



MEMORANDUM

TO: Jason Caikoski
Regional Supervisor

DATE: 07/29/2024

THRU: Josh Peirce

FROM: Mike Ebinger

SUBJECT: 19C Sheep Surveys 2024

We conducted sheep trend-composition surveys in a portion of Unit 19C on July 19th and 20th 2024. On the 19th Josh Peirce flew the state Supercub (N34FG) with a volunteer observer, and Mike Lizten flew his supercub (N7575K) with Mike Ebinger as observer. On the 20th, Mike Ebinger was the observer with Josh Peirce piloting the state supercub (N34FG). We were able to survey all 6 of our survey units for the second consecutive year. These included the Sheep Creek East and West, Post North and South, Tonzona and Little Tonzona survey areas (Figs. 1–3). Total survey time across all days and aircraft was 12.95 hours and total ferry time was 11.06 hours (Table 1). We had planned to begin surveys as early as July 5th, but poor weather prevented surveys until the 19th. Conditions were excellent on the days flown with calm winds and high ceilings.

Table 1. GMU 19C Dall Sheep survey metadata

Survey Area	Date	Aircraft Type	Tail Number	Pilot	Observer	Total Survey Time (hours)	Total Ferry Time [§] (hours)	
Tonzona	7/19/2024	PA-18	N34FG	Peirce, J.	Peirce, K.	2.05	1.30	
Sheep Creek West	7/19/2024	PA-18	N7575K	Litzen, M.	Ebinger, M.	3.48	2.03	
Pingston	7/19/2024	PA-18	N34FG	Peirce, J.	Peirce, K.	1.75	2.27	
Sheep Creek East	7/19/2024	PA-18	N7575K	Litzen, M.	Ebinger, M.	2.42	1.85	
Post-North	7/20/2024	PA-18	N34FG	Peirce, J.	Ebinger, M.	1.93	1.22	
Post-South	7/20/2024	PA-18	N34FG	Peirce, J.	Ebinger, M.	1.32	2.39	
[§] Ferry time includes all flight time not surveying						Total	12.95	11.06

Areas were surveyed by flying contours of equal elevation, covering each area from approximately 3,000 ft MSL to the tops of the mountains. We circled each sheep or group of sheep, obtained a total count, and classified them as lambs, “ewes,” sublegal rams or legal rams (full curl). “Ewes” included female and small male sheep. A handheld digital camera was used to aid in the count and classification of some groups of sheep. In 2024, approximately 49% of the observed sheep groups were located between 4,000 and 4,500 ft MSL and less than 5% of observed sheep were above 5,000 ft MSL (Figure 1). Group size of observed sheep ranged from 1 to 41 ($\bar{x} = 6.39$; $\sigma = 7.2$).

