

Gladys Lake

Ref. No.:

222

SPATSIZI PARK WILDLIFE SURVEY

2-5-4-2-4

ECOLOGICAL RESERVES COLLECTION
GOVERNMENT OF BRITISH COLUMBIA

G.W. Jones
Parks Branch

Dates: February 15 - February 21, 1983
March 15 - March 18, 1983

Method: Bell 206 helicopter.

Hours flown approx.	Eaglenest sheep	9 hours
	Eco-reserve sheep	4 hours
	Marion Sheep	3 hours
	Moose distribution	6 hours
	Moose classification	12 hours
	Caribou reconnaissance	3 hours
	Ferry time	9 hours - includes 2 round trips from Smithers plus fuel trips to Tenajon

Participants: February - G. Jones, Parks
T.O. Jones, Parks
R. Marshal, Fish and Wildlife
R. Collingwood, Volunteer
T. Brooks, Pilot

March - G. Jones, Parks
G. MacDonald, Parks
A. Stewart, Environment
T. Brooks, Pilot

Purpose:

1. Attempt complete count of Stone's sheep in the Eaglenest, Gladys Ecological Reserve, and Marion wildlife zones. *
2. Map wintering distribution of moose.
3. Classify wintering moose.
4. Attempt caribou count.

Weather:

February 15 - 21 generally had a light, high cloud cover, visibility was good. Temperatures were generally 10 - 20°F daily min. - max., February 19 was -22°F in morning, February 20 was +34°F in afternoon.

March 15 - 17 had clear blue skies, daily maximums were about 35°F. March 18 was snowing lightly.

Snow Conditions:

February 15 - 21, had about 40 cm fresh powder at Hyland Post, which fell about February 13 and 14. This was the first snow in about 2 months. The following snow depths were measured February 17:

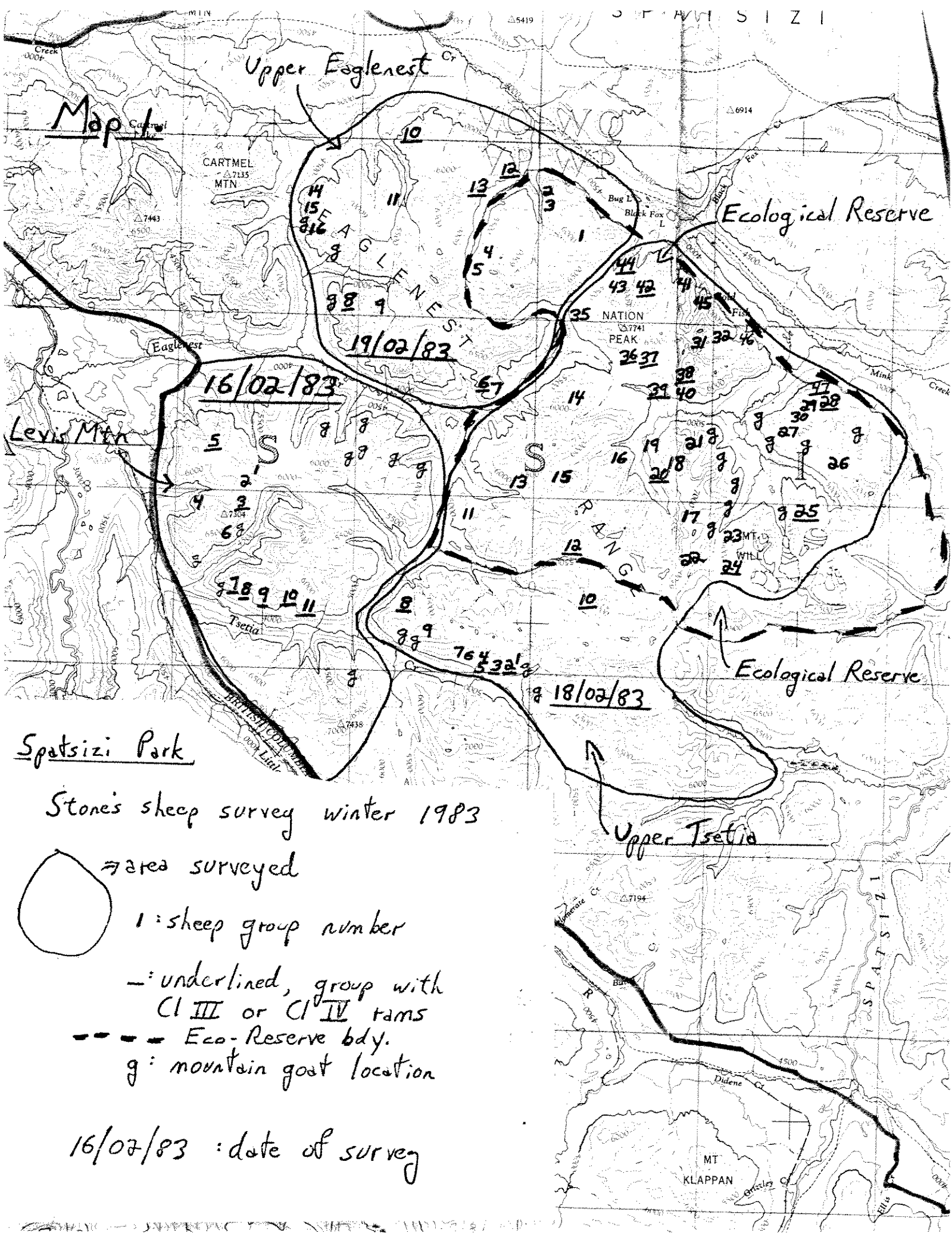
Hyland Post	- 45 cm
Laslui Lake, Collingwood camp	- 105 cm
Coldifsh Lake camp	- 78 cm
Stikine R., mouth Kehlechoa Creek	- 54 cm
Fire Flats, mouth Thule Creek	- 150 cm

