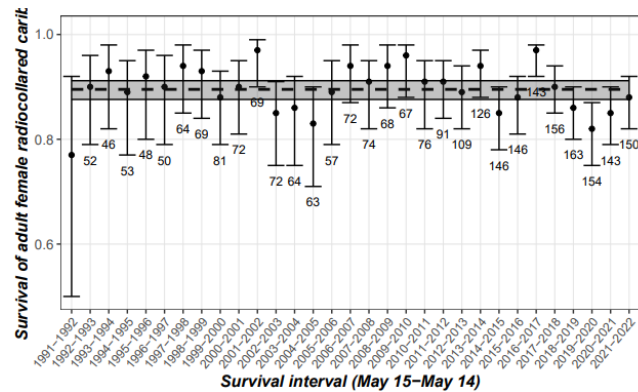
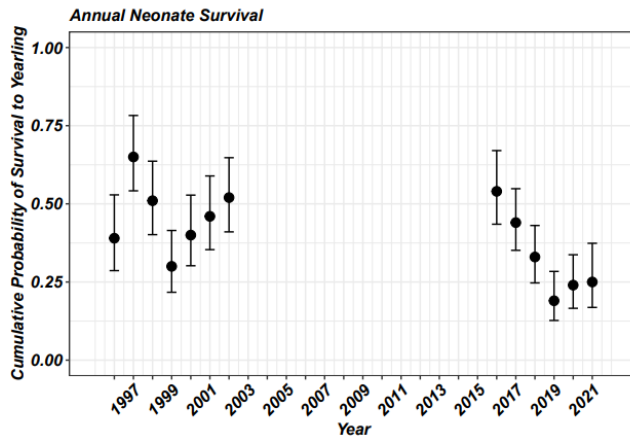


A photograph of a caribou herd in a vast, open landscape. The foreground is filled with a herd of caribou, some with large antlers, standing in a field of dry, brown vegetation. The middle ground shows a flat expanse of tundra leading to a range of mountains in the background. The mountains are partially covered in snow, and the sky is a pale, hazy blue.

Fortymile Caribou Research and Monitoring

Mike Sutor
Department of Environment, Government of Yukon
February 27, 2025

Just observed and tracked a major change in trend with the herd



Population Estimates

- Usually fairly regular
- Unable to get one 2018-2021... herd declined quickly
- Lag in results for summer hunt
- More significant during decline, near the low, or during major change



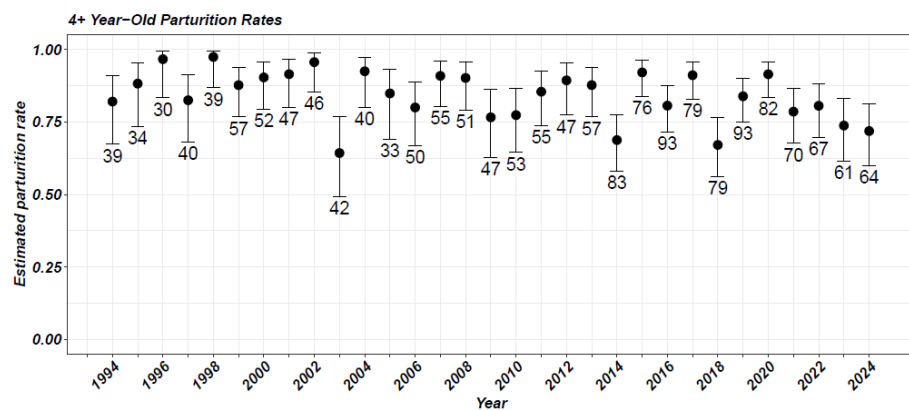
So...

