Wildlife Inventories in GMZ 8 and GMZ 10 Yukon Territory With An Evaluation Of Present Levels of Sheep Harvest - 1976 & 1977.

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ERRATA

Throughout the GMZ 8 section and the section dealing with harvest, reference is made to the Mt. Peters' sheep population as being within the outfitting area of R. Hassard. Late in the write-up, to my chagrin, I found that this population correctly belongs in the C. Martin outfitting area. The reader is asked to excuse the writer this oversight, and make the adjustments necessary for his own purposes.

Grant Lortie.

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Upland Survey in the G.M.Z. #8 Portion of the Pelly Mountains, Big Salmon Range, the Semenoff Hills and the Highlands between the Teslin and Yukon Rivers

INTRODUCTION:

This report presents the findings of an aerial game inventory in the Pelly Mountains and associated ranges lying within G.M.Z. #8. In addition, two contiguous physiographic units adjacent the South Canol Road in G.M.Z. #10 were surveyed. The total area surveyed was sq. miles.

Unlike the western dall sheep ranges of G.M.Z.'s #5 and #7, the distribution of the "fannin" sheep in the Pelly Mountains is discontinuous, with a strong correlation between sheep occurrences and the regional geology of the area. While the occupied portions of these mountains were not characterized in any detail, sheep are generally found in a belt of sedimentary and altered sedimentary rocks mostly dolomites and shales, paralleling the Tintina Fault from Mt. Atherton near Little Salmon Lake at least as far east as Mt. Green near the head of Ram Creek. The erosion patterns and weathering products of these rocks apparently provide more suitable escape terrain and vegetation. Weathered rock and rock slide areas are of a finer "shingle" type below which there is a noticeably more verdant and lush alpine vegetation. Depending on aspect and slope, the upper limit of vegetation, in many areas, is 500' higher than the upper limit of vegetation in unoccupied areas.

Most of these ranges which presently are devoid of sheep, are rocks of primarily igneous origin, granites and diorites, which have eroded into expanses of coarse bouldery talus on south and west facing slopes with a lichen vegetation cover. Cirques and near vertical rock races dominate north and east aspects. Alpine sedge-forb tundra throughout these ranges is primarily caribou habitat.

In spite of these observations early in the survey, we did conscientiously fly every range, regardless of the lack of geologic promise, and occasionally we did find an isolated band of sheep. Most noteworthy of these are the isolated sheep near the head of Mendocina Creek.

Likely wintering areas were noted but precise locations of important wintering areas will have to be determined from a survey in the winter of 1976/77.

It was originally thought that because of the darker colour of these sheep, they would be more difficult to locate from the air. We are confident that, because of the flight response of sheep to the aircraft, most sheep were seen - however it is obvious from the total of the classified counts that a substantial number of nursery sheep were not found.

METHODS AND EQUIPMENT:

In keeping with the methodology developed over three previous field seasons this survey was flown between 26 June and 24 July 1976 of which 8 days were not flown because of weather (3 days) and camp moves (5 days).

Flight paths plotted on 1:250,000 topographic maps conform more or less, depending on local conditions and the elevation of previously observed sheep, to the 5500' contour. Discrete physiographic units were blocked out on a set of work maps and within each letter-designated unit every effort was made to complete the flight within a day, or at the most, two days, to minimize the chances of double inventorying sheep moving between ranges.

It was unnecessary to land and classify sheep with a spotting scope, as unlike G.M.Z. #5 and #7 sheep ranges, these animals were found in small groups varying in size from one to less than forty animals.

Daily flight summaries were compiled from data sheets each evening with notes on terrain, vegetation, other wildlife observed, likely sheep winter ranges, weather conditions, visibility, percentage terrain covered and total flight time. These daily summaries appear as an appendix to this report with a reference map of the survey units.

This survey was conducted from 4 base camps (Whitehorse, Lapie Lake, Quiet Lake and Little Salmon Lake), at which fuel caches had been previously located. Accommodation for the party of four men was a Game Branch travel trailer and camper unit.

The survey was accomplished with the use of a 47G3B2 helicopter contracted with Trans North Turbo Air of Whitehorse. This machine is much better at altitudes over 6500' than the 12E Hiller used in previous years.

The party included: Pilot Lorne Osburn and Engineer apprentice Dean Cameron of TNTA, Bill Klassen and Grant Lortie of the Y.T.G. Game Branch. Later, Don Russell of the Branch habitat section joined the survey party.

EXPENDITURES:

A total of 107.8 hours of helicopter time was used to complete this survey. At a cost of $160.00 per hour, $17,248.00 was spent directly on machine time. Additionally, $600.00 in food costs and $3,226.17 for the purchase and transport of fuel to caches. The total cost of the summer phase of the G.M.Z. #8 game inventory is $21,074.17, exclusive of $2,780.00 in salaries.

Subdivisions Used In The Sheep Inventory and Observation Summary Of Wildlife Other Than Sheep

Arbitrarily determined and letter designated physiographic subzones constitute survey units. These areas encompass as near as possible discrete mountain ranges and were made a size that could be thoroughly covered in one or two days of flying. The detailed boundaries and exact locations of each survey unit can be found on the accompanying map.

Immediately following are the summaries of wildlife observations in all areas exclusive of sheep. A more thorough treatment of those subzones on which sheep were found are presented in a following section. The surface area of subzones not having sheep are not presented, as density figures for caribou and grizzly are not reliable due to the low number of observations on grizzly and the poor visibility of caribou on summer ranges.

TABLE I

Area	Caribou ♀♀	Caribou calves	Caribou ♂♂	Grizzly	Raptors	Other
A			G.M.Z. #4 - separate report			
B	8	3	21	1 track	2 single golden eagle (24) eagle aerie	1 ♀ moose
C	40	19	1	1 small bear	5 single golden eagle 1 grey gyrfalcon	
D	7	4			(3) eagle aerie	
E	32	9	4	2 tracks	6 single golden eagle 1 pr. grey gyrfalcon	
F	23	8	6	3 old dens	3 single golden eagle	
G	6	3	-	1 track	2 pr. golden eagle 6 single golden eagle	1 blk. wolf
H	26	10	9	1 track 1 old den 3 diggings	4 single golden eagle 2 gyrfalcon (pr.)	

Area	Caribou ♀♀	Caribou calves	Caribou ♂♂	Grizzly	Raptors	Other
I	-	-	-	-	-	2♀ and 1 calf moose
J	-	-	-	-	1 golden eagle (6) eagle aerie	1 calf moose
K	-	-	-	-	1 golden eagle	4♂♂ moose
L	104	18	16	-	1 pr. golden eagle 4 single golden eagle	
M	3	-	4	-	4 single golden eagle	
N	-	-	3	-	1 single golden eagle	
O	20(70)	21	4	1 ♂♀ pair		
P	12	-	11	1♀, 3 cubs 1 single	1 light grey gyrfalcon 1 grey gyrfalcon 2 single golden eagle	
Q	20	2	-	1 digging	2 single golden eagle	
R	2	1	-	2 large bears- ♂♀ pair	1 pr. golden eagle 1 single golden eagle	
S	3	2	5		1 golden eagle	1 ♂♂ moose 1 marmot
	356♀♀	100 calves	84♂♂	1 imm.,1♀-3 cubs,2♂♀ prs.	41 single golden eagle 3 pr. golden eagle 7 gyrs incl. 2 pr.	

Subdivisions Used in the Sheep Inventory

Area:

"A" Lying wholly within GMZ #4, this area includes the best of the sheep range hunted by outfitter Desrosiers. This area includes all of the Glenlyon Range and Little Salmon Range and is bounded on the west by Tummel River and Bearfeed Creek, on the south by the Campbell Highway, on the north and east by the Pelly River. Area "A" data has been presented under separate cover pertaining exclusively to GMZ #4.

The following survey units lay wholly within the outfitting area of C. Martin:

"B" Bounded by the Little Salmon River and Magundy Rivers on the north, by the drainage east of Mt. Atherton and Thomas Creek on the east, by the North Big Salmon and Big Salmon Rivers on the south, and by the Yukon River on the west. The only sheep found in this large area were in the vicinity of Mt. Atherton.

"C" Bounded by the Magundy River on the north and east, by the drainage of Askin Lake on the east, by Twin Creek on the south and southeast, by the North Big Salmon River on the south west, and by Thomas Creek and the drainage east of Mt. Atherton on the west.

"D" Bounded by the drainage of Askin Lake and Magundy River on the west, by the Campbell Highway on the north and east, and by the Canol Road and Fox Creek on the south.

"E" Bounded by Twin and Fox Creeks on the north and northwest, by the Canol Road on the east, and by Pony Creek and North Big Salmon River on the south and west.

"F" Bounded by Pony Creek on the northeast, by Pleasant Lake and Moose Creek on the northwest, by Big Salmon River, Big Salmon Lake and Fish Creek on the west and southwest and by the Canol Road on the east.

"G" Bounded by the North Big Salmon River and Pony Lake on the north and northeast, by Pleasant Lake and Moose Creek on the southeast, by the Big Salmon River on the southwest and by Souch Creek, Northern Lake and its drainage on the west.

"H" Bounded by the North Big Salmon River on the north, by Souch Creek, Northern Lake and its drainage on the east, and by Big Salmon River on the south and west.

The following survey units lie within the outfitting area of R. Hassard:

"I" and "J" Respectively the northern and middle portions of the Semenof Hills, bounded by the Teslin River and Yukon Rivers on the west, by the Big Salmon River on the north and east, by the South Big Salmon River on the east and by the Livingstone trail on the south.

"K" The southern portion of the Semenof Hills, bounded by the Livingstone trail on the north, the South Big Salmon River, Fish Creek, Loon Lakes and Indian River on the east and southeast, and the Teslin River on the west.

"L" and "M" Bounded by the Big Salmon River on the north and east, the lower stretch of Scurvy Creek, Gray Creek and South Big Salmon River on the south, and the South Big Salmon River on the west.

"N" Bounded by Gray Creek and the lower section of Scurvy Creek on the north, by Big Salmon Lake and Fish Creek on the northeast, the Canol Road on the east, by Sidney Creek, Iron Creek and upper Boswell River on the southwest and by Wiley Creek on the west.

"O" Bounded by the north fork of the South Big Salmon River and upper Gray Creek on the north, by Wiley Creek on the east, by Boswell River on the south, and by Teslin River, Indian River, Loon Lakes and Fish Creek on the west.

"P" Bounded by Boswell River on the north, Red Mtn. Creek and upper Swift River on the east, by 100 Mile Creek on the southeast and Teslin River on the west.

"Q" Bounded by Boswell River on the north, Iron Creek on the east, Sidney and Flat Creeks on the south, by upper Swift River and Red Mountain Creek on the west.

"R" Bounded by 100 Mile Creek, Flat Creek and Sidney Creek on the north, the Canol Road on the east and south, and the Teslin River on the west.

The remaining survey unit is within the outfitting area of K. Heynen:

"S" Includes the uplands dominated by: Cap Mountain, Joe Mountain, Mt. Laurier, Lime Pk. and Teslin Mtn. on the west. In the east, those uplands dominated by: Mt. Byng, Mt. Augusta and Mt. McClintock - all west of the Teslin River.

Results of the Classified Sheep Counts
G.M.Z.'s #8 and #10

Table 2 summarizes the classified counts of sheep in both zones. In G.M.Z. #8, the total observed was 400 with an estimated total of 517 animals. Observed sheep in G.M.Z. #10 numbered 404 with an estimated total of 569 animals. Of the estimated total 1,086 sheep in both zones, 784 animals are within the Martin outfitting area, 125 in the R. Hassard area, 60 in the K. Heynen area and, exclusive of the Cassiar Range, 117 in the Teslin Outfitters area.

Apart from the main population distributed along the Pelly Range fronting the Tintina trench in Martin's area, 5 small satellite populations inhabit niches of favourable habitat: In G.M.Z. #8; Big Salmon Range (64), Semenof Hills (61), Mt. Byng, Joe Mountain, Lime Peak (50), and in G.M.Z. #10; Block "O" (16+), and Blocks T - V (117).

PRODUCTIVITY:

Eight larger nursery bands were located during the survey. The overall ratio of lambs to other sheep in nursery bands in G.M.Z. #8 was 38 lambs per 100 nursery sheep - which is good relative production when compared to that of G.M.Z. #7 (Hoefs, 1974) and G.M.Z. #5 (Hoefs, 1975).

Considerable variation exists among bands, a summary of which follows. The Martin outfitting area had consistently high production for the four nursery bands located. The R. Hassard area produced the highest and lowest production figure of 56% and 21%. The high figure replicates the exceptional production noted by Hoefs (1974) on the D. Callison area in G.M.Z. #7.

C. Martin Area, 1976 - G.M.Z. #8:

C : lambs/nursery sheep 18/52 = 35 lambs: 100 nursery sheep
E : 12/24 = 50 lambs: 100 nursery sheep
G : 8/24 = 33 lambs: 100 nursery sheep
H : 3/6 = 50 lambs: 100 nursery sheep

Average Productivity: 41/107 = 38.3 lambs: 100 nursery sheep

R. Hassard's Area, 1976 - G.M.Z. #8:

J : Semenof Hills: $\frac{15 \text{ lambs}}{27 \text{ nursery sheep}}$ = 56 lambs: 100 nursery sheep

L : Mendocina Creek: 6/29 = 21 lambs: 100 nursery sheep

Average Productivity: 21/56 = 37.5 lambs/100 nursery sheep

K. Heynen's Area, 1976 - G.M.Z. #8:

S : 11/29 = 38 lambs: 100 nursery sheep

RATIO OF RAMS TO NURSERY SHEEP:

An assessment of the ram to ewe ratio on the respective outfitting areas may be used as an indicator of the proportion of nursery sheep not found on this survey.

On the Martin area 118 young rams and 298 nursery sheep were found. As discussed by Hoefs (1974), unhunted populations of sheep exhibit a young ram to nursery sheep ratio of 26:100. Further, the results of the G.M.Z. #7 survey produced a 28:100 mean on hunted populations. Assuming the basic structure of Pelly Mountain sheep populations to not vary significantly from that of western Yukon populations, the 26% young ram to nursery sheep ratio may be used to estimate the number of unobserved nursery sheep.

The 118:298 ratio observed produces a ratio of 40%, and would certainly indicate that a large number of nursery sheep were not found.

118 young rams/.26 = 454 nursery sheep required to produce the observed number of immature rams. The observations on the Martin area are lumped as the observed distribution of sheep would indicate that these animals comprise a discrete population, between G.M.Z. #8 and #10.

Observation on the R. Hassard area, however, indicate that two small separate populations exist and therefore are treated separately as follows:

Block "J", Mt. Peters - Semenoff Hills:

5 young rams: 27 nursery sheep = 18.5% (February, 1977)

This figure would indicate that two immature rams were not observed with the ram band in February, 1977 - they possibly being with the nursery sheep.

On August 4, 1977, W. Klassen observed 20 nursery sheep, 7 lambs and 5 immature rams at Masons Landing. A total of 41 were in the area at that time - 9 of which were not classified - but I suspect were the ram band.

The Semenof Hills population, by this series of three separate observations would seem to have the following adult and subadult composition (approximately):

32 nursery sheep, 8 immature rams and 3 mature rams.

In the last five years there is no record of sheep having been harvested from this small population.

Block "L": Mendocina Creek:

10 young rams: 29 nursery sheep - 34%

This percentage would indicate a required segment of 38 nursery sheep to produce the observed ten young rams.

The Mendocina Creek population would therefore have the approximate composition:

40 nursery sheep, 10 immature rams and 7 mature rams.

The segment of G.M.Z. #8 lying west of the Teslin River in Block "S" is entirely within the outfitting area of K. Heynen. For the purposes of this report, sheep occupying these two separate groups of mountains are considered a single population.

Block "S": 6 young rams: 29 nursery sheep = 21%

This ratio may indicate our not finding 2 young rams, but this population is hunted by the outfitter every other year – the mean age of harvested rams lying between 6 and 8 years. With this in mind, the 21% proportion of young rams to nursery sheep may be real.

July Sheep Densities in Occupied Blocks
(Sheep* per Square Mile of Sheep Habitat)

In the following table, the corrected numbers from the ratio of rams to nursery sheep are used. Allocation of unobserved sheep is proportional to the observed proportion among occupied blocks.

TABLE III

Survey Area	Sq. Mi. of Sheep Habitat	No. of Sheep	Density
B	65	2	0.03
C	221	172	0.78
E	176	94	0.53
G	110	49	0.45
H	119	15	0.13
J	8.5	61	7.17*
L	147	64	0.43
S	180	60	0.33

* This density figure is high. The Mt. Peters population utilizes extensively an unknown low elevation area along the east bank of the Teslin River - hence the 8.5 square mile above the 4,500' contour is unrealistically low.

Estimated Area of Sheep Habitat in Occupied Survey Blocks

(G.M.Z. #8)

Outfitter	Survey Block	Estimated sheep habitat in square miles (area above 4,500' elevation)	
Martin	B	65	
	C	221	
	E	176	
	G (north of Bat Cr.)	110	
	H (Rangifer Mtn., Mt. D'Abbadie, Northern Lake)	119	
R. Hassard	J (Mt. Peters)	8.3	
	L (north of Mendocina & Scurvy Creeks)	147	
Heynen	S (Mt. Byng - Mt. M'Clintock)	73	180
	(Cap Mtn. - Joe Mtn.)	73	
	(Lime Peak - Mt. Laurier - Teslin Mtn.)	34	

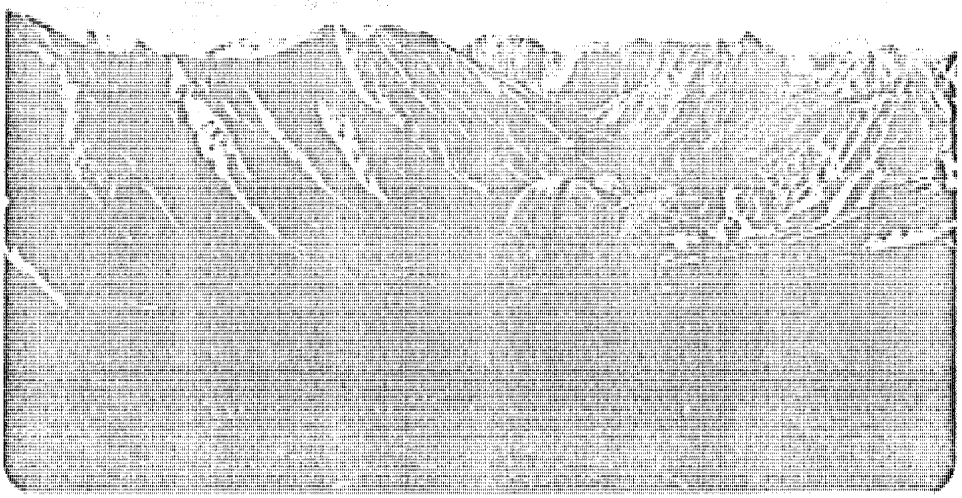


Photo 1: Block "C"; looking southwest from a ridge into the North Big Salmon River.

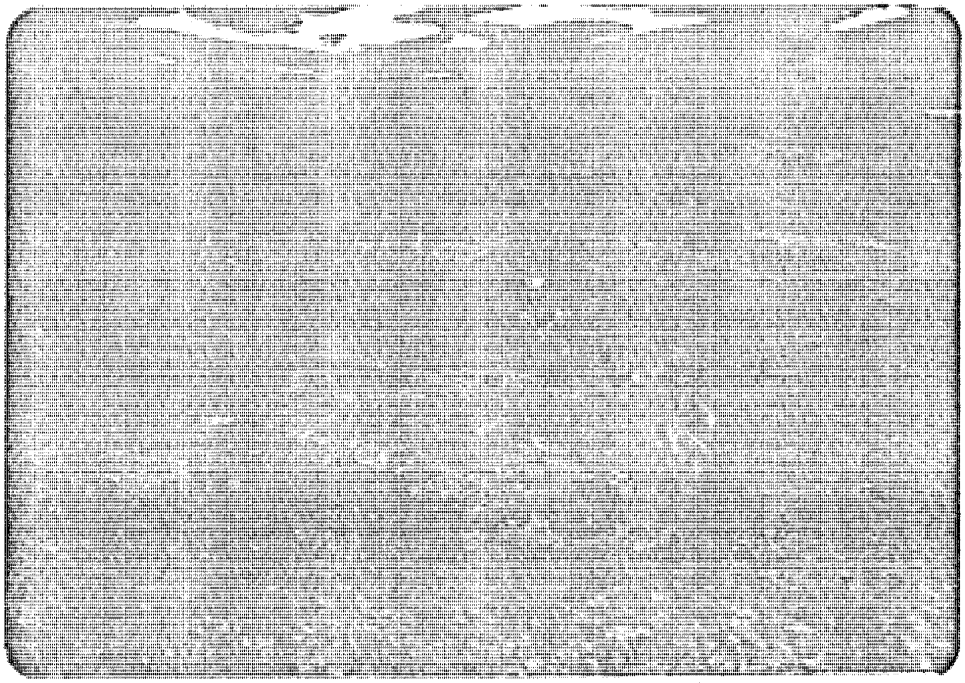


Photo 2: Block "H"; six big caribou bulls near Rangifer Mountain.

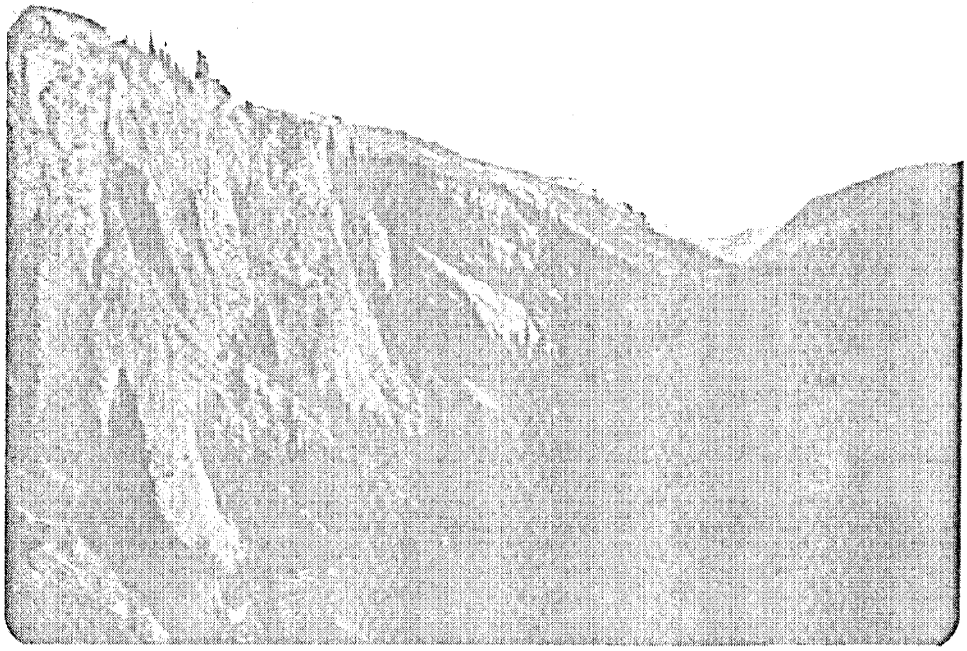


Photo 3: Canyon at the head of the North Big Salmon River.

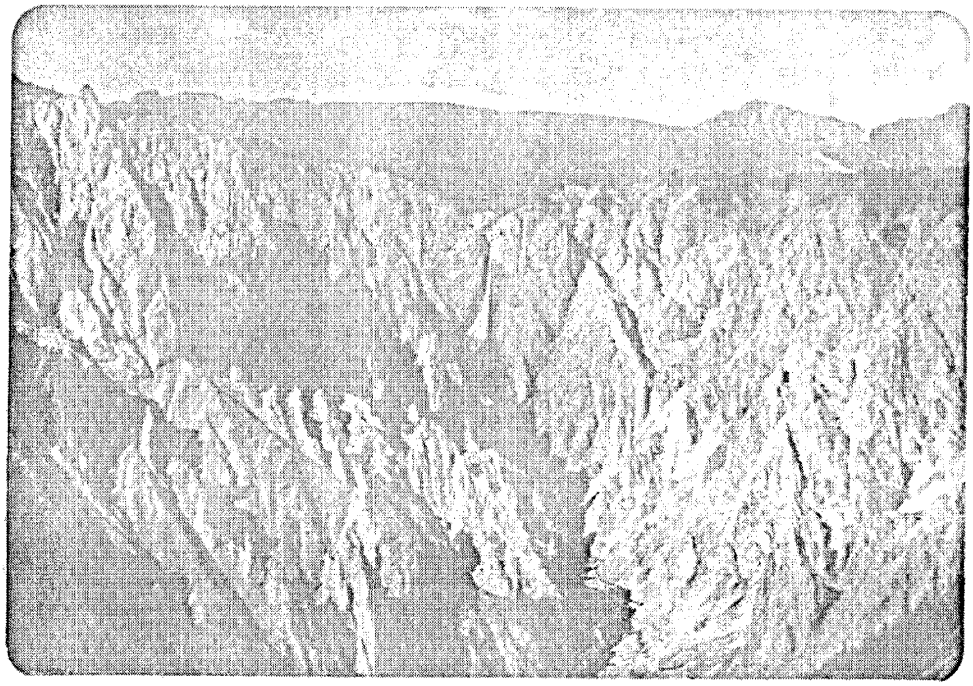


Photo 4: Side Canyon off of the main valley in Photo 3.

