sightability corrected population estimate
- Other results include:
  - Calf % and cow:calf
  - Bull:cow
  - Habitat use
- Other common survey is a recruitment survey
  - This involves flying straight to GPS collared animals to count and classify
  - Main result is calf recruitment rates

**Renewal target**  
**15-16% of calves in pop**  
**25 calves:100 cows**



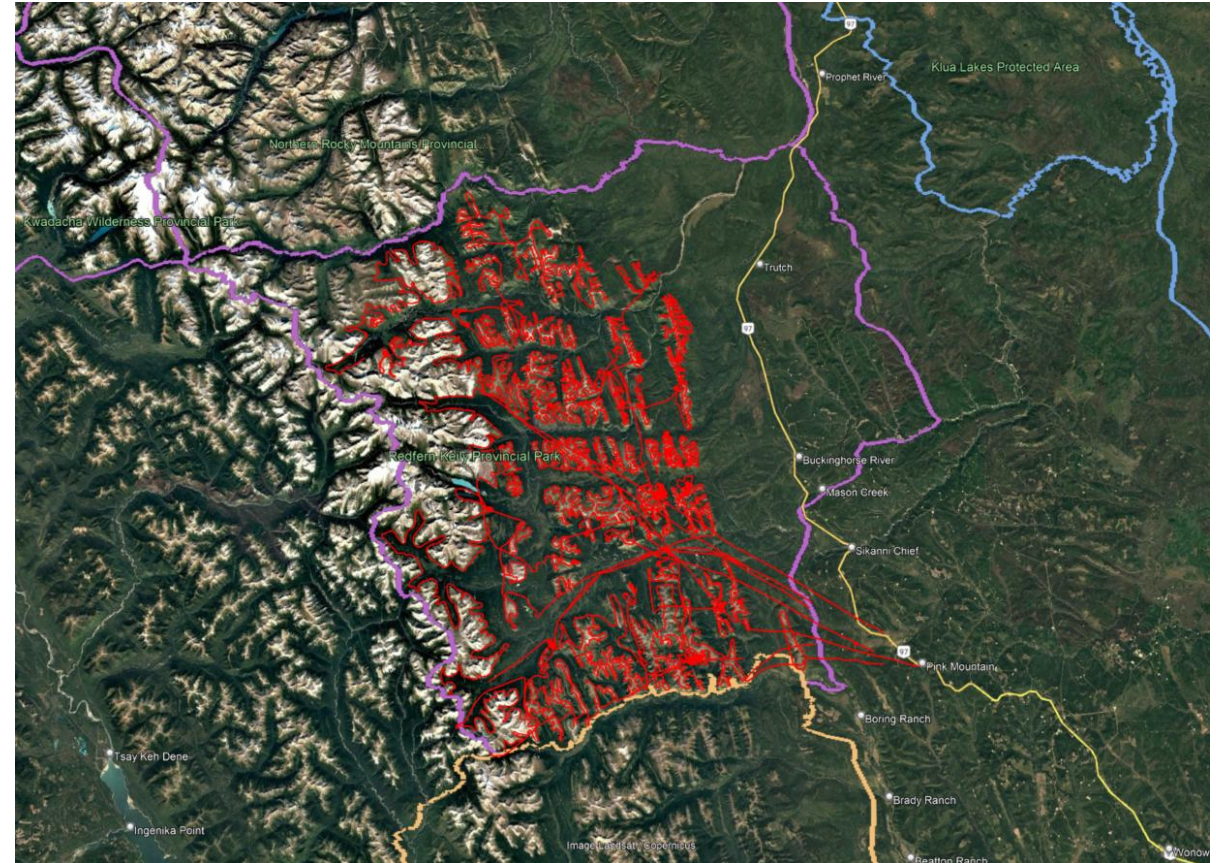
# Muskwa Mark-Resight Feb 2025

- No existing population estimate – Last NMC in the NE that hadn't been surveyed. This estimate will be used as a baseline
- Collaboration with PRFN
- MKNA = 836 individuals, 130 groups
- Sightability 15/33 (45%) – caribou in front country all the way up to 8000+ feet
- Prelim estimate of 1561 (95% CI 1008-2745)
- 46 calves:100 cows, 21% calves, 64 bulls:100 COWS



