

Appendix A

Sheephole Mountains Sheep Survey Data 1997-2005

1997-2000 Surveys

From 1997-2000 the Department conduct aerial surveys via helicopter. The method involved dividing the range into survey areas, defined by easy to observe geographic features, which served as the polygon boundaries. These features included such things as large canyons, ridge lines, peaks, etc. These areas became the survey polygons. The helicopter flew within each designated polygon starting low and moving up in elevation with each pass across that polygon until the entire area was covered. The number, sex and age class of sheep observed was recorded. No population estimates were generated. These counts simply represent the number of animals observed. Every effort was made not to chase sheep in other polygons thus “re-counting” sheep. When we knew we had observed a sheep before in another polygon it was not “counted twice.”

<u>Year</u>	<u>Month</u>	<u>Animals Observed</u>	<u>Population Estimate</u>	<u>Ewes</u>	<u>Rams</u>
1997	October	42	N/A	21	15
1999	August	82	N/A	36	28
2000	July	19	N/A	8	11
2000	October	36	N/A	14	16

2001-2005 Surveys

Starting with the 2001 sheep survey season the Department began using a simultaneous double count method described by Graham and Bell 1989.

It is a method the uses counts from the front and back and the left and the right side observers in the helicopter. Part of the calculations are included here as description. Please see Graham and Bell’s article for a complete discussion of the method. Using this method we can generate population estimates.

<u>Year</u>	<u>Month</u>	<u>Animals Observed</u>	<u>Population Estimate</u>	<u>Ewes</u>	<u>Rams</u>
2001	October	60	86	33	12
2002	October	53	62	23	17
2003	October	52	62	22	12
2004	October	77	87	35	24
2005	October	63	125	26	23

Example of the Simultaneous Double Count Method Population Calculations
Using 2005 Sheephole Mountains Data

Left Side of Helicopter (for correction factor)

# Groups seen by:	<u>Front Only S1</u>	<u>Back Only S2</u>	<u>Both B</u>
	5	2	4

Total # Groups seen by:	<u>Back Left</u>	<u>Back Right</u>	<u>Total</u>
	6	15	21

Average Group Size = $63/24 = 2.6$ sheep/group

$P2' = B/(S1+B) = 4/5+4 = .44$ $Ya' = Y'/P2' = 21/.44 = 48$ groups
48 groups X 2.6 sheep/group = 125 mountain sheep

Literature Cited

Graham and Bell. 1989. Investigating observer bias in aerial survey by simultaneous double count. Journal of Wildlife Management 53:1009-1016.