Observations:

1. Stone's Sheep

Intensive transects through all likely sheep habitat in the 3 zones were flown. The attached Maps 1 and 2 show the boundaries of the areas surveyed, as well as locations of sheep groups. The original maps and notes are filed with Parks, Victoria. The surveys on February 16 and 18 were flown in good visibility conditions, the February 19 survey was hampered by high winds which prevented close survey of some canyons and faces.

All sheep observations are summarized in Table 1. Table 2 summarizes sightings in the Eaglenest zone by mountain block. Figure 1 shows the frequency distribution of sheep group sizes.



Map 1

Upper Eagle Nest Cr.

Ecological Reserve

Levis Mtn

Ecological Reserve

Spatsizi Park

Stone's sheep survey winter 1983



→ area surveyed

1: sheep group number

-: underlined, group with Cl III or Cl IV rams

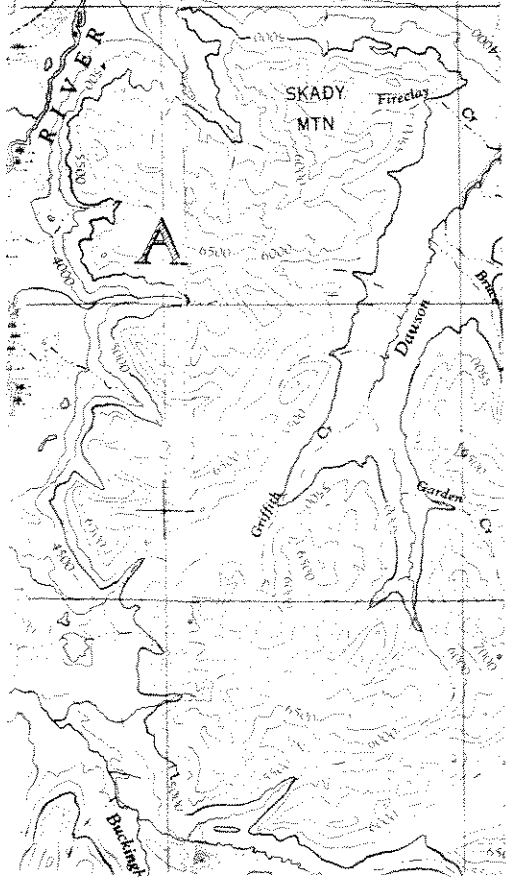
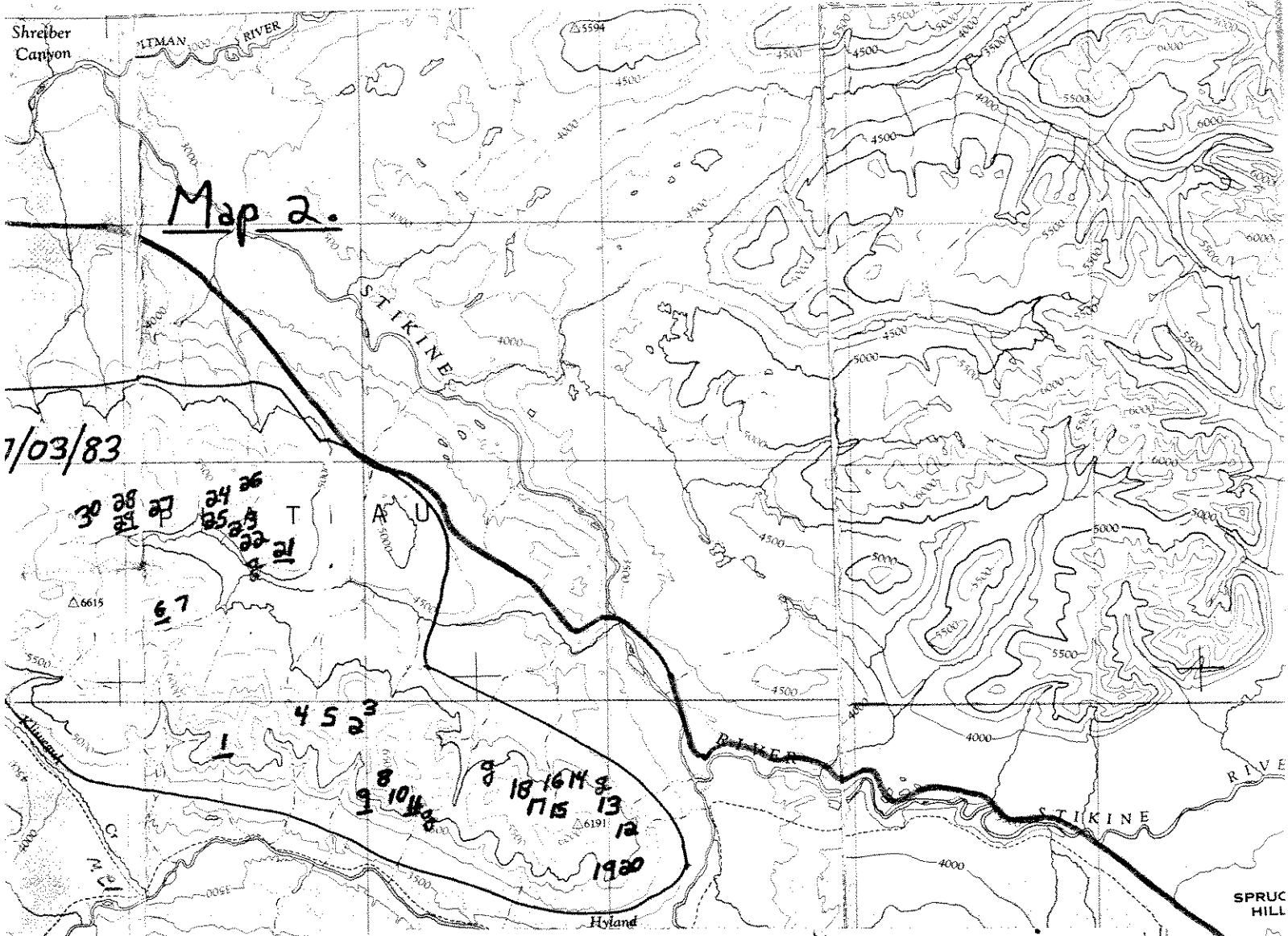
--- Eco-Reserve bdy.