# Pink Mtn Mark-Resight March 2025

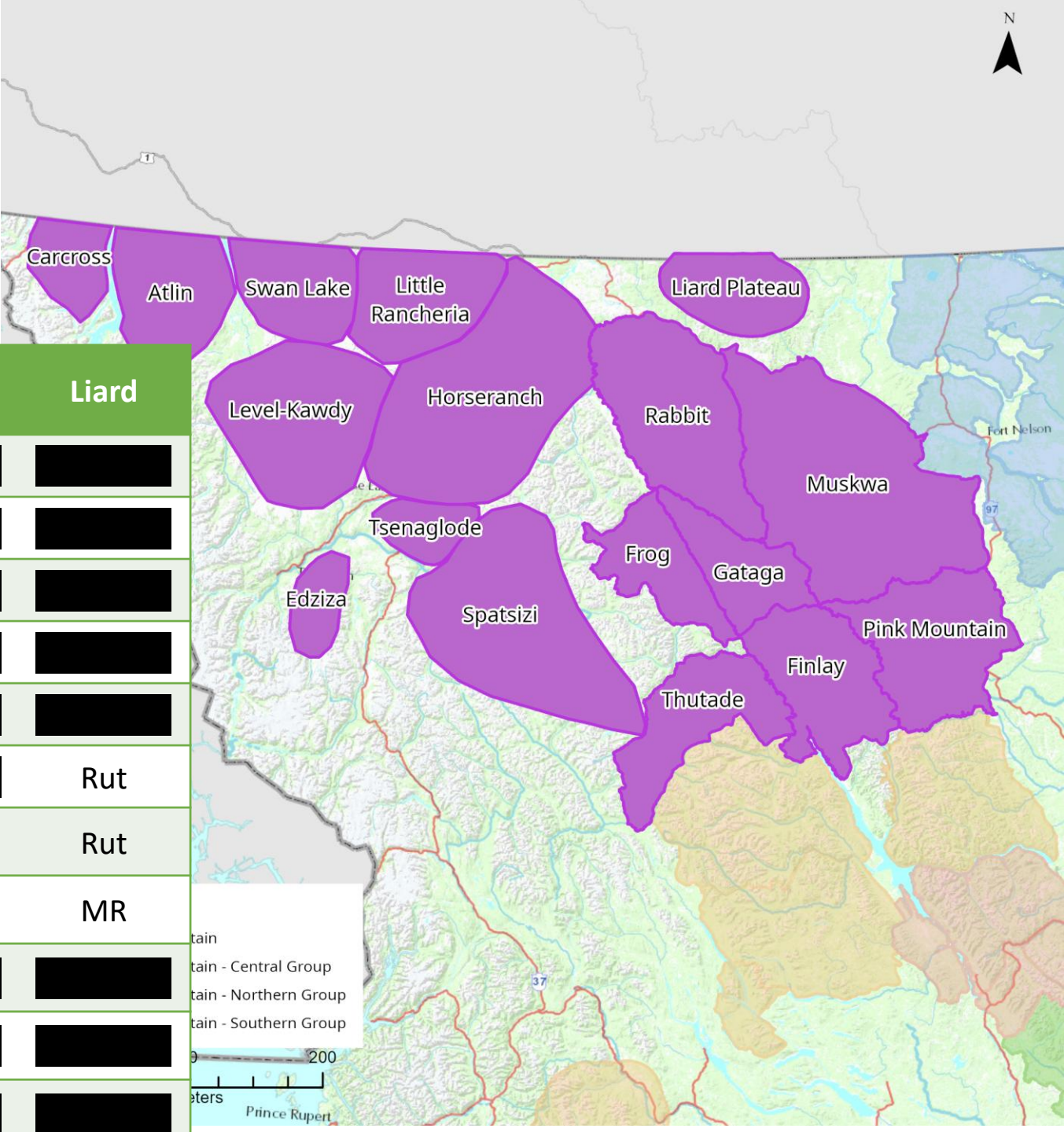
- Counted a total of 875 caribou in 130 groups
- Sightability 21/27 (78%)
- Prelim estimate of 1068 (95% CI 719-1701)
- 36 calves:100 cows, 18% calves, 63 bulls: 100 cows
- The last mark-resight in 2021 resulted in a population estimate of 559 (95% CI 340-946)
- This population has almost doubled in the past 4 years



# Northern Mountain – monitoring history

Special concern under SARA

	Pink Mountain	Muskwa	Gataga	Frog	Rabbit	Liard
2015						
2016	R					
2017	R	R				
2018	R	R				
2019						
2020		R				Rut
2021	MR		R	R	R	Rut
2022	R	R			MR	MR
2023	R		MR	MR		
2024						
2025	MR	MR				