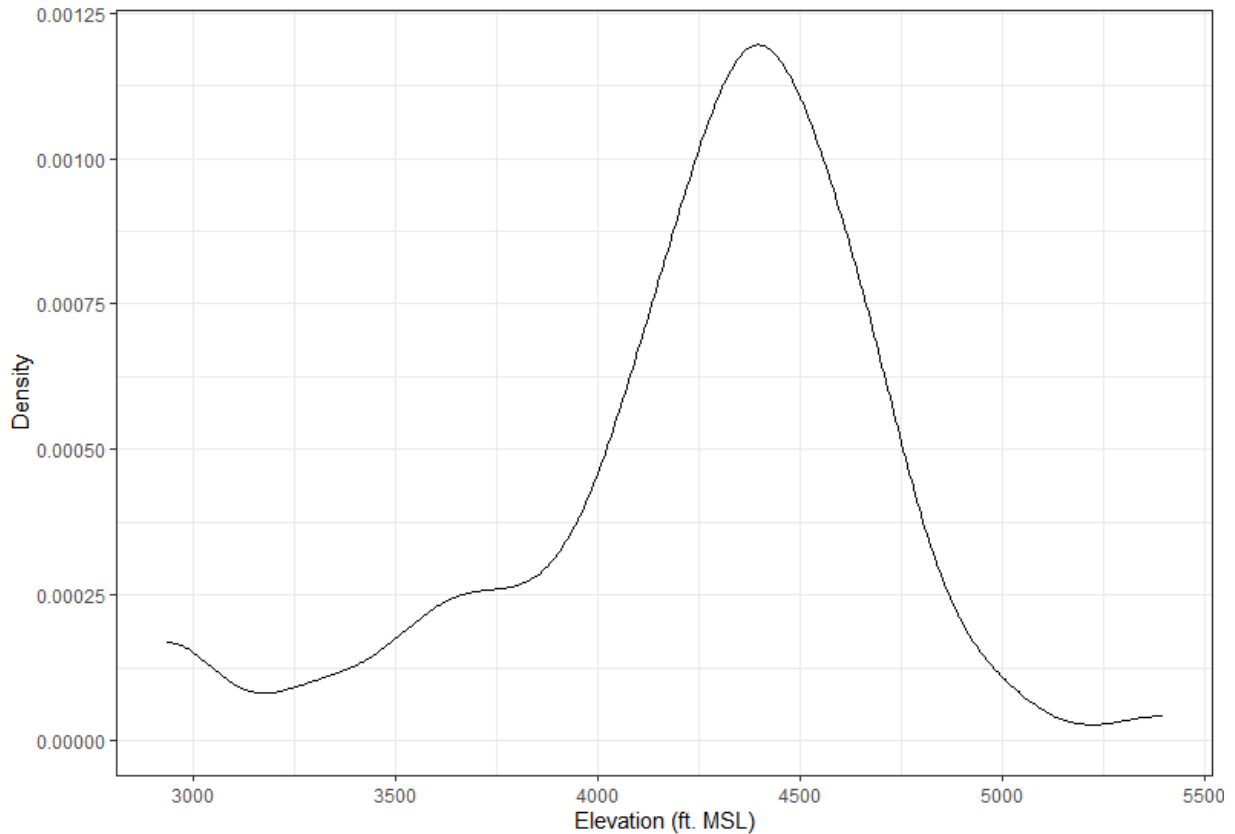


Figure 1. Elevation of observed sheep groups during the 2024 composition survey in GMU 19C.

Table 2 contains composition data from 2010 – 2024. The six survey areas have been consistently surveyed since 2010 and represent the best overall picture of sheep in 19C. During the 2023 count only 413 sheep were counted. This was approximately 62% fewer sheep than the average of 1,088 sheep from 2010 – 2019 and approximately 72% fewer sheep than the high count of 1,499 sheep in 2010. There were 18% lambs in the 2023 sample which is the same as the average from 2010 – 2019. While the percentage of lambs was average, the total number of lambs ($n=73$) was lower than even 2013 which showed a very poor cohort of lambs ($n=94$).

The 2024 survey resulted in a total of 473 sheep counted, roughly a 14% increase from the 2023 survey. Although encouraging, this increase should be carefully interpreted in the context of the annual “sampling variation” for minimum count/composition surveys and the proportion of total sheep accounted for in the lamb cohort. Accordingly, ratio-based metrics (i.e., composition data)

for different cohorts provide a more robust comparison of short-term changes in population performance. Ram cohorts (e.g., total rams, sublegal rams, and legal rams) per 100 ewes were nearly identical to the 2023 survey but remain below the mean values for the 2010-2019 period prior to the recent decline (Table 2). Overall, we found 3% legal rams and 19% sub-legal rams in this year's survey. Non-lamb cohorts totaled 352 individuals in 2024, a more modest 4% increase from the 340 non-lambs observed in 2023.

The increase in total sheep counted in 2024 was due to the strong lamb cohort. Early lamb survival was encouraging at 49 lambs: 100 "ewes" and 25% of the overall sample. This was a marked improvement from the 2023 survey and is reflective of the relatively mild winter of 2023-2024. Although encouraging, recruitment of lambs into the adult cohort will ultimately determine if the observed 2024 lamb numbers will contribute to long-term population growth.

There has been a precipitous drop in harvest since 2019 and the number of rams taken during RY21 and RY22 were the lowest since 1983 (Figure 5). In March 2023 the board of game closed all nonresident sheep hunting for RY23 and resident harvest totaled 5 rams during the 2023 regulatory year.

Table 2. Cumulative data from Sheep Creek East and West, Post North and South, Tonzona and Little Tonzona survey areas, 2010–2024.