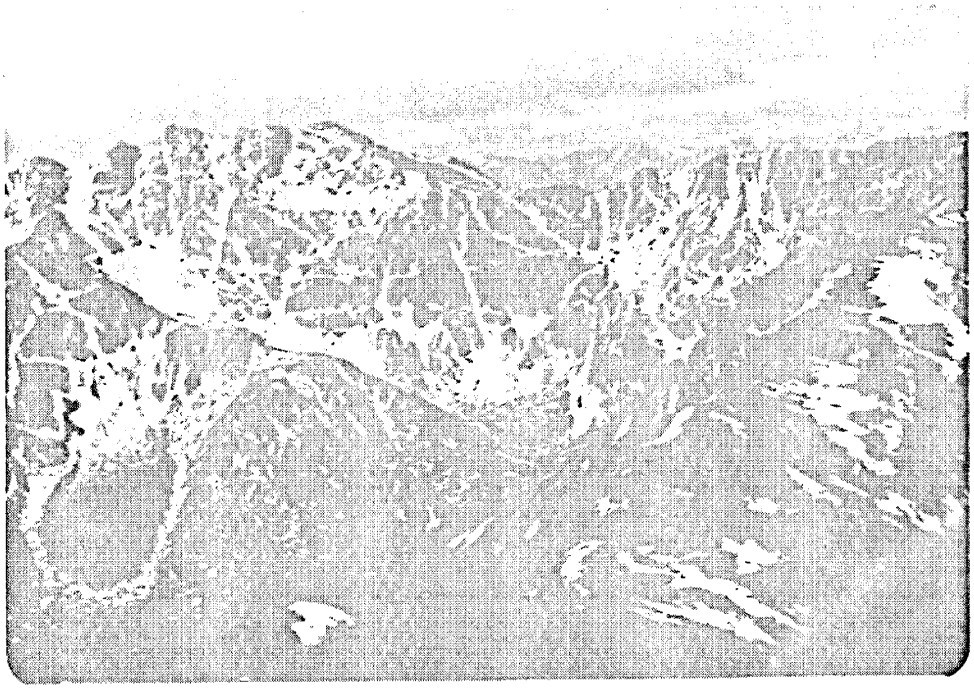


Photo 5: Block "N" near Drop-off Mountain. Characteristic physiography of unoccupied and low density areas.

Upland Survey in the G.M.Z. #10
Portion of the Pelly Mountains

INTRODUCTION:

This section of the report presents the findings of the aerial surveys conducted in the G.M.Z. #10 portion of the Pelly Mountains and associated ranges to the east. It is intended that this report augment that on G.M.Z. #8 as a large proportion of the sheep in these mountains interchange freely between zones along the Lapie River. (Refer to Table 2).

The correlation between the distribution of sheep and regional geology remains valid. The observed eastern limit of the sheep distribution was the large creek draining to the Hoole River southeast of Block "L". However, sheep trails on adjacent ridges immediately southwest of the Tintina Trench in Blocks "M" and "P" as far east as Half-moon Lake indicate prior or intermittent use by sheep. The main population of sheep in the Pelly Mountains are distributed in favorable geologic formations along a perfectly linear axis paralleling the Tintina Fault from Half-moon Lake in G.M.Z. #10 to Mt. Atherton in G.M.Z. #8. Further, movement of sheep northward into the Glenlyon Range across the Magundy River and the Campbell Highway occurs (see report on G.M.Z. #4). Block "X" is geologically and physiographically similar to the Logan Range and the only survey unit in which we found goats other than the Cassiar Range.

Apart from the sheep population noted above, only two other discrete populations were found. Southwest of Half-moon Lake, a small, isolated population inhabits the higher central part of Block "O". Northeast of the trench a distinct population of sheep primarily associated with Block "T" utilizes the adjacent portions of Block "V" and the hills southwest of Wolverine Lake.

After completing the Pelly Mountains survey, our attention was directed to the Yukon portion of the Cassiar Range north of the Alaska Highway. The results of the Cassiar Mountains survey will be treated separately in this report.

The analysis of present levels of sheep harvest is based on the outfitting areas which preserves the integrity of discrete populations.

METHODS AND EQUIPMENT:

The survey techniques employed in G.M.Z. #10 replicated those used in G.M.Z. #8, and were conducted from four base camps: Lapie Lake, Mink Creek and Finlayson Lake for the Pelly Range; and Swift River for the Cassiar Mountains.

A Hiller 12E contracted from Yukon Air of Whitehorse, Y.T. was used. The field party consisted of: Pilot, J. Blanke; Biologist, G. Lortie, and observers, T. Wagner and W. Olsen.

Support equipment in 1977 was the same used for the 1976 survey.

EXPENDITURES:

The G.M.Z. #10 Upland Survey used 169 hours of helicopter time. At a cost of $160.00 per hour, total cost of air support was $27,040.00 of which $22,772.00 was Y.T.G. money. The balance of $4,268.00 was money received through pipeline research funds. This money was spent in the Cassiar Range adjacent the Alaska Highway.

The cost of fuel and fuel transport was $4,653.22.

Food costs came to $629.58.

Exclusive of salaries and casual help costs, this summer survey cost the Yukon Territorial Government a total of $28,054.80.

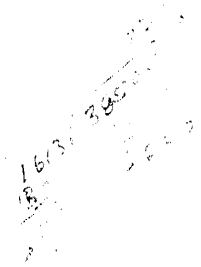
TABLE IV

Observations on Wildlife Other Than Sheep
In the Pelly Mountains (G.M.Z. #10)

Block	Caribou				Grizzly	Raptors	Other
	♀♀	calves	♂♂	♂♂			
A	13	7	5	2		3 golden eagles	3 marmot
B						2 golden eagles	
C						1 golden eagle 1 gyrfalcon	
D					1 pr. ♂&♀	1 golden eagle	
E	18	8				1 golden eagle	
F	23	11	1			1 pr. golden eagle at eyrie	1 black wolf
G	13	3		3		2 golden eagles	1 marmot
H	20	9	6	3			1 ♂ moose
I	29	10		2			
J					fresh tracks on snow	1 golden eagle	
K	31	16				2 golden eagles	1 beaver
L	6	5		2		1 golden eagle	♂ and ♀ moose
M	86	36	3		♀ & 2 yearlings	3 golden eagles	
N	69	25	4	1		1 golden eagle	1 wolverine, 1 marmot, 1 ♂ moose, 1 fox
O	34	16	1				1 cross fox
P	90	29	17	2	1 grizzly	2 golden eagles	2 adult wolverine
Q	88	27	25	16	1 ♂?		
R	84	37	16	2		2 golden eagles	2 marmot
S	59	19	10	13	3 single bears	2 bald eagles, 3 golden eagles	1 marmot
T	25	11	13	6			2 marmot
U	1					1 golden eagle	
V	91	26	3			6 golden eagles	2 marmots, 2 single wolverines
V-1	26	1		6			
W	42	12	14	9			
X	31	14	1		fresh tracks 2 digs	3 golden eagles	8 goats (see daily summary)
Y	29	22		1		1 imm. bald eagle	3 adult wolverine, several moose north end Black Lake.
Z	85	33	23	2	1 ♂?		8 moose

TABLE IV (Con't.)

Campbell Range	Caribou ♀♀	calves	♂♂	♂♂	Grizzly	Raptors	Other
	15	8	4	3			
	1,008	385	146	74	11	37 golden eagles, 1 gyrfalcon	8 wolverines
		1,613				3 bald eagles	



Survey Blocks Used in the G.M.Z. #10
Pelly Mountain Inventory

BLOCK These blocks are within the Martin outfitting area:

A: Bounded by Upper Sheep Creek and Pass on the south; by Seagull Creek and Lakes, and Porcupine Creek on the east; by Rose and Lapie rivers on the west.

B: Bounded by Seagull Creek and Lakes, and Porcupine Creek on the west; by Ram Creek and west fork of McConnell River of the east; by the Lapie river on the northwest.

C: Bounded by Ram Creek on the west; by the north fork of Cloutier Creek on the south; on the northeast by the front of the range; and on the northwest, by the Lapie River.

D: Bounded by west fork of McConnell River on the west; north fork of Cloutier Creek on the north; Ketza River on the east; and by unamed tributaries of the McConnell and Ketza Rivers on the south.

E: Bounded by Ketza River on the northeast; west fork of McNeil River on the east; Grizzly Creek and Pass on the south; McConnell River on the west; and unamed tributaries of Ketza and McConnell Rivers on the northwest.

F: Bounded by Upper Sheep Creek and Pass on the north; Seagull Creek on the east; Big Creek and Sheep Creek on the south; and by Rose River on the west.

G: Bounded by Big Creek and Sheep Creek on the north; McConnell River on the east; Nisutlin River on the south; and Rose River on the west.

H: Bounded by Grizzly Creek and Pass on the north; McNeil River on the east; Nisutlin River on the southwest; and McConnell River on the west.

These blocks are within the area hunted by R. Hassard:

I: Bounded by Nisutlin River on the northwest and northeast; extending south to include the Indian Mountain upland.

J: Bounded by Ketza River on the west; upper west fork of McNeil River and Starr Creek on the south and east; and by the front of the range on the northeast.

K: Bounded by west fork of McNeil River on the west; McNeil River and Lakes on the south and east; by the next easterly major tributary of the Hoole River from Starr Creek on the east; and by the front of the range on the north-east.

BLOCK C. Martin area continued:

L: Bounded on the west, south and southeast by the bifurcate passes and drainages of the head of McNeil River; and the front of the range on the northeast.

M: Bounded by McNeil River and Lakes on the west; on the south by the most northerly drainage flowing west to McNeil Lake, its summit and the tributary flowing east to the Liard drainage; on the east by a major unnamed tributary of the Hoole River; and on the northeast by the front of the range.

N: Bounded on the north by the most northerly drainage flowing west to McNeil Lake, its summit and a tributary flowing east to the Liard drainage; on the east by a major branch of the Liard River; on the west by the upper Nisutlin River; and on the south by the 4,500' contour above the Liard basin.

O: Bounded on the west by a major unamed tributary of the Liard River near Mud Lake; on the south by Liard River; on the east by the west fork of Ings River; and on the northwest by a major unamed tributary of Hoole River.

P: Bounded on the west by a large unnamed tributary of Hoole River; on the south by the same tributary and the west fork of the Ings River; on the southeast by the Hoole River; and on the northeast by the Hoole River.

These blocks are within the area hunted by Teslin Outfitters:

Q: Bounded by the Hoole River on the southwest; by the valley of the most westerly of the Grass Lakes on the east; and the 4,500' contour on the north and west.

R: Bounded on the west and northwest by the valley of the more westerly Grass Lakes; on the northeast by the valley of the more easterly Grass Lakes; on the southeast by a tributary of the upper Black River, and on the southwest by the upper Hoole River.

S: Bounded on the west and south by the most easterly valley of Grass Lakes; on the east by the North River; and on the north by the 4,500' contour.

T: Bounded on the west by the North River; on the north and northeast by the 4,500' contour; and on the southeast by the head of Money Creek and the connecting drainage to Fire Lake.

U: Bounded by the North River and Fire Lake on the northeast; by Black River on the southwest; by small connecting tributaries of both these streams on the west.

V & V_1: Bounded by the head of Money Creek and connecting valley to Fire Lake on the northwest; north and east by North River and Fire Lake on the southwest; and by Waters Creek on the southeast.

BLOCK Teslin Outfitters Area continued:

W: Bounded by Waters Creek and contiguous valley on the northwest; on the south by an unnamed tributary of Black River flowing westerly, the confluence being about four miles above Black Lake, and contiguous valley to the east; on the east by the 4500' contour.

X: Bounded by the upper Black and Hoole Rivers on the northeast; by the Ings River on the west; by the Liard River on the southwest; and the Black River on the east.

Y: Bounded by the Black River and Lake on the west; by the first westerly flowing unnamed tributary of Black River above Black Lake and connecting valley to the east on the north; and the 4500' contour on the east and south.

Productivity of Sheep in the Pelly Mountains
G.M.Z. #10 - 1977

The July 1977 survey located and classified ten bands of nursery sheep in the Pelly Mountains. Productivity of these sheep in aggregate came to 34 lambs per 100 adults. As expected, production varied among bands in different parts of the range:

TABLE V

C. Martin Area: 1977 - G.M.Z. #10

A:	lambs/nursery sheep	7/28	= 25 lambs:100 nursery sheep
B:	"	15/50	= 30 lambs:100 nursery sheep
D:	"	12/29	= 41 lambs:100 nursery sheep
E:	"	6/14	= 43 lambs:100 nursery sheep
J:	"	5/18	= 28 lambs:100 nursery sheep
K:	"	11/42	= 26 lambs:100 nursery sheep
L:	"	*3/2	= 150 lambs:100 nursery sheep
O:	"	2/8	= 25 lambs:100 nursery sheep

* a case of adoption or twinning.

Average Productivity: 61/191 = 32 lambs:100 nursery sheep

Teslin Outfitters Area: 1977 - G.M.Z. #10

T:	lambs/nursery sheep	18/42	= 42 lambs:100 nursery sheep
V:	"	1/1	= 100 lambs:100 nursery sheep

Average Productivity: 19/43 = 44 lambs:100 nursery sheep

Ratio of Young Rams to Nursery Sheep in the Pelly Mountains (G.M.Z. #10)

The ratio of 26 young rams per 100 nursery sheep again is assumed to prevail in lightly hunted central Yukon sheep populations. As done in the G.M.Z. #8 report, this ratio was used to compensate for unobserved nursery sheep. In the case of the Martin area, the samples from both years are pooled and are presented in the report on G.M.Z. #8.

The isolated population on the Teslin Outfitters area in Blocks T and V:

The ram counts comprise two separate observation; an incomplete count on July 17, 1977 and that of D. Smarch (pers. comm.) of October 25, 1977. (See daily summaries). I've pooled these ram counts, expanding the number of nursery sheep in the population estimate. Realistically, however, the ratio of Smarch's 12 young rams to 43 nursery sheep (28/100) may be more valid, resulting in a total population estimate of 83 sheep (as observed) rather than the expanded total estimate of 117.

TABLE VI

Sheep Densities in Occupied Blocks of the Pelly Mountains (G.M.Z. #10)

Block	Square Mi. of Sheep Habitat	No. of Estimated Sheep	Density (Sheep/Square Mi.)
A	136	65	0.48
B	136	126	0.93
C	86	9	0.10
D	60	66	1.10
E (N. of White Creek)	66	32	0.48
J	51	35	0.69
K	106	85	0.80
L	32	18	0.56
O	73	16	0.22
T & V	192	117	0.61

G.M.Z. #10

This series of five photos was taken in Block "B" from the same observation point.

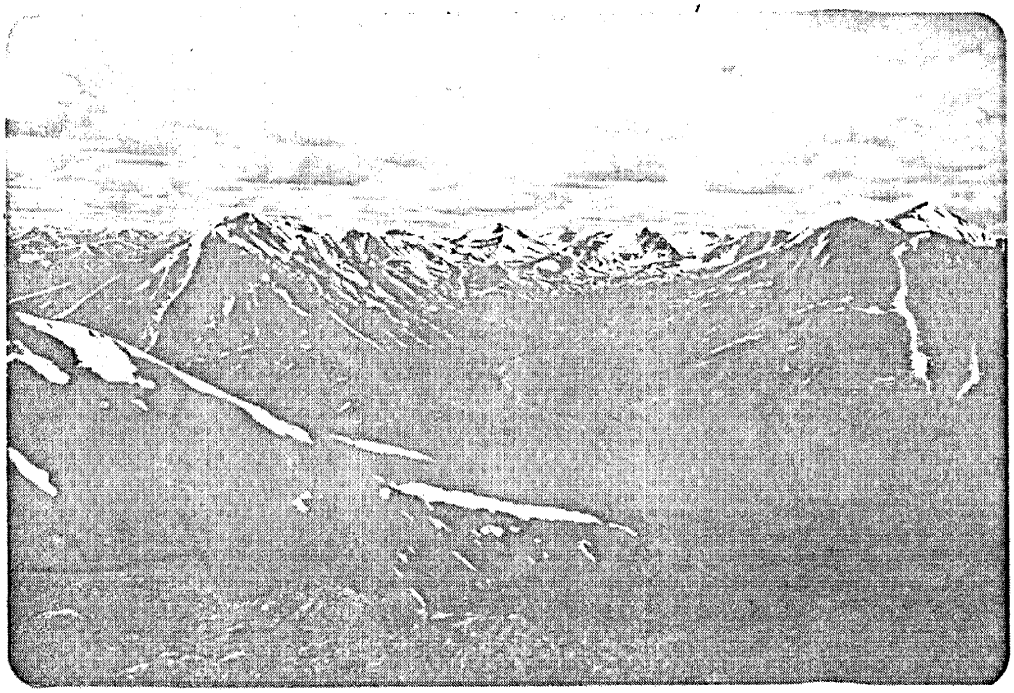


Photo 1: looking southeast into the west fork of Porcupine Creek and low density sheep habitat.

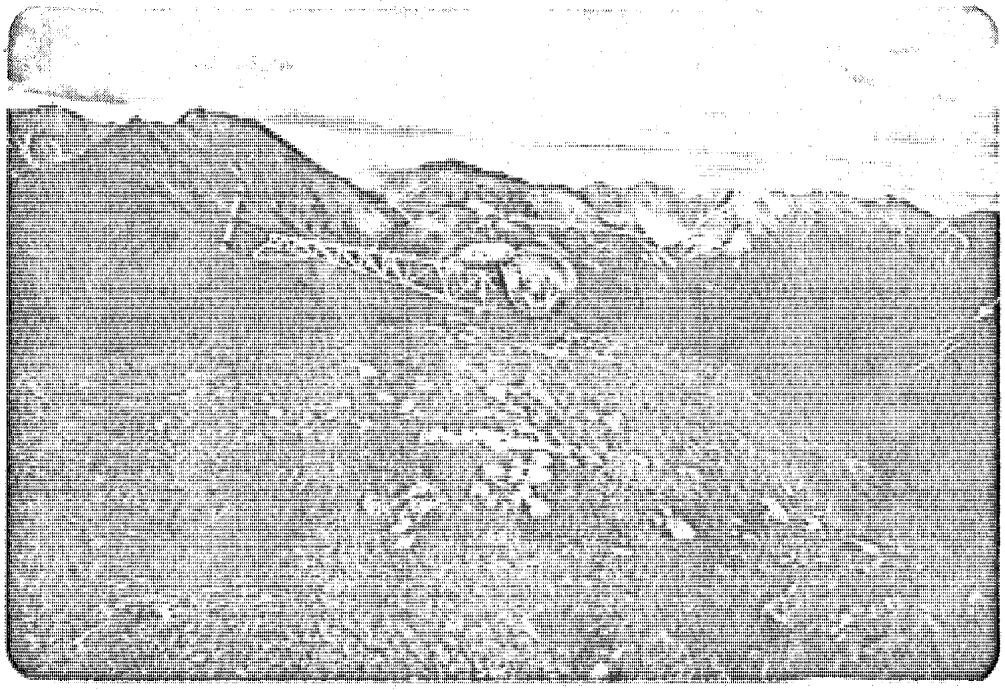


Photo 2: looking east up the east fork of Porcupine Creek and high density sheep habitat.

Photo 3: illustrates the shingle slides and vegetation development in the belt of sedimentary rocks east of Porcupine Creek.

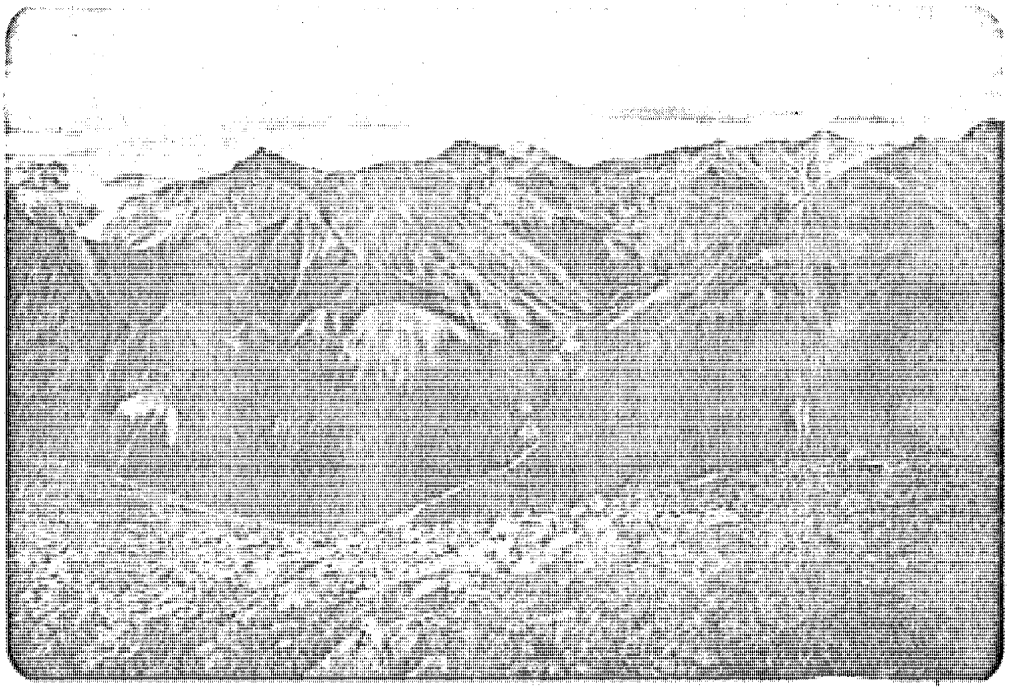


Photo 4: wide angle view of the same terrain shown in Photo 3. This habitat type is the best found in the Pelly Range.

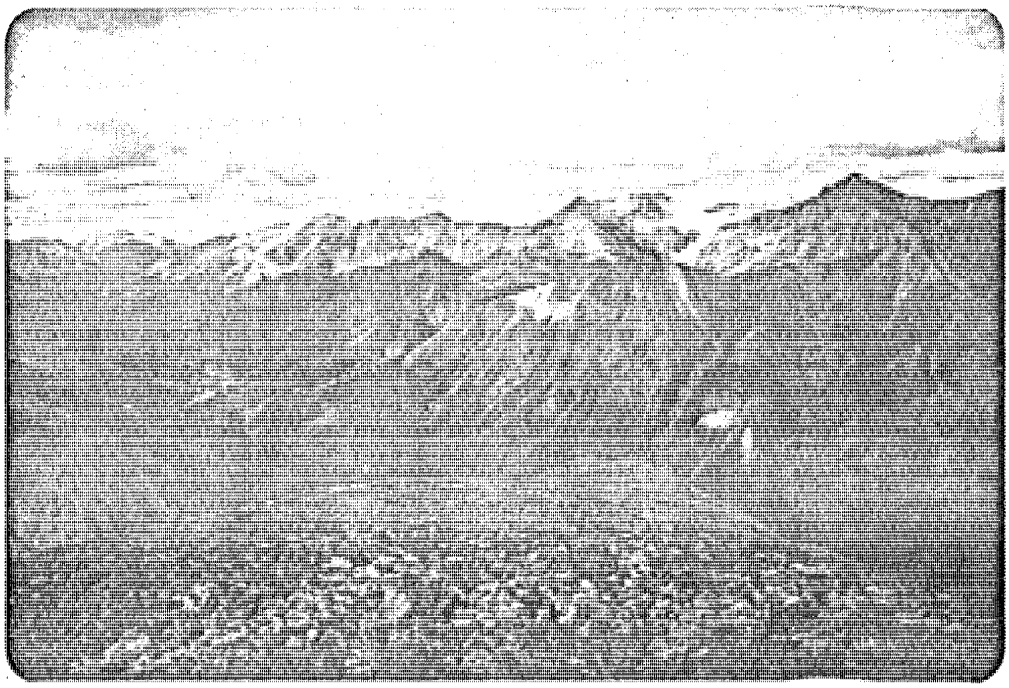


Photo 5: looking down Porcupine Creek towards the Canol Road. The geologic contact is on the extreme left of the photo.