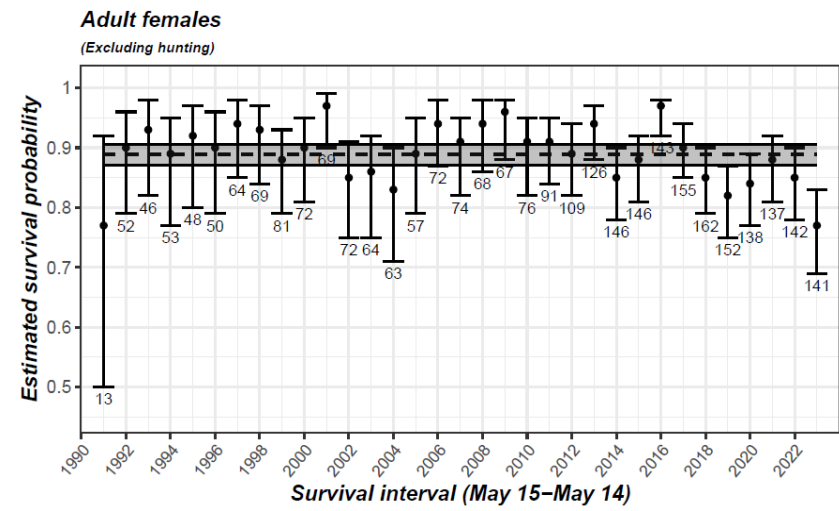
- Do we have the data we need?
- Can we successfully forecast the FMCH population size when photo census estimates are not available?
- How confident are we in model results?
- How useful are models for management?