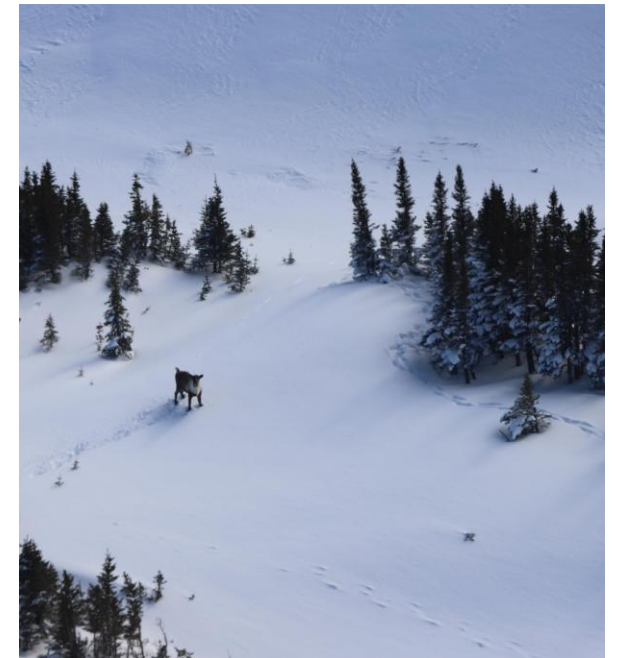
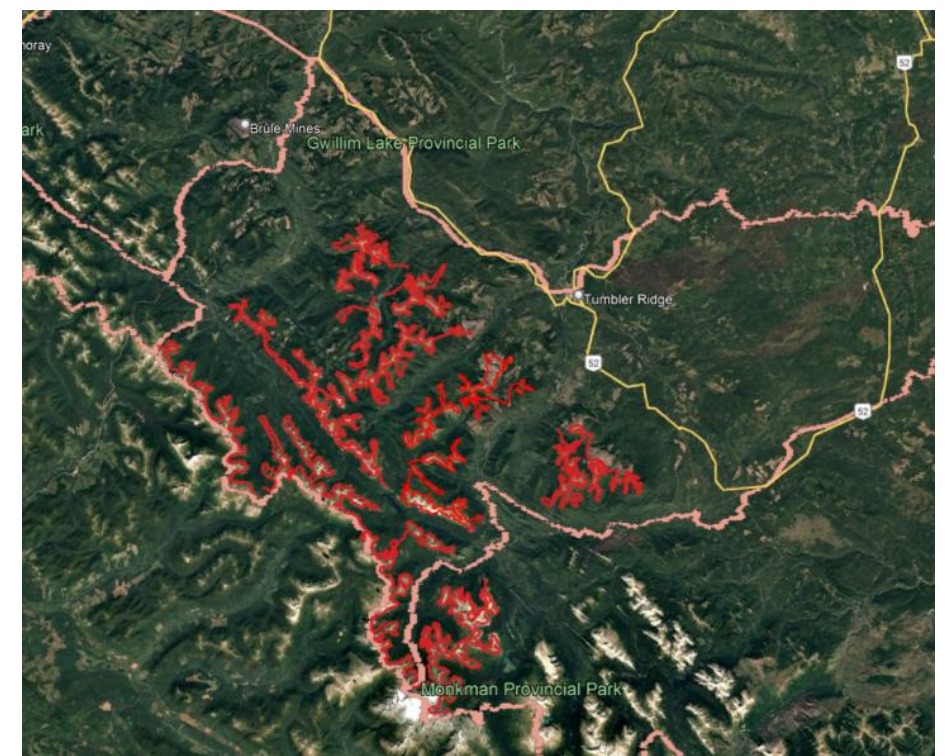


