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AERIAL DALL SHEEP CENSUS

Mount McKinley National Park, 1977

BY

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and

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December 1977

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AERIAL DALL SHEEP CENSUS

Mount McKinley National Park, 1977

Introduction:

An aerial Dall sheep survey of Mount McKinley National Park was conducted on July 29 and 30, 1977. Because of unsuitable flying conditions (primarily high winds) that continued for 13 consecutive days thereafter, the project had to be terminated with approximately one-half of sheep habitat in the park surveyed. The area covered included most of the habitat south of the Park road.

The objective was to determine numbers, distribution and composition of the Dall sheep in McKinley Park similar to aerial survey conducted in past years.

The observer was Martin Grosnick, NPS Biological Technician from the Alaska Area Office, and the pilot was Chalon Harris of Denali Flying Service. Grosnick has had several seasons of aerial observation experience (primarily caribou), and Harris has at least 12 years of aerial observations in the McKinley area (including previous sheep surveys).

Methods:

This survey closely followed the procedures outlined by Troyer (1975). The same techniques of selecting naturally defined units for counting were utilized. Sheep were counted by low-level overflights with a Piper Supercub, until both pilot and observer agreed on the composition and number.

Each band was assigned a number, and their location noted on a topographical map (1:250,000 scale). The sheep were classified as lambs, ewes and yearlings and rams. The latter were further classified as 1/2 curl or less, 3/4, and full curl. Those individuals too inaccessible for close examination and could not positively be identified were listed as "unclassified". Rams whose degree of horn curl could not be accurately determined, were also recorded as "unclassified rams".

Results and Discussion:

As previously mentioned, only one-half of the expected sheep habitat was surveyed. This includes all mountainous areas south of the park road, bounded by Alaska Highway 3 on the east, the park boundary on the south, and Sunset Creek (a tributary of the Thorofare River) on the west. Some turbulence was encountered in the Riley Creek and Windy Creek areas, preventing close aerial observation, accounting for most of the sheep in the unclassified category.

A total of 681 sheep were counted in this area with 32 unclassified as shown in Table 1. Of the 649 classified, 116 were lambs, 380 ewes and yearlings and 153 rams. Only 23 rams were classified as to horn size. These consisted of 6 - half curl, 8 - 3/4 curl, and 9 were at least full curl rams.

The same portion of McKinley censused for sheep in 1975 accounted for 559 sheep. However, since there is a known north and south seasonal movement of sheep in the park it is not possible to compare the total 1977 count to 1975 as a higher proportion of the animals may have been south of the road this year. Another total count will be attempted in 1978.

The Alaskan Department of Fish and Game again conducted ground counts over portions of the park in an effort to compare composition and reproduction of the non-hunted McKinley sheep population with other hunted populations outside the park. The 323 sheep classified on the ground in the park from July 5-10 are listed below:

	<u>EWES</u>	<u>LAMBS</u>	<u>YEAR- LINGS</u>	<u>RAMS</u>
Mt. Margaret to Nenana River	1	1	1	17
Igloo Mt., Cathedral Mt, Sable Mt.	46	28	6	36
Toklat River (south of highway)	28	17	7	20
Polychrome Mt., Highway Pass	<u>57</u>	<u>20</u>	<u>12</u>	<u>26</u>
	132	66	26	99/323

The above observations show a lamb: 100 ewe ratio of 50 and a yearling: 100 ewe ratio of 20. A yearling: ewe ratio of 20 represents 61 percent survival of the 1976 lamb crop. They reported that the lamb-ewe ratios and survival rate figures are similar to those found outside the Park in the Alaskan Range. They also report the high lamb-ewe ratios in 1977 are the best they have seen for many years. There may be several factors involved in the better productivity, but it might be speculated that the mild winter this past year may be partially responsible for better productivity and survival.

The ground counts conducted by the ADF & G reflect a much higher lamb-ewe ratio than the aerial counts conducted by the NPS. However, as mentioned earlier it was impossible to distinguish the yearlings from the ewes in aerial surveys, so they were combined. In addition, two-year old rams are often with ewes during the summer and may be misclassified in the counts. No doubt the ground counts are more accurate as to composition while the aerial counts are the best means of making total counts and also recording the distribution of the animals. In the future both types of surveys should be conducted.

References:

- Kelleyhouse, David G. 1977. Personal communication. NPS files, McKinley Park, Alaska.
- Troyer, Will 1975. Aerial Sheep Census, Mount McKinley Park, 1975. NPS files, Anchorage, Alaska.

Table 1

COMPOSITION OF THE DALL SHEEP
in Mount McKinley National Park
as Obtained from Aerial Survey - 1977

	NUMBER	PER CENT OF THOSE CLASSIFIED	RATIO PER 100 EWES & YEARLINGS
Lambs	116	17.9	30.6
Ewes & Yearlings	380	58.5	-----
Rams	153	23.6	40.3
Unclassified	32	-----	-----
Total	681	100.0	

1977 MONM C SHEEP SURVEY (7/29 + 7/30)

% IF CLASSIFIED		% OF TOTAL	
(73.2%)	EWES + YEARLINGS	380	(55.8%)
(22.4%)	LAMBS	116	(17.0%)
	UNCLASS. SHEEP	32	(4.7%)
(4.4%)	≤ 1/2 CURL RAMS	6	(0.9%)
	3/4 CURL RAMS	8	(1.2%)
	FULL CURL RAMS	9	(1.3%)
	UNCLASS. RAMS	130	(19.1%)
TOTAL		681	

30.5 lambs/100 ewes + y

153 (22.5%)

AREA COVERED: ALL SHEEP HABITAT SOUTH OF PARK ROAD, FROM ALASKA HIGHWAY 3 TO THORFARE RIVER.
 SURVEY ENDED AFTER 13 UNFLYABLE DAYS.
 FLYING TIME: 8.6 HOURS @ 60°/HR = 516°

1977 vs 1975 COMPARISON (1977)		(1975 SAME AREA)	(1975 TOTAL)
EWES + YRLNG	380 (55.8%)	277 (49.6%)	453 (50.4%)
LAMBS	116 (17.0%)	86 (15.4%)	129 (14.4%)
UNCLASS. SHEEP	32 (4.7%)	87 (15.5%)	112 (12.5%)
≤ 1/2 RAMS	6 (0.9%)	109 (19.5%)	204 (22.7%)
3/4 RAMS	8 (1.2%)		
FULL RAMS	9 (1.3%)		
UNCLASS. RAMS	130 (19.1%)		
TOTAL	681	559	898

<u>1975 vs 1977 COMPARISON (UNCLASSIFIEDS EXCLUDED)</u>	(1977)	(1975 SAME AREA)	(1975 TOTAL)
EWES + YRLNG	380 (73.2%)	277 (58.7%)	453 (55.8%)
LAMBS	116 (22.4%)	86 (18.2%)	129 (16.2%)
RAMS	23 (4.4%)	109 (23.1%)	204 (28.0%)
TOTAL	519	472	

17.9% POPULATION INCREASE, 1977 vs 1975 (OF AREA COVERED)