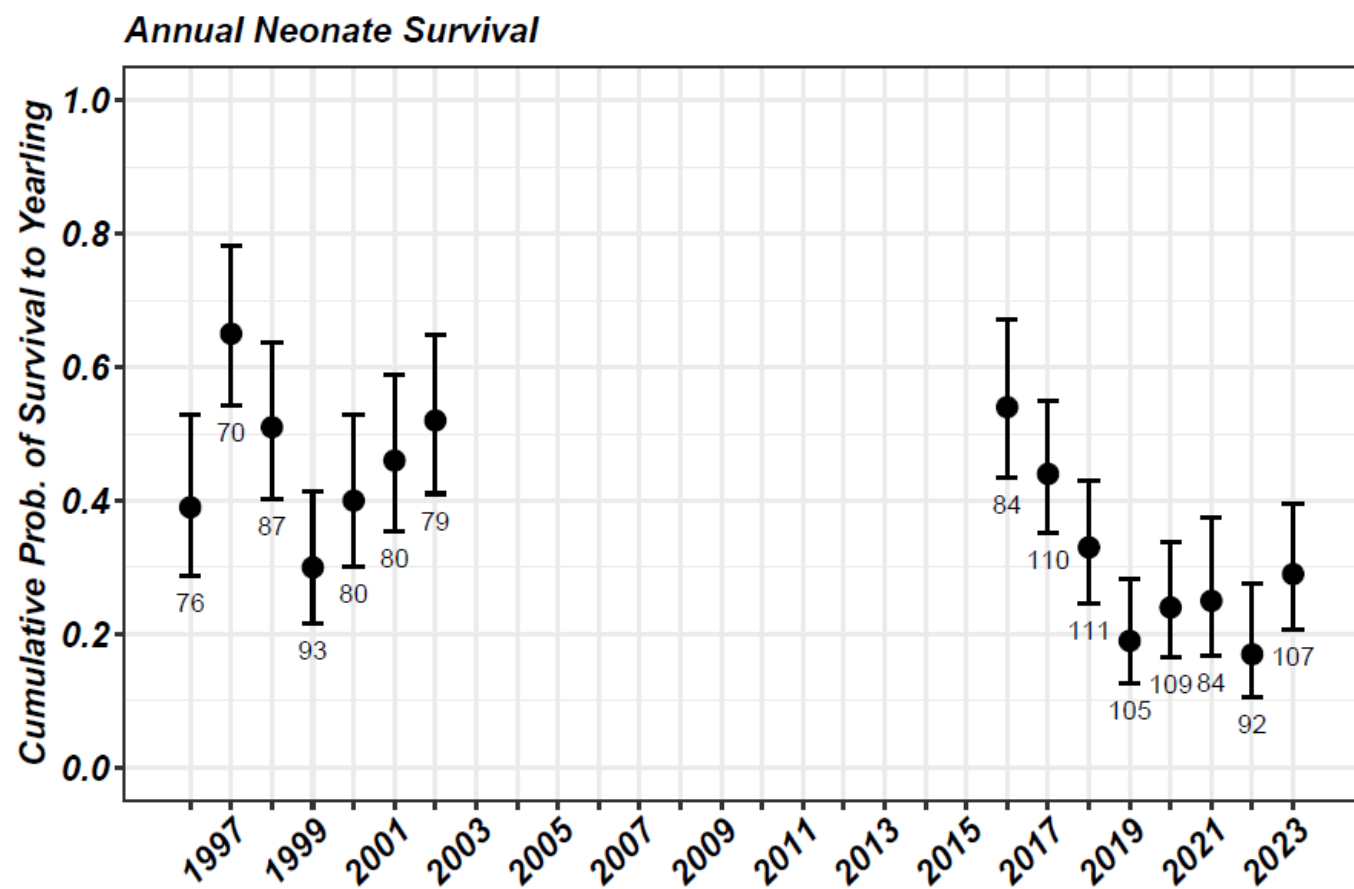


Do we have the data?









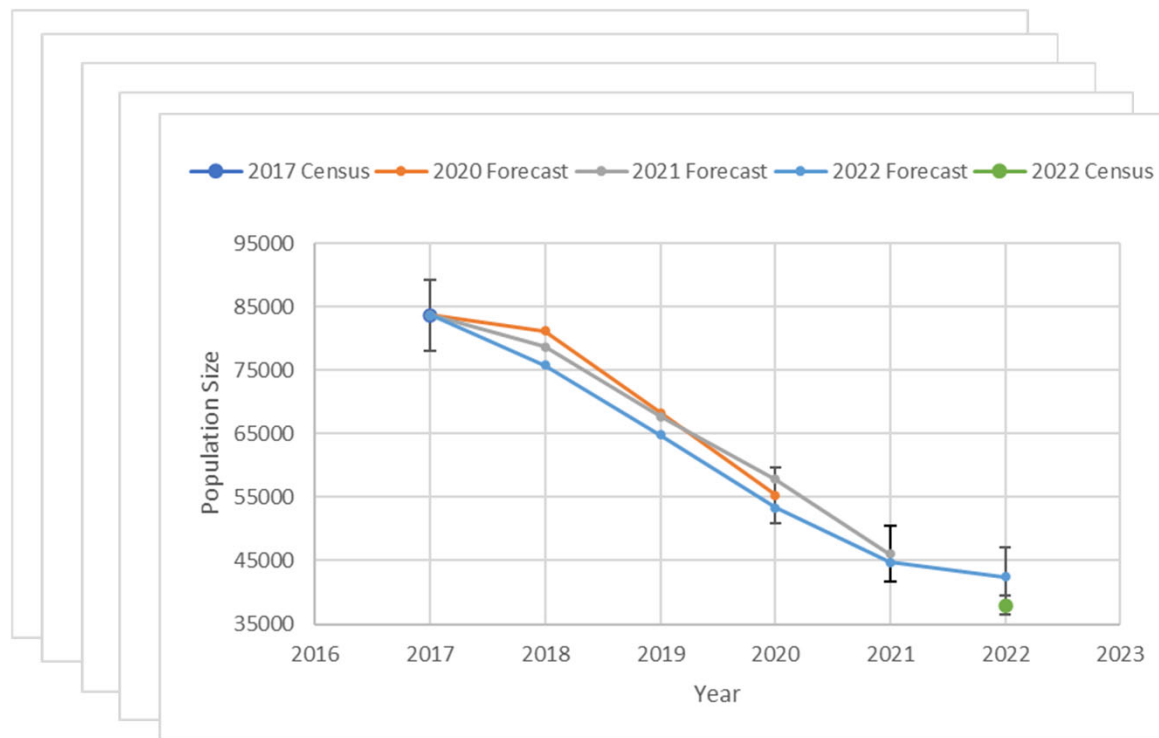
Year	Survival	95% lcl	95% ucl
1996	0.39	0.29	0.53
1997	0.65	0.54	0.78
1998	0.51	0.40	0.64
1999	0.30	0.22	0.41
2000	0.40	0.30	0.53
2001	0.46	0.35	0.59
2002	0.52	0.41	0.65
2016	0.54	0.43	0.67
2017	0.44	0.35	0.55
2018	0.33	0.25	0.43
2019	0.19	0.13	0.28
2020	0.24	0.17	0.34
2021	0.25	0.17	0.37
2022	0.17	0.11	0.28
2023	0.29	0.21	0.40