# Northern Mountain – mark resight results

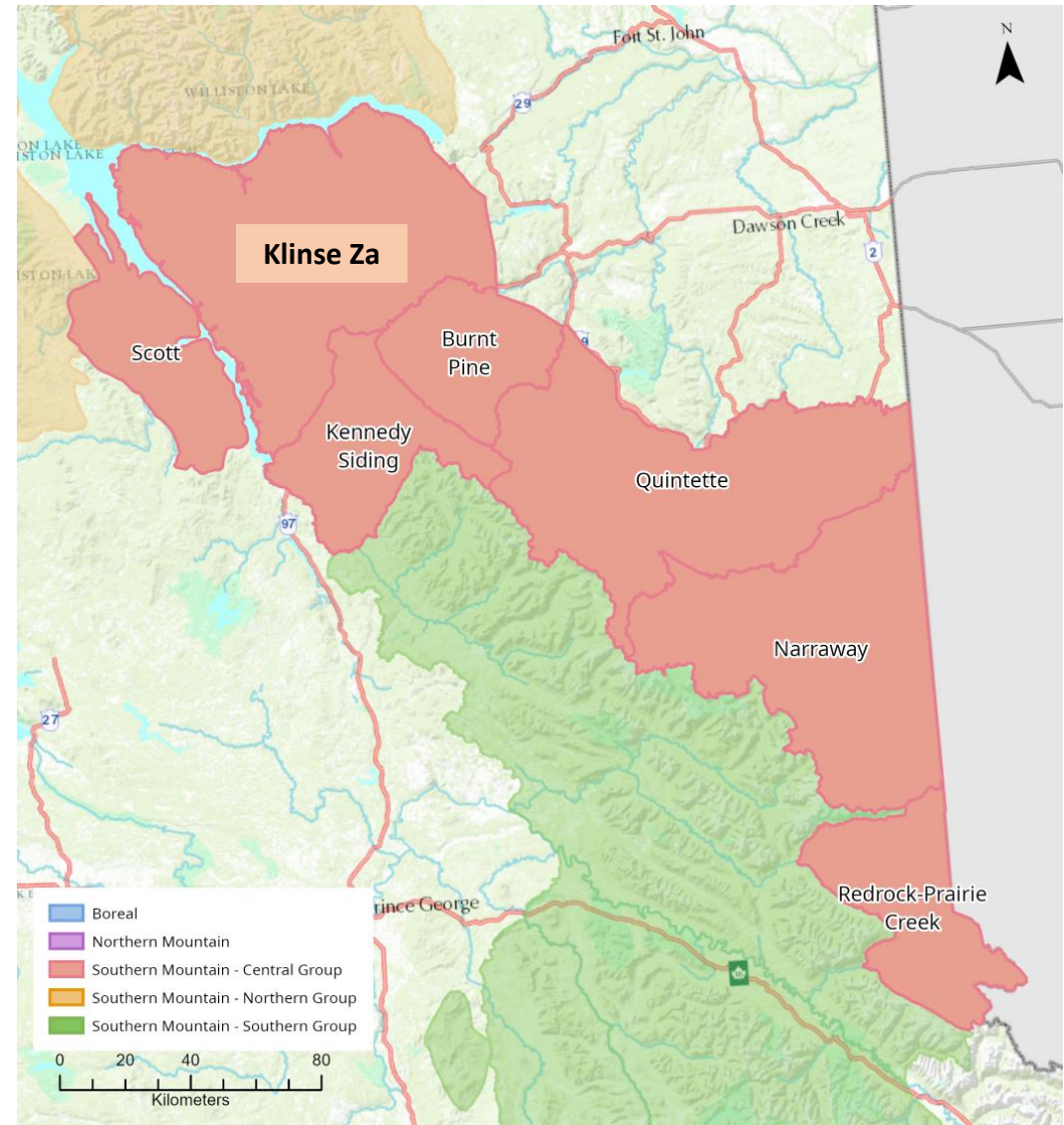
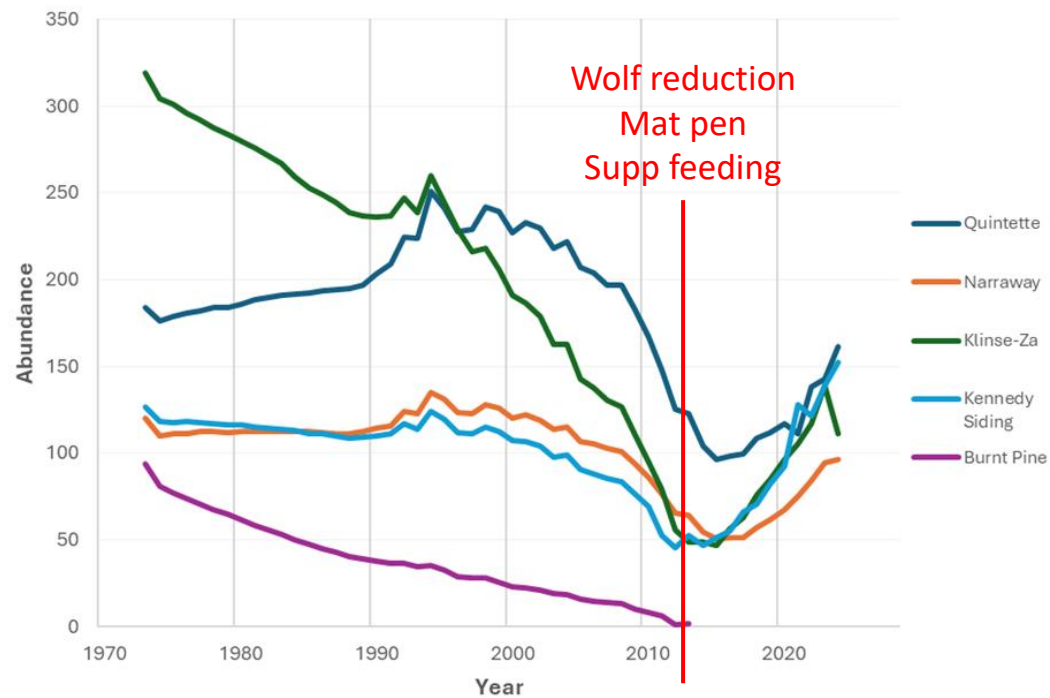
	Year of last mark-resight	# observed	% calves	Calves : 100 cows	Bulls : 100 cows	Pop estimate
Pink Mountain	2021	374	16	27	37	559 (SCF=0.63)
Pink Mountain	2025	875	18	36	63	1068 (SCF = 0.78)
Liard	2022	151	16	30	58	151 (SCF=1)
Rabbit	2022	1063	13	26	47	1110 (SCF=0.95)
Frog (incl. 3 outside blocks)	2023	205	20	56	38	206 (Blended)
Frog	2023	86	24	70	50	87 (SCF=0.89)
Gataga	2023	179	16	39	81	179 (SCF=1)
Muskwa	2025	836	21	46	64	1561 (SCF = 0.45)

