

Study #6
National Park Service, Alaska Region
Natural Resources Survey and
Inventory Report AR-78/05

AERIAL DALL SHEEP CENSUS
MOUNT MCKINLEY NATIONAL PARK
1978

NATIONAL PARK SERVICE
Anchorage, Alaska

Submitted by:
Will Troyer
Management Biologist

Date:
January 12, 1979

759

AERIAL DALL SHEEP CENSUS
MOUNT MCKINLEY PARK, 1978

INTRODUCTION

An aerial Dall sheep census of Mount McKinley Park was conducted on July 22, 23, and 24. The objectives of the census were to determine total numbers, distribution, productivity and composition of sheep within the park boundaries.

The pilot was Will Troyer of NPS and seasonal aid, Martin Grosnick, served as observer; although, because of other work loads, about half of the census was completed with Troyer serving as pilot and observer.

METHODS

Aerial surveys were conducted from a Piper Supercub (PA-18) with a 150 H.P. engine leased from Denali Flying Service. Mountain areas containing sheep habitat were searched intensively in an attempt to find and classify all sheep. This was accomplished by dividing the park into small recognizable units between drainage or specific mountain ranges. Sheep were counted by low level overflights until the composition and number of sheep was ascertained.

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-yearlings, and rams. The latter were further classified as $\frac{1}{2}$ curl or less, $\frac{3}{4}$, and full curl. Those individuals, too inaccessible for close examination, whose degree of horn curl could not be accurately determined, were also recorded as "unclassified rams".

RESULTS AND DISCUSSIONS

Weather conditions were excellent and the census was completed in 14 hours of flying time. In classifying the sheep no attempt was made to separate ewes and yearlings as it is not possible to distinguish the two classes accurately from the air when they are in groups. Table I shows the composition of the population and Figure I the distribution of the sheep in the park.

A total of 1,104 sheep were seen. Of this number 567 were ewes and yearlings (51.8%), 232 were lambs (21.2%) and 296 were rams (26.8%). The lamb-ewe ratio was 40.9 lambs per 100 ewes and yearlings.

Tony Smith, of the Alaska Department of Fish and Game, again conducted ground counts in McKinley. He classified 212 sheep. The composition was 101 ewes, 57 lambs, 24 yearlings and 30 rams. He thus attained a lamb-ewe ratio of 56.4 lambs per 100 ewes. Yearlings constituted 19.2 percent of the ewe-yearling group. If his counts are representations of the total population, then 108 of the 567 ewe-yearling group should be yearlings, and the lamb-ewe ratio is ^{56.5}505 lambs per 100 ewes. Obviously, there appears to be good reproduction in the McKinley population this year.

As mentioned earlier, 296 of the 1,104 animals counted were rams, two years or older, consisting of 26.8 percent of the population. I believe this figure may be low, as occasionally two year old rams mix with ewe-yearling groups and are hard to distinguish from the air. However, in Tony Smith's ground counts, rams only constituted 14.1 percent of the population.

Most of the ground counts were conducted in the Outer Range and along the road. Rams tend to inhabit the more steep, rocky terrain of the interior mountains and I believe disproportionately to the ewes and yearlings, thus the ground counts may not reflect the true ram ratio. Because aerial counts cover all the habitat in the Park they should reflect the ram ratio more accurately.

Of the 296 rams seen, 27 could not be classified as to the size of the horns. A total of 148 rams (53.0 percent) of the classified 269 rams were judged to be full curl or better. Ninety-seven or 37.7 percent were around 3/4 curl and only 24 or 8.6 percent were 1/2 curl or less. However, as mentioned earlier, very possibly some of the two year old rams were missed.

I did not attempt to census sheep west of the Muldrow Glacier. Historically, when sheep populations are high, they utilize some of the habitat west of the glacier but in recent years none have been seen in this area.

The total count of 1,104 sheep is about 200 over the last complete count made in 1975 and 1973 and about 400 above the 1972 count made by Haber. Prior to this, no complete counts had been conducted since 1961 when 2,642 sheep were tabulated. Historically, sheep populations have been up and down and currently there appears to be some indication that the population trend is upward.

References

- Haber, Gordon C. 1977. Socio-Ecological Dynamics of Wolves and Prey in a Subarctic Ecosystem. PH.D dissertation, University of B.C. 786 pp.
- Troyer, W.A. 1975. Aerial Dall Sheep Census - Mount McKinley Park. Unpublished Report, National Park Service Anchorage, Alaska
- Smith, Tony 1978. Personal Communication

TABLE I DISTRIBUTION AND COMPOSITION OF DALL SHEEP IN MOUNT
MCKINLEY NATIONAL PARK - AERIAL SURVEY JULY 22-24, 1978

AREA	RAMS								TOTAL ALL SHEEP
	Ewes and Yearlings	Lambs	Unclass.	1/2 Curl or less	3/4 Curl	Full Curl	Unclass. Rams	Total Rams	
Mount Margaret				2	2	4		8	8
Mount Wright					3	2		5	5
Mount Healy	86	31		2	8	22		32	149
Bet. Savage & L. Sanctuary	32	9		5	10	5		20	61
Upper Sanctuary	63	22	2		15	19		34	121
Calico Creek	49	22			8	14		22	93
Riley Creek	45	22		1	9	21	12	43	110
Upper Tetlanika	7	2	5						14
Cathedral Mt.	21	5			2	3		5	31
Igloo Mt.	30	12							42
Sable Mt.	31	9		1	3	6	1	11	51
Big Creek	76	34		3	15	27	9	54	164
Wyoming Hills	2	1	2		1	4		5	10
Polychrome Mt.	24	15			3	4		7	46
Mount Sheldon	17	13			3	2	3	8	38
Above Toklat Ranger St.				4	4	2		10	10
Upper Toklat	52	24		2	3	5		10	86
Thoroughfare Area	21	7		4	8	8		20	48
Clear Creek (Nenana)	11	4							15
Windy Creek							2	2	2
GRAND TOTAL	567	232	9	24	97	148	27	296	1104