	2010	2013	2014	2015	2016	2017	2019	2023	2024
Approx. Area (mi2)	453	453	453	453	453	453	453	453	453
Total Rams	348	268	374	301	255	343	202	98	101
Legal Rams	56	60	55	46	53	60	33	13	16
Sublegal Rams	292	208	319	255	202	283	169	85	89
“Ewes”	864	490	639	499	593	697	390	242	247
Lambs	287	94	168	167	195	266	178	73	120
Lambs:100 “Ewes”	33	19	26	33	33	38	46	30	49
Rams:100 “Ewes”	40	55	59	60	43	49	52	40	41
Legal Rams:100 “Ewes”	6	12	9	9	9	9	8	5	7
Sublegal Rams:100 "Ewes”	34	42	50	51	34	41	43	35	36
% Lambs	19	11	14	17	19	20	23	18	25
% Rams	23	31	32	31	24	26	26	24	21
% Legal Rams	4	7	5	5	5	5	4	3	3
% Sublegal Rams	19	24	27	26	19	22	22	21	19
Total Sheep	1499	852	1181	967	1043	1306	770	413	473

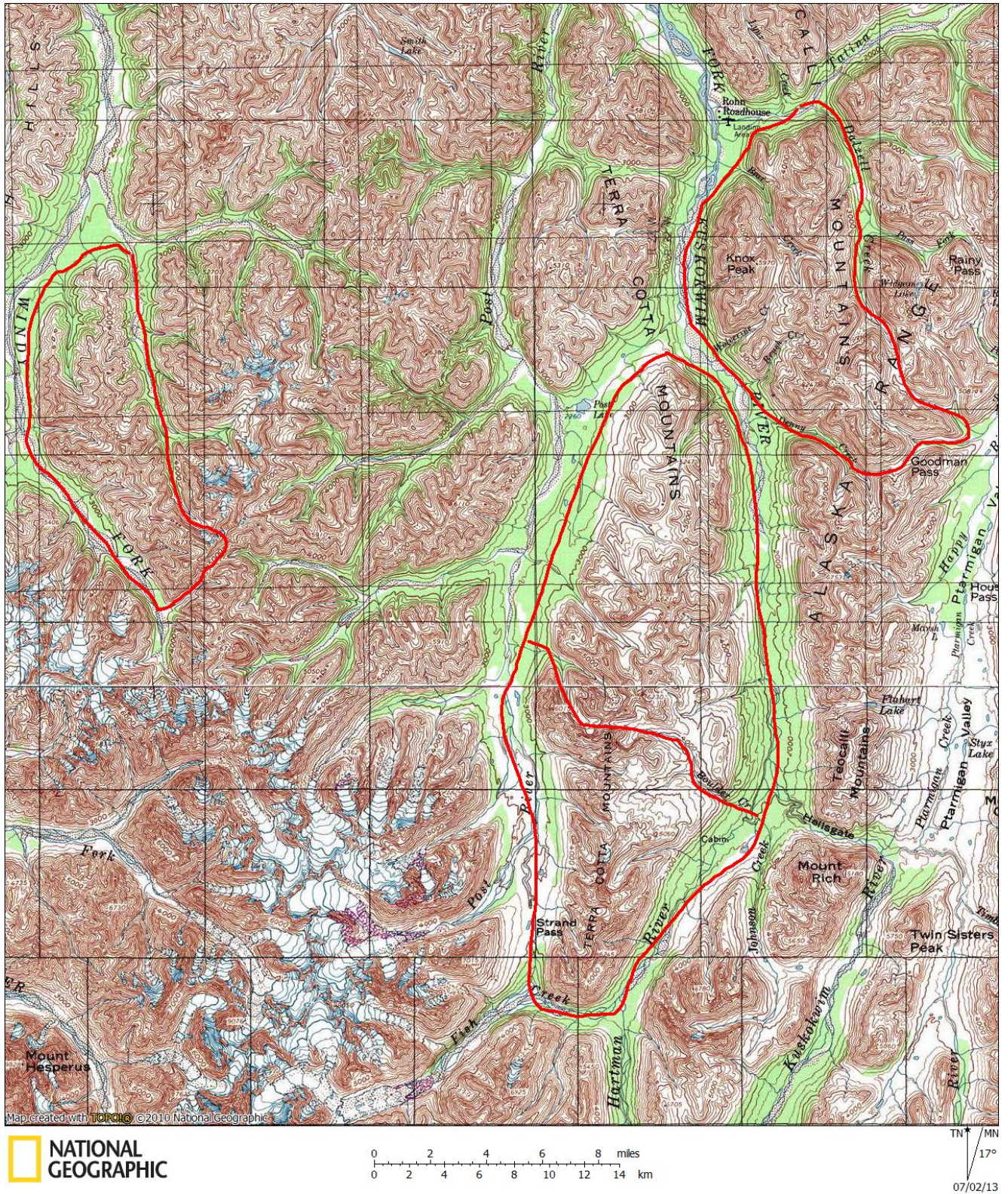
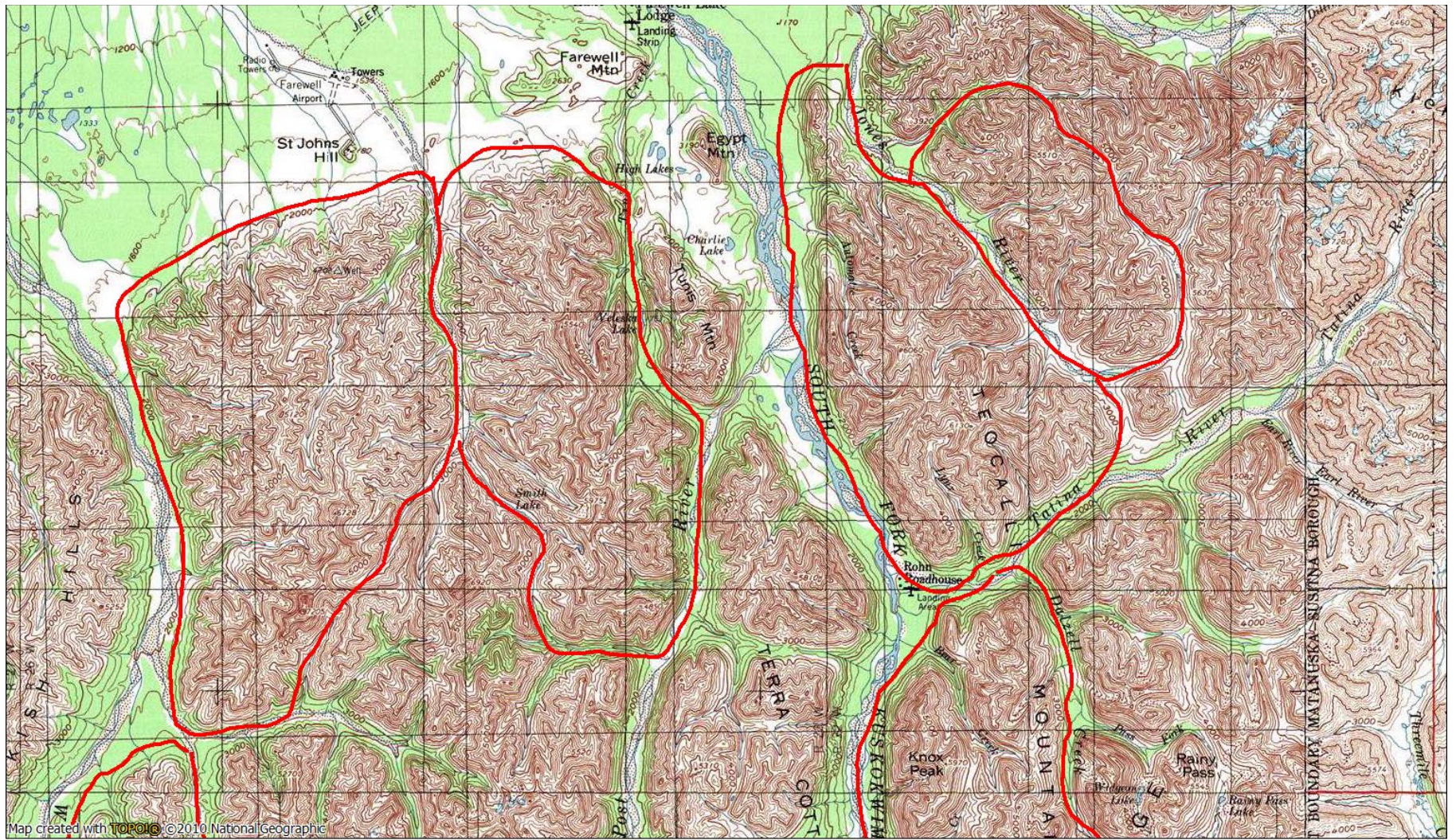
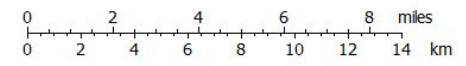


Figure 2. Windy Fork, Knox Peak, Post North and Post South survey areas.



