LATE FALL Moose Survey 3 Dec. '74.

Tarfu-Snafu Area. Obsvn Cond: Good.
Pilot: Norman Rafuse. Helicopter: Bell 47G3 B2
Observer: G Lortie CF-QFQ.
Hours: 3.7

Area Surveyed today was that portion of GMU #9 north of the Snafu Lake valley.

Cows = 54 Calves = 5 Bulls = 76 Σ = 135

The population is largely segregated with big bulls occurring together in small groups, with the smaller bulls being more inclined to associate with cows.

The bulk of the observations are between 4000 ± 4500' ft. The moose are high, occurring in valley bottoms only near the summits of drainages.

As bulls are still carrying their antlers and identification as to sex is absolutely positive - this adult sex ratio should be used as a check on our February survey. These counts are our best adult sex ratios.

As we have had a fresh snow, tracks indicate that moose are moving around at higher elevations not being content to stand around.

Note worthy observations are #④ 14 moose, 12 caribou, ⑤ 7 wolves (5 grey, 2 black).

Inspite of my optimism regarding the quality of the adult sex ratio by conducting a survey at this time of year- either this years' calf crop is very poor or we are not finding the cows with calves. Inspite of our frequent crossings of valley bottoms - we are finding moose where there tracks are - and there are damn few tracks in the bottoms. In order to get a longer sample, we are going back tomorrow to do the area south of the Snafu Lake Valley in order to try to clear this up.

I suspect tho' that our cow-calf ratio is not going to improve as the the B.C. people (Walter Stephen) working out of Atlin in late November got a ratio of 49 ♂ : 48 ♀ : 7 calves, which approximates todays' survey results — indicating that this years calf production and/or survival is poor.

LATE FALL MOOSE SURVEY

Pilot: Norman Rafuse
Observer: G Lortie

3 Dec. '74
CF-QFQ

♀	calves.	♂	TRACKS	Obsvn #
1			1	
1	1	5		(1)
1	1	1		
1		2		
8		1		
3		10		
3		1		
3	1	3		
4	1			
1	1	6		(2)
3		1		
1		3		
3		2		
		2		
1		1		
1		1		
		2		
		1		
1		2		
		3		
7		4		(3)
		3		
1		2		
1		5		
1		3		
4		1		

♀	calves.	♂	caribou	Obsvn. #
4		6	12	(4)
		3		(4)
54	5	1		(4)
		76	7 wolves (5 grey, 2 black)	(5)
			Caribou tracks (± 12)	(6)

LATE FALL MOOSE SURVEY 4 Dec. '74

Tarfu-Snafu Area: Observation Cond: Good

Pilot: Norman Rafuse Helicopter: CF-QFQ.

Observers: Len Mychasiw Hours: 4.7

G. Lortie

Cows = 162 : Calves = 32 : Bulls 122

for a sum total of 316 moose for the day.

Again, we found moose primarily at elevations over 4000'; mostly in burns, although perhaps 15% of the total located were at timberline in unburned areas.

An examination of the data collected today confirms the very low reproductive performance of this population — i.e. a combined cow/calf ratio of $\frac{5}{54} + \frac{32}{162} = \frac{37}{216}$ or approx 17 calves / 100 cows.

Further, a look at the calf to total adult ratio — $\frac{37}{414}$ shows a post hunting semi annual recruitment of only 9%.

The highly accurate adult male: female ratio is 216:198, very near a 50:50 ratio.

Discussion:

After two days of observing this population, I'm left with several impressions:

(i) Of the ♂ segment of the population, 10% or less are recognizable as being less than 2 years of age, — the bulk of the bulls being large, mature animals.

(ii) A very low reproductive performance noted earlier.

(iii) A large but unquantified proportion of the population utilizing burns being regenerated to fire succession pine

(iv) As most of this survey was conducted in the area burned in 1958 (approx. 500-600 sq mi), and having physically observed 451 moose on this burn, a density of 1 moose / sq mile is realistic. (Our coverage was approx 90% based on tracks where no moose was seen).

Our earlier estimate of 415 moose, was indeed conservative as noted.

Using this survey's adult sex ratio to correct last February's data would produce a level of recruitment for last year even worse than we reported.

These facts and speculations lead me to conclude:

(i) There are not less than 600 moose in this portion of GMU #9. at this time — perhaps more than 750, before the hunting season.