g: mountain goat location

16/02/83 : date of survey

Upper Tsetia

MT KLAPPAN



Spatsizi Park

Stone's sheep survey winter 1983



→ area surveyed

1: sheep group number

-: underlined, group with CI III or CI IV tams

g: mountain goat location

16/07/83 : date of survey



Table 1. Summary of Stone's sheep sightings, February and March, 1983

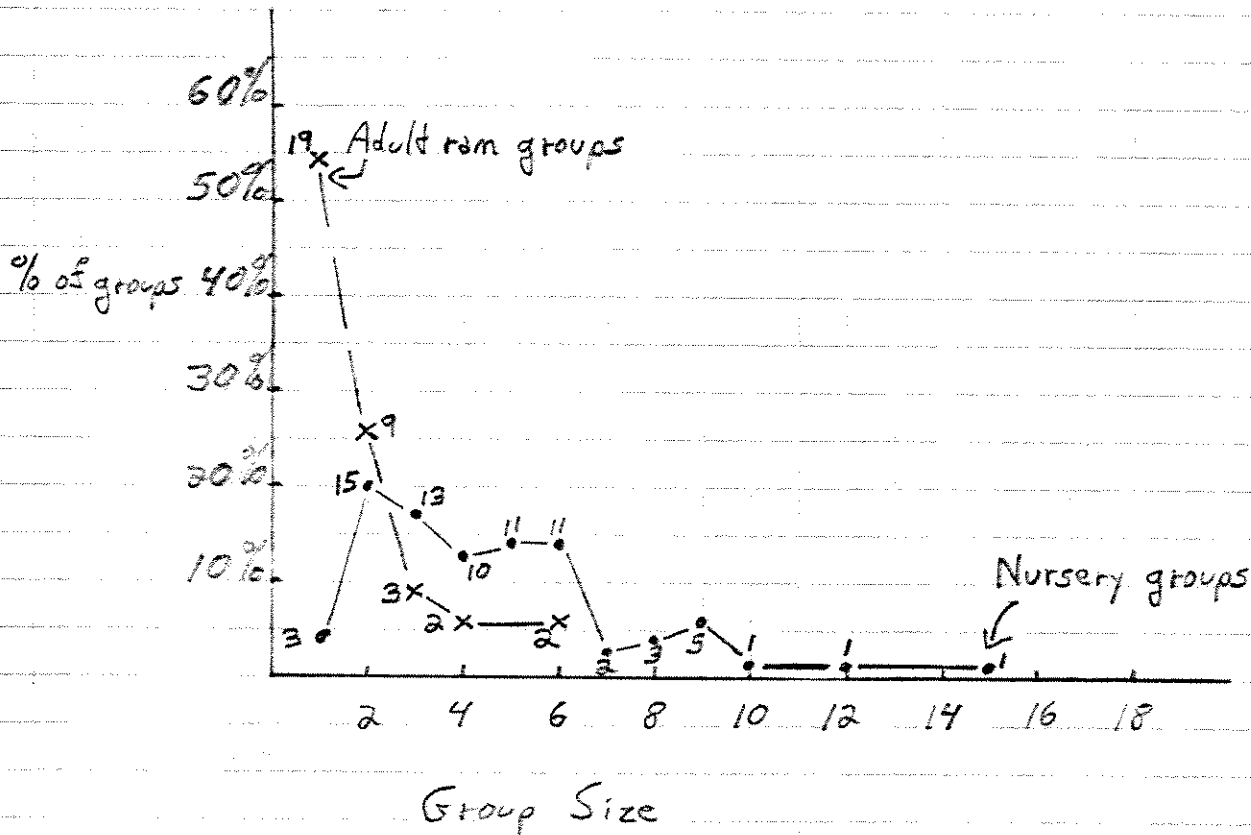
Wildlife zone	<u>Sheep observed</u>						Total
	Cl IV ram	Cl III ram	Cl II ram	Unclass adult	Lamb	Unclass sheep	
Marion	1	8	9	81	*28	6	<u>133</u>
Eco-reserve	7	10	17	87	40		<u>161</u>
Eaglenest	14	19	6	67	25		<u>131</u>

* An ewe with twin lambs was seen in the Marion zone.