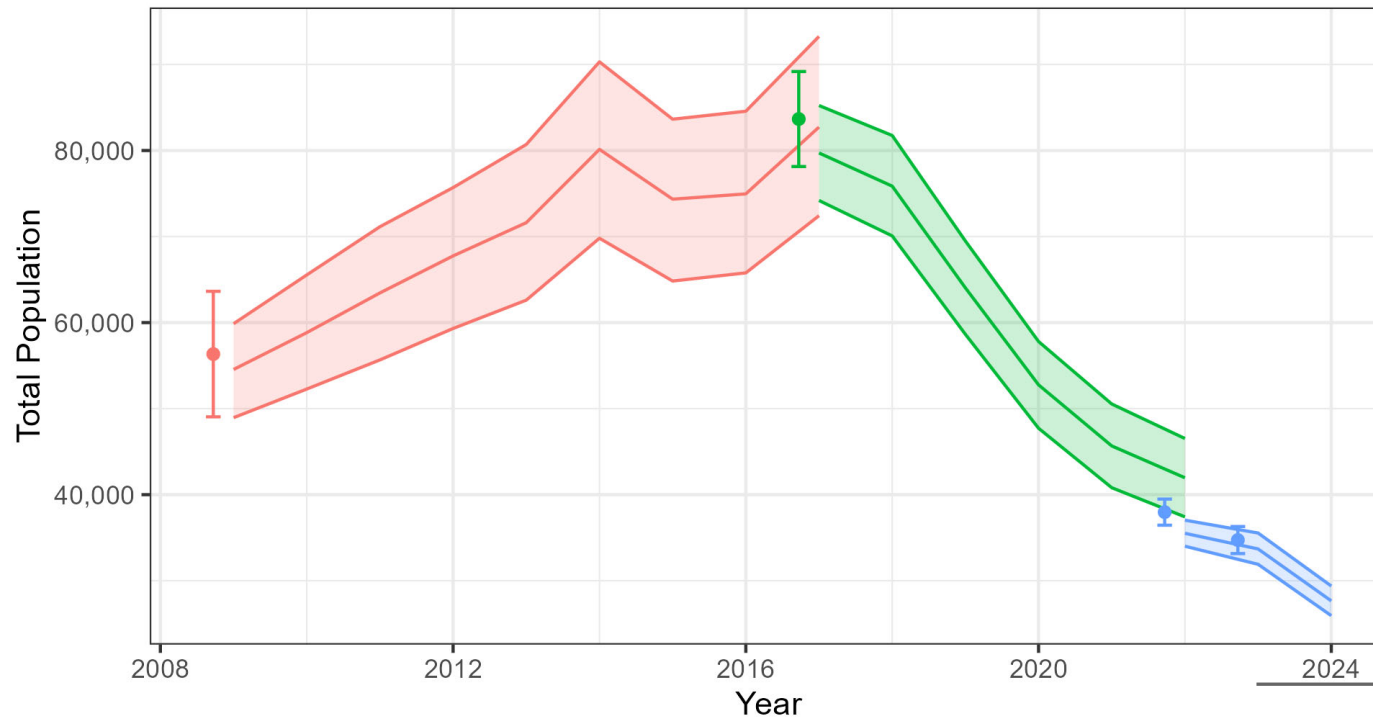
Can we successfully predict the population?

- How accurate are our estimates?
- Is it useful for next year predictions?
- Can we predict more than a year?
- Do the estimates have high or low confidence?