# Quintette Mark-Resight March 2025

- Collaboration with Saulteau
- MKNA=164
- Sightability: 12/13 (92%)
- Prelim estimate of 174 (95% CI 105-294)
- 34 calves: 100 cows, 18% calves, 58 bulls: 100 cows
- Last population estimate in 2023 – MKNA= 133, estimated 149 (95% CI 108-219)
- Population appears to have grown by about 35 animals in 2 years



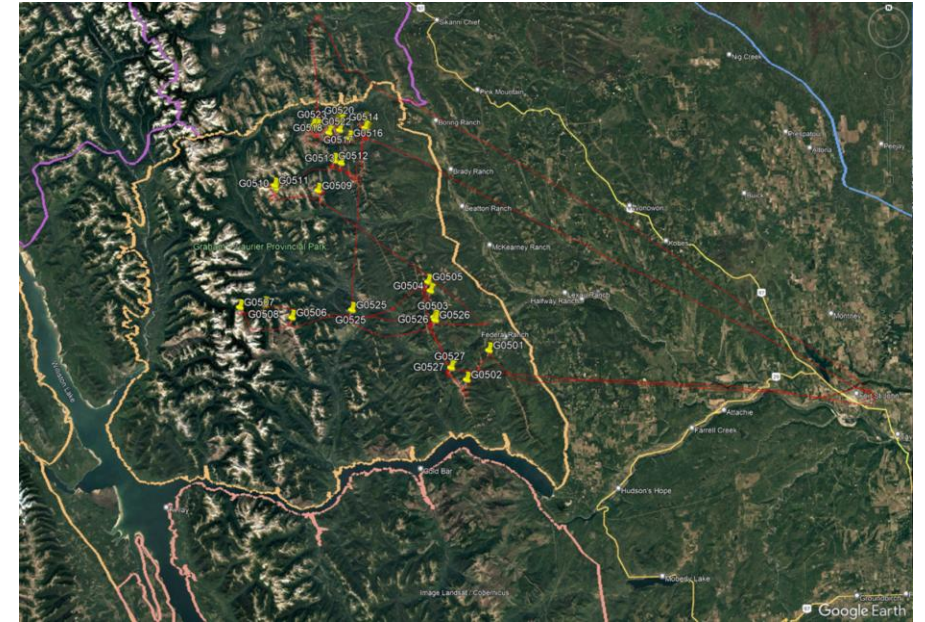
Range	Survey count	% calves	Calves:100 cows	Bulls:100 cows	Pop est
Klinse-Za	179	17%	60	138	187
KS / BP	166	15%	32	81	166
Quintette (Old boundary)	164	18%	34	58	174
Narraway (BC & AB)	125 (Minimum)	23%	48	0	



# Graham Recruitment

## March 2025

- Sighted 23 collars
- 160 caribou observed in 26 groups
- 22% calves
- 51 calves : 100 cows
- 82 bulls : 100 cows
- Previous estimates in 2021 (197 95% CI 92-417) and in 2024 (417 95% CI 254-706)
- Population appears to be increasing