(ii) The range is at carrying capacity or over, inspite of known resident population of wolves numbering at least 40. This is not an expanding moose population.

Recommendations:

(i) In the near future, qualitatively & quantitatively evaluate this moose range & the level of utilization.

(ii) An attempt to identify sources of winter mortality be instigated. Are these moose largely dependent on young pine as a winter staple?

(iii) Determine whether the low cow-calf ratio is a result of post partum mortality or failure of cows to carry embryos to term due to nutritional deficiency or other cause. This recommendation is partly dependent on a comprehensive range study. I suggest that because adults appear generally to be in good health (fat) at this time & the ones going thru the check station appeared to be in good shape that post partum mortality is the likely cause.

If resorption of embryos is common, or for some other reason strong calves are not produced (disease), nutritional deficiencies would appear to be the likely cause of low recruitment.

Other Observations:

(5) 3 caribou & 3 Blue grouse.
(6) 1 fox
(8) 74 moose segregated in this area.

Rock or Willow Ptarmigan seen occassionally near timberline throughout & 1 flock of ±12 Whitetailed Ptarmigan.

Need Aerial photos of area

4 Dec. '74

Pilot: N Rafuse.
Obsvrs: Mychasuk & Lortie.

♀	calf	♂	Other	Obsvn #
1		1	3 tracks.	
1		1		
1		2		
2				
1	1	1		
1	1	1		
3		9		(1)
1		1		
1	1	1		
		5		(2)
3		4		11
2				
1	1			
3				
		1		
		1		
3	1			
			caribou tracks.	(3)
1				
1	1			
1		2		
1	1			
4/32	/7	/30		

4 Dec.

♀	calf	♂	Other	#
1	1			
1		5		(4)
1	1	2		
2	1	2		
1	1			
1	1			
2 1		1		
2	2			
1	1			
1	1			
1	1	2		
5		3		
1		4		
1				
2		4		
2		1		
1		1		
3		2		
1	1	1		
1		1		
1	1	2		
1		3		
1	1			
33	13	34		

4 Dec.

♀	calves.	♂	Other	Osun #
1		1		
2			3 tracks	
1	1			
1		4		
2		1		
1				
1	1			
1	1			
1		3		
		1		
1				
1				
2	2			
3		1		
1				
2				
6		2	3 carbon tracks	(5)
2		2	1 set tracks.	
3		1	1 fox	
0		2		
1	1			
3				
1			Carbon tracks.	(6)
10		1		(7)
2		11		(7)
2	1			
3/54	/7	2/32		

WERE 2

f	cdf	♂
2	1	
7	1	2
1		4
1	1	
1	1	1
3		1
2		
2	1	
4		1
1		1
		2
1		2
5		5
6		5
3		0
0		1
3		1
1		
43	5	26

other

Obs'n #8

3 Bluegrouse

①	32	7	30	162
②	33	13	34	32
③	54	7	32	122
④	43	5	26	316

162 + 32 + 122 = 316

LATE FALL MOOSE SURVEY 5 Dec. '74.

Pilot. N. Rafuse. Obsv'n Cond: Good.

Observers: Len Hychasiw Helicopter: CF-QFQ.

G. Lortie Hours: 4.9.

Nisutlin Area.

Contrary to our expectations, ~~very few~~ no moose were observed in the Nisutlin River Valley bottom. A few moose were seen on the river terraces but heavy timber precluded our doing a systematic survey on the side hills. The bulk of our observations were gleaned at Timberline between 4100 & 5000' elevations on both sides of the Nisutlin R. valley. In contrast to the situation west of Teslin Lake, moose which winter in the Nisutlin & Wolf River Valleys are much more scattered at this time with group sizes being significantly smaller.

Snow is deeper in this region as compared to the area west of Teslin Lk. As well, the Nisutlin region is more homogeneous with regard to the ~~flora~~ plant communities. The valleys are made with extensive climax stands of open canopy black spruce, save for dense stands of white spruce, riparian willow & poplar immediately adjacent the River, & climax fire succession pine on old burns which are not extensive. At higher elevations, in the Nisutlin valley, old burns are densely forested with mature willow - in this type of habitat we found a lot of the moose observed today.

Broad uplands between major valleys are characterized by open black spruce muskegs. Throughout, an understory of varying density of willow & other shrub species is characteristic.