Results: Forecast History – 2020 thru 2022

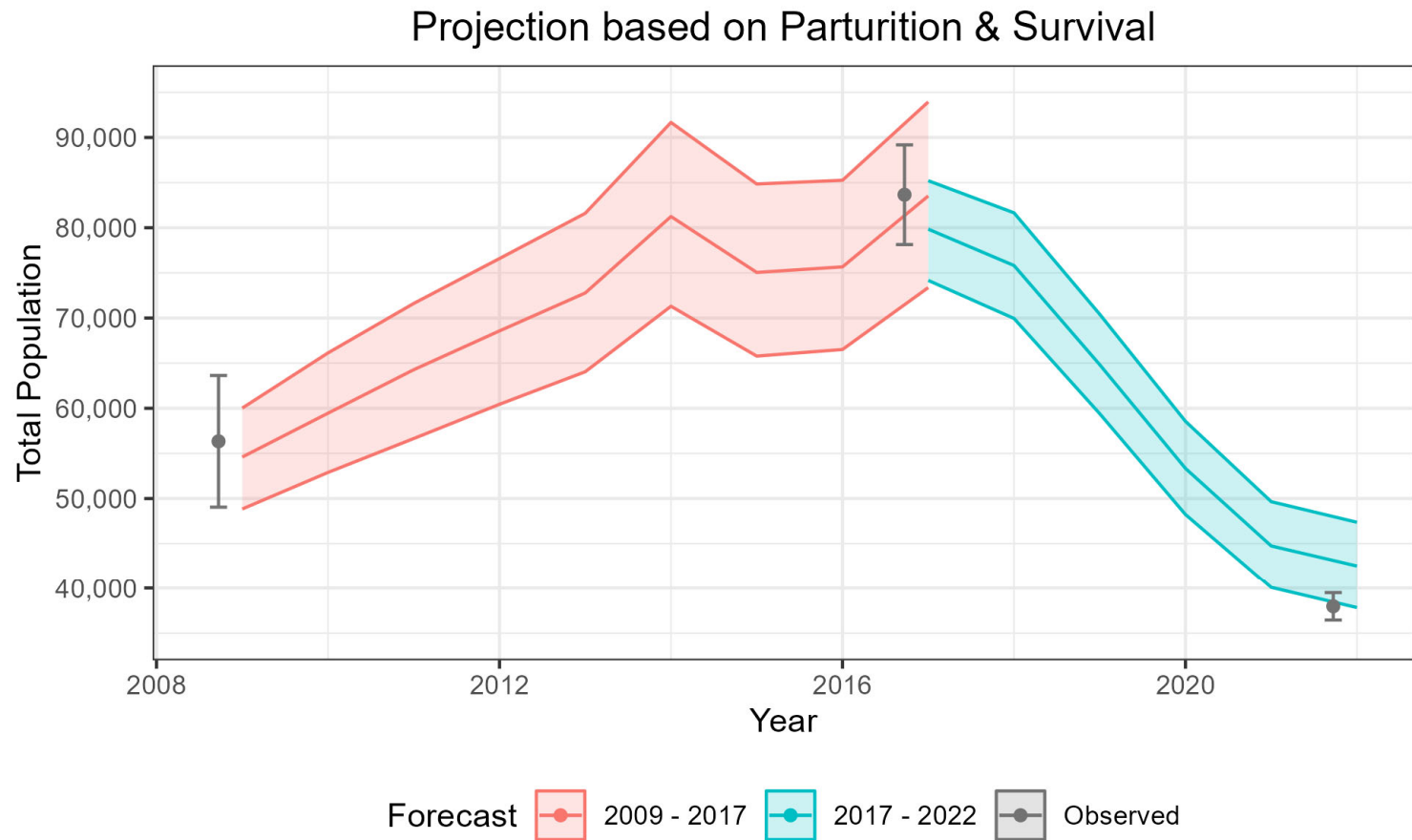




Forecast ● 2009 - 2017 ● 2017 - 2022 ● 2022 - 2024

Year	Projected October Population Size	95% Confidence Interval	Lambda
2017	79,713	(74,192 - 85,231)	-4.8%
2018	75,859	(70,076 - 81,747)	-15.6%
2019	64,037	(58,642 - 69,487)	-17.6%
2020	52,763	(47,720 - 57,800)	-13.5%
2021	45,665	(40,810 - 50,540)	-8.1%
2022	41,964	(37,422 - 46,526)	
2022	35,509	(34,010 - 37,038)	-5.1%
2023	33,690	(31,904 - 35,544)	-17.9%
2024	27,652	(25,933 - 29,380)	

So how confident are we?