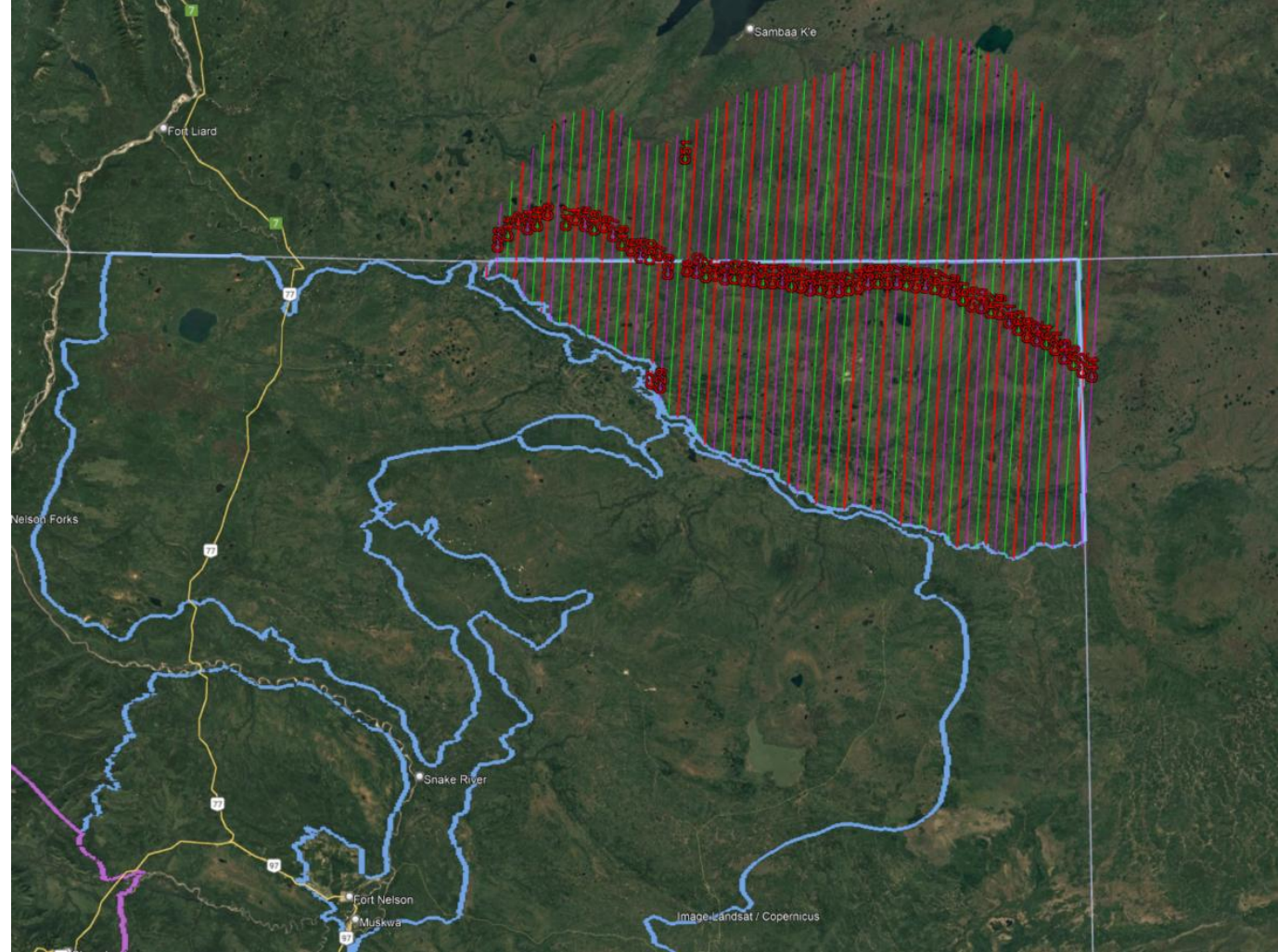


- **Boreal caribou are hard to see under forest cover, so it can be difficult to get an accurate population count from aerial surveys**
- **The DNA found in caribou feces can be used to identify unique individuals**
- **The most effective method to get a population estimate of Boreal caribou is with Fecal DNA. If enough samples are collected, we can estimate how many caribou are on the land without needing to see them directly**



# Calendar Fecal DNA Survey

- Last boreal DNA survey in NE – for now
- Flew N-S straight line transects looking for caribou or sign
- 3 sessions (Dec, Jan, Feb) – about 5 days each
- Collaboration with FNFN, PRFN, Sambaak'e, UofC
- Landed at 113 caribou sample sites and collected 813 samples
- DNA used to determine population estimate, relatedness, demographics etc. – results pending