Wildlife zone	<u>Ratios</u>		
	Cl IV rams: 100 adults	Cl III rams: 100 adults	Lambs: 100 adults
Marion	1 (1:99)	8 (8:99)	28 (28:99)
Eco-reserve	6 (7:121)	8 (10:121)	33 (40:121)
Eaglenest	13 (14:106)	18 (19:106)	24 (25:106)
Eco-reserve and Eaglenest subtotal	9 (21:227)	13 (29:227)	29 (65:227)

For the purpose of these ratios, adults includes all classes of rams plus the unclassified adults.

Figure 1: Frequency distribution of Stone's sheep group sizes, February and March 1983, total of Marion, Eaglenest, and Eco-reserve zones. The number beside each point is the number of groups in the sample.



	Mean group size + s.d.	range
Ram groups	$\bar{x} = 1.9 + 1.3 \text{ s.d.}$ $n = 76 \text{ groups}$	1-6 sheep
Nursery groups	$\bar{x} = 4.6 + 2.7 \text{ s.d.}$ $n = 35 \text{ groups}$	1-15 sheep

For the purpose of this Figure and table, Class III and IV rams found in nursery groups were not included in the nursery group sizes. Such rams were considered a separate ram group. This procedure removed 6 rams from 4 nursery groups.

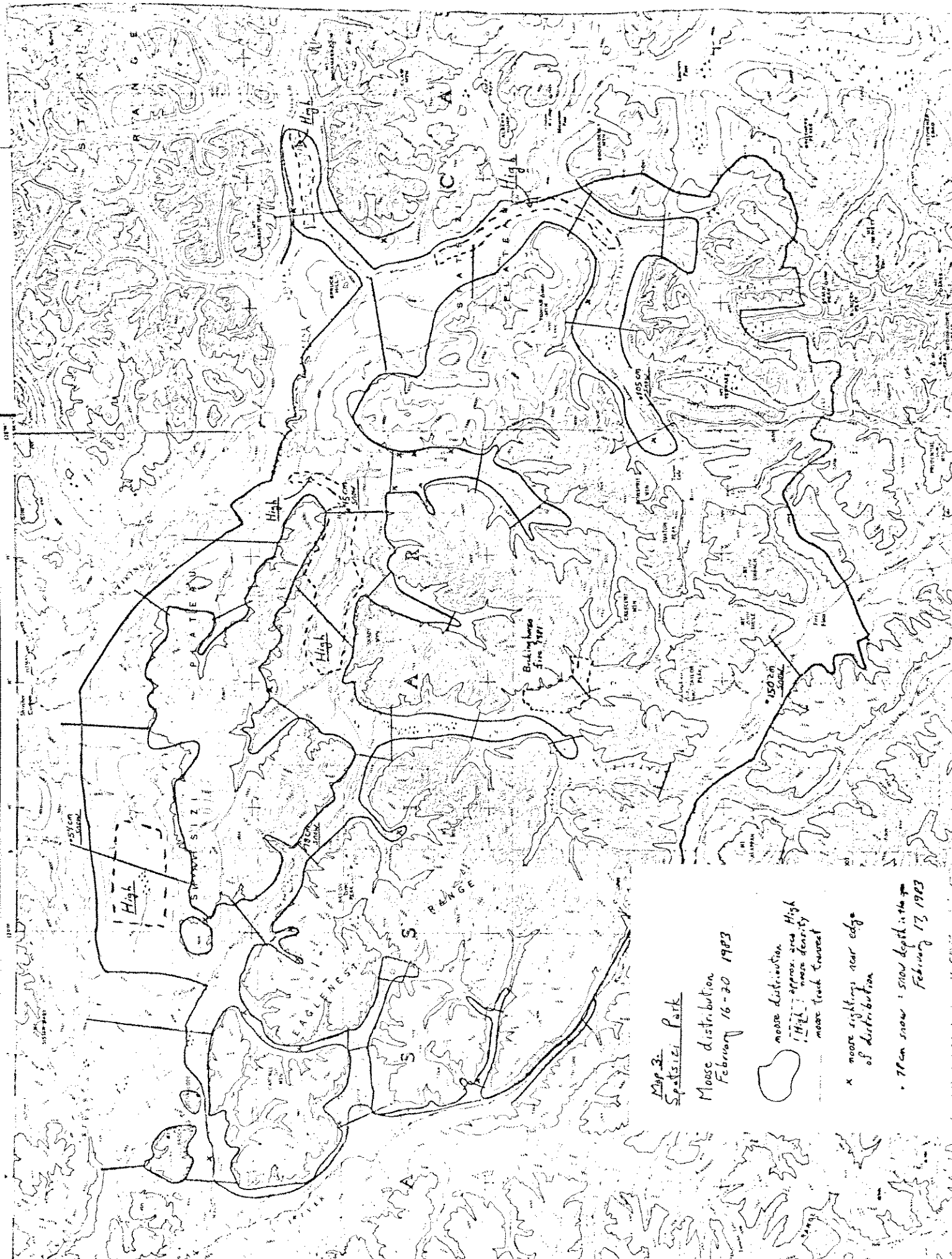
Table 2. Summary of sheep sightings in the Eaglenest zone, February 1983.