- They are working very well
- But there are limitations
- Need good quality data for key metrics
- Still want photocensus!!!

How are these useful for management?

- What's the number? How much risk is there in our management?
- Accounting for changes from last year – how significant?
- Scenario planning
- Evaluate our monitoring data



Take homes

- ADF&G does a great job collecting good quality population data – use it!
- The model did a very good job at tracking the population peak and the decline
- The loss of calf survival data is significant when predicting multiple years without the photocensus
- Stewardship of FMCH can benefit from use of this and other population models *within reason!!!*



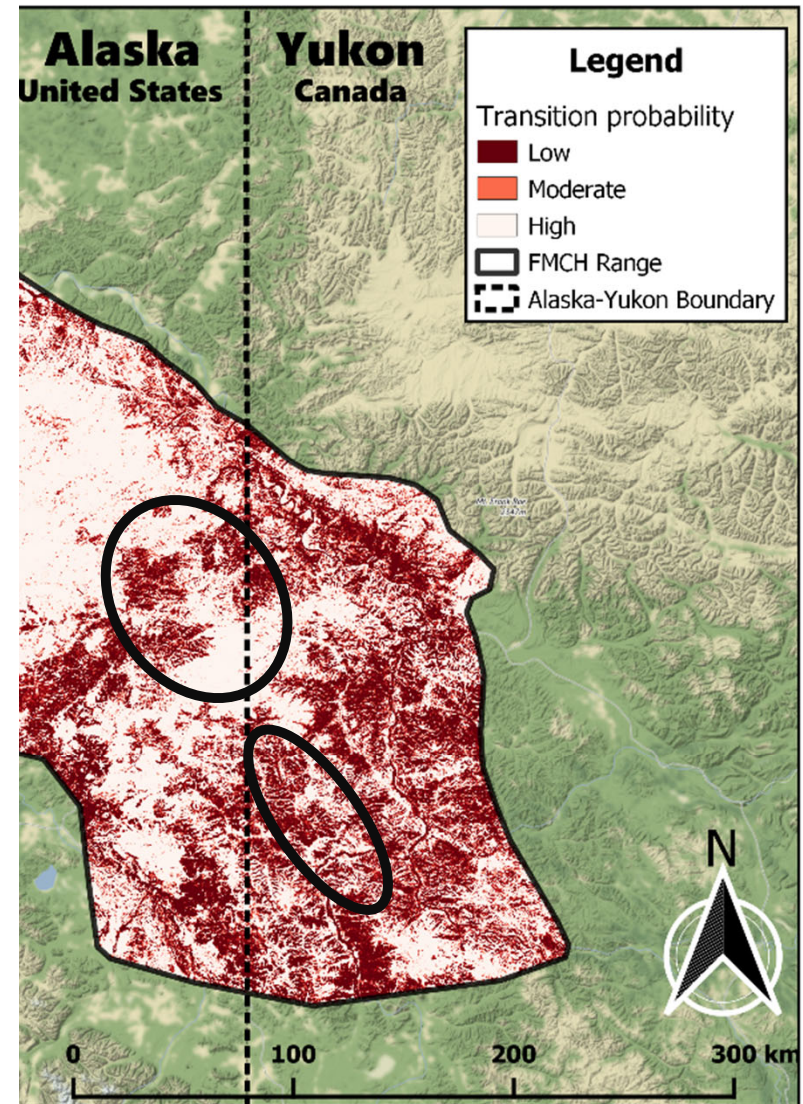
IPM

- How much did summer range limitations affect herd growth, survival, etc?
- How about snow conditions?
- Drought?
- ...



Next Steps

- Evaluate connecting habitats and how caribou are interacting with these linkages
- How did we lose these?
- Can we lose more of them?



Questions?