# Boreal Recruitment Survey

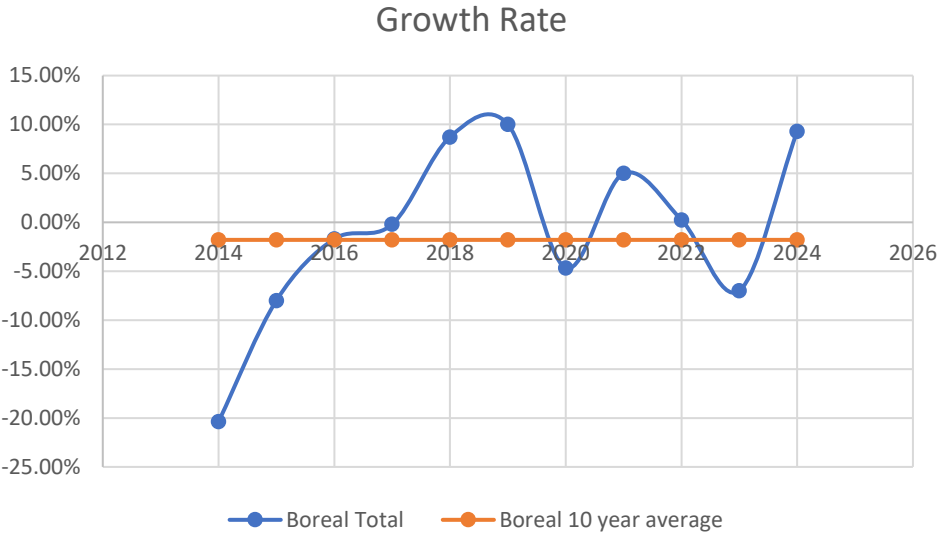
- Annual March recruitment surveys since 2014
- 127 collars sighted in late March – approx. 45 hours of helicopter time
- 917 caribou observed (Not including 7 Hay River + 1 Muskwa Connector collars)
- Overall Recruitment: 15.9%; 27.5 calves: 100 cows
  - Calendar: 18.8% calves; 28.5 calves: 100 cows
  - Chinchaga: 14.1% calves; 26.1 calves : 100 cows
  - Max: 18.8% calves; 36.8 calves: 100 cows
  - Snake: 15.6% calves; 26.3 calves : 100 cows
  - WSNF: 13.1% calves; 22.9 calves: 100 cows

Row Labels	Sum of Juvenile	Sum of Adult	Sum of Female	Sum of Male	Sum of Unclassified	Sum of Group Total
<b>Calendar</b>	<b>30</b>	<b>130</b>	<b>105</b>	<b>25</b>	<b>0</b>	<b>160</b>
NWT	8	56	44	12	0	64
AB	11	33	25	8	0	44
BC	11	41	36	5	0	52
<b>Chinchaga</b>	<b>34</b>	<b>208</b>	<b>130</b>	<b>70</b>	<b>8</b>	<b>241</b>
Milligan	25	165	96	66	3	189
Chinchaga North	9	43	34	4	5	52
<b>Maxhamish</b>	<b>21</b>	<b>91</b>	<b>57</b>	<b>34</b>	<b>0</b>	<b>112</b>
Kiwigana	9	38	26	12	0	47
Fortune	8	39	24	15	0	47
Capot Blanc	4	14	7	7	0	18
<b>Snake Sahtaneh</b>	<b>50</b>	<b>270</b>	<b>190</b>	<b>78</b>	<b>2</b>	<b>320</b>
Paradise	1	6	2	4	0	7
Clarke	16	84	60	24	0	100
Tsea	12	53	39	14	0	65
Kotcho	21	127	89	36	2	148
<b>WSFN</b>	<b>11</b>	<b>73</b>	<b>48</b>	<b>25</b>	<b>0</b>	<b>84</b>
WSFN	4	32	24	8	0	36
Parker	7	41	24	17	0	48
<b>Grand Total</b>	<b>146</b>	<b>772</b>	<b>530</b>	<b>232</b>	<b>10</b>	<b>917</b>