Area	Class IV Ram	Class III Ram	Class II Ram	Unclass. Adult	Lamb	Total
Upper Eaglenest	6	11	2	22	7	48
Levis Mtn.	4	6	2	16	8	36
Upper Tsetia	4	2	2	29	10	47
Eaglenest zone Total	<u>14</u>	<u>19</u>	<u>6</u>	<u>67</u>	<u>25</u>	<u>131</u>

2. Moose:

The attached Map 3 shows the wintering moose distribution February 16-20. The map also shows the "moose-track-transects" flown to determine moose distribution. The distribution map incorporates observations made during other surveys and ferry trips. The map also shows areas of high observed moose density, and locations of snow depth measurements.

All moose classified counts were done by intensive searching of specified areas (Appendix 1). Searches along valley bottoms incorporated openings on or near the river, plus forest for a distance of about 1/3 km from the river. About 1/2 of the observed moose were found in the forest near the openings.



Map 3.
Spatsizi Park

Moose distribution
February 16-20 1983

- more sightings near edge of distribution
- 71cm snow; snow depth in the pm February 13 1983

more distribution
High - approx. area High
more density
more track toward

Table 3 stratifies the classified counts by:
 High elevation, 4,500 ft. plus
 Hyland Post burn, excluding the airport area
 Valley bottoms, mostly Spatsizi and Stikine Rivers.

Table 3. Classified moose counts in Spatsizi Park.
 February 17, and March 16-18, 1983.

Survey area	<u>Moose Observed</u>				<u>Observed Ratios</u>
	Bull	Cow	Unclass adult	Calf	Bulls:100 cows:calves
High elevation 4,500 ft plus Feb. and March	1	22		5	5B:100F:23Ca
Hyland Post Burn February 20	6	35		15	17B:100F:43Ca
Valley bottoms February 20	72	155	1	32	46B:100F:21Ca
Valley bottoms March 16-18	45	93	1	19	48B:100F:20Ca

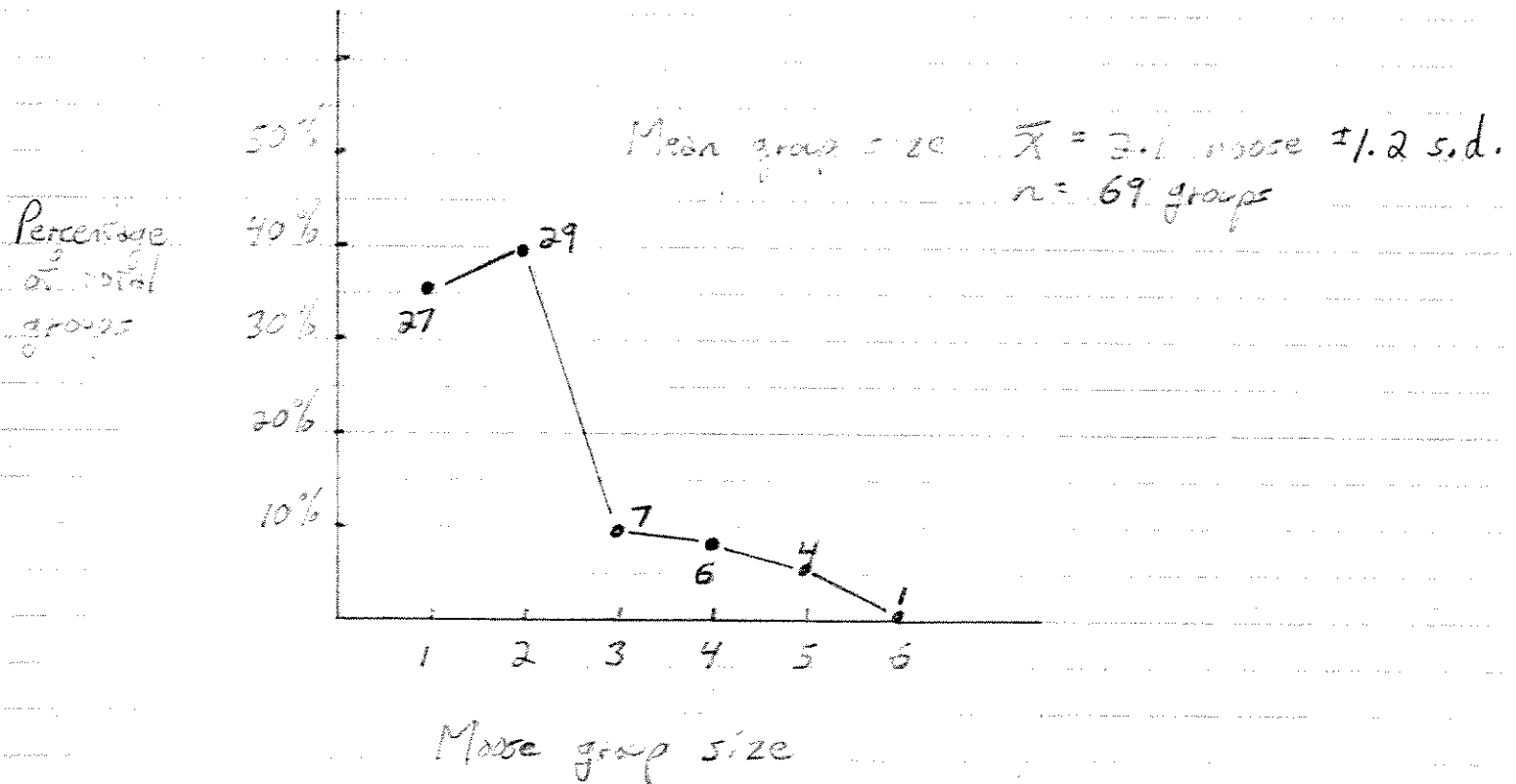
2% (6/297) of observed females had twin calves.