Map created with TOPOIG ©2010 National Geographic



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Figure 3. Sheep Creek East, Sheep Creek West, Tatina and Jones River survey areas.

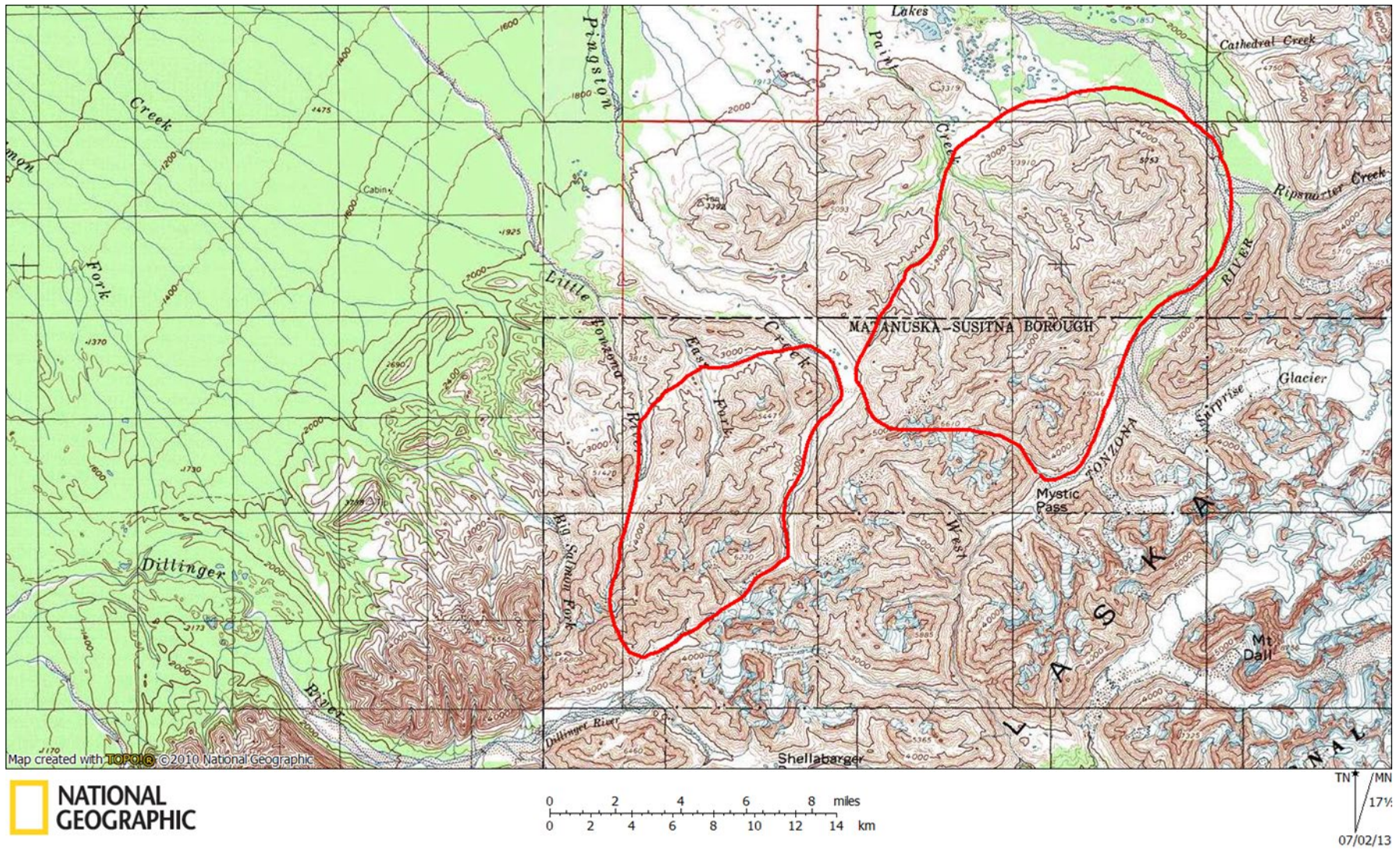


Figure 4. Little Tonzona and Tonzona survey areas.