Cassiar Range

G.M.Z. #10

INTRODUCTION:

Surveys commenced in the Cassiar Range on July 25, 1977 from Swift River on the Alaska Highway and was completed on July 30, 1977. Further, Mr. Ted Wagner conducted a supplementary survey on both sides of the highway during August 20 - 24 inclusive. The results of these surveys are presented here.

During the summer of 1977, exploration activity in the Yukon portion of the Cassiar Range was extensive. At least three large helicopter supported camps were active, and we observed fly camps and other aircraft frequently. This level of activity I feel was a major factor in our finding game with difficulty - the results being a less than accurate picture of the upland wildlife resources of these mountains. Evidence of sheep habitation was noted throughout these mountains (see daily summaries) but sheep were observed only in Blocks D and H in the western extreme of the range.

Similarly, the distribution of mountain goat was discontinuous, but all observations of goat were in ideal habitat throughout the range. Because of the high level of human activity, mountain goat may have been in heavier cover at lower elevations.

Observations on Wildlife Other Than Sheep in the Cassiar Range

G.M.Z. #10

Block	Caribou ♀♀	calves	♂♂	♂♂	Grizzly	Goat Adult	Kid	Raptors
A								
B								
C	12	5	1	1	1 track on snow			2 golden eagles
D	7	4	1	5	several digs	1♀		8 golden eagles
E	1	1						1 golden eagle, 1 gyrfalcon
F						16	7	2 golden eagles
G	1	1						1 golden eagle, 1 pr. gyrfalcon
H	8	6		4	♀ with 2 yrlings	1		2 golden eagles, 1 peregrine falcon
I	2	2		2		7	4	3 golden eagles
J	2	2	3		digs	1		
K	3	3						5 golden eagles
L	1							
M								
N	1	1				1♂		1 bald eagle, 1 gyrfalcon
	38	25	5	12		27	11	24 golden eagles 4 gyrfalcon 1 peregrine falcon 1 bald eagle

Subdivisions Used in the Cassiar Range Inventory

BLOCK:

A: Bounded by Scurvy Creek and Liard River on the north, Cabin Creek on the southeast, Gravel Creek on the west and southwest.

B: Bounded by Cabin Creek on the northwest and southwest; Allen Creek on the east, and an unnamed minor tributary of Little Moose River on the southwest.

C: Bounded by the head of Gravel Creek on the north, the head of Gravel Creek on the northeast, Irvine Creek on the south and southwest; and the head of Cabin Creek on the east.

D: Bounded by the Marker Lake valley on the east; the Almost Lake - Ice Lakes valley on the south; Morris Lake on the west and Irvine Creek on the north.

E: Bounded by Marker Lake valley on the west; the head of Irvine Creek on the north; Little Moose River on the east; and the Meister River on the south.

F: Bounded by the Northwind and Edgar Lakes on the south; a tributary of Swift River on the west, Meister River on the north and Oake Creek on the east.

G: Bounded by Almost Lake and Ice Lake valley on the north; Ram Creek on the southwest; west fork of Swift River on the south; and a tributary of Swift River on the east.

H: Bounded by Ram Creek on the north; Morley River on the west; Cabin Lake on the south; and a lake at the head of a Ram Creek tributary on the east.

I: Bounded by Ram Creek on the north; Crescent and Rudy Lakes on the east; Smart River on the south; the lake at the head of a Ram Creek tributary on the west.

J: Bounded by Smart River on the west and north; Goddart and Partridge Creeks on the east; and the Alaska Highway on the south.

K: Bounded by Goddart and Partridge Creeks on the west, Crescent Lake on the north; Seagull Creek on the east and the Alaska Highway on the south.

L: Bounded by Seagull Creek on the west, the Rudy Lake - Pine Lake Valley on the north, Swift River on the east and south.

BLOCK:

M: Comprised of the minor upland between Rudy Lakes and Daughney Lake.

N: Bounded by Northwind and Edgar Lakes on the north; Goat Creek on the south; Beaver Creek on the east and Swift River on the west.

O: Bounded by Goat Creek and Beaver Creek on the northwest; Porcupine Creek on the west; Alaska Highway on the south and the Shilsky Lake valley on the southeast.

P: Bounded by the Shilsky Lake valley on the northwest, Spencer Creek on the northeast; and the Alaska Highway on the southwest and southeast.

Productivity of Sheep and Goat in the Cassiar Range

G.M.Z. #10 - 1977

Sheep:

In the Cassiar Range four bands of nursery sheep were located. Aggregate productivity was 30 lambs per 100 adult nursery sheep, exclusive of the ewe with twins.

H: lambs/nursery sheep 3/11 = 27 lambs:100 nursery sheep

D: " 6/18 = 33 lambs:100 nursery sheep

*2/1 =

1/3 = 33 lambs:100 nursery sheep

* another case of adoption or twinning.

Goat:

Two nursery groups of goat were observed.

I: kids/adults 4/7 = 57 kids:100 adults

F: " 7/16 = 44 kids:100 adults

Average productivity - 48 kids:100 adults

Ratio of Immature Rams to Nursery Sheep in the Cassiar Range

All immature males observed were travelling with nursery bands, consequently, a fair analysis consistent with previous work is not possible. The only ram band observed was comprised of two mature individuals.

Sheep Densities in Occupied Blocks:

Block	Sq. Mi. of Sheep Habitat	Estimated No. of Sheep	Density (Sheep/Sq. Mi.)
D:	162	31	0.19
H:	46	16	0.34

Evaluation of Present Harvest Levels and Management Recommendations For G.M.Z. #8 and G.M.Z. #10

Evaluation of Present Harvest Levels and Management Recommendations

Hoefs (1974 a & b) and Hoefs (1975) in his harvest analysis of G.M.Z.'s #7 and #5 respectively established the structure and dynamics of south central and south western Yukon dall sheep populations. The following harvest analysis assumes similar parameters for interior stone sheep populations.

TABLE VII

Estimation of Sheep Numbers in G.M.Z. #8 and #10 Outfitting Areas

	Nursery Sheep	Lambs	Total ♂♂	Legal ♂♂	Young ♂♂	Total Adults	Total Sheep
R. Hassard	71	26	28	10	18	99	125
K. Heynen	29	11	10	2	8	49	60
Martin	454	155	175	57	118	629	784
Pelly Mtns.	62	27	28	12	16	90	117
Teslin Outfitters							
Cassiar Rg.*	28	12	7	2	5	35	47

*observed sheep in the Cassiar Range

TABLE VIII

Sustained Yield Harvest Levels and The Recent Level of Harvest on the G.M.Z. #8 and #10 Outfitting Areas

	Nursery Sheep	Rams (Legal)	Rams (Trophy)	Total Harvest '73	'74	'75	'76	'77
R. Hassard	71	9	4	6	4	6	3	7
K. Heynen	29	4	2	?	0	1	0	2
C. Martin	454	57	27	13	15	6	10	11
Pelly Mtns.	62	8	4	?	0	2	2	6
Teslin Outfitters								
Cassiar Rg.	28	3	2	?	2	1	2	0

The following is an evaluation of past harvest on individual outfitting areas in G.M.Z.'s #8 and #10.

C. Martin:

The Martin area wholly encompasses the range of 73% of the Stone Sheep in the Pelly and Big Salmon Mountains. Indeed, this area supports approximately 45% of the total Yukon Stone sheep population. As noted earlier, these sheep are found primarily in a belt of sedimentary rocks paralleling the Tintina Trench on the northeast side of the range.

The area is currently harvested well below sustained yield limits (Table 8). However, hunting pressure can only be expected to increase as these sheep become known to resident hunters and access to hinterlands off the Canol Road develops .

The authors view of the most serious immediate threat to this sheep population is short and long term disturbance, and access to critical areas within the current range of these sheep by exploration and mining companies. The best of sheep habitat in the Pelly range has recently been the focus of intensive exploration activity from McNeil

Lake (G.M.Z. #10) to Fox Mountain in G.M.Z. #8. Management problems resulting from the development of economically viable ore bodies will be serious - especially if large permanent camps are established.

The small isolated population in Block "O", G.M.Z. #10 has been intermittently hunted by resident hunters. Our observations are not complete, our having missed most of the rams. However, this group is occasionally harvested and considering the population size and its restricted range in close proximity to a promising mining development "Tintina Silver", a quota of zero should be established.

MARTIN

SHEEP HARVEST DATA

1973

1. U.

8 - RES.

AGE CLASS

4	5	6	7	8	9	10	11	12	13	14	E
		27 4/8	33	34 6/8 25 4/8	29 36 6/8	34 4/8 40 3/8	37 4/8 37 4/8 36 37 2/8	35			
		1	1	2	2	2	4	1			13

LENGTH OF LONGEST HORN

mean age 9.46 years.
mean horn length 34.20 inches

MARTIN

SHEEP HARVEST DATA

1974.

LENGTH OF LONGEST HORN

G.M.U. # &	AGE CLASS											Σ	
	4	5	6	7	8	9	10	11	12	13	14		
NON-RES.		31 3/8 25 2/8		29 7/8	33 7/8 36 4/8 34 34 4/8	29 3/8 36 34	34 38 38 4/8	39 4/8	37 1/8				mean age 6.27 years mean horn length 24.15 inches.
RES.		2		1	4	3	3	1	1			15	

SHEEP HARVEST DATA.

1975

% U.

AGE CLASS

	4	5	6	7	8	9	10	11	12	13	14	Σ
- RES.					33 6/8 33 35 3/8	39 1/8			36 4/8			
					3	1			1			5
					30 4/8							
					1							1

LENGTH OF LONGEST HORN

mean age: 9.00 years.
mean horn length: 35.55 inches.

6

artin

SHEEP HARVEST DATA

1976

G.M.U. 8

AGE CLASS

	4	5	6	7	8	9	10	11	12	13	14	Σ
NON-RES.				33	34 3/8 36 2/8 37 1/8	36 41 5/8	33 5/8	36 2/8	32 7/8			
RES.				1	3	2	1	1	1			9

LENGTH OF LONGEST HORN

				32 4/8								

mean horn length: 35.681

mean age: 9 11 years.

10

SHEEP HARVEST DATA

1977.

LENGTH OF LONGEST HORN

M. U. 8-10	AGE CLASS 4	5	6	7	8	9	10	11	12	13	14	Σ
I - RES.				34 6/8	25 1/8 33 5/8	32 7/8 33 3/8 38 7/8	36 7/8	35 3/8	42 1/8			
S.				1	2	3	1	1	1			9
			31 30 5/8									

mean horn length: 34.75

mean age: 9.22

R. Hassard:

This area contains the range of two small discrete sheep populations; those found at Mason's Landing - Mt. Peters and those at the head of Dycer and Mendocina Creeks. Sheep occasionally occur in other parts of the Big Salmon Range - Block "P" (Sawtooth Range), Block "R" (head of Evelyn Creek), and Block "O" (Mt. Black). We did not find sheep in these latter areas but it is possible that sheep move into them from the north and west.

Mr. Hassard has generally hunted the Mendocina Creek population in alternate years and the Mt. Peters population not at all - at least on Mt. Peters. He has taken sheep in Block "O". Further, he did take a sheep, east of the Nisutlin River near Thirty Mile Lake in 1976 - an area in which we have not located sheep to date. In aggregate, the level of harvest these two known populations have experienced is within permissible sustained yield limits. However, if these populations become hunted annually, no more than two mature rams from each of these populations should be taken.

Small sheep populations such as these are highly vulnerable to overharvest and the destruction of critical habitat. The Mendocina Creek group is isolated and for the present, harvest can be controlled through the outfitter. It defies explanation as to why the Mason's Landing - Mt. Peters population has not been over-exploited, as this group is easily accessible to the public from the Teslin River. We must assume that their presence is not generally known - a situation that cannot be expected to prevail indefinitely.

The Mt. Peters population certainly and possibly the Mendocina Creek - Dycer Creek group should be placed under a quota system. Priority should be given to protecting key elements of their range.

P. Hassard.

SHEEP HARVEST DATA

1943

LENGTH OF LONGEST HORN	RES.	G. U.	AGE CLASS											
			4	5	6	7	8	9	10	11	12	13	14	Σ
						1								
27 5/8							1							
34									1					
35 1/8											2			
34 1/2, 34 3/4												1		
35 1/2														6 (6)

mean age: 10.33 years.

mean horn length: 34.42

D. Hassard

SHEEP HARVEST DATA

1974

G.M.U. #8 & 10

	AGE CLASS											
	4	5	6	7	8	9	10	11	12	13	14	Σ
NON-RES.			26 3/8			38 36 7/8			40 1/8			
RES.			1			2			1			4

LENGTH OF LONGEST HORN

mean age 9.00 years

R. Hoover

STILLE ANALYSIS DATA, 1975

D.M.U. # 8	AGE CLASS 4	5	6	7	8	9	10	11	12	13	14	Σ
ON-RES.				28	34 5/8	35 6/8				33 2/8		
ES.				1	1	1				1		4
TH OF LONGEST HORN				33 3/8		36 4/4						1

mean age: 9.25 years.
mean horn length: 32.91 inches.

Hassard.

SHEEP HARVEST DATA

1976

U.	AGE CLASS												
8	4	5	6	7	8	9	10	11	12	13	14	E	
V-RES.					32 7/8 30 6/8	34							
S.					2	1						3	

LENGTH OF LONGEST HORN

mean horn length: 32.54

mean age: 8.33 years.

-40-

Hassard

SHEEP HARVEST DATA

1977

M. U. 8-10	AGE CLASS												
	4	5	6	7	8	9	10	11	12	13	14	E	
N-RES.							31 6/8 38 7/8 39 3/8	37 3/8 35 3/8	41 1/8				
S.							3	2	1			6	
						34 4/8							

LENGTH OF LONGEST HORN

mean horn length: 37.31

mean age: 10.66

-41-

Teslin Outfitters:

Geographically, the best and the bulk of the sheep range within the area of Teslin Outfitters is the Yukon portion of the Cassiar Range. As noted earlier, our observations were complicated by intensive exploration activity throughout the range. A realistic picture of the status of these sheep is not now possible to assess.

However, based on the sheep we did observe and an examination of the harvest record since 1974, the area has been harvested within sustained yield limits. Until more sheep work is done in the Cassiar Range, I suggest that harvest levels be restricted to those dictated by our present data under a quota. Further work may indicate that increased harvests would be permissible.

When considering management options on all big game species in the Cassiar Range, one will have to consider the well developed network of tote roads which already penetrate most major valleys south of the Meister River, and the known movement of sheep to and from adjacent parts of the range in British Columbia.

The isolated Pelly Mountains population in Blocks "T" and "V" northeast of Fire Lake is vulnerable to overharvest and habitat loss. This group has generally been harvested below sustained yield levels, however, the harvest of 6 rams in 1977 is pushing the upper limit. A quota of 4 rams per year should be initiated and priority given to protecting the very restricted range of this population.

Teslin Outfitters.

SHEEP HARVEST DATA

1977

LENGTH OF LONGEST HORN

M.U. 10	AGE CLASS 4	5	6	7	8	9	10	11	12	13	14	E
N-RES.		21 5/8	32 1/8		32 31 2/8	31 3/8	30 7/8					
ES.		1	1		2	1	1					6

mean horn length: 29.92

mean age: 7.66

eslin Outfitters

SHEEP HARVEST DATA

1976

G.M.U. 10	AGE CLASS 4	5	6	7	8	9	10	11	12	13	14	Σ
ON-RES.		25 1/8		23 6/8			36					
ES.												3
			27 3/4									

LENGTH OF LONGEST HORN

Mean horn length: 28.292
Mean Age: 7.33 years.

-44-

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WINTER SURVEY OF G.M.Z. #8
FEBRUARY 1977

WINTER

BIG GAME SURVEY

OF

GAME MANAGEMENT

ZONE EIGHT

February 1977

W.J. KLASSEN

and

G.M. LORTIE

INTRODUCTION:

The large mammal survey of Game Management Zone Eight began in July 1976 with the censusing of sheep populations. This census has been detailed in another report. The general survey continued in February 1977 to determine numbers of moose wintering in the area; observations of other big game species were also made.

METHOD:

The aerial survey of G.M.Z. #8 was carried out on February 21 and 22, 1977, using a Trans-North Turbo Air DHC-2T Turbo Beaver equipped with wheel-skiis, C-FVPV, piloted by Brian Parsons. Observers on February 21 were Wildlife Biologist Grant Lortie and Wildlife Technician Bill Klassen; on February 22 trainee John McDonald was the third observer. Conditions for aerial reconnaissance were very good. On both days we experienced almost cloud-free conditions in the survey flight path. A snowfall on the night of February 20/21 aided in mammal location. Each day's flight route is marked on the attached map. On the first day 4.4 hours were spent surveying; on the second day 3.8 hours. The survey was flown at an above ground altitude of approximately 500 feet and at a speed of approximately 90 m.p.h.

MOOSE:

We hoped to locate winter concentrations of moose in river valleys for classification from helicopter later. Because of the mild weather which the southern Yukon has experienced this winter we found none of the anticipated moose concentrations. Southern

slopes, in many instances, are bare of snow; there is less than one foot of snow in many areas, and there is open water at other than rapids on most streams. As a result, moose distribution appears to be fairly homogenous.

During the 8.2 hours of flying we saw a total of 13 unclassified moose. Of these, 3 were seen in willow stands along river bottoms; the remainder were seen along the length of the Semenof Hills in burned areas. Moose sign in the form of tracks and feeding craters was seen in habitat ranging from river valleys, bars and oxbow marshes, to mature stands of spruce and old burns on sidehills to sub-alpine deciduous communities.

Good moose winter range with abundant browse species cover was located in the valleys of the Big Salmon; North Big Salmon, and Magundy River valleys. An extensive burn of mature lodgepole pine exists north from the confluence of the Big Salmon and North Big Salmon Rivers to Walsh Creek. This relatively low relief terrain, presently supporting successional willow, aspen, birch, and pine, is dotted with small lakes; in a normal winter this area should support good numbers of moose.

SHEEP:

Certain locations were marked on the July sheep census maps as potential winter range for sheep. Some of these were checked for winter use during this survey.

Sheep, 2 Stone rams, were located at the 4500 foot elevation on the south aspect of the first mountain mass north of Big Salmon River below Souch Creek. No sheep were located on non-optimum

winter range south of this point.

In July, Stone nursery sheep were using that area of the Semenof Hills to the east of Mason's Landing. No rams could be found at that time in that vicinity. On February 21 we saw a portion of that population again. Of 14 sheep, 8 were rams, some of them mature. Three others were ewes and 3 remain unclassified.

A population of sheep was found at the head of Mendocina Creek in July. On February 22, 24 sheep were found wintering in the same general area; at least six were mature rams.

The southerly slopes of Mt. Cook above the South Canol Road have been known as winter range for some time but we found only 4 unclassified sheep here.

CARIBOU:

During the July survey several bands of woodland caribou were noted. During the present survey the only indication of caribou was a concentration of what apparently were a large number of caribou tracks on the side-hill above Magundy River in the vicinity of Askin Lake.

We saw signs of wolf packs in four locations: between Michie Lake and Augusta Mountain; Teslin River above Boswell River; Big Salmon River in the vicinity of Souch Creek; upper Walsh Creek. No wolves or kills by wolves were seen during either day.

CONCLUSIONS:

A fixed-wing survey in G.M.Z. #8 flown on February 21 and 22, 1977, found no winter concentrations of moose. Sheep winter range was located in three different areas. Sign of caribou and wolf was noted. The mild winter was the main factor in dispersed distribution of moose. The noted winter moose range should be flown again next year, assuming a normal winter.

WINTER SURVEYS - G.M.Z. #10
FEBRUARY & MARCH, 1976

Moose Survey of the Liard Basin

G.M.Z. #10

Aerial Survey of Moose in the Liard Basin

30-31 March 1976

Introduction

An aerial survey by M. Hoefs on 11 February 1976 showed the Liard Basin to be occupied by a larger than expected moose population. The number of moose, as determined from actual observation of individual animals and fresh sign, totalled 379 indicating the area as being important winter range.

This report is a follow up of that earlier survey. This work was undertaken to ascertain whether the moose have dispersed from the winter range to other areas and to determine if possible the extent of winter mortality.

Survey Area

The area encompassed by the survey being the subject of this report was the same as that described by M. Hoefs in his report of 11 February 1976. The settlement of Watson Lake is situated within the survey area, thus it lends itself well for study purposes in addition to more routine type of survey.

Winter Weather

Meteorological data kept on file at the Watson Lake airport showed that the total snowfall from 5 October 1975 to 31 March 1976 is 113.3 inches. Snow cover is heavier than in each of the two previous years, the average for this area is 82.5 inches and the maximum recorded snowfall is 120 inches. The mean temperature compares favourably with the annual average determined for the period October - March and probably exceeds the average slightly. A light ice storm occurred in early March adding to an already substantial surface crust occasioned by warm temperatures.

Methods

A Bell 206 helicopter on casual charter from Frontier Helicopters Limited, piloted by Sid Baird, was used in the survey. L. Mychasiw acted as observer-recorder and navigated the flight. The weather was overcast and windy on 30 March, clear and calm on 31 March, the temperature was -13C and -24C respectively.

We ascended the Liard River and its major tributaries, the Frances, Rancheria, Little Rancheria and Meister rivers, to the 2500' contour on each of the said rivers. The Liard and Frances rivers were flown on 30 March, the others on the 31 March. The total flying time was 4 hours and 50 minutes, it was found necessary to circle some areas on the Rancheria where the floodplain widens near its confluence with the Liard. Individual flights were carried out to cover the opposite banks of the Liard and Frances rivers, the other rivers were flown only once.

2....

Results

The numbers of moose, observed and estimated, are given on the accompanying table. Other species (wolves and caribou) are shown on the table also but only animals actually observed are mentioned and no attempt was made to estimate their numbers. In addition to the two groups of wolves seen on the Liard tracks were observed on three other occasions. The solitary caribou seen was apparently one of a small band frequenting that area.

Distribution

The 11 February aerial survey showed the following distribution as expressed in percentages of the total estimate:

Liard River	59%
Frances River	5%
Rancheria River (lower)	24%
Little Rancheria River (upper)	5%
Meister River	7%.

Corresponding figures for the 30-31 March survey:

Liard River	68%
Frances River	14%
Rancheria River	11%
Little Rancheria River	3%
Meister River	4%.

There is a significant variation between the February and March values for the Frances and Rancheria rivers. The spruce forest along the Rancheria floodplain where the highest concentrations of moose were observed in February has been subject to a clear-cut logging operation. It appears that some of the animals using this area were displaced by the logging activity, accounting for the reduction. Presumably some of the moose from the Rancheria moved out onto the Liard giving rise to further movement outward onto the Frances which previously was not being used by a significant number of moose.

The overall reduction on the survey area, as derived from a comparison of the data given on the table with that shown in M. Hoef's report, is about 65%. This is taken to mean that the moose have dispersed from this wintering area to adjoining areas along the escarpment. Movement would be in favour of more wooded areas where the snow crust is not so much in evidence. Numerous tracks were observed on the southfacing scarp separating the Liard and Frances rivers.

Mortality

Only one kill was located during this survey, it was situated about midway between the mouth of the Frances and Middle Canyon. The remains discovered there were those of a calf and wolf sign suggested that it had been killed by wolves. A marrow sample taken from the femur was found to be gelatinous in consistency and red. No other evidence of predation was seen.

3....

Native hunters from Upper Liard and other settlements are known to have killed 11 moose along the Liard River between the Alaska Highway and Cabin Creek. This section of the River is easily accessible by snowmobile. There were undoubtedly other kills of which the writer has no knowledge however, the total kill was probably not excessive. It should be expected that some mortality in the calves segment of the population will occur due to the heavy snowfall. A comparison of data given for the February survey shows only a slight change in the calf to adult ratio, a reduction of just over 1%. The smaller sample in the more recent survey leaves a greater margin for error in determining elements of the population.

Grouping

The range of group size was reduced from 2-9 to 2-5 since the February survey. Most groupings were observed on the Liard with several on the lower reaches of the Rancheria. Group size can be expected to diminish as dispersal away from the winter range takes its course.

