

2001 Dall Sheep Survey

At

Sheep Mountain,

Kluane National Park & Reserve

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Introduction

The 2001 Dall Sheep (*Ovis dalli dalli*) survey took place on June 17 and took one hour, ten minutes to complete. The temperature was +5° C at 6000 feet with partial cloud cover. There was very little wind gusting to approximately five or ten km/hr from the northwest. Using a Bell Jet Ranger, the survey crew included the pilot, Doug Makkonen (of Trans North Air), Manfred Hoefs, Joe Johnson of the Kluane First Nation, and myself, Richard Greer.

Methods

This is a total count survey that classifies adults as males, females, and unknowns. Juveniles are classed as young of the year (YOY). The exact number of males and females is not known because immature males (<2.5 years old) travel with the nursery band and cannot easily be distinguished from other females in the group. The nursery sheep are classed by age, rather than by sex. The numbers are used to give us some insight about the future recruitment for this herd.

Population ratios (table 1) such as young of the year (YOY) to adult, yearling to adult, and young of the year to yearlings are indications of fecundity, recruitment, and early survival respectively. Trends in productivity can be shown with these types of data.

The survey area and methodology were as described by Skjonsberg (1994). Because all sheep were well inside the study area, there were no questions about the contentious northern boundary at Congdon Creek. As there is no physical barrier at the northern boundary (Congdon Creek), animals could move across and out of the study area, but this wasn't a problem in 2001. See map

Table 1

Summary of Sheep Mountain Dall Sheep surveys from 1974-2001.

Year	Rams	Nursery sheep *	YOY	Total	YOY/total ratio	YOY/nursery ratio
1974	123	187	27	337		14.8%
1975	97	190	11	298		5.8%
1976	146	114	13	273		11.4%
1977	165	113	28	306	9.2%	24.8%
1978	142	104	38	284	13.4%	36.5%
1979	100	185	77	362	21.3%	41.6%
1980	154	143	41	338	12.1%	25.2%
1981	100	226	49	375	13.1%	21.7%
1982	112	221	11	344	3.2%	4.9%
1983	89	172	22	283	7.8%	12.8%
1984	92	185	69	346	19.9%	37.3%
1985	140	205	46	391	11.7%	22.4%
1986	100	228	36	328	10.9%	15.8%
1987	71	201	47	319	14.7%	23.4%
1988	158	142	88	388	22.7%	61.9%
1989	104	189	51	344	14.8%	26.9%
1990	76	187	67	330	20.3%	35.3%
1991	69	210	44	323	13.6%	21.0%
1992	63	184	20	267	7.5%	10.9%
1993	123	201	62	386	16.6%	30.8%
1994	79	182	33	294	11.2%	18.2%
1995	113	170	41	324	12.7%	24.1%
1996	97	193	42	332	12.6%	21.8%
1997	103	172	66	347	19.0%	38.4%
1998	91	232	55	378		23.7%
1999	87	208	21	316		10.1%
2000	119	178	12	309		6.7%
2001	113	147	19	279		12.9%
28yr. long term average						
	108	181	41	329		22.9%
2001 numbers of sheep, above or below 28yr. average						
	+5	-34	-22	-50		-10%

*-Immature males may be included, as they are indistinguishable from the air.

Results

The total number of sheep has decreased to 279 animals from 309 last year. This decrease is shown in the lower numbers of rams and nursery sheep down from 119 to 113 and from 178 to 147 respectively. There was a slight increase in the number of lambs or young of the year (YOY) which were up to 19 from 12 last year. Table 1 shows 28 years of data with long term averages for each classification with the resulting 2001 deviations and lamb to nursery sheep ratios (as a percentage).

Discussion

John Wilmshurst, a statistician for Parks Canada (Western Canada Service Centre, Winnipeg, MB.) conducted linear regressions of changes in animal density and compared them to the current density. The point at which the two lines intercept represents the carrying capacity (K). This data produced a K-value of 329.6, and the lower/upper confidence intervals (95%) are 319.9 and 340.4 respectively.

The 2001 total count for this population is 279, which is well below the K-value of 329.6. This suggests that there will be enough food to see the sheep through the winter.

Future lamb crops should increase in 2002 due to a low total number of sheep, increasing Snowshoe Hare (*Lepus americanus*) numbers, and a decreased predator population. A growing Snowshoe Hare population should help reduce any existing predator pressure, as they are the favored source of food for coyotes, Golden Eagles, and the lynx (Gray, 1987). Predator numbers have been shown to decrease during and after a crash of the hare cycle (Krebs et. al., 2001). The coyote population takes two or three years to recover, but the effects on the golden eagle aren't known

Recommendations

- Sheep surveys should continue to be exercised with consistent timing and methods.
- Annual predator and vegetation surveys would help us in determining predator pressure and give us an indication of the net primary production for the area.
- A weather station at elevations of importance (lambing areas) would be beneficial to the continued monitoring of this population.
- Sheep Mountain should remain a special preservation area to protect plant species and to serve as a scientific control for other sheep populations.

References

- Gray, B.J. ed. 1987. Chapter 9, Wildlife *in* Kluane National Park Reserve Resource Description and Analysis. 2 vols. 2nd ed. Parks Canada, Prairie Region, Natural Resource Conservation. Vol.2, pp.9-74.
- Krebs, C.J., S.Boutin and R. Boonstra (editors). 2001. Ecosystem Dynamics of the Boreal Forest: The Kluane Project. Oxford University Press. Oxford, England. 511pp.
- Skjonsberg, T. 1994. Dall Sheep Survey Methodology for Sheep Mountain. Kluane National Park Reserve, Canadian Parks Service. Haines Jct.Y.T. 4 pp.