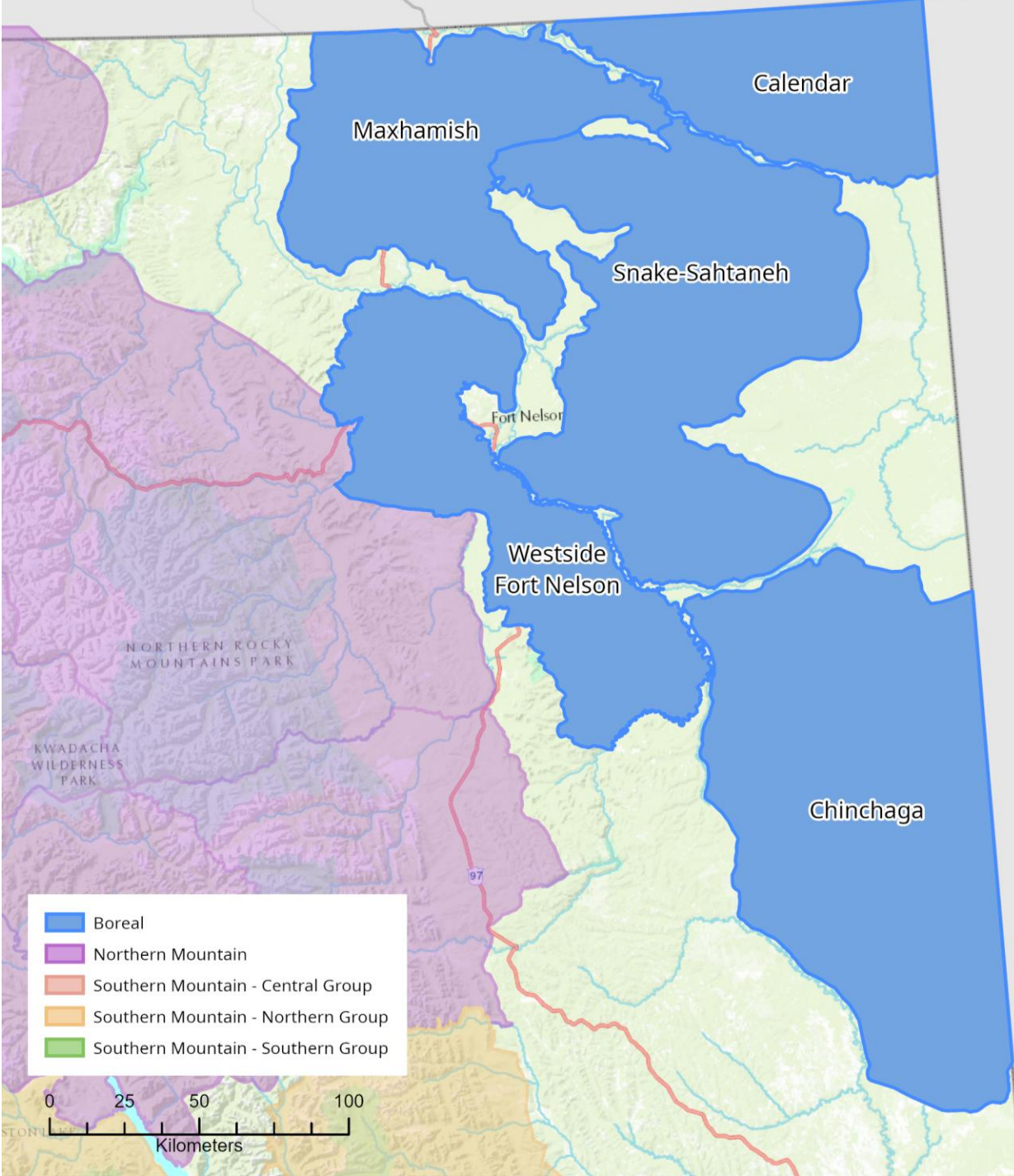
# Boreal Caribou

## Population Trend

- Based on:
  - Recruitment results
  - Survival data from collared females



Metric (2014-2024)	Calendar	Chinchaga	Maxhamish	Snake-Sahtaneh	Westside Fort Nelson	Boreal Total
Calf Recruitment	0.20	0.21	0.24	0.21	0.22	0.21
Survival Rate	0.85	0.91	0.89	0.90	0.92	0.89
Lambda (DeCesare)	0.93	1.01	1.00	1.00	1.03	0.99
Growth Rate	-0.07	0.01	0.00	0.00	0.03	-0.01



A wide-angle photograph of a snowy mountain landscape. In the foreground and middle ground, a herd of reindeer is running across a vast, snow-covered slope. The reindeer are dark brown or black, contrasting with the white snow. They are scattered across the frame, with some running in small groups and others alone. In the background, a steep mountain rises, covered in patches of snow and dense evergreen trees. The sky is not visible, and the overall lighting is soft, suggesting an overcast day.

Questions?