Table 4 shows the observed moose calf sex-ratio. Figure 2 shows the frequency distribution of moose group sizes.

Table 4. Observed moose calf sex-ratio, Spatsizi Park.
 February 20 and March 16, 1983

Date	<u>Observed calves</u>			<u>Observed Ratio</u>
	Male	Female	Unclass.	Male:100 Female
February 20	28	16	7	175M:100F
March 16	4	11	3	36M:100F
<u>Total</u>	<u>32</u>	<u>27</u>	<u>10</u>	<u>119M:100F</u>

Figure 2. Frequency distribution of moose group sizes, March 16, 1983. The number beside each point is the number of groups in the sample.



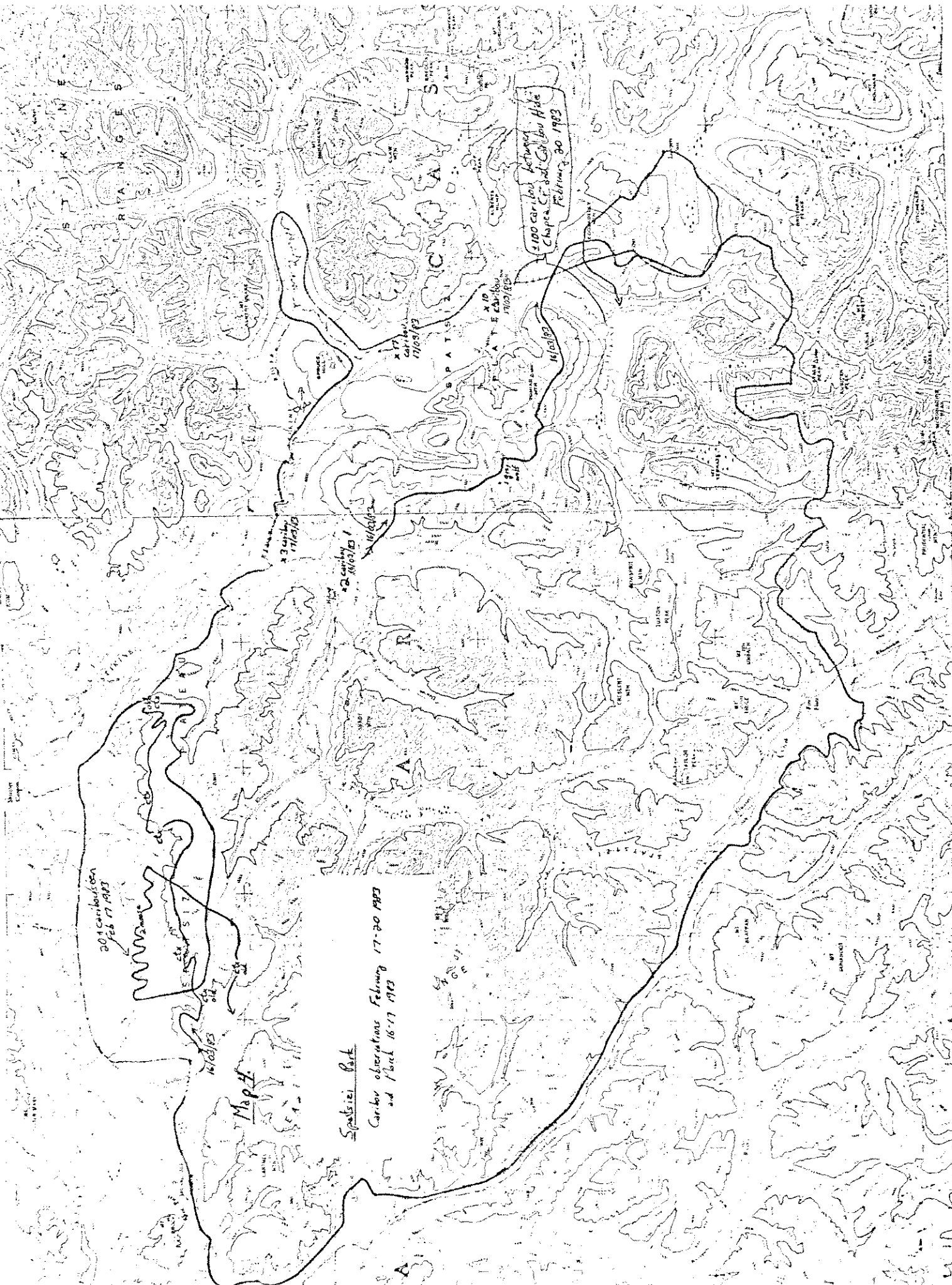
43% (12/28) of the 2 moose groups were cows with a calf.

A moose, hamstrung by wolves, was seen on the Spatsizi River March 17. The moose was obviously weak, but was alive. A 3 point bull, with both antlers, was seen February 20.

3. Caribou

No caribou were seen above tree-line on either the February or March trips.

In February, caribou concentrations were noted along the Stikine River between Chapea Creek and Caribou Hide, and in the Moose Flats north of Caribou mountain (Map 4). No other substantial caribou concentrations were observed.



3100 caribou between
Chapex SF and Chibou Hike
February 30, 1983

Spatsizi Park
Caribou observations February 17-30 1983
and March 16-17 1983

M.P.H.

2013 caribou
Feb 17 1983

Spatsizi Park

16100/83

2 caribou
16100/83

3 caribou
16100/83

1000
E Caribou
16100/83

In March, no concentrations were found. Observations indicated that caribou were scattered throughout timbered areas, only 32 were seen (Map 4). While no caribou were seen on Caribou mountain, tracks indicated that some caribou had moved up to timberline, but then had gone back down into the trees. There was no evidence of caribou on Tomias mtn, Edozadelly, or Lawyers Pass area (Map 4.)

4. Incidental observations

a) Wolves

February 16, 1983. 12 wolves (5 grey, 7 black) at junction of Kliweguh Creek and Spatsizi River.

February 17. 13 wolves (5 grey, 8 black) 3 miles due south of Hyland Post, probably same pack observed February 16 at mouth of Kliweguh Creek.

February 17. 16 wolves (1 grey, 15 black) at junction of Chili Creek and Stikine River.

February 19. Recent moose kill near mouth of Ross River, female moose, hard white bone marrow, all meat consumed.

March 16. 11 wolves (7 grey, 2 dark black, 2 lighter black) on Stikine River just south of Spruce Hill.

March 16. Tracks of + 10 wolves obviously hunting Stone's sheep in rock bluff habitat on Spatsizi Plateau just north of Marion Creek. No evidence of kills.

March 16. Blueberry Mountain, 3 miles NW of Worry Creek, 5,500 ft elevation. One lone grey Wolf.

March 16. Dead black wolf on ice on Stikine River, just downstream of mouth of Spatsizi River. Carcass partially eaten by birds.

March 16 and 17. Substantial wolf tracks found:

- a) west end Spatsizi Plateau
- b) Bug Lake area
- c) Mink Creek
- d) Spatsizi River downstream of Mink Creek
- e) Chuckachida River in the Park

b) Mountain goat

Eaglenest wildlife zone February 16-19, 1983

group sizes:	8	1	1	9	3	8
	1	4	2	8	4	1
	1	11	2	8	2	3
						<u>Total 77 goats</u>

Gladys Ecological Reserve February 18, 1983

group sizes:	2	4	3
	2	3	2
	2	3	2
	1	1	<u>Total 25 goats</u>

Caribou mountain wildlife zone February 18, 1983

group sizes: 9, on extreme SE corner of plateau above Mink Creek.

Marion wildlife zone March 17, 1983

group sizes:	1	1	4
	1	1	2
	5	4	<u>Total 19 goats</u>

mean goat group size $\bar{x} = 3.4$

n = 38 groups

c) Miscellaneous

February 18, 1983. 1 Red fox seen in Eaglenest wildlife zone.

February 19. 1 Lynx seen near sheep carcass in Eaglenest zone.

Discussion

Sheep

In general, the Stone's sheep were scattered about in small groups, the mean size of nursery groups was 4.6, and the mean size of ram groups was 1.9. Although we flew intensively, because of the small group sizes and widespread distribution, it is possible that a significant proportion of sheep were missed. The least efficient count was probably February 19 in the northern part of the Eaglenest, which was hampered by wind.

It is interesting that the Eaglenest zone, which is hunted lightly, had a higher proportion of Class III and IV rams than the unhunted Ecological Reserve. The difference is likely related to differing distribution of rams and nursery groups. The Eaglenest and Eco-Reserve are not distinct sheep ranges. The total proportion of Class III and IV rams (Eaglenest and Eco-Reserve) is about normal.

The proportion of Class IV rams observed in the Marion zone is very low. It is recommended that additional surveys be conducted in 1983 to check the observed ram component.

Moose

It is interesting that the high elevations (4,500 ft plus) had the lowest proportion of males, and the valley bottoms had the highest (Table 3). Given the range of 5 bulls:100 cows to 46 bulls:100 cows between habitats, it is impossible to draw conclusions about the actual sex ratio of the

population. The only comment is that all observed proportions of males are lower than expected. If the true sex ratio is less than 50 bulls:100 cows, the most likely cause would be hunting of bulls.