L. Mychasiw
Conservation Officer
1 April 1976

Table
A comparison as to regional distribution and grouping of moose and other species observed from aerial surveys

River species and date	No. animals observed	No. of groups excl. singles	Group size		No. cows with calves	No. est. from fresh sign	Total col. 2 and 7
			mean	range			
Liard moose 30 March	54	18	2.6	2-5	7	35	89
Liard wolves 30 March	5	5	2.5	2-3			
Frances moose 30 March	4	1	2	2	0	14	18
Rancheria moose 31 March	13	3	3.3	2-4	1	2	15
Little Rancheria moose 31 March	2	1	2	2	1	2	4
Meister moose 31 March	2	1	2	2	0	3	5
* caribou 31 March	1						
Totals							
Moose	75				9	56	131
Wolves	5						5
Caribou	1						1

* on the system of lakes linking Rancheria and Meister rivers at 60°15'N 129°47'W

WINTER SURVEY OF THE WOLF AND MORLEY RIVERS ON

FEBRUARY 19/76

A brief aerial reconnaissance was made of the Wolf River, Wolf Lake, Morris Lake and Morley River areas on February 19/76 with a Jet Ranger helicopter piloted by Kim Carswell. Ron Butler served as observer and M. Hoefs as navigator and recorder. Approximately 3.5 hours were flown at low altitudes (200 feet) and animals as well as their tracks and signs were recorded. The weather was cold (-30 C), calm and mostly clear. Even though it is claimed that the Wolf River and Wolf Lake areas are first class moose ranges, this observation may apply for the summer and fall seasons, but definitely not for late winter. As winter range the Wolf River can not rival the Nisutlin, Liard, Rancheria and does not even compare favourable with the Frances, Hyland and Coal Rivers.

Only 6 moose were observed along the entire length of the Wolf River from its mouth upstream to its outflow out of Wolf Lake. Moose tracks were fairly numerous at its lower end (below the canyon) and some moose will have been missed here. One recent wolf kill (calf) and a black wolf were observed here. Above the canyon moose tracks became less common and revealed the tendency of moose to travel down river over long distances. The country here is fairly open because of recent burns, and it is doubtful that we missed many moose. It appears that these moose moved down river fairly recently, within the last week or two.

I estimate that the total number of moose using the willows along Wolf River at this time is not more than 20 to 30 animals.

Along the upper part of the Wolf River (from Fish Lake upstream to Wolf Lake) caribou sign became more and more numerous while moose signs became a rarity. Caribou signs were also observed on Fish Lake and several other small lakes in that vicinity. Two bands of caribou, 7 to 10 animals, were observed in the upper-most portion of Wolf River just a few miles before reaching Wolf Lake. Also a band of 7 wolves were observed travelling along the river here.

Wolf Lake appears to be the centre of the winter range of a good caribou population. Signs were observed along many areas of the Lake shores as well as in the large swamp areas to the north of the Lake. Caribou were observed in 3 bands consisting of 6, 4 and 16 animals. A large pack of 16 wolves was also observed along the east side of Wolf Lake. The entire shore line and adjacent vegetation of Wolf Lake consist of spruce forest with no willow stands to speak of. It is good caribou habitat but not moose habitat. Only two moose were observed at the shore of Wolverine Lake. The so-called good moose habitat in this area must consist of the burned areas and the sub-alpine shrub zone, but not of the vegetation around Wolf Lake.

This observation also applies to Morris Lake, the entire Morley River to Morley Lake, and Morley Lake itself. This is all good caribou habitat, but very marginal moose habitat because of lack of willows or other deciduous trees. Only the 3 mile stretch of Morley River just north of Morley Lake is good moose habitat and 9 moose were observed in this small area (about 4 square miles).

Caribou signs were frequent along Morley River and on Morley Lake. Two bands of 13 and 6 caribou were observed along the river

north of Morley Lake, and 6 caribou were observed on Morley Lake. Judging from the tracks, close to 100 caribou must have used this lake very recently.

Along the lower Morley River, from Morley Lake downstream to Morley Bay at Teslin Lake, caribou sign petered out and moose habitat improved. Six moose were observed along this 16 mile stretch of river and adjacent sloughs. The delta of the Morley River is excellent moose habitat and is a miniature replica of the Nisutlin River delta. A total of 14 moose(plus one dead moose) were located in these willow stands, not more than 2 to 3 square miles in size.

Manfred Hoefs,
Asst. Director.

MOOSE SURVEY OF THE LIARD BASIN ON FEBRUARY 11, 1976

A detail aerial census was made of the moose winter range in Liard basin (northwest of Watson Lake) on February 11, 1976 with a jet ranger helicopter (Frontier) piloted by Ron Payne.

The weather was partly sunny, partly overcast, calm and cold (-25 C); M. Hoefs served as navigator-recorder, Len Mychasiw assisted as observer. A total of about 4.5 hours were flown in the Liard - Rancheria - Meister and lower Frances River valleys. The area surveyed is about 800 square miles in size, but only the valleys were flown since it was established during similar surveys over the past week that moose are concentrated in river valleys and were not observed above the 2500' contour. The boundaries of the area surveyed is approximately the Alaska Highway in the south, the Campbell Highway in the east and the 2500' contours in the west and north. This 2500' contour coincides approximately with the mouth of Hasselburg Creek at the Liard in the northwest corner of the study area and an old abandoned logging trail along the west side.

As in previous surveys moose as well as fresh signs were recorded, the latter in locations where no animal itself could be found. Track counts were kept to a conservative "minimum" level to avoid any duplications. The flight lines as well as indices of moose density are shown on the accompanying map.

The area surveyed turned out to be one of the Yukon's best moose winter ranges. A total of 203 moose were accounted for,

and another 176 fresh tracks were recorded in areas where the moose themselves could not be located because of dense cover or tall coniferous forest. This indicates that at least 368 moose use these river floodplains as winter range. A number of small creeks in the area could not be flown (False Pass Creek, Allan Creek, Sambo Creek, etc.) and some moose will undoubtedly winter in them as well as in the fairly numerous marshes in the area. It is therefore reasonable to estimate that the total moose population in late winter in this 800 square mile basin will approach 500, a density only observed in a few other areas in the Yukon.

The regional breakdown of moose observations are as follows:

1) Liard River basin

from Alaska Highway upstream to mouth of Hasselburg Creek, a distance of 56 air miles:

124 moose plus 100 fresh tracks; Total: 224 moose

2) Lower Frances River

from middle canyon to mouth of Liard (about 16 miles):

13 moose plus 6 fresh tracks; Total; 19 moose

3) Meister River floodplains

from 2500' contour at 129° 55' west longitude to mouth of Liard River (about 20 air miles):

7 moose plus 19 fresh tracks; Total; 26 moose

4) Upper Rancheria Rivers

from junction of little Rancheria and upper Rancheria upstream both tributaries to the 2500' contour, a combined distance of about 16 air miles:

3 moose plus 15 fresh tracks; Total: 20 moose

5) Lower Rancheria River

from junction of the two tributaries of the Rancheria River downstream to the mouth of the Liard River, about 16 air miles;

54 moose plus 36 fresh tracks; Total: 90 moose

TOTAL: 379 moose

The length of the rivers expressed as "air miles" is somewhat deceiving, because of the meandering nature of the river courses. However, since all these rivers have meandering courses the number of moose per'air mile' of river is still a good index for comparative purposes.

The Rancheria River is by far the best moose winter range, supporting on its lower course of 16 air miles at least 90 moose or 5,6 moose per mile of river. This is a higher density than the Liard with 4 moose per air mile of river and is even more remarkable if one considers that the width of the floodplain of the Rancheria is on the average probably not more than 1 mile compared to 2 to 3 mile for the Liard.

The other rivers considered here (Frances and Meister) have typical densities of 1 to 2 moose per mile of river and are comparable in this respect to similar floodplains of the Coal - Hyland and Rock Rivers.

Len Mychasiw, whose job it was to classify moose whenever possible counted total of 186 moose of which 24 were cows accompanied by calves. This gives a calf to adult ratio of 24/162 or 15%, which is reasonable for this time of the year and for a stable unhunted population.

No wolf or wolf signs were observed during this survey.

For comparative purposes, the area surveyed earlier with a fixed-winged aircraft by Grant Lortie and Joe Jack was rechecked. Our count in that area totaled 165 moose and 152 new tracks.

Manfred Hoefs,
Asst. Director.

AN UPLAND INVENTORY OF THE CASSIAR MOUNTAINS ADJACENT TO THE ALCAN HIGHWAY

Ted Wagner

August 20 - 24, 1977

This survey was conducted by the Yukon Territorial Government Wildlife Branch in the same manner as previous upland inventories, by contour flying with a helicopter at an average altitude of 5500 feet. The pilot, Mr. Jan Blancke and the helicopter, a Hiller 12E (C-GHKB) were contracted from Yukon Airways, Whitehorse. The fuel (8 drums) was supplied by the Wildlife Branch and was taken to Rancheria Hotel by a Branch employee, Mr. Wes Olson. The observer was myself during this inventory.

The range was divided into the same areas and these designated alphabetically as was done by Lortie the previous survey during July 1977. The only exception being that the alpine hills west of Smart River were to be included in this survey. These were designated "J°".

The flight lines are traced on the maps in pencil, probable winter ranges (⟷), observations (ⓞ), game trails (⟿) in ink. Roads accessing the area are shown in ink as broken lines (---).

The survey commenced on Saturday, August 20, 1977 with the ferry from Whitehorse to Rancheria. We departed Whitehorse 10:00 hours and flew to Little Atlin Lake thence across the Snafu system to Sterlin Lake down Sterlin Creek to Teslin Lake and Teslin Airport to refuel (11:54).

Incidental observations during this flight were 3 hunting/fishing parties on Snafu. We also observed approximately 2 miles west of Nuska Lake, a Cessna 404, white in colour with blue trim, flying about 200 feet absolute headed west down a creek valley, presumably looking for game. We departed Teslin Airport (12:18) and conducted some upland surveys enroute to Rancheria.

Area "J°"

1. fresh grizzly dig 5300'

Area "J"

2. golden eagle 5400'

There was still plenty of snow on the north faces of these ranges.
Arrived Rancheria at 14:23
Helicopter time 3.7 hours

The remainder of the survey was conducted in the out of Rancheria Hotel.

Area "Q" (Commence survey 15:28)

1. golden eagle 5900'
2. falcon (not identified) 6200'
3. Imm. male sheep 6000' <140° curl
4. outfitters (?) camp west end Toosee Lake
5. sheep 5 female with 2 lambs 5500'
6. sheep 4 female with 2 lambs 5300'
7. exploration camp; extensive road system, trenching, buildings and equipment (idle)
8. 3 sets sheep tracks in sand
9. roads right to top of mountain
10. 2 male sheep: one class 4 sheep had a curl in excess of 360° probably 41-42" in length. This sheep had a tan saddle, dark withers and rump and grey-tan face.

    The smaller sheep was dark brown with an almost black back. He had about 270° curl and something less than 34" in horn length. These sheep were in brush at approximately 4500' and were less than 200 yards from the road's end, observation ⑨.
11. roads and exploration trenching
12. refuel 18:57 - 19:30
13. drill set up; no persons, no vehicles. 5200'
14. exploration site, trenching
15. 2 golden eagles 6200'

There is a very extensive system of roads which originate from the Microwave site east of Fraser Creek, south of Rancheria River. These roads run south into Freer Creek and far into the valleys of all its tributaries, 3 branches with many smaller trails. All appear to be passable with a two wheel drive vehicle, certainly by four wheel drive. Another heads east about 2 miles south of the site and down into Alan Creek. This road crosses

Alan Creek and terminates at an exploration site (14) . Another road runs parallel to the Alaska Highway south of Rancheria River until it is south of approximately Mile 700. It then swings south and follows Tootsee River on the east side. There are 3 roads running west of this road up various tributaries. All go well above tree line. The main road comes to within 3 miles of the east limit of Tootsee Lake and terminates at a very extensively explored site (7) . All of the aforementioned roads extend into British Columbia. We observed 4 vehicles on these roads during our survey. One party was definitely hunting. These people can only gain vehicle access to these areas from the Alcan Highway. We landed and spoke with a Mr. Harold Jones who was driving a large Terex dozer (Euclid). He claims to own all the mining properties accessed by these roads and told us they will be doing a lot more work here. Their plans entail 2 - 3 more years of exploration and subsequent development of this property. Mr. Jones offered his card, which we now have, and expects us to contact him in the event he might be of assistance to us. There are no firearms allowed, he says, in any of his camps.

Survey completed 19:50

Rancheria 20:05

Observation conditions were excellent during this survey.

Coverage 85%

Helicopter time this area 4.2 hours

Total time 7.9 hours

SFL

August 21, 1977

Area "N"

HAROLD JONES

1. grizzly dig 5400'
2. grizzly dig 5700'
3. grizzly dig 5300'
4. golden eagle 6400'

SILVER FALLS RESOURCES LTD.
1228 Vickers Way
Richmond, B.C. V6V 1H9 (604) 278-1523

Survey completed by flying ridge tops and observing high benches from 6500'.

Observation conditions were perfect (bright overcast)

Coverage 95%

Helicopter time this area 1.7 hours

Area "P"

1. abandoned mine site - 3 buildings, roads, trenching, barrels.
2. cabin
3. 3 male caribou right at treeline

Possible winter range immediately north of Milepost 700 in burnt off area. This area is remarkably similar to the Blind Creek winter range. There is a road running north off the Alcan Highway along the west bank of Boulder Creek. It crosses the creek approximately 2 1/4 miles upstream. Shortly it forks, one fork staying low, the other climbs steadily to the top of the mountain. Here there is an abandoned mine site replete with buildings, trenching, roads and discarded oil drums. There is an adit here with tramway and a small waste dump. At this location the road forks;one follows the north ridge, the other east to the Alpine limit.

Observation conditions were perfect

Coverage 95%

Helicopter time this area 0.9 hour

Area "O"

1. grizzly dig 5500'
2. golden eagle 6000'
3. fresh grizzly dig 5800'
4. grizzly den site 5700' many digs
5. trenching 5400'
6. trenching 5400'
7. trenching 5300' extensive road system
8. fresh grizzly digs 5300'
9. fresh grizzly digs 5300'
10. shed moose horn 5400'

11. Spotted large white object floating on Meister Lake and went to investigate. Thought perhaps it was downed aircraft. It was a frothy foam which for some reason did not disseminate. It was approximately 50 feet long and 8 feet wide. It appeared to be an emulsion of some sort.
12. 2 female moose 4800'
13. shed moose horn
14. shed moose horn

Survey completed at 20:15
Rancheria at 20:30
Observation conditions were perfect
Coverage 90%
Helicopter time this area 3.8 hours

There is a road accessing this range from approximately Mile 692. It runs east from the Alcan Highway for approximately 7 miles, where it swings south briefly then climbs to the alpine. Here it follows the ridge tops in a norwesterly direction for approximately four miles where it heads southwest. It forks shortly thereafter; one fork remaining in the alpine and terminating at some trenching (6), the other finds its way down the mountain into Spencer Creek, where it again forks, one continuing up a tributary of Spencer Creek, where it again forks, one continuing up a tributary of Spencer Creek, the other following downstream. There is considerable trenching throughout the alpine range of this road.

This range has had considerable exploration activity in the past. It harbours now very few upland mammals. We had observed some goats (3) in areas N and O this past July, and for this reason made a high altitude check (6500') of all the uppermost benches and ridge tops but to no avail.

Total helicopter time 6.4 hours
Total helicopter time to date 14.3 hours

August 22, 1977

Area "J"

1. male goat in brush 5000'
2. golden eagle 6000'
3. minesite; buildings, fuel drums, 10,000 gallon vertical fuel tank, core racks, roads, thousands feet piping, 2 adits, tramway.
4. 5 men on mountain. Landed here to refuel, spoke to Bob Coots of Atlin. He is in doing rough geology and stream sampling.
5. female caribou with calf
6. Amex exploration site. Landed and spoke to these people. They will be here until mid-September. They have seen only 3 caribou here in 3 months; 1 moose and 1 grizzly have visited their camp. This camp is very active with many roads and trenching but quite clean. Wim Vanderpole told us they intend to clean up this site when they leave and would like someone to inspect their camp when they have done so.
7. grizzly dig 5400'
8. marmot 5800'

There is a road into this area originating at approximately Mile 753. It runs north roughly parallel to Smart River for a distance of approximately 7 miles where it forks just about the British Columbia-Yukon border. One running northeast into the Alpine where it goes through a low pass thence down the mountain in an easterly direction terminating at a minesite (3). The other fork continues north for about four miles then heads east and also terminates at the same minesite. There is also a third road to the same site which is considerably older and is grown up. It is quite distinct however, running parallel to Smart River until within a mile of Cabin Lake. It then swings back southeasterly for approximately 3 miles then south for 2 miles and continues up the valley to the same minesite (3). There were 5 men working on this range (4) staking and prospecting. I spoke with one of them, Mr. Bob Coots of Atlin, B.C. The lack of game here is startling considering the quality of the range. There is adequate winter range here to support 40-50 sheep, possibly more goats. There are extensive alpine meadows and lichen forest which ought to support a goodly number of caribou. The goat we observed there was in very thick

buckbrush and we flew only once past him so as not to disturb him excessively. One wonders how many goats we might have missed observing if they have developed the habit of taking refuge in the brush as have some of their British Columbia brethren. This range has some very good goat habitat and many old trails indicating perhaps that it was indeed utilized by considerable numbers of upland wildlife in earlier times.

Observation conditions were good
Coverage 85%+
Helicopter time this area 4.6 hours
Total helicopter time to date 18.9 hours

August 23, 1977

Overcast low ceiling 7:30
Still down at noon
Beginning to lift at 14:00
Departure Rancheria 10:50

Survey "L" 15:00

1. exploration trenches 45:00
2. old exploration camp 45:00

Observation conditions were good
Helicopter time this area 1.3 hours

Survey "K"

1. 2 golden eagles 5500'
2. black bear female with cub 5600'

There is again a startling lack of game here. The sighting of a sow black bear 1000 feet above treeline was of course purely coincidental. The interesting thing about this observation is that this pair were climbing to even greater heights apparently intending to cross over the mountain, the height of which at this point is close to 6000'. There is no real distinct winter range here however, these mountains could easily

support a few sheep and/or goats during the summers. Indeed, there are trails on the scree slopes and ridge tops indicating considerable use of this range at one time.

Observation conditions were good
Helicopter time this area 1.7 hours
Total helicopter time to date 21.9 hours

August 24, 1977

Clouds 250-300' Absolute at 08:00
Still low overcast at 11:00
Departure for Whitehorse 11:45

We left - 5 empty drums at Rancheria campground
- 1 full (sealed) 100/130 45 gal.
- 1 partial 100/130 10 gal.
at service station grounds.
- 1 full (sealed) 100/130 45 gal.
at Swift River east of Y.T.G. maintenance building.

Incidental observations:

13:05 - 6 miles west of Morley River saw large flock of geese - 500-600 birds flying south.
- 2 miles east southeast Morley Bay saw 70-100 ducks headed south.
- 80-90 geese rafting at east end Morley Bay.

Fish net set east shore Teslin Lake, 1 1/2-2 miles south of entrance to Nisutlin Bay, Teslin.

Teslin at 13:32 - 14:31. Refuel, lunch.

Eagle nest west side Fat Lake.

4 male moose 3 miles west Sterlin Lake, 2 very large.

2 men in rubber raft fishing upper Snafu Lake.

C-FGYH on water here. 14:40 Jack Jensen owner, Whitehorse.

Arrive in Whitehorse 16:30.

Ferry time 3.9 hours.

Total helicopter time 25.8 hours.

This survey indicates generally little utilization of the upland ranges concerned by sheep, goats and caribou. There is considerable evidence however, that this was not always the case. Numerous well-defined trails on Scree slopes and ridge tops indicate past use by sheep and goats. Trails across passes and from alpine down to creek bottoms show caribou have also been resident here in some numbers before. It would be

reasonable to suspect that the considerable exploration activities carried out here in the past and the ongoing development of this range has played a role in the displacement of these animals.

During our survey there were 3 other helicopters, working daily in these mountains, transporting men who were staking claims, doing rough geology and taking stream samples. The cumulative effect of this aggravation would be expected to achieve this effect in short order.

The extensive road system now developed here will certainly increase the pressure on these animals from hunters and others. The roads running south into British Columbia are worthy of consideration by the Enforcement Section of this Branch because of the obvious ease of access into that province. Indeed, we saw four vehicles on these roads during our survey. The residents of Swift River speak quite openly about hunting in this area.

The writer feels it would be a most worthwhile endeavour to survey this area during the winter months to determine if any of the suspect winter ranges are utilized by these animals. If they are, it should be possible to make a very accurate assessment of their numbers.

APPENDICES

Pelly Mountains - G.M.Z. #8
Flight Reports, 1976

28 June 1976

Pilot: Lorne Osborne

Observer: G. Lortie and B. Klassen

Helicopter: C-GTNB

Obsv'n. Cond.: Excellent

% Coverage: 90%

Survey Hours: 0745 - 1020 (L)
1132 - 1342 (K)

Total Hours: 43 hours

Area E:

Sheep:

Nursery Bands

Obsv'n.	♀♀	lambs	imm. ♂♂	Remarks
(1)	5	3	,	5700'
(13)	6	3	4	6100'
~~(14)~~ 17	10	5	3	6000'
(18)	3	1		5900'
	24	12	7	≤43

Ram Bands:

Obsv'n.	mature ♂♂	imm. ♂♂	
(2)	2		
(5)		1	6500'
(12)		3	
(15)	3	2	6500'
(16)	4	13	6850'
	9	19	≤28
			71

Caribou:

Obsv'n.	♀♀	calves	mature ♂♂	
	2			
(4)			2	
(6)	9	1		
(7)	4			6800'
(8)	7	5		5800'
(1)			2	6700'
(14)	4			
	26	6	4	
30 June:	6	3		
	32	9	4	

Other:

Obsv'n.	
(1)	1 pr. Gyrfalcon (grey) at eyrie
	1 golden eagle
	1 golden eagle
(3)	1 bald eagle
(10)	1 golden eagle
30 June:	1 golden eagle
	2 observations of grizzly tracks on snow patches on north slopes.

TOTAL SHEEP:

	♀♀	lambs	imm. ♂♂	mature ♂♂
"E"	24	12	26	9

28 June 1976

Pilot: L. Osborne

Obsv'r.: G. Lortie

Helicopter: C-GTNB

Obsv'n. Cond.: Excellent

% Coverage: 90%

Survey hours: 1525-1747 (L)

Area G:

Area G:

Sheep: Nursery Bands.

Obsv'n.	♀♀	lambs	imm. ♂♂	Remarks
(1)	10	5	-	6000' (2 or 3 ♀♀ very grey).
(2)	9	3	-	
	5	0	—	
	24	8	-	

Other:

1 pr. Golden Eagle

(2) 1 pr. Golden Eagle

29 June 1976

Pilot: L. Osborne

Observers: Lortie & Klassen

Helicopter: C-GTNB

Obsv'n. Cond.: Excellent

% Coverage: 90%

Survey Hours: 0759 - 0942 (K)
1013 - 1202 (K)
1406 - 1611 (L)

Total Hours:

Area G:

Sheep: NIL
Sheep trails were seen on the two ridges in G north of Souch Creek. Sheep droppings were noted on the beach of Northern Lake at the fuel cache.

The ridges in Area G, south of Bat Cr. had old sheep trails in parts but no sheep were seen. This area looks like good potential sheep summer range with abundant alpine vegetation on low angle s. facing slopes. North facing slopes are generally steep and rocky, with deep canyons and cirques. These general features are typical of both area G & E surveyed to date.

Caribou:

Obsv'n.	♀♀	Calves	Mature ♂♂
(6)	4	2	
(9)	1	1	
(10)	1		
	6	3	

Other:

6 observations of single golden eagles.
1 old grizzly trail on snow.
1 black wolf approximately ½ miles from the group of 6 caribou.

In Pony Creek and the creeks draining Northern Lake and Lappie Lakes have abundant sign of beaver (dams and houses).

30 June 1976

Pilot: L. Osborne

Observer: Klassen & Lortie

Helicopter: C-GTNB

Obsv'n. Cond.: Good-Excellent

% Coverage: 85%

Survey Hours: 0800 - 1047 (K)
1114 - 1132 (K)
1210 - 1355 (L)
1430 - 1610 (L)

Total Time: 6:39 min.

Area "C"

Sheep:

Nursery Bands

Obsv'n.	♀♀	Lambs	Imm. ♂♂	
(4)	3	1		7000'
(12)	1			
(14)	2			6400'
(16)	12	6	4	6300'
(18)	7	5		6600'
(19)	12	3	6	6800'
(21)	12	2		6500'
	49	17	10	76

Ram Bands

Obsv'n.	Mature ♂♂	Imm. ♂♂	
(8)	6	6	6300'
(9)	2	2	6100'
(10)	3	10	5800'
(11)		4	6400'
(22)	3	6	6000'
(23)	4	1	6000'
	18	29	47
			123

Caribou:

Obsv'n.	♀♀	Calves	Mature ♂♂	
(2)	1			7000'
(5)	1			
(13)	13	6		6300'
(15)	7	4		5800'
(17)	9	6		
(18)	1			
(23)	5	3		6300'
	37	19		

Other Species:

Obsv'n.	
(20)	1 grizzly-small, dark brown at 5400', the upper limit of the shrub zone.
(1)	1 grey gyrfalcon in flight.
(3)	1 golden eagle
(6)	1 ptarmigan
(7)	2 golden eagles
	1 golden eagle
	1 golden eagle

Lappie Lakes Camp 1 July 1976

No flying today as the weather is out - mountains in fog with intermittent rain.