The Wolf & Red Rivers above Fish Lake are typically described by the previous paragraph but climax pine forests cover a larger percentage of the area. Below Fish Lake the Wolf River valley is narrower, the east side of the valley having been burnt to timberline on the Englishman Rg. as far down as Canyon Cr. This burn is evident as well on the west side, tho not as extensive.

We had not the time or fuel to survey this burn at higher elevations on the Englishman Rg - I suspect one would find moose up there now as it is rapidly coming back to willow.

Summary:

Moose in the Morullen & Wolf River Valleys are scattered at this time, being found from the valley bottoms to timberline in timber & burns, but found most frequently at elevations over 4000'.

Cows = 24 : Calves = 8 : Bulls = 19. Σ = 51 moose

Calf-Cow ratio = 8/24 = 30%

Calf-Total Adult ratio = 8/43 = 19%

Caribou in large but undetermined numbers are using the valleys & uplands between observation points 11 & 15.

LATE FALL MOOSE SURVEY. 5 Dec. '74.

♀	calves	♂	Other	Obsv'n #
			15 horses in Colwell Bay.	
			scattered moose tracks at 4800'	(1)
2		1	at 5000'	
		3	"	
			moose tracks	(2)
			caribou tracks.	(3)
		2	at 5000'	
1	1		"	
1			lots of tracks none seen	(4)
1	1		at 2800'	(5)
		1	at 4800'	(6)
1	1		" 4400'	(7)
1			2 caribou ♂♂	(7)
1		4		(7)
1	1			(7)
1				
2			6 caribou	(8)
1	1			
1	1			
1		1 yrling		
1			6 caribou (27)	(9)
1				
1		1 yrling		
1/19	6	1/14		

♀	calf	♂	Other	Obsv'n #
1	(		3 combos.	(10)
1			lots of combo sign	(11)
			" " " ¿ 5 combos.	(12)
			10 combos	(13)
			combo kill	(14)
			" "	(15)

2

1 1

5

(16)

$\frac{2}{5}$ $\frac{\quad}{2}$ $\frac{\quad}{5}$

(17)

5 2 5

$\frac{19}{24} + \frac{6}{8} + \frac{14}{19} = 51$

LATE FALL MOOSE SURVEY 6 Dec. '74.

Pilot: N. Rafuse. Obsvn Cond: Good.
Observer: G. Lortie Helicopter: CF-QFQ
Tarfu-Snafu region. Hours: 2.4.

This morning on the way back to Whse, we surveyed the remaining uplands immediately west of Teslin Lk opposite the mouth of Lone Tree Creek northward.

Again, moose were found primarily in recent burns where they crested this range in the vicinity of Hayes Peak.

Todays segregations are:

Cows = 57 : Calves = 13 : Bulls = 51 Σ = 121 moose

A summation of the segregations in the area west of Teslin Lake is as follows.

	Cows	Calves	Bulls.	Σ
3 Dec.	54	5	76	135
4 Dec.	162	32	122	316
6 Dec.	57	13	51	121
	273	50	249	572 moose.

Statistical Summary.

Calf - Cow Ratio:

$$\frac{50}{273} = 18\%$$

Calf - Total Adult ratio:

$$\frac{50}{273 + 249_{522}} = 9.6\%$$

Bull - cow Ratio:

$$\frac{249}{273} = \frac{48}{52}$$

Of the bulls classified on the 6th Dec:

8 of 51 could be recognized as being 2 years old or younger

$$\therefore \frac{8}{51} = \frac{x}{249 \text{ total of}} \Rightarrow 16\%$$

LATE FALL MOOSE SURVEY 6 Dec. '74.

Tarfu · Snafu area

♀	calf	♂	Other	Obsv'n #
1			tracks (1)	
1				
5		1	small	①
		1		①
1		1	small.	①
		3		
		2		
2				
		4 big ones.	at 800'	②
1				
1	1	~~6~~ "		③
		4 "		③
2		2 small		③
1		4 big ones		③
		8 big ones.		③
3	1			
1	②			
		2 small.		
2		4. big ones.		
2	1			
4		1 small.		
3				
2	1			
1	1			
1/34	8/7	1/44 small.		

♀ calf ♂ Other Obscure

2 1

2

1 1

9 1 4 buyers.

1 1

1 one antler

2 unclear.

2 buyers.

1 1

2 1

5 / 6 / 7 big dry cows (4)

23

34 7 44

23 6 7

57 + 13 + 51 = 121