It is also interesting that there were approximately 20-23 calves per 100 females in all samples except the Hyland Post burn (Table 3). The high calf component, and relatively low male ratio, in the burn suggests that females with calves were drawn to the area. Although there was some variability, the observed calf component is low and may indicate predation.

Note that the population composition observed in the valley bottoms was similar in February and March (Table 3). However, the observed calf sex ratio varied substantially between the two sampling periods (Table 4). The total observed calf ratio is biased towards males and is consistent with general ungulate ecology.

Caribou

The observations indicated that caribou were generally scattered around forested habitats. The expected movement to alpine habitats did not occur, at least not by March 20. The radio study by the Spatsizi Association will provide more detailed information.

Wolves

The observations indicate at least 3 wolf packs, of about 13, 16, and 11 wolves each, in the eastern half of the park. The territories of the two packs seen on the Stikine River may include substantial area out of the park. The pack of 16 (1 grey, 15 black) was probably the same one seen on Tomias Mtn. in October, 1982.

Although wolf tracks were observed in many locations, territory boundaries are not known and it is impossible to determine how many additional packs there are.

Mountain goat

The mountain goat observations are incidental and are not representative of actual population levels.

Winter range

The snow depths February and March, 1983 were low and the winter was considered mild. The observed wintering distribution of sheep (Maps 1 and 2), moose (Map 3), goats (Maps 1 and 2), and perhaps caribou, may be representative of mild winters, but probably not of heavy snowfall years.

Appendix 1.

British Columbia
Victoria

Moose Survey

Park Spatsizi

Wildlife Zone search

Date Feb 20 1983

Method H/Copier 7.4 hours

Observers Jones, Marshall,

Howard-Jones, Brooks (pilot)

Weather high cloud 2°C

Snow conditions 5 deep in powder good visibility

Comments 1 antlered 3pt bull, 5 sets Twin calves

Moose Code

37 m:100♂ (17:210)

calves 36% female (16/44)

24 calves: 100♂ (51:210)

b bull

f female

ua unclassified adult

c calves

u unclassified

Location - habitat	ADULT			CALF			
	M Moose	F seen	Un	M	F	Un	
Zone <u>A</u> 5000± ft Hyland Pass - Klwaguh		13			1	2	<u>16</u>
<u>B</u> 3500-4500± ft Klwaguh creek bottom	* 6	2					* 3 pt ♂ antlered
<u>C</u> Spatsizi R bottom, Klwaguh - Hyland Pass	21	39		8	4	2	<u>74</u>
Beena <u>D</u> Hyland Pass	6	25		7	4		<u>42</u>
Beena <u>E</u> Hyland Pass		10		3		1	<u>14</u>
<u>E</u> Lower Ross R 4500-5500 ft		5			1		<u>6</u>
<u>G</u> Ross R to Ross R to 5500 ft	1	2					<u>3</u>
<u>H</u> Ross R Bottom	7	15		1			<u>23</u>
<u>I</u> Spatsizi R H Pass to Stikine mt	6	15	1	2	2	1	<u>27</u>
<u>J</u> Stikine R, Lassie - Chapel	7	20		1	2		<u>30</u>
<u>K</u> Stikine R Chapel - Caribou table	15	41		2	2	1	<u>61</u>
<u>L</u> Stikine R Ch. table - Chil. Cr	6	17		3			<u>26</u>
<u>M</u> Stikine R Chil. Cr - Spruce table	4	6		1			<u>11</u>
<u>Totals</u>	<u>79</u>	<u>210</u>	<u>1</u>	<u>28</u>	<u>16</u>	<u>7</u>	<u>341</u>

Zone K: about 100 caribou on Stikine R

All zones except M, searched even areas with E. over adjacent
most moose in river zones were in timber

Moose survey
1 group per line

Wed March 16 clear, blue, no wind $\approx +7^{\circ}\text{C}$

North side Spatsizi Plateau
b b

Bug Lake
b b

Mink Creek
f mc
f

Spatsizi R - Mink - Cache Creek
f
f sick b
f

Cache Cr to Hyland Pass
f c
b b
b f
b
f b b
f
f
b b f
f b
f sc
f mc

Hyland Pass airstrip
f f f f
f f
f f f f f c
f mc
f mc
f
f f c b

Mouth Ross River
2 f caribou

Blueberry
1 grey wolf

f mc

Wed March 16 page 2 of 2

Lasli Lake - Chapeo Cr

f f
f b f b f
f f
b
f f
f f
f f
f f
f f
f f f f

Chili Cr - Spruce H. H

f f
f
11 wolves 4 black 7 gray
(only 2 were mostly black)

Chuckachide

b
f c
b b

Chapeo - Caribou Hide

f f
f f
f f f f b
f
f f
f f
f
f
f f
f f f f
f
f
f
b
b b b f f
f f f

Caribou Hide - Chili Cr

b b b f	ua	caribou	
f f	f f c	18 Ad	2 calves
f f f c	b b b b f f	15 Ad	2 calves
f	f		
f f c	b b		
f f c			
f			