We went to Ross River in Unit 1197 to pick up a few groceries, dump the burned garbage (4 drums) which we have picked up around Martin's camp, and phone Whitehorse re a minor repair to TNB.

In the p.m. weather improving with the barometer steady. Two TNTA men - Jim and Barney arrived to help Dean strip and move the wreck of VUB. We all pitched in and Lorne should be able to sling the core of the wreck tomorrow.

Of the areas surveyed to date (C, E and G), the complex physiography with a variety of habitats and the elevation of Fox Mountain make it the best sheep range seen so far. Ridges apart from Fox Mountain proper in area "C" all either had sheep on them as can be seen from the notes or sheep trails.

Barite Mountain, similar in physiography to Fox Mountain and separated from the latter by the head of the Fox Creek drainage is a good sheep range as well- tho' smaller.

A summary of sheep observations in area "C", i.e. 56 nursery sheep and 47 rams of which 18 are near full curl or better, would indicate our not locating a substantial number of nursery sheep, or they range elsewhere. Similarly, a summary of Barite Mountain, i.e. 43 nursery sheep and 28 rams of which 9 are near full curl or better, would suggest the same thing.

All of the sheep we have found have been above 5800' and up to 7000' for both nursery and ram bands. Our coverage of the alpine zone has been very good - averaging 80 - 90% under ideal observation conditions - indicating to me that the missing nursery sheep are either in the shrub zone or on unsurveyed ranges. I prefer the latter as an explanation, as mentioned earlier sheep seem to be very high - and of the sample we have, the nursery bands are ranging higher on the average than the ram bands.

The visibility of these sheep is, of course, not as good as that of white sheep. We have encountered every colour variation from almost white to very dark grey. In the darker individuals, light rump patches and underbodies are prevalent. Movement in the terrain below and to the side is the giveaway, and I feel we have missed little on the areas surveyed. Our pilot, incidentally, is very sharp-eyed, and has spotted more than his share of the game seen.

2 July 1976

Pilot: Lorne Osburn Time: 0829 - 1024
1043 - 1105

Observer: Klassen & Lortie

Helicopter: C-GTNB

Obsv'n. Cond.: Good - Excellent

% Coverage: 85%

Area D:

Sheep: NIL

Caribou:

Obsv'n.	♀♀	Calves	Mature ♂♂	
(1)	4	2		6300'
(2)	3	2		5900'
	7	4		

Other:
We spotted an eagle eyrie at observation point (3). There were three stick nests in a cliff; all were unoccupied.

REMARKS:
We found 2 empty 45 gallon drums on and old cat trail on Mt. Cook. One drum was marked ANVIL MINING.

The easterly slopes above the South Canol Road are reported to be winter range for Stone Sheep. Sheep have, in the past, been observed there in late October and early November (Brian Smith, R.C.M.P. - pers. conv.; Dirk Zutter, pers. conv.) There are trails along the ridges but we saw no sheep.

2 July 1976

Pilot: L. Osburn Obsv'n. Cond.: Good

Observers: Klassen & Lortie % Coverage: 85%

Helicopter: C-GTNB Survey Time: 1203 - 1415
1435 - 1610

Area 'F' Total Time: 6.0 hours

Sheep: NIL
Good but unoccupied habitat in the areas of Caribou Mountain and Mt. St. Cyr. The best looking sheep habitat was on the ridge between Weasel Cr. and the Canol Rd. We are going back for another look at this ridge.

Caribou:

	♀♀	Calves	Mat. ♂♂	Imm. ♂♂
(1)	8	1		
(2)			2	
(3)	4			
(4)			2	
(5)				2
(10)	1			
(11)	3	2		
(12)	3	1		
(14)	4	4		
	23	8	4	2

Other:

(5) 1 golden eagle
(8) 1 golden eagle
(13) 1 golden eagle

(6), (7) and (9) were old grizzly dens that had collapsed.

3 July 1976

Pilot:	L. Osburn	Obsv'n. Cond.:	Good- Excellent
Observer:	G. Lortie	% Coverage:	80%
Helicopter:	C-GTNB	Survey Hours:	4.5
		Total Hours:	5.5

Area 'H'

Sheep:

Nursery Bands

	♀♀	Lambs	Imm. ♂♂	
(8)	6	3	1	5600'

This area has good looking sheep habitat, particularly near the peaks of Rangifer Mtn., Mt. D'Abbadie and especially the long N-S oriented ridge s.w. of Northern Lk. on which the above nursery band was found. We did some lower elevation terrain today, hoping that we would find sheep in the shrub or on the lower spurs - no such luck in spite of the 'sheepy' look of the terrain, and old sheep trails radiating from the higher core area.

Caribou:

	♀♀ ♀♂	Calves	Imm. ♂♂	Mat. ♂♂	
(1)	3	2			
(2)				6	
(3)	1				
(4)	5	1			
(5)	7	3			6200'
(6)			1	2	5300'
(10)	10	4			6000'

Other Species:

Grizzly - old track on snow
- 1 old den site
- 2 or 3 groundsquirrel or marmot diggings.

Golden Eagle: - 4 observations of single birds.

Gyr Falcon - observations (7) and (9)

4 July 1976

Pilot: Lorne Osburn

Observer: Klassen

Helicopter: C-GTNB

Obsv'n. Cond: Good-Excellent

% Coverage: 85-90%

Survey Hours: 0930 - 1152 (B)
1259 - 1445 (M)
(ferry) 1525 - 1552

Total: 4 hr. 36 min.

Area B

Sheep: NIL

Caribou:

Obsv'n.	♀♀	Calves	Mature ♂♂	
(1)			2	
(2)	3	1		
(3)			2	
(4)			3	5500'
(5)			2	5000'
	3	1	9	

We saw an old set of grizzly tracks and a number of caribou trails. Mt. Atherton appears to be well-used by caribou.

Other:

2 Golden eagles
1 Ptarmigan

Area M

Sheep: NIL

Caribou:

Obsv'n.	♀♀	Calves	Mature ♂♂	
(1)			1	5500'
(3)	1			
(4)	1		2	
(5)			1	
(6)	1			
	3		4	

Other:

We saw one set of shed moose antlers near observation (1). At observation (2) we saw a moose skull and other bones - an old kill at 5700'.

Other wildlife included 1 ptarmigan and 4 golden eagles.

The mountains in Area M were well-marked with caribou trails.

5 July 1976

Pilot: L. Osburn
Observer: G. Lortie
Helicopter: C-GTNB

Observation Cond.: Excellent
% Coverage: 75%
Survey Time: 5.2 hours
Total Time: 5.7 hours
Cumulative Total Time: 45.1 hours

Today, as we had a drum of extra fuel and shopping to do in Ross, I flew a couple of ridges east of the Canol Road.

Area: "10A"

SheeP:

Nursery Bands:

	♀♀	lambs	imm. ♂♂	mat.♂♂	
(13)	16	5			
(15)	13	3			
	2	2			
	~~21~~ 31	10			~~31~~ 41

Ram Bands:

	imm. ♂♂	mat. ♂♂	
(14)	11	3	14
			~~45~~ 55

Caribou:

(3) 2 ♀♀ 1 calf

(12) 2 unclass.

Other:

2 single observations of golden eagle.

The southern end of "10A" south of Groundhog Creek bears the mark of human activity. Both Groundhog Creek and Upper Sheep Creek have serviceable looking cat roads on them to their respective summits and in the case of Groundhog Creek, the trail proceeds down a tributary to Seagull Creek, whence it goes down Seagull Creek for at least 5 miles.

Worthy of note in the area is an abandoned camp with ±12fuel drums at Map. Ref. #(6). Map Refs. (2) and (4) are an abandoned drum and keg, respectively. Map Refs. (1) and (5) are of 2 groups of 2 prospectors on a current exploration survey. Their camp is on the Canol Road about 3 miles north of us.

The northern end of "10A", especially the flank facing Porcupine Creek is a good sheep range - our having noted 21 ♀♀, 10 lambs, 11 imm. ♂♂ and 3 big rams (≤45). This area is geologically and physiographically similar to the ridge northeast of Porcupine Creek, one of the better sheep ranges seen in these mountains.

Map Ref. (16) was just a stop to photo the ridge northeast Porcupine Creek - Caribou 1 ♀ and 1 calf.

Area "10B": Ridge N.E. of Porcupine Creek - 5 July 1976

Sheep:

	Nursery Bands ♀♀	lambs	imm. ♂♂	mat. ♂♂	
(7)	40 (incl. imm.♂♂)	10			
(9)	21 (incl. imm.♂♂)	3			5700'
(10)	5	0			
(11)	19 (incl. imm.♂♂)	4		2	
	85	17		2	

Productivity: 17/85 = 20%

	Ram Bands	imm. ♂♂	mat. ♂♂
(8)		2	5
(10)		2	2
		4	7

Sheep Summary:

♀♀ and imm. ♂♂	lambs	imm. ♂♂	mat. ♂♂
85	17	4	19

113 115

This ridge looks like it could be a good winter range.

6 July 1976

Pilot: Lorne Osburn Time: 1015-1220

Observer: Bill Klassen Total: 2 hours

Helicopter: C-GTNB

Obsv'n. Cond'n.: Good to Excellent

% Coverage: 80 to 90

Area: 10B between Seagull Creek and McConnell River and south of Porcupine Creek headwaters:

Sheep:

Nursery Bands - Nil

Ram Bands

Obsv'n.	mature ♂♂	imm. ♂♂	
(20)	3	10	6900'
	3	10	

Two or three in this band were very dark with light rumps and heads.

Caribou:

Obsv'n.	♀♀	calves	mat. ♂♂
(17)			1
(23)	1	1	
	1	1	1

Other:

Obsv'n.

(18) 1 brown grizzly bear - feeding

(19) 1 blonde grizzly bear - running 5500'

2 golden eagles

(22) 2 - 45 gal. drums

(21) old mining camp

Productivity:

	♀♀	lambs
10 A	21	10
10 B	85	17
	106	27

27/106 = 25.5%

7 July 1976

Pilot: L. Osburn Obsv'n. Cond.: Good-Excellent

Observer: G. Lortie % Coverage: 75%

Helicopter: C-GTNB Total Time: 6.0 hours

Area L

Sheep:

Nursery Bands

Obsv'n.	♀♀	Lambs	Imm. ♂♂		
(8)	5	0	0		
(11)	3	3	0		
(12)	7	3	0		7000'
(13)	14	0	0		6300'
	29	6	0	∈35	

Ram Bands

	Mature ♂♂	Imm. ♂♂	
(16)	7	10	∈17

Map references (1), (2), (6) and (9) are well worn sheep trails on ridge tops.

Map references (17) and (18) in area 'H' are areas of concentrated sheep trails and what appears to be licks in steep creek cuts in horizontally bedded sedimentary rocks - surely a wintering area. These same formations appear in the extreme n.w. part of 'L' and the s.w. part of 'M'. In the former (L) evidence of sheep is abundant and a likely wintering area; the latter in (M) had only one sheep trail above the formation.

mineral licks

Caribou:	Mat. ♂♂	Imm. ♂♂	♀♀	Calves	
(4)	4				
(5)			5	2	
(7)		5	51	10	
(10)		1	1		
(11)			1	1	
(14)	2				
(15)			7	3	
	4		40 (incl. imm. ♂♂)	2	
	10	6	104	18	
					∈ 138

Other Species:

Golden Eagle: 4 observations of single birds.
1 observation of a pair.

8 July 1976.

Rained out - Ceiling 5000' - tops obscured.

9 July 1976

Pilot: Lorne Osburn

Time: 0933 - 0945 - Returned because of low cloud
1231 - 1507
1634 - 1709

Observer: Bill Klassen

Helicopter: C-GTNB

% Coverage: 90%

Obsv'n. Cond.: Poor to Excellent

Total: 3.3 hours

Area: Q

Sheep: NIL

Caribou:

Obsv'n.	♀♀	Calves	Mature ♂♂	Imm. ♂♂
(7)	3			
(8)	10			
(9)	2			
(10)	2			
(11)	2	1		
(12)	1	1		
	20	2	0	0

Fresh caribou tracks were seen at Obsv'n. (2), (4); old tracks were seen at (5) and (6). There were old caribou trails on most ridges.

Other:

2 Golden eagles; 1 ptarmigan.
Bear diggings were observed at (1).

10 July 1976

Pilot: L. Osburn

Obsv'n. Cond.: Fair - Good

Observer: G. Lortie

% Coverage: 75%

Helicopter: C-GTNB

Hours: 2.1

Area: R

Sheep: NIL - but what appears to be old sheep trails on ridge crests at Map references (3), (4), (5) and (6).

Caribou:	♀♀	Calves	Imm. ♂♂	♂♂	
(1)	1				6000'
(7)	1	1			6500'
	2	1	0	0	

Grizzly:

(2) 2 large bears - probably an estrus sow and attendant boar. (5800')

Golden Eagle: 1 observation of a single bird.
1 observation of a pair.

11 July 1976

Pilot: L. Osburn

Observers: B. Klassen
G. Lortie

Time: 0849 - 1115 (Klassen)
1223-1417)
1500-1704) Lortie
1730-1800)

Helicopter: C-GTNB

Obsv'n. Cond.: Good

% Coverage: 90%

Area: P

Sheep: NIL

Caribou:

Obsv'n.	♀♀	Calves	Mat. ♂♂	Imm. ♂♂	
(2)			3		5500'
(5)	12				
(10)		—	4	4	
	12		7	4	

Grizzly:

Obsv'n.	♀♀	Cubs	♂♂	
(1)	1	3		
(8)			1	(probably a boar)

Other:
(3) one gyrfalcon in flight; white and light grey
(4) one gyrfalcon in flight; grey
(9) one bull moose skull; in same valley another single moose antler -also saw two golden eagles and one ptarmigan

Additional Comments:

The abandoned Boswell River mining camp on Slate Mountain consists of ten tent frames, hundreds of drums, two large capacity tanks, and miscellaneous debris. The drums are strewn about the mountain. Bill Woolsey says he hauled equipment out for Boswell 6 or 7 yearsago by cat train, coming out on the Sydney Creek trail.

Area: O

% Coverage: 75%

Sheep: NIL

Area: O

Caribou:

Obsv'n.	♀♀	Calves	Mat. ♂♂	Imm. ♂♂
(1)	5 unclassified adults			
(2)	1 unclassified adult			
(4)	2		2	
(5)	44 unclassified adults	15		
(6)			1	
(7)	6	1		
(8)	2	2		1
(9)	10	3		
	50	20	21	3	1

Grizzly:

Obsv'n.	♀♀	Cubs	♂♂	
(3)	1		1	A pair- probably boar and sow.

Area 'O' is a complex of high, eroded ridges with north facing cirques. In aspect, when viewed from the south, it appears as a huge series of talus slopes. Theremight have been sheep in this area at one time but the sign is not evident.

12 July 1976

Pilot: L. Osburn Obsv'n. Cond.: Fair - Good

Observer: Klassen % Coverage: 90%

Helicopter: C-GTNB Time: 1435-1540

Area: N

Caribou: 3 big ♂♂'s

1 single observation of a golden eagle

Rained out today.

13 July 1976

Pilot: Lorne Osburn

Time: 1235-1445
1535-1651

Observer: Bill Klassen

Helicopter: C_GTNB

Total: 3.5 hours

Obsv'n. Cond.: Fair to Good

% Coverage: 80

Area: N

Sheep: NIL

Caribou:

Obsv'n.	♀♀	Calves	Mat. ♂♂	Imm. ♂♂
(2)			1	
(3)	6	4		
(4)	3 unclassified adults			
(5)	5 unclassified yearlings			
	8	6	4	1

Other:

5 golden eagles
3 ptarmigan

Remarks:

Some of the higher areas in "N" look like potential sheep habitat.
The only tracks observed were those of caribou on snow patches.
Numerous trails on ridge tops are probably used by caribou.
Some grizzly sign, i.e., digging, was seen.

14 July 1976

LITTLE SALMON LAKE

Moved camp from Quiet Lake to Little Salmon Lake. From here we hope to do the Semenof Hills and the Glenlyon Range between now and the 23rd of this month - weather permitting - it's been raining off and on now for 5 days - and I'm not hopeful of completing both ranges. We will concentrate on the Glenlyon Range as the Semenof Hills can be reached from Whitehorse.

17 July 1976

Pilot: L. Osburn

Observer: B. Klassen

Helicopter: C-GTNB

Time: 0900 - 1115
1134 - 1210
1250 - 1430
1445 - 1530

Obsv'n. Cond.: Good

% Coverage: 85-90%

Area: B

Sheep: NIL

Caribou:

Obsvn.	♀♀	Calves	Mat. ♂♂
(2)	4	2	0
	4	2	

Other:

(20) 1 cow moose
+ 10 ptarmigan

Area: I

Sheep: NIL. Most of this area is an old burn presently dominated by willows, alder, birch browse, Blowdown of white spruce is bad. Moose trails run through the depressions between hill tops.
= There is no sheep sign at all.

Other:
(1) cow and calf moose
(2) cow moose
Hen ptarmigan with clutch of approximately 8 chicks already flying.

AREA: J

SheeP:

Obsv'n.	♀♀ and Imm. ♂♂	Lambs	Mat. ♂♂	
(3)	1	2	0	5200'
(4)	23	13	0	5200'
	3 unclassified			
	27	15		

If these are the same sheep seen in this area during the past winter by M. Hoefs this population's requirements are met on this small low mountain range. The spurs of this range run down toward the Teslin River. Some of these sheep were seen at 2900'. Trails run down the spurs to rockbluffs and a mineral lick (5) on low hills at 2600', near the old site of Mason Landing. ← mineral lick

(2) sheep trail

Area J -cont'd

Other:

(1) calf moose
(6) eagle eyrie
one golden eagle

Numerous shed moose antlers were seen in this area as well as one bull moose skull. A few shed caribou antlers were also noted.

Area: K

Sheep: NIL

Other:

(1) 2 ♂♂ moose
(2) 2 ♂♂ moose
1 golden eagle

There were old sheep droppings on a trail in this area but that was the only indication of sheep in the area. Several sets of shed moose antlers and one caribou antler were seen.

August 11, 1977

TO: H. Hoefs

FROM: W. J. Klassen

RE: Sheep Observations - Mason's Landing and Ibex Valley

Mason's Landing

mineral lick area

On August 4, 1977, while on a canoe trip on the Tenlin River I observed a total of 41 Stone sheep in the immediate vicinity of Mason's Landing. The sheep were resting in the sunshine approximately 100 feet above the water under an overhanging mat of vegetation on the east bank. An outboard motor powered freighter canoe preceding my party disturbed the sheep. Some were leaving as we approached and landed on a gravel bar 300 to 400 yards out into the river. From this distance I observed 32 sheep for about 20 minutes. The group consisted of 5 immature rams, 7 lambs and 20 ewes and/or yearlings. Some of these sheep which left the bank, heading through the approximately half mile of timber to reach the open foreslof Hills as we approached, were ewe/lamb pairs. The coloration of the sheep ranged from almost white ewes with black tails to dark grey rams with black outer legs. The three darkest animals in the group were rams. Two of these rams were slightly more than half curl.

Ibex River Valley

Sharon Russell, employed by C.W.S., observed approximately 20 nursery sheep on Mt. North Ibex on August 9, 1977. Of these about 5 were lambs.

W. J. Klassen
Wildlife Technician

cc: Grant Lortie

WJK/jm

18 July 1976.

LITTLE SALMON LAKE

Pilot: L. Osburn

Obsv'n. Cond.: Good-Excellent

Observer: G. Lortie

% Coverage: 75%

Helicopter: C-GTNB

Time: 0934-1153
1958-2215

Area: B

Mt. Lokken

Caribou:	♀♀	Calves	Imm. ♂♂	Mat. ♂♂
(22)				2
(23)	1			3

Mt. Atherton

Sheep: There is a prominent sheep trail the full length of Mt. Atherton

(26) 1, ½ curl ram, 1 ♀♀ with the track of 2 or 3 more on snow.

Caribou:
(26) 7 mature ♂♂

Black Bear:
(25) 1 small bear

Golden Eagle:
(24) 1 eyrie (unoccupied) on a vertical 50 - 75' rock bluff.

Area: C

The area N.E. of Mt. Atherton and south of the Magundy River is currently occupied by small numbers of nursery sheep at low elevations (3000'). A trail oriented s.e. of Truitt Pk. in the Glenlyon Range was followed to the Campbell Highway near the airstrip of M.P. 278. South of the Magundy R. sheep sign (trails) were abundant in the low hills east of Mt. Atherton - the following observations are noteworthy:

Sheep:	♀♀	Lambs	Imm. ♂♂	Mat. ♂♂
~~(22) 27~~	2			
(31)	1	1		

Further, the hills east of these observations have steeply truncated rock faces on the south sides, with deeply excised creek canyons. Sheep trails were noted at (29) and (29a). A minor sheep lick was noted at (28).

← mineral lick

Caribou:
(29) 1 mature ♂♂
(30) 3 ♀♀

A brief flight to the area west of the mouth of the Big Salmon River - Claire Lk. did not turn up any sign of sheep - save for the rock bluff on the north side of Fyfe Lk. (1) and on the east side of Claire Cr. (2).

Gyrfalcon:

1 grey gyrfalcon was seen near the bluffs on Claire Ck.

Cumulative Time For Sheep Survey:101 hours 19 July 1976

Pilot: Lorne Osburn Time: 1014-1220
1256-1335
Observer: Bill Klassen 1421-1455
1529-1535
Helicopter: C-GTNB 1600-1620

Obsv'n. Cond.: Good-Excellent

% Coverage: 85-90%

Area: Rose Mountain - G.M.Z. #4

Sheep: Ram Band

Obsv'n.	Mat. ♂♂	Imm. ♂♂	
(1)	4		4700'
	4		

Caribou

Obsv'n.	♀♀	Calves	Mat. ♂♂
(3)	6	6	
(4)			2
(5)	4 unclassified		
	6	6	2

Area: Two Pete Mountain

Sheep: Nursery Bands

Obsv'n.	♀♀	Lambs	Imm. ♂♂
(7)	14	5	

Ram Bands

		Mat. ♂♂
(6)	2	2

Area: Mt. Menzie

Sheep: Nursery Bands

Obsv'n.	♀♀	Lambs	
(8)	11	5	5500'

Area: "A:

On Little Sheep Creek: 1 ♀ and lamb @ 2900'.

Remarks:

Rose Mountain has many sheep trails along both north and south flanks. Some of the sign appeared to be recent; some was obviously years old. Exploration activity and the Anvil Mine may have interfered with sheep movement to and from Rose Mountain. The 4 rams seen were on the lowest extension of the block.

About 10 old drums and two large wooden boxes are located on the eastern end of Rose Mountain (2).

The sheep on Two Pete Mountain were all close together; i.e. ram and nursery bands. We may have missed some nursery sheep because we made only one pass and the mountain is sheep range right to its tip. Mt. Menzie across the Tay River from Two Pete had only nursery sheep so the rams from Two Pete Mountain may service the ewes on Menzie. Trails lead to the river on both sides.

23 July 1976

Pilot: L. Osburn Obsv'n. Cond : Excellent

Observer: G. Lortie % Coverage: 75%

Helicopter: C-GTNB Time: 2.5 hours

(1) 1 sorrel horse (white feet) with halter and broken halter rope.

(2) Sheep:

♀♀	Lambs	Rams
9	5	2, 3/4+ (several lt. grey saddles)

(3) Sheep:

Imm. ♂♂	Mat. ♂♂	
4,3/4	2, full	(Lime Pk)

(4) Moose: 1 big (60"+) bull.

1 golden eagle
1 hoary marmot

(5) Caribou: 1 ♀♀ or Imm. ♂♂
(6) Caribou: 1 big ♂♂
(7) Caribou: 2 ♀♀, 2 calves
(8) Caribou: 4 big ♂♂

==========

Pilot: L. Osburn Obsv'n. Cond.: Excellent - 23 July 1976
Observer: G. Lortie % Coverage: 75%
Helicopter: C-GTNB Time: 2.5 hours

Area: Cap Mtn., Joe Mtn., Mt. Laurier, Lime Pk., Teslin Mtn.

Sheep:	Nursery Sheep	♀♀	Lambs	Imm. ♂♂	
(2) S. of Joe Creek		9	5	2	(2 or 3 lt. grey saddles)

Rams:	Full Curl ♂♂	Imm. ♂♂
(3) Lime Pk.	2	4

Caribou:	♂♂	♀♀	Calves	Imm. ♂♂	Mat. ♂♂
	3	2			5

Moose: (4) 1 large (60+") ♂♂.