Total Reported Ram Harvest (19C): 2010-2023

Data preliminary and subject to change

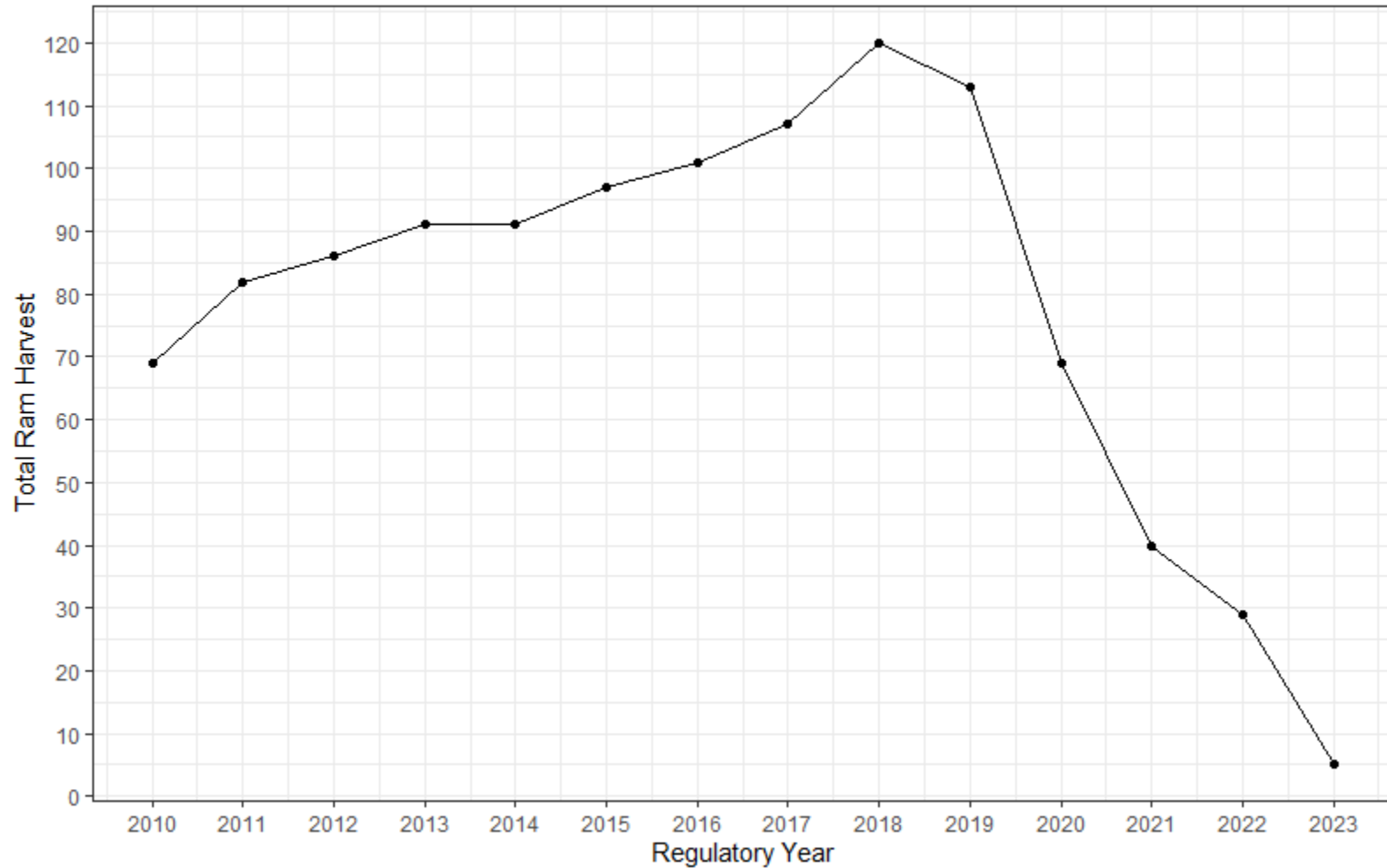


Figure 5. 19C Reported total ram harvest from 1983 – 2023. Note that in March 2023 the Board of Game closed all nonresident sheep hunting for RY23.