Other Species: 1 golden eagle
1 hoary marmot

24 July 1976

Pilot: L. Osburn — Obsv'n. Condl: Excellent

Observer: G. Lortie — % Coverage: 85%

Helicopter: C-GTNB — Time: 3.3.hours

1 golden eagle

(1) 3 unclass. caribou
(2) 2 unclass. caribou
(3) 23 adult and 5 calf caribou
(4) moose- ♀ and calf
(5) moose - 1 ♂
(6) caribou - 1 big ♂, 1 small ♂.
(7) bear - 1 small brown phase black bear
(8) sheep - 13 ♀♀, 3 lambs and 7 ♀♀, 3 lambs
(9) caribou - 16 ♀♀ 3 calves
1 ♀♀
1 ♀♀
(10) moose - ♀ laying down in a mud hole
(11) moose - ♀ and calf lying down in a puddle

Pilot: L. Osburn — Obsv'n. Cond.: Excellent
Observer: G. Lortie — % Coverage: 85%
Helicopter: C-GTNB — Time: 3.3 hours

Area: Mt. Byng, Mt. McClintock, Mt. Augusta

Sheep: Nursery Sheep	♀♀	Lambs	Imm. ♂♂
(8)	13	3	0
	7	3	0
	20	6	0

Caribou:	♀♀	Calves	Mat. ♂♂	Imm. ♂♂	Unclass.
(1)					3
(2)					2
(3)	23	5			
(6)			1	1	
(9)	16	3			
	1				
	1				
	41	8	1	1	5

Moose:	♀♀	Calves	♂♂
(4)	1	1	
(5)			1
(10)			1
(11)	1	1	
	2	2	2

Black bear: (7) 1 small brown phase black bear.

PELLY MOUNTAINS - G.M.Z. #10
FLIGHT REPORTS, 1977

2 July 1977.

Sunny - broken overcast

Pilot: J. Blancke — % Coverage: 90%

Observer: G. Lortie — Obsv'n. Cond: Good

Area: "A"

Helicopter: C-GHKB (Hiller 12E) — Time: 1040 - 1410
4.1 hours

Area "A" Sheep:

(6) Ram Bands: 3 full curl, 7 3/4 curls
2 dark saddle-backs — 5700'

(8) Nursery Bands: 15 females and imm. males 4 lambs — 5700'

(10) 13 females and imm. males 3 lambs — 5500'

Caribou:

(2) 1 male

(3) 4 males

(4) 4 females

(5) 1 female and 1 calf

(11) 8 females and 6 calves

(12) 2 imm. males — 5500'

Other Wildlife:

(1) 1 golden eagle

(6) 1 golden eagle

(9) 1 golden eagle

(2) 1 hoary marmot

(4) 1 hoary marmot

(7) 1 hoary marmot

Summary:

Sheep

Full Curl Males	3/4 Males	Females & Imm. Males	Lambs
3	7	28	7

Caribou

Males	Imm. Males	Females	Calves
5	2	13	7

Time: 5.9

3 July 1977.

Overnight snow @ 5000',
snow showers in A.M.

Pilot:	John Blancke	% Coverage:	75%
Observer:	W. Olsen	Obsv'n. Cond:	Poor
Registration:	CGHKB	Time:	0900 - 1000 1 hour

Area "F"

3 July 1977.

Pilot: J. Blancke | % Coverage: 80%

Observer: G. Lortie | Obsv'n. Cond: Good to Poor

Helicopter: C-GHKB | Time: 1215 - 1640
4.0 hours

Area "B"

Sheep:

Nursery Bands

	Females & Imm. Males	Lambs
(5)	10	4
	16	3
	18	5

Ram Bands

(6) 2 ½ curl, 1 3/4 curl

(3) 1 full curl, 1 3/4 curl, 1 1/2 curl, 1 female

Caribou:

(1) 1 unclassified caribou

---

(4) 1 golden eagle

(5) 1 golden eagle

(2) Two exploration men - these two comprised one party of three such parties seen today. The other parties were comprised of 2 and 1 man - a total of 5 on the south end of the ridge today. Also noted were 3 temporary tent camps from which these men operate.

Helicopter activity in this area is high, at least two trips a day by a Hughes 500 from Ross to set out and pick up crews. All of this activity is south of the head of Porcupine Creek.

Our weather has been poor - and if it persists, we are going to be in trouble as we have a lot of work to do - I hope it clears up soon.

Time: 5.0 Cum.: 10.9 hrs.

4 July 1977.

Cloudy with breaks, ceiling ± 4500'

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good to Poor

Time: 0910 - 1600
6.3 hrs.

Area "B"

Sheep:

Nursery Bands

(7) 5 females and imm. males 3 lambs

Ram Bands

(8)

Full Curl	3/4 Curl	½ Curl
2	2	
5	9	

(9) The nursery band noted here is likely one of the three observed yesterday.

Block "B" Sheep Summary:

Males	Imm. Males (3/4)	Females	Lambs
8	16	50	15

Area "C"

Sheep:

Ram Bands

(5)

Full Curl	3/4 Curl	½ Curl	
3	5	-	5000'

The rams were definitely travelling to the S.E.

Other Wildlife:

(4) 1 grey gyrfalcon

(2) 1 golden eagle

Area "J"

Sheep:

Nursery Bands

	Females and Imm. Males	Lambs
(4)	6	2
(7)	12	3

(5) There is a minor lick used by sheep at this site.

Other Wildlife:

(6) Fresh grizzly tracks on snow

(7) 1 golden eagle

This block (J) is noteworthy for its system of well-worn complex of sheep trails. Possibly a winter range.

Well-worn trails lead down the ridges on the north end into adjacent blocks D & K.

4 July 1977.

Pilot: J. Blancke

Observer: W. Olsen

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 1904 - 2310
3.4 hours

Down for gas at 2150 - 2230

Area "F"

Sheep: None seen

Caribou:

	Females	Calves	Males	
(2)	10	2	-	
(3)	4	2		5500'
(4)	2	2		5650'
(5)	2	1		5550'
(6)	3	2	1	6100'
(7)	2	2	—	5300'
	23	11	1	

Other Wildlife:

(8) 1 pr. of golden eagle and eyrie

(9) 1 wolf - black

Time: 9.7

Cumulative Time: 20.6 hrs.

5 July 1977.

Sunny and clear

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 0915 - 1856
7.2 hours

Area "D"

Sheep:

Ram Bands

(3) 1 full curl, 1 3/4 curl, 2 ½ curls 6100'

Nursery Bands

(11) 29 females and imm. males 12 lambs 5700'

Other Wildlife:

(9) Grizzly bear - a male and female pair

(10) 1 Golden eagle

All other observations refer to track sightings or in the cases of MR #'s (1), (7), and (2) - what appear to be sheep licks.

Area "E"

Sheep:

Ram Bands

(1) 2 ½ curl rams 5900'

Nursery Bands

(2) 14 females and imm. males 6 lambs 5300'

Caribou:	Females	Males	Calves
(4)	2	-	-
(5)	3	-	1
(6)	8	-	4
(7)	5	-	4
	18	-	9

Other Wildlife:

(3) 1 Golden eagle

There has been some recent staking activity as far east as the westernmost ridge in block "E".

Time 7.2

Cumulative Air Time to date: 27.8 hours.

Wes went into Ross River today with 4 empty drums, a grub list and a phone message for H. Jessup or R. Archibald to bring 5 drums of fuel.

The distribution of sheep, again this year and like that of G.M.Z. 8 seems to be focused on the front range immediately adjacent to Tintina Trench on the S.W. The further south and west one goes the scarcer sheep become in spite of pockets of promising habitat - e.g. Area "E" which has some of the likeliest looking habitat anywhere. I suspect that the weather side of the range in winter just has too much snow for sheep to successfully winter. All of the snow cornices on ridge tops overhang on the northeast side, indicating the prevailing winter winds are from the south and west. Sheep appear to be moving into "D" and "E" from winter ranges to the north.

6 July 1977

Pilot: J. Blancke

Observer: W. Olsen

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 0950 - 1300
1530 - 1609
8.0 hours

Area "G"

No sheep seen.

Caribou:

Female	Male	Calves		
6		2	(1)	5600'
1	-	-	(3)	5500'
6	3	1	(5)	6000'
13	3	3		

Other Wildlife:

(2) hoary marmot 5300'

(4) 1 golden eagle

(6) 1 golden eagle

(7) unoccupied eagle eyrie 5300'

Jessup and MacDonald arrived ±1730 hours from Whitehorse, with their outfit and 5 drums of fuel - much needed and appreciated.

Area "H"

No sheep seen

Caribou:

	Females	Males	Calves	
(8)	5	-	1	5650'
(10)	2	-	2	5400'

Caribou:

	Females	Males	Calves	
(11)	-	5	-	
(13)	10	1	5	5200'
(14)	1	-	-	5300'
(15)	1	-	1	5500'
(16)	-	2 imm.	-	5450'
(17)	-	1 imm.	-	5400'
(18)	1	-	-	5400'
	20		9	

Other Wildlife:

(9) 1 rock ptarmigan

(12) 1 male moose

Time: 8.0

Cumulative Time: 35.8 hours

7 July 1977.

Pilot: J. Blancke % Coverage: 90%

Observer: G. Lortie Obsv'n. Cond: Good

Helicopter: C-GHKB Time: 1600 - 1815

Area "I"

Sunny and clear in a.m.

H. Jessup and J. MacDonald are using C-GHKB this a.m. to look over the local beaver population and habitat - time used: 3.6 hours.

In the p.m. (1600-1815) I went out to look at the last block to do from this camp -

Sheep - None seen

Caribou:

	Males	Females	Calves
(1)	1 unclass. caribou		
(2)	2	29	10

On the way home we saw a pair of swan in Rose Lake - no young evident.

Jan is going to sling the now empty Ketza cache to Ross River tonight, as he has to be there in the a.m. for his 50-hour check.

This p.m. Wes took 4 more empty drums from here to Ross as well as our garbage - we need the truck space tomorrow to transport the 5 full drums that Harvey and John brought in.

Total time today: 7.4

Cumulative time: 43.2 hours.

8 July 1977.

Sunny in a.m. - showers in p.m.

Departed Lapie at 0935 arriving at Ross River at noon. Picked up groceries, gassed the truck, left a note for Ed at 1300 hours, phoned Betty with messages for Ralph (from Harvey) and for Ted.

Left Ross River at 1330 - arriving at Mink Creek at 1545. Jan will be along later in the p.m. as they were still working on C-GHKB when we left.

Today's time: 0.8

Cumulative time: 44.0 hours.

9 July 1977.

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 0725 - 1350
4.7 hours

Area "K"

Sheep:

Nursery Bands

	Females and Imm. Males	Lambs
(1)	7	1
	11	5
(5)	14	3
(8)	10	2
	42	11

Ram Bands

(4) 3 full curls (1 big) 1 - 3/4 curl

Caribou:

	Females	Calves	Males
(2)	7	5	
(3)	2	2	
(6)	8	3	
(7)	6	2	
(10)	3	1	
(11)	2	2	
(12)	2	1	
(13)	1	-	
	31	16	

9 July 1977

Pilot: J. Blancke

Observer: W. Olsen

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n Cond: Good - Fair

Time: 1620 - 1855
1910 - 1935
3.1 hours

Area "L"

Sheep:

Nursery Bands

	Females and Imm. Males	Lambs
(5)	2	3

Ram Bands

(4) 5 full curls 4 3/4 curls (1 dark)

Caribou:

	Females	Calves	Males
(1)			2
(3)	1	1	-
(6)	5	4	-

Other Wildlife:

(2) 1 golden eagle

(7) Moose: 1 male and 1 female (seen on way home).

Time: 7.8

Cumulative Time: 51.8 hours

Block "L" may serve as a winter range as Stu Barclay says that several years ago he saw the old heads of two winter-killed rams here.

Other Wildlife:

(1) 1 golden eagle

(4) 1 golden eagle

(9) Beaver - one large house and several dams

The McNeil River above the lakes has abundant older and some recent beaver activity. There are several large dams and 6 large houses between the lakes and the summit. This sign continues over the summit and down the creek east of "L" for 1.5 miles. Similarly, the creek west of "L" has beaver sign but only near the McNeil summit.

1 pair Canada geese and 1 imm. female moose were seen on the upper McNeil River.

10 July 1977.

High overcast with showers in p.m.

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 0945 - 3.6 hours

Area "M"

Sheep: None

A small amount of sheep sign was evident on the ridge adjacent to the trench - tracks of less than a dozen animals. Stu Barclay says he saw a nursery band of 8 sheep on a ridge in the extreme south of block "M" but we did not find them.

Caribou:

	Females	Calves	Males	
(1)			1	(big)
(4)	2	2		
(5)	6	2		
(6)	15	5		
(8)	1	-	-	
(9)	13	4		
	37	13	1	
(10)	-	1		
(11)	3	1		
(12)	3 unclassified			
(13)	43	19	2	
(16)	3	2		
	86	36	3	

Other Wildlife:

(2) Grizzly den - s.w. exposure 5200'

(3) Grizzly, large dark female - 2 dark yearlings 5500'

(14) Grizzly - 1 cinnamon in colour

(7) 1 golden eagle

(11) 1 golden eagle

(15) 1 golden eagle

(17) 2 goldeneye ducks 5500'

(18) 7 ptarmigan

Our fuel cache at McNeil Lake is at the Newmont Exploration camp. Party chief - Carl Lalonde - says he saw 12 - 15 goats at the head of Starr Creek (east fork) in block "K" in two successive years. I'm going to ask him again about this note and pursue it if it sounds good.

Stu Barclay, also in the Newmont camp and a 25-year Yukon resident says there is a big ram band in the vicinity of the peak in block "O".

We were rained out in mid afternoon, Wes going out again from 1800 to 2200 hours.

On my trip home we took the creek from the head of McNeil River west of Block "L". There is beaver sign all the way to the summit and on the middle reaches. On a beaver pond we saw a pair of Canada geese with 5 young.

On upper McNeil Lake there is a flock of ±75 moulting Canada geese.

Time: 7.0

Cumulative Time: 58.8 hours.

11 July 1977.

Sunny and clear,
scattered showers in p.m.

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 80%

Obsv'n. Cond: Good

Time: 0758 - 1500
6.3 hours

Area "P"

Sheep: None (see note 18 July).

Caribou:

	Females	Calves	Males	Imm. Males
(2)	-	-	1	-
(3)	-	-	4	-
(4)	12	5	-	-
(5)	8	1	2	-
(6)	-	-	2	2
(7)	-	-	2	-
(8)	2	-	-	-
(9)	3	1	-	-
(10)	17	8	-	-
(12)	4	1	-	-
(13)	2	2	-	-
(14)	7	4	-	-
	7	1	1	-
	28	6	-	-
(15)	-	-	5	-
	90	29	17	2

Other Wildlife:

(2) 1 golden eagle

(11) 1 golden eagle

(13) 2 adult wolverine (moulting or wet)

Area "O"

Sheep:

(3) 8 females-2 lambs-1 full curl male

These sheep are the remnant or part of the group referred to by Stu Barclay (pers. comm.). His reference was to some 15 or 20 years ago - the possibility of more sheep being here is likely as this mountain is high and ruggedly built - but these are all we found. I think that these are an isolated group of animals, more or less resident on this mountain. They were exactly where Barclay said we would find them. There is a sheep trail along the west side of the main peak at the base with a single cross valley trail to the isolated ridge west of the peak.

Caribou:

	Females	Calves	Males
(1)	-	-	1
(2)	13	6	-
(4)	2	2	-
(5)	12	5	-
(8)	6	2	-
(9)	1	1	-
	34	16	1

Other Wildlife:

(7) 1 cross fox

Other Notes on "O"

(6) The abandoned home of "Tintina Silver" with the usual array of discarded machinery, drums and lumber in quantity scattered about.

One large and three small buildings remain standing. This collection definitely mars a beautiful mountain landscape complete with cirque lake and waterfall.

On the inside wall of one of the small buildings:

"Mickey Miller, Watson Lake, August 4/70, 38" ram. Good Hunting."

"To hunt sheep: walk up valley past lake, then climb over pass, walk 5 miles then climb 7000' mountain. Look N.W. 23 miles then fuck off home."

This is not the exact quote as I remember it - surely the sentiments of an unsuccessful hunter.

We saw two grizzlies today: -

- one medium light brown moulting bear on one of the small alpine ridges south of this camp

- the other was in area "Q" in a valley bottom - this bear was large, dark brown - moult not advanced.

July 11, 1977.

Pilot: J. Blancke

Observer: W. Olsen

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good to Fair

Time: 1730 - 2006
2020 - 2125
2230 - 2345
4.5 hours

Area "N"

Sheep: None

Caribou:

	Females	Calves	Males
(1)	1		
(2)	8	6	
(3)	-		1
(5)	1		1 imm.
(7)	1		
(8)	-		2
(9)	2		
(10)	-		1
(12)	4		
(13)	28	10	
(14)	18	9	
(15)	3		
(16)	2		
(17)	1	—	—
	69	25	4 big, 1 imm.

Other Wildlife:

(4) 1 wolverine

(6) 1 hoary marmot

(11) 1 male moose

(14) 1 golden eagle

(18) 1 fox - at three dens or holes.

Time: 6.3 + 4.5 = 10.8 hrs.

Cumulative Time: 69.6 hours

12 July 1977.

High overcast in a.m.,
clearing in p.m.

Pilot: J. Blancke

Observer: W. Olson

Helicopter: C-GHKB

% Coverage: 95%

Obsv'n. Cond: Good to Fair
Overcast 9/10

Time: 1251 - 1530
1541 - 1654
1705 - 1722
4.6 hours

Area "Q"

Sheep: None

Caribou:

	Females	Calves	Males	Imm. Males
(2)	6		1	1
(3)	1			
(4)	6			2
(5)	1			2
(6)	3			
(8)	32	14		6
(9)	2	1		
(10)			11	3
(11)			3	
(12)			1	
(13)	2			1
(14)	7	2		1
(15)			4	
(16)			1	

Caribou:

	Females	Calves	Males	Imm. Males
(17)			3	
(18)	4	2		
(19)			1	
(20)	12	3		
(21)	12	5	—	—
	88	27	25	16

Other Wildlife:

(1) 1 large dark brown grizzly - moult not advanced (see note under "O").

Time: 4.6

Cumulative Time: 74.2 hours

I went to Ross yesterday with 7 empty drums - there are now 18 in the Ross compound.

While there, Ted drove up and after showering at Ed's and picking up groceries, we proceeded back to Mink Creek. Wes left for Whitehorse almost immediately.

Further, John went into Ross River with HKB as he is having starting problems - we'll see him at Finlayson Lake tomorrow as we are moving camp in the morning.

13 July 1977.

Rain intermittent all day.

Moved camp to Finlayson Lake campground. The place looks more like a public dump than anything.

John was not back by midnight. I wonder if the problem with HKB is not more serious than previously supposed. If he is not here by noon tomorrow one of us will go into Ross to see what's going on.

Mink Creek - Ross River: 0.7

Cumulative Time: 74.9 hours

14 July 1977.

Broken overcast at
6000 ft.

Pilot: J. Blancke

% Coverage: 75%

Observer: T. Wagner

Obsv'n. Cond: Broken Cloud
Ceiling 6000'

Helicopter: C-GHKB

Time:

Area "S"

Sheep: None (see note 18 July)

Caribou:

	Females	Calves	Males	Imm. Males
(2)				6
(4)	4		2	
(5)	4	3		
(7)			2	
(9)	25	9		
(10)	1	1		
(20)			4(big)	7
(21)	10	2		
(25)	3	1		
(26)	4	2		
(27)	8	1		
(28)			2	
	59	19	10	13

(6) Well-worn caribou trail.

(13) Well-worn game trail.

(22) Large set male antlers (shed).

(33) 1 shed caribou antler.

Other Wildlife:

(3) Grizzly: Lt. brn. moult not advanced, small to med. in size.

(11) Grizzly: Male large dark brown with a female medium dark brown.

(19) Grizzly: Large light brown moult not advanced.

Lots of bear digging in this block.

(20) 2 dens, ± 150 ft. apart, exposed to the southeast at 5600'.

(1) Adult bald eagle

(24) Adult bald eagle

(8) 2 golden eagles

(29) 1 golden eagle

(12) 1 hoary marmot

Time: Ferry; Ross - Finlayson Lake - 1.2
Survey; 3.4

4.6

Cumulative Time: 79.5

15 July 1977.

Rain all day - clearing 2100 hours.

No flying today - weathered out.

The Hartman-Hoefs party had not arrived as scheduled by 2200 hours.
Neither had Pat or Marg with our families.

Did a wash in the a.m.

16 July 1977.

High overcast - rain in work area in p.m.

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 60% on "T"

Obsv'n. Cond: Good - Poor

Time: 0640 - 1000
3.2 hours

Area "T"

Sheep:

(5) 1 lone female

(9) 41 females 18 lambs

Caribou:

	Females	Calves	Males	Imm. Males
(1)	6	2		
(2)	2	1	9	
(4)	1	1		
(6)			3	
(7)	3	2		
(8)	13	5		
(10)				3
(11)			4	3
	25	11	16	6

Other Wildlife:

(3) 1 hoary marmot

(8) 1 hoary marmot

This upland north of the main range is one of the finest caribou ranges I've seen - and it's well stocked. The lower slopes and willow draws as well are moose winter range as evidenced by abundant shed antlers.

The rams for these nursery sheep are likely near the main peak in area "T".

Time: 4.2

Cumulative Time: 83.7 hours.

17 July 1977.

Pilot: J. Blancke | % Coverage: 80%

Observer: Hoefs, Manfred | Obsv'n. Cond: High overcast

Helicopter: C-GHKB | Time: 7:00 a.m.
2.7 hours

Area "V"

Sheep:

(4) 1 female and 1 lamb)
same pair
(8) 1 female and 1 lamb)

Rams:

1 full, 3 - 3/4 curls, 1 - ½ curl

Caribou:

	Females	Calves	Males	Imm. Males
(1)	1			
	1	2		
(2)	7	1		
(3)	17	3		
	6	1		
	2	2		
(5)	6	4		
(6)	30	5	3	
(7)	15	5		
(14)	5	3		
(15)	1	—	—	—
	91	26	3	-

Hoefs
(Wagner)

Other Wildlife:

(2) 1 golden eagle

(5) 1 marmot

(6) 2 golden eagles
1 marmot (Hoefs)

(1) 1 wolverine

(8) 1 wolverine

(9) 1 golden eagle

(12) 1 golden eagle

(15) 1 marmot (Wagner)

Area "V-1"

Caribou:

	Females	Lambs	Males	Imm. Males
(8)	6	1		6

(9) 20 females and imm. males (Hoefs)

17 July 1977

Pilot: J. Blancke | % Coverage:

Observer: G. Lortie | Obsv'n. Cond:

Helicopter: C-GHKB | Time: 1630 - 1900
2.5 hours

Area "U"

Sheep: None

(2) Caribou: 1 female

(3) Caribou: 1 male (Imm.)

Other Wildlife:

(1) 1 golden eagle

Block "U" has a few sheep trails on ridges and spurs that don't seem to have been used recently.

Time: 3.4 + 2.7 + 2.5 = 8.6

Cumulative Time: 83.7 + 8.6 = 92.3

The rams located by Ted in "V" are likely associated with the nursery sheep of "T". A search of the peak area of "T" today failed to turn up the remaining rams which should number about 10 and include ±5 full curls. This "T"-"V" sheep population is quite separate of those to the northwest.

18 July 1977.

Pilot: J. Blancke

Observer: T. Wagner

% Coverage: 80-85%

Obsv'n. Cond: Intermittent cloudy/ sunshine - good

Helicopter: C-GHKB

Time: 4.7 hours

Area "R"

Sheep: None seen.
Sheep trails in this block indicate prior or periodic occupation by sheep. Potential winter ranges exist and are so marked on the map. This block is similar to Block "S" and "P" in this regard.

Caribou:

	Females	Calves	Males	Imm. Males
(3)	2	2		
(7)			4	1
(8)			1	1
(10)			1	
(11)			1	
(12)	13	7		
(17)	4	2		
(18)			2	
(20)	3	3		
(25)	3	2	3	
(26)	2	2		
(27)			2	
(30)	19	8	2	
(32)	38	11	—	—
	84	37	16	2

Other Wildlife:

(6) 1 golden eagle (roosting)

(9) 1 golden eagle

(19) 1 hoary marmot

(31) 1 hoary marmot

Throughout there is much fresh grizzly sign as evidenced by digging @ (2) (4) (5) (13) (14) (15) (16) (21) (22) (23) (24) and (29).

Time: 4.7

Cumulative Time: 97.0 hours

19 July 1977.

No flying today - rained out.

Chuck Ford and Rene Leduc came in to do a 50-hour inspection on HKB. Nice to see Chuck again.

20 July 1977.

Rain all night clearing by noon - pouring again by 1700 hours.

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 1215 - 1555
4.0 hours

Area "W"

Sheep: None seen.
There are, however, a few sheep trails on the ridges in the extreme S.W. corner of Block "W". These do not seem to have had any recent use.

Caribou:

	Females	Calves	Males	Imm. Males
(1)	17	9		
(2)	12	8		1
(3)	3	2	3	
(4)			4	1
(5)	4	1		
(6)	6	1	1	
(7)			5	7
(8)			1	
	42	21	14	9

On the way home we ran back and forth over the portion of the Campbell Rg. N. of Wolverine Lake.

Caribou:	Females	Calves	Males	Imm. Males
(1)	14	8		
(2)	1		4	3

Time: 4.0 hrs.

Cumulative Time: 101 hours.

21 July 1977.

No flying again today - rain was continuous all night and all day today.

Went into Ross River for a few groceries and hauled in 7 empty drums - total of 25 in the Ross River compound.

22 July 1977.

Rain continuous all night - Clearing at noon when our families departed and Ted and John took off in HKB to start Block "X".

Pilot: J. Blancke

Observer: T. Wagner

Helicopter: C-GHKB

% Coverage: 70%

Obsv'n. Cond: Excellent

Time: 5.0 hours

Area "X"

Sheep: None

There were a few disused sheep trails on ridge tops running down to the Ings and Black Rivers, the latter, just over the summit from Square Lk.

Caribou:

	Females	Calves	Males	Imm. Males
(1)	3	1		
(2)			1	
(5)	13	5		
(6)	8	5		
(7)	7	3		
	31	14	1	-

Other Wildlife:

(3) Fresh grizzly tracks @ 5200'

(9,11) Grizzly digs

(4) 1 golden eagle

(10) 1 golden eagle

Time: 5.0

Cumulative Time: 106 hours.

23 July 1977.

Pilot: J. Blancke | % Coverage: 70%

Observer: G. Lortie | Obsv'n. Cond: Excellent

Helicopter: C-GHKB | Time: 0730 - 1330
5.1 hours

Area "X"

Sheep: None seen

Caribou:

1 big male - 1 female

Goat: None seen.
All of the trails and ranges marked on the north-central portion of this block occur in promising goat habitat. Trails on ridge tops and on slopes above a valley thickly wooded with stunted spruce have all had recent use. We spent extra time in these three canyons trying to find goats. None were seen in spite of very fresh tracks

Time: 5.1

Cumulative Time: 111.1

Other Wildlife:

1 golden eagle:

Note: This block is very reminiscent of the Logan Rg. to the extent of having no game as well as being physiographically similar. There are goats here but we didn't find them even with extra effort.

25 October 1977.

In conversation with Doug Smarch of Teslin Outfitters, he reports that he saw 8 goats in the two canyons of block "X" which I intensively surveyed but did not find goat in spite of very fresh sign.

Further, the rams in block "T" which I did not find were located by Smarch and son in two groups near the peak:

(1)	5 fulls	11 3/4 + ½ curls
(2)	6 fulls	1 3/4 curl
	11	12 ≤ 23

Out of these two bands the outfitter took 6 rams.
Aged: 9½, 8½, 7½, 7½, 5½, 4½ years.

23 July 1977.

Pilot: J. Blancke | % Coverage: 80%

Observer: T. Wagner | Obsv'n. Cond: Excellent

Helicopter: C-GHKB | Time: 4.1 hours

Area "Y"

Sheep: None seen

Goat:

(2) 1 large male found on the extreme western ridge which is physiographically similar to Block "X". The remainder of this block is less precipitous and more like the other blocks north of the trench.

Caribou:

	Females	Calves	Males	Imm. Males
(1)	2	2		
(3)	3	2		
(4)	2	2		
(7)	6	4		
(9)	1	1		
(10)	2	2		
(11)				1
(12)	12	8		
(14)	1	1		
	29	22	-	1

Other Wildlife:

(5) Above Black Lk. on repeated visits, 3 - 5 moose have been seen in the sloughs. The trapper, Jerry Botti and family, report that on their arrival 2 weeks ago, they saw 11 moose from the air.

(8) 3 adult wolverine

(13) 1 immature bald eagle

(15) Several recent grizzly digs

Time: 4.1

Cumulative Time: 115.2 hours.

24 July 1977.

Pilot: J. Blancke | % Coverage: 75%

Observer: T. Wagner | Obsv'n. Cond: Excellent

Helicopter: C-GHKB | Time: 7.6 hours

Area "Z" and the Campbell Range

Sheep: None seen.

The only sign of sheep was an old trail @ (12) in the centre upland west of the Tuchibua River. Cardinal says though, that old-timers in Watson Lake mention sheep in the past occupying the Campbell Range near the highway - no trails were noted here however.

Caribou:

	Females	Calves	Males	Imm. Males
(1)	17	7		
(3)			3	
(4)			1	
(5)			3	1
(6)			3	
(7)			1	
(8)	1			
(9)	1			
(10)	1			
(11)	1			
(12)	11	4		
(13)			1	
(14)	4	1		
(22)				1
	36	12	12	2

Caribou:

	Females	Calves	Males	Imm. Males	Unclass.
S.TOT:	36	12	12	2	
(23)	1	2			
(24)	1	1			
(26)			1		
(27)	2	1			
(28)	1	1			
(29)			7		
(31)					2
(32)			1		
(35)			1		
(36)	44	16	1	—	—
	85	33	23	2	2

Other Wildlife:

(15) Grizzly: large dark brown shoulders and sides, blonde back - unmoulted.

(16) Moose: 8 in water in this lake chain

(21) 2 in water.

Time: 7.6 hrs.

Cumulative Time: 122.8 hours

Moved from Finlayson Lake to Watson Lake today. I drove, while Ted surveyed.

This entry ends our work in the Pelly Range.

CASSIAR MOUNTAINS

FLIGHT REPORTS

25 July 1977.

Pilot: J. Blancke % Coverage: 85%

Observer: T. Wagner Obsv'n. Cond: Good

Helicopter: C-GHKB Time: 5.4 hours

I left Watson this a.m. at 1100 hours after spending some time with Frank. Ted and John left for Marker Lake and the northern Cassiars at 0945.

Arrived Swift River at 1400 hours - Ted and John got into Swift River at 1530 hours.

I phoned Whitehorse this a.m., hoping to talk to Manfred - he's out - so I'll phone Gordon tomorrow.

Area "C"

Sheep: None seen.

Caribou:

	Females	Calves	Males	Imm. Males	Unclass.
(2)	3	1			
(3)	2				
(4)	6	3			
(6)			1	1	
(7)					1
(14)	1	1			
(15)					1
	12	5	1	1	2

Other Wildlife:

(1) 1 golden eagle

(16) 1 golden eagle

(5) Grizzly - tracks in snow 5500'

(8) Grizzly - dig

(9) Grizzly - dig

(11) Grizzly - dig - possible den

(12) Grizzly - dig

Time: 5.4 hours

Cumulative Time: 128.2 hours.

26 July 1977.

Pilot: J. Blancke % Coverage: 90%

Observer: G. Lortie & F. Cardinal Obsv'n. Cond: Good

Helicopter: C-GHKB Time: 3.1 hours

Area "I"

Sheep: None seen.

Goat:

	Adults	Kids
(4)	2	1
(5)	5	3

Caribou:

	Females	Calves	Males	Imm. Males
(2)				1
(3)	2	2		
(9)				1

Other Wildlife:

(1) 1 golden eagle

(6) 1 golden eagle

(7) 1 golden eagle and eyrie

Time: 2.7 hours

26 July 1977

Pilot: J. Blancke % Coverage: 90%

Observer: G. Lortie & F. Cardinal Obsv'n. Cond: Good

Helicopter: C-GHKB Time: 1520 - 2.7 hours

Area "H"

Sheep:

(5) Ram Band: 2 full curl rams - both very dark saddlebacks.

(6) Nursery Band: 9 females, 3 lambs, 2 imm. males - 4 adults very dark.

Goat:

(11) 1 adult goat

Caribou:

	Females	Calves	Males	Imm. Males	Unclass.
(1)	1	1			
(2)	2	1			
(3)				1	
(7)	2	2			
(8)	1	1			
(9)	2	1		2	
(10)				1	
(12)	—	—	—	—	1
	8	6	-	4	1

Other Wildlife:

(4) 1 golden eagle

(8) 1 golden eagle

(13) 1 PEREGRINE falcon!!

(13) Grizzly: Moulting med. female with 2 yearlings. All three were actively digging a marmot or a ground squirrel and did not become aware of us until we were right on top of them. The female left the dig site only on our second pass - apparently unwilling to desert.

This block has a few dall sheep trails in all parts of it - none seem to have seen recent use. Winter range is wanting in this block - the slopes being precipitous and rocky or eroded into expanses of talus on southern exposures.

Time: 3.1

Cumulative Time: 2.7 + 3.1 + 128.2 = 134 hours.

27 July 1977.

Pilot: J. Blancke

Observer: Ted Wagner

Helicopter: C-GHKB

% Coverage: 80%

Obsv'n. Cond: Excellent

Time: 0900 - 2050
9.8 hours

Area "D"

Sheep:

	Nursery Bands		
	Females	Lambs	Imm. Males
(27)	2	1	1
(28)	1	2 (twins)	
(29)	16	6	2
	19	9	3

Caribou:

	Females	Calves	Males	Imm. Males	Unclass.
(8)			2		
(11)			1		
(16)	1	1	1		
(19)	2				
(20)	1	1			
(23)				1	
(37)	1				
(39)			1		
(40)					1
(41)	2	2			
	7	4	5	1	1

Goats:

(15) 1 female

Other Wildlife:

(2) 1 golden eagle

(6) 1 golden eagle

(10) 1 golden eagle

(21) 1 golden eagle

(24) 1 golden eagle

(25) 2 golden eagles

(38) 1 golden eagle

(4) marmot

(36) marmot

Grizzly:

Digs noted: At (7), (13), (18).

Beaver Dams: (3) at (35)

(14) 5 Canada geese

Area "F"

Sheep: None Seen

Caribou: None Seen

Goat:

(34) 16 females and 7 kids

Other Wildlife:

(44) 1 golden eagle

(45) 1 golden eagle

(48) 1 silver fox

(50) 40 - 50 Canada geese (flightless) - obvious moult - lake (60° 15' 20 N, 130° 58' W)

The extreme east end of block "F" has been subjected to extensive mineral exploration activity. Noteworthy are messes left at (47).

Time: 9.8

Cumulative Time: 143.8 hours.

28 July 1977.

Very high broken overcast.

Pilot: J. Blancke

Observer: G. Lortie

Helicopter: C-GHKB

% Coverage: 90%

Obsv'n. Cond: Good

Time: 0800 - 1245
4.0 hours

Area "E"

Sheep: None seen - nor were there any recent or prominent signs of use by sheep. This block is rolling, with lots of talus slopes.

Caribou:

(1) 1 female, 1 calf

Other Wildlife:

(2) 1 marmot

(3) 1 golden eagle

(4) 1 grey gyrfalcon

Area "M"

On this lower and isolated ridge we saw no wildlife - but there is a prominent sheep trail along a spine over a bluff at the west end.

Time: 4.0 hours.

28 July 1977.

Pilot: J. Blancke % Coverage: 80%

Observer: T. Wagner Obsv'n. Cond: Excellent

Helicopter: C-GHKB Time: 4.6 hours

Area "J"

Sheep: None seen - well-developed trails apparently used recently on
Goat: the ridge immediately south of Dorsey Lake. This evidence may be goat tracks.

Caribou:

	Females	Calves	Males	Imm. Males	Unclass.
(2)	1	1			
(4)			1		
(6)			1		
(8)	1	1			
(13)	2	2	3	-	-

Other Wildlife:

(1) Moose: 3 females

Grizzly: digs at (7) and (9).

This block has been subjected to intensive past and recent exploration activity - particularly on the ridge west of the head of Log Jam Creek. This site is distinguishable by the fact that four roads from the Alaska Highway arrive here. Tote road assistance it seems is a lucrative (ludicrous?) business.

Time: 8.6

Cumulative Time: 152.4 hours.

29 July 1977.

Pilot:	J. Blancke	% Coverage:	80%
Observer:	G. Lortie	Obsv'n. Cond:	Excellent
Helicopter:	C-GHKB	Time:	0830 - 1300 4.0 hours

Area "B"

No direct or indirect evidence of big game in this block was noted. Of rolling aspect, this block is primarily alpine pasture, reminiscent of the country east of the Aishihik Road. Only one disused game trail was noted. We didn't even see a marmot or an eagle.

Area "A"

Ditto. We slung out the Marker Lake fuel cache on the way home.

Area "G"

Sheep - None seen - trails not evident.

Caribou:

	Females	Calves	Males	Imm. Males	Unclass.
(7)	1	1			

Other Wildlife:

(8) Golden eagle

(12) 1 marmot

(13) 1 pr. gyrfalcon

(6) Ptarmigan noted.

Grizzly digs at (2) and (11) and a den site at (5).

Area "L"

Sheep: None seen - however indistinct sheep trails on scree slopes on east side.

Caribou: 1 female.

Other Wildlife: 1 male moose at 4800 ft.

Time: 8.1

Cumulative Time: 160.5 hours.

30 July 1977.

Pilot: J. Blancke | % Coverage: 90%

Observer: Ted Wagner | Obsv'n. Cond: Cloudy, bright

Helicopter: C-GHKB | Time: 2.8 hours

I left Swift River for Whitehorse with the truck and trailer at 0915 hours arriving at 1400 hours.

Ted and John left Swift River at the same time to complete Areas "N" and "K" thence coming into Whitehorse, arriving at hours.

Area "N"

Sheep: None Seen.

(5) Goat: 1 large male

(3) Caribou: 1 female, 1 calf

Other Wildlife:

(2) gyrfalcon

(4) marmot

(6) bald eagle

Geese on moult lake number 62.

Area "K"

Sheep: None Seen. There are a few old sheep trails in this block at MR's (1) and (2) and (9).

Goat: None Seen.

Caribou:

(7) 2 females, 2 calves

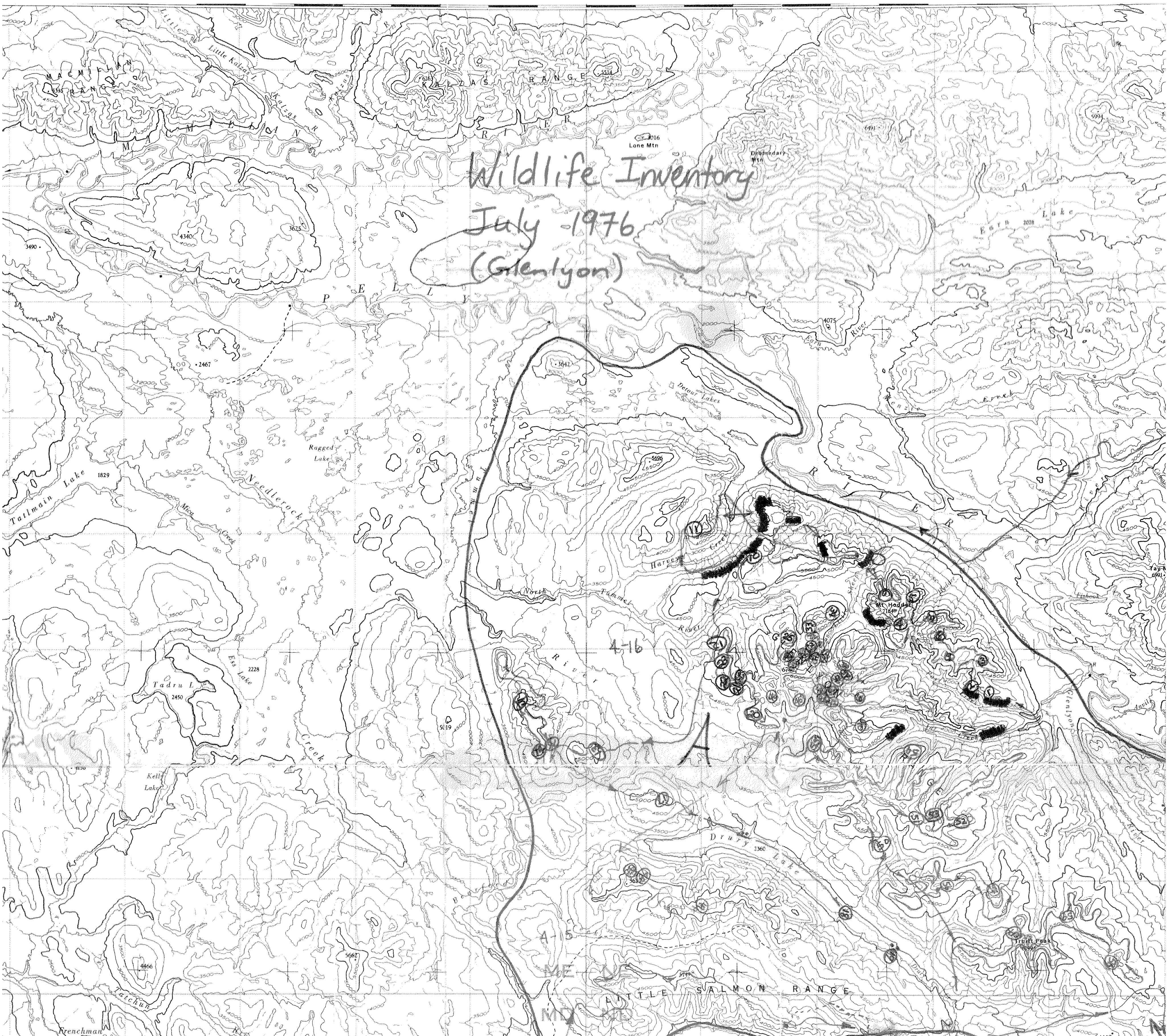
(8) 1 female, 1 calf

Other Wildlife:

(6) 5 golden eagles playing.

Time: 6.7

Cumulative Time: 167.2 hours.



Wildlife Inventory
July 1976
(Glenlyon)
MACMILLAN RANGE
Little Kalzas L
Kalzas R
KALZAS RANGE
MACMILLAN RIVER
Lone Mtn
Dromedary Mtn
Earn Lake
Earn River
PELLY RIVER
Detour Lakes
Menzie Creek
Ragged Lake
Tatlmain Lake
Needlerock Creek
Mica Creek
Harvey Creek
North Tummel River
Tummel River
Mt Hodder
Tay R
Fishook
Glenlyon
Anvil
Tadru L
Ess Lake
Kelly Lake
4-16
A
Drury Lake
Bearfeed
4-15
ME
MD
LITTLE SALMON RANGE
Truitt Peak
LITTLE SALMON LAKE
Magundy River
Snowcap Mtn
Tatchun River
Frenchman Lake
Little Salmon (abandoned)
YUKON RIVER
Little Salmon River
Lokken
8-05
B
22/7/77
45′
30′
15′
135°00′
45′
30′
15′

SS NEEDLE 1950

Surveys in 1947 and compilation in 1950 by the Topographical Survey from air photographs taken in 1949. Lithographed and printed by the Army Survey Establishment, R.C.E., Department of National Defence, 1951.

Scale 1:250,000 or 1 inch = 4 miles (approximately)

Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilometres

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

REFERENCE

Road, Hard Surface, All Weather — More than 2 Lanes; 2 Lanes; Route No (2); Less than 2 Lanes
Road, Loose Surface, All Weather — 2 Lanes or More; Less than 2 Lanes; Dry Weather
Road, Special, etc — Snow Road, Pack Route; Cart Road; Portage or Trail
Boundary, International
Boundary, Provincial
Boundary, County or District
Boundary, Township, Seigniory or Parish
Boundary, Indian Reserves, Park
Sectional and Base Lines (Surveyed)
Railway, Standard Guage — Multiple Track; Station; Abandoned; Single Track; Stop
Main Electric Power Line
Boundary Mon.
Survey Mon.
Bench Mark BM 1514
Triangulation Sta.
Spot Elevation (in feet) 4590
Telephone, Trunk Route

REFERENCE

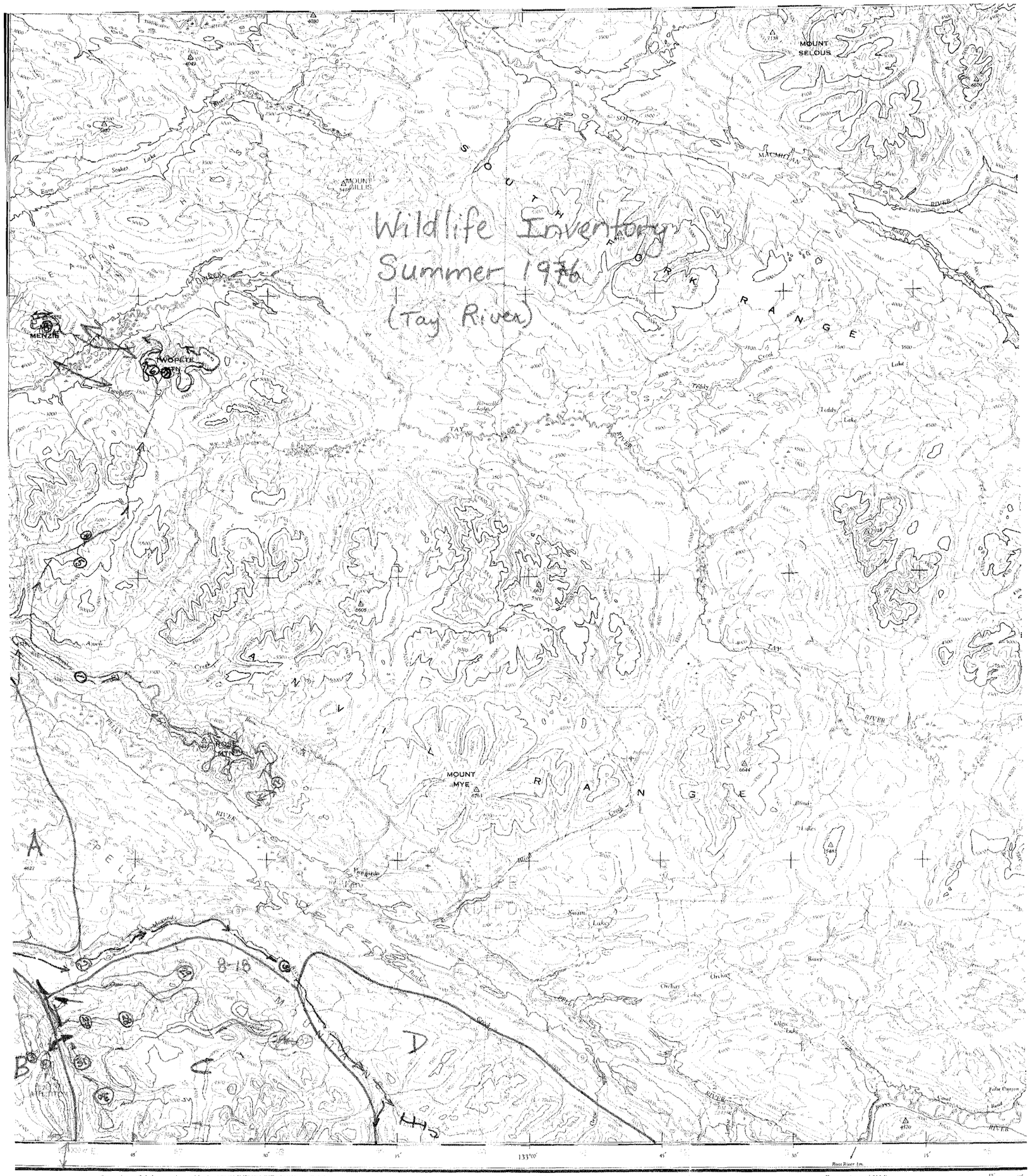
Building
School S
Post Office P
Church +
Stream, Indefinite or Unsurveyed
Stream, Intermittent
Stream, in Dry River Bed
Braided Stream
Marsh or Swamp
Marsh or Swamp, in water
Glacier or Snowfield
Sand, Gravel or Mud — Sand; Mud
Fire Lookout Tower
Wireless Station
Mine
Cliff
Wooded Areas
Navigable Canal — Navigable
Rapids and Falls — R F
Ferry — F
Dam
Lighthouse
Aerodrome (Elevation in feet) 2156
Seaplane Anchorage
Contours, Elevation — 2500
Contours, Approximate — 2000
Contours, Depression — 2500
Esker

any place along ...ed line. At other ...en on the neigh- ...ed A, the decli- The declination ...nually.

138° 64° McQU... 63° CARM... 62° AISH... LA... 61° 138°

GLENLYON

GL...
YUK...



COMPASS NEEDLE, 1960

Surveyed, compiled, drawn and printed by the ARMY SURVEY ESTABLISHMENT R.C.E., 1960-61
Aerial photography by the R.C.A.F. 1949.
Published 1961.
Interim Corrections 1974

REFERENCE

	More than 2 Lanes	Partially Completed
Road, Hard Surface, All Weather	Divided	
" Hard Surface, All Weather	2 Lanes	Less than 2 Lanes
" Loose Surface, All Weather	More than 2 Lanes	2 Lanes
" Loose Surface, Less than 2 Lanes	All Weather	Dry Weather
Railway, Multiple Track		
" Single Track		
Boundary, International		
" Province or State		
" County or District		
" Reservations, Indian, Military, Park, etc.		

Scale 1 : 250,000
Approximately 1 Inch to 4 Miles

Miles 0 5 10 15 20 Miles
Kilometres 0 5 10 15 20 25 Kilometres

ROADS—continued
Hard surface—indoor
Loose surface—all weather
Cart track—dry weather
Trail—winter
Debushing—Suppositional

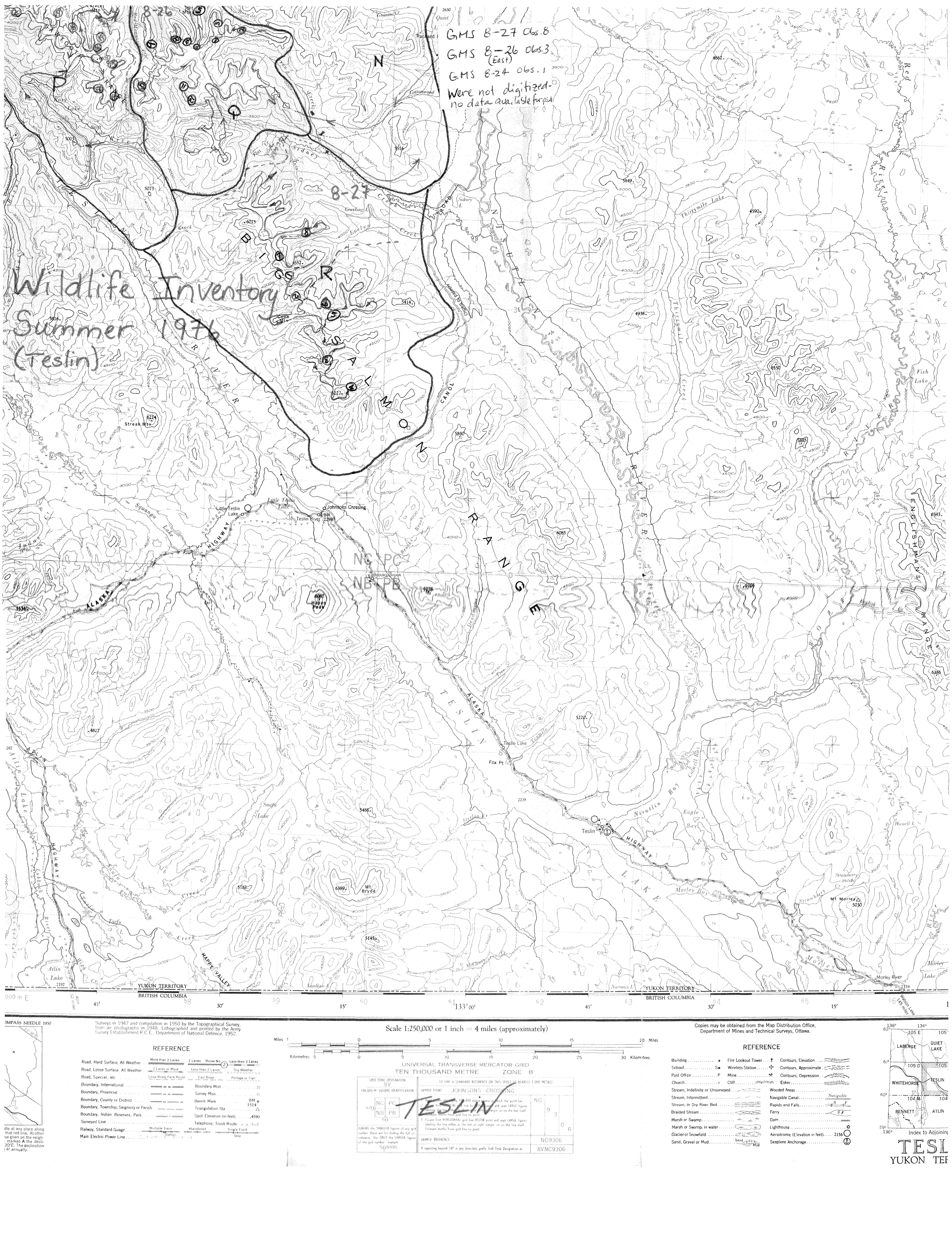
Copies may be obtained from
The Map Distribution Office,
Dept. of Mines and Technical Surveys,
Ottawa.

TAY

Contour Interval 500 Feet.
All Elevations in Feet above Mean Sea Level.
Universal Transverse Mercator Projection

REFERENCE

Triangulation Station	Spot Elevation, in feet 257
Contours, Feature 500	Wooded Areas
" Depression 500	Swamp or Marsh
" Approximate 500	
Stream, Intermittent	W.L. 241
Ferry	Mud
Dam	Navigation Light
Falls	Sand
Aerodrome, on Land	Elevation in Feet 250 on Water
Main Electric Power Line	


GMS 8-27 Obs.8
GMS 8-26 Obs.3 (East)
GMS 8-24 Obs.1
Were not digitized - no data available for point
Wildlife Inventory
Summer 1976
(Teslin)
8-27
8-26
TESLIN
ENGLISHMANS RANGE
BIG SALMON RANGE
NISUTLIN RIVER
TESLIN RIVER
TESLIN LAKE
Red River
Thirtymile Creek
Thirtymile Lake
Fish Lake
Johnsons Crossing
Little Teslin Lake
Squanga Lake
Teslin
Fox Pt
Morley River
Mt Morley
Mt Bryde
Streak Mtn
Hayes Peak
Snafu Lake
Atlin Lake
HAPPY VALLEY
ALASKA HIGHWAY
CANOL ROAD (closed to traffic)
YUKON TERRITORY
BRITISH COLUMBIA
Watson Lake 145 miles
Atlin 32 miles
Scale 1:250,000 or 1 inch = 4 miles (approximately)
Surveys in 1947 and compilation in 1950 by the Topographical Survey, from air photographs in 1948. Lithographed and printed by the Army Survey Establishment R.C.E., Department of National Defence, 1952.
Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.
REFERENCE
UNIVERSAL TRANSVERSE MERCATOR GRID
TEN THOUSAND METRE ZONE 8
Index to Adjoining
LABERGE
QUIET LAKE
WHITEHORSE
TESLIN
BENNETT
ATLIN
TESLIN
YUKON TERRITORY

Wildlife Inventory
Summer
(Quiet Lake)

8-05 8-08 8-09 8-10 8-18 8-19 8-21 8-22 8-23 8-24 8-25 8-26

10-01 10-02 10A 10B

A B C D E F G H L M N O P Q R S T U V W Z

Surveys in 1948 and compilation in 1950 by the Topographical Survey from air photographs taken in 1949. Lithographed and printed by the Army Survey Establishment, R.C.E., Department of National Defence, 1952.
Interim Corrections 1974

REFERENCE

Road, Hard Surface, All Weather	More than 2 Lanes	2 Lanes Route No. 2	Less than 2 Lanes
Road, Loose Surface, All Weather	2 Lanes or More	Less than 2 Lanes	Dry Weather
Road, Special, etc	Snow Road, Pack Route	Cart Road	Portage or Trail
Boundary, International		Boundary Mon.	
Boundary, Provincial		Survey Mon.	
Boundary, County or District		Bench Mark	BM 1514
Boundary, Township, Seigniory or Parish		Triangulation Sta.	
Boundary, Indian Reserves, Park		Spot Elevation (in feet)	4590
Surveyed Line		Telephone, Trunk Route	
Railway, Standard Guage	Multiple Track Station	Abandoned	Single Track Stop

QUIET LAKE

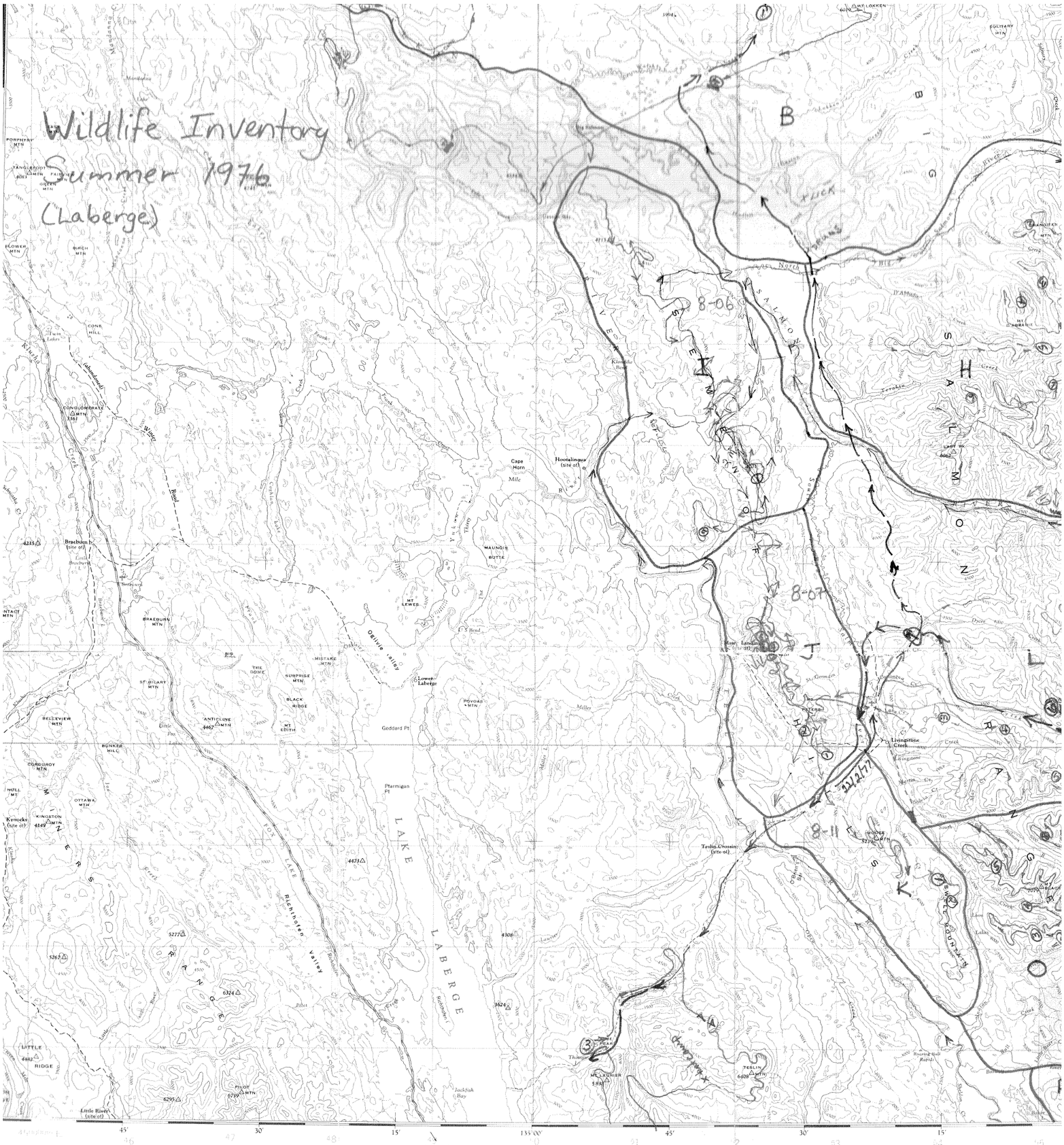
YUKON TERRITORY

Scale 1:250,000 or 1 inch = 4 miles (approximately)

Miles 5 0 5 10 15 20 Miles
Kilometres 5 0 5 10 15 20 25 30 Kilometres

REFERENCE

Building	Fire Lookout Tower	Contours, Elevation
School	Wireless Station	Contours, Approximate
Post Office	Mine	Contours, Depression
Church	Cliff	Lake
Stream, Indefinite or Unsurveyed		Wooded Areas
Stream, Intermittent		Non-glaciated Land
Stream, in Dry River Bed		Rapids and Falls
Braided Stream		Pass
Marsh or Swamp		Bare
Marsh or Swamp, in water		Lichens
Glacier or Snowfield		Sand, Gravel or Mud



Produced and printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1958, from air photographs taken in 1949 and 1952.

Universal Transverse Mercator Projection

Contour interval 500 Feet
Elevations in Feet above Mean Sea Level
North American Datum 1927

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

LABERGE

YUKON TERRITORY

Scale 1:250,000

1 Inch to 4 Miles Approximately

Miles 0 5 10 15

Kilometres 0 5 10 15 20 25 30

REFERENCE

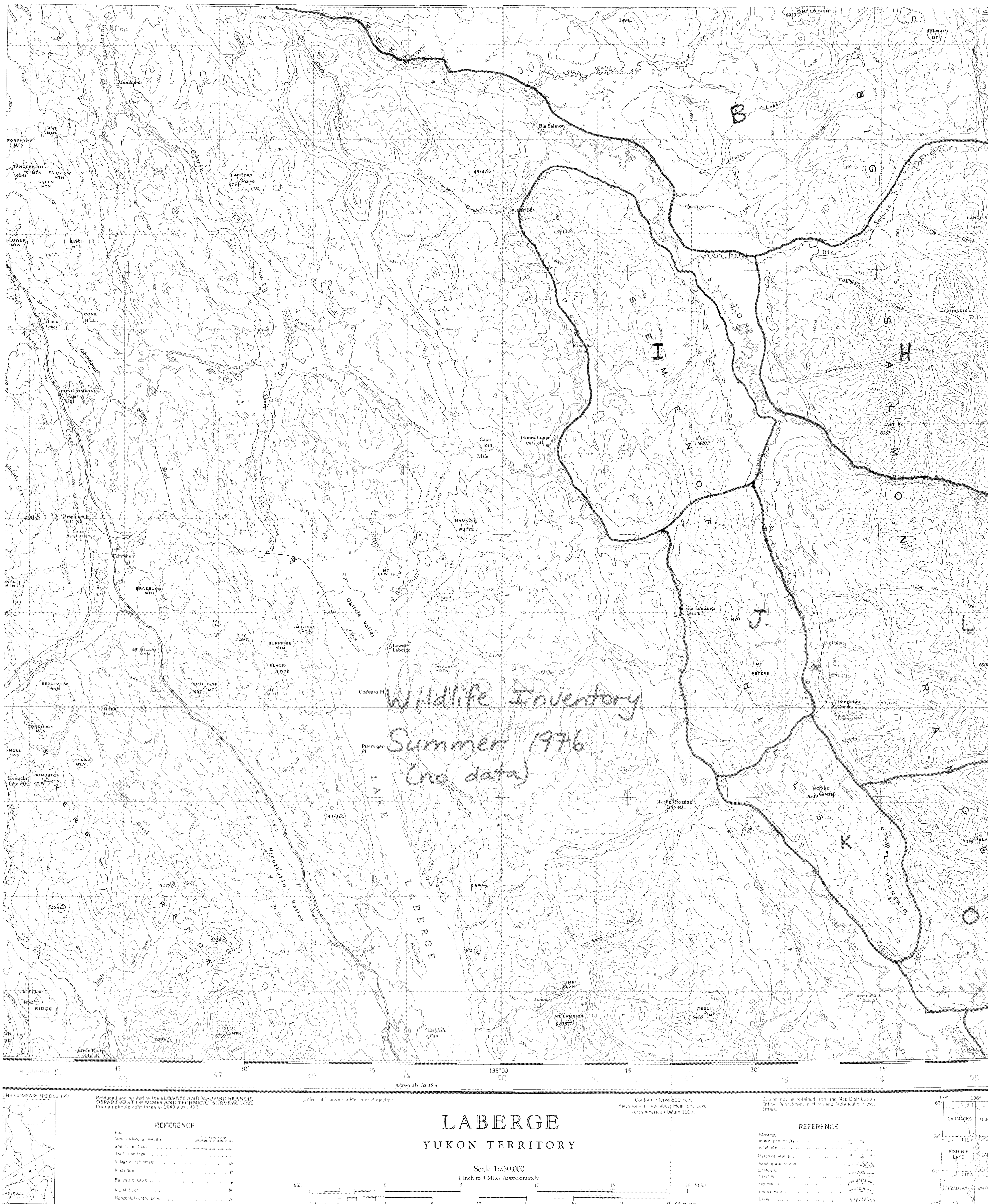
Roads:
Hard surface, all weather
Gravel or stone
Motor trail or cart track
Trail or portage
Village or settlement
Post office
Building or cabin
R.C.M.P. post
Meteorological control point
Astronomical position
Spot elevation in feet

REFERENCE

Streams:
intermittent or dry
indefinite
Marsh or swamp
Sand, gravel or mud
Contours
elevation
depression
approximate
Esker
Fence
Landing ground

Index to Adjoin


Wildlife Inventory
Summer 1976
(Whitehorse)
LAKE LABERGE
FLAT MTN.
Upper Laberge
Takhini Hotspring
Takhini
MT. BYNG
MT. MCLINTOCK
AUGUSTA MTN.
CAP MTN.
Whitehorse
CANYON MTN.
McRae
M'Clintock
MARSH LAKE
MT. MICHIE
MT. LORNE
Robinson
Cowley
NEEDLE MTN.
MT. HODNETT
MT. PERKINS
PUGH PEAK
GOLD HILL
VESUVIUS HILL
COAST MOUNTAINS
TALLY-HO MTN.
MT. STEVENS
MT. SKUKUM
CARBON HILL
MT. WARD
STONY MTN.
MT. MACAULEY
Lewis
Lorne
Lansdowne
CARIBOU MTN.
Carcross
NARES MTN.
Tagish
TAGISH RIVER
TAGISH LAKE
JUBILEE MTN.
LIME MTN.
Bove Island
Conrad
MONTANA MTN.
Dundalk
Watson
BENNETT LAKE
BENNETT RANGE
WEST ARM
TAKU ARM
Atlinto Butte
BRITISH COLUMBIA
White Pass
REFERENCE
MAP 953A
WHITEHORSE
YUKON TERRITORY
(FIRST EDITION)
Scale: 1/250,000 or Approximately 4 Miles to 1 Inch
Copies may be obtained from the Map Distribution Office, Department of Energy, Mines and Resources, Ottawa.
Interim Corrections 1974
GRID ZONE DESIGNATION 8V
100,000 M. SQUARE IDENTIFICATION
TO GIVE A REFERENCE TO NEAREST 1000 METRES
EXAMPLE: ROAD JUNCTION
MILITARY GRID REFERENCE (to nearest 1,000 metres) NC 0718
TEN THOUSAND METRE
UNIVERSAL TRANSVERSE MERCATOR GRID
EDITION 3


Wildlife Inventory
Summer 1976
(no data)
BIG SALMON RANGE
JOHNSON HILLS
LAKE LABERGE
Big Salmon
Cassiar Bar
Hootalinqua (site of)
Mason Landing (site of)
Livingstone Creek
Teslin Crossing (site of)
BOSWELL MOUNTAIN
Ogilvie Valley
Lower Laberge
Goddard Pt
Ptarmigan Pt
Jackfish Bay
Richthofen Valley
FOX LAKE
Braeburn (site of)
Kynocks (site of)
Little River (site of)
MIRNERS RANGE
MT LEWES
MT LAURIER
TESLIN MTN
PILOT MTN
135°00′
Alaska Hy Jct 15m

THE COMPASS NEEDLE 1957

...mpass needle at any place ...clination given on that red ...declination is between those ...g red lines; thus at the place ...n is between 32° 30′E and ...n of the compass needle is ...annually.

Produced and printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1958, from air photographs taken in 1949 and 1952.

REFERENCE

Roads:
loose surface, all weather
wagon; cart track
Trail or portage
Village or settlement
Post office
Building or cabin
R.C.M.P. post
Horizontal control point
Astronomical position
Spot elevation (in feet) 2905

Universal Transverse Mercator Projection

LABERGE

YUKON TERRITORY

Scale 1:250,000
1 Inch to 4 Miles Approximately

Contour interval 500 Feet
Elevations in Feet above Mean Sea Level
North American Datum 1927.

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

REFERENCE

Streams:
intermittent or dry
indefinite
Marsh or swamp
Sand, gravel or mud
Contours:
elevation
depression
approximate
Esker
Forest
Landing ground

Index to Adjoining Sheets: CARMACKS 115 I; GLEN...; AISHIHIK LAKE 115 H; LABE...; DEZADEASH 115 A; WHITE...

Wildlife Inventory
NC PG
Summer 1976
(no data

NEEDLE 1950

e along a red
other places
following red
ds between
ngard's needle

Surveys in 1948 and compilation in 1950 by the Topographical Survey from air photographs taken in 1949. Lithographed and printed by the Army Survey Establishment, R.C.E., Department of National Defence, 1952.
Interim Corrections 1974

REFERENCE

Road, Hard Surface, All Weather	More than 2 Lanes / 2 Lanes or More	2 Lanes Route No.	Less than 2 Lanes
Road, Loose Surface, All Weather		Less than 2 Lanes	Dry Weather
Road, Special, etc.	Snow Road, Pack Route	Cart Road	Portage or Trail
Boundary, International		Boundary Mon.	
Boundary, Provincial		Survey Mon.	
Boundary, County or District		Bench Mark	BM 1514
Boundary, Township, Seigniory or Parish		Triangulation Sta.	
Boundary, Indian Reserves, Park		Spot Elevation (in feet)	4590
Surveyed Line		Telephone, Trunk Route	
Railway, Standard Guage	Multiple Track / Stations	Abandoned	Single Track / Siding

QUIET LAKE

YUKON TERRITORY

Scale 1:250,000 or 1 inch = 4 miles (approximately)

Miles 5 0 5 10 15 20 Miles
Kilometres 5 0 5 10 15 20 25 30 Kilometres

REFERENCE

Building		Fire Lookout Tower	
School		Wireless Station	
Post Office	P	Mine	
Church		Cliff	
Stream, Indefinite or Unsurveyed		Contours, Elevation	
Stream, Intermittent		Contours, Approximate	
Stream, in Dry River Bed		Contours, Depression	
Braided Stream		Esker	
Marsh or Swamp		Wooded Areas	
Marsh or Swamp, in water		Navigable Canal	Navigable
Glacier or Snowfield		Rapids and Falls	
Sand, Gravel or Mud	Sand / Gravel / Mud	Ferry	
		Dam	
		Lighthouse	
		Aerodrome (Elevation in feet)	2156
		Seaplane Anchorage	

Index to adjo
Tableau d'assembl

Surveys in 1947 and compilation in 1950 by the Topographical Survey from air photographs taken in 1949. Lithographed and printed by the Army Survey Establishment, R.C.E., Department of National Defence, 1951.

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

Scale 1:250,000 or 1 inch = 4 miles (approximately)

Miles 0 5 10 15 20 25
Kilometres 0 5 10 20 30

Miles 5 0 5 10
Kilometres 5 0 5 10

REFERENCE

Road: Hard Surface, All Weather	More than 2 Lanes	2 Lanes	Less than 2 Lanes
Road: Loose Surface, All Weather	2 Lanes or More	Less than 2 Lanes	Dry Weather
Road: Special, etc.	Some Road Not Main	Low Grade	Portage or Trail
Boundary, International			Boundary Mon.
Boundary, Provincial			Survey Mon.
Boundary, County or District			Bench Mark
Boundary, Township, Seigniory or Parish			Triangulation Sta.
Boundary, Indian Reserves, Park			Spot Elevation (in feet)
Sectional and Base Lines (Surveyed)			Telephone, Trunk Route
Railway, Standard Gauge	Multiple Track		Aerodrome, Hard Surface
Main Electric Power Line			Seaplane Anchorage

Building	Fire Lookout Tower	Contours, Elevation	
School	Wireless Station	Contours, Approximate	
Post Office	Mine	Contours, Depression	
Church	Cliff	Esker	
Stream, Indefinite or Unsurveyed		Wooded Areas	
Stream, Intermittent		Rapids and Falls	
Stream, in Dry River Bed		Rapids and Falls	
Braided Stream		Ferry	
Marsh or Swamp		Dam	
Marsh or Swamps, in water		Lighthouse	
Glacier or Snowfield		Aerodrome, if Elevation in feet	
Sand, Gravel or Mud		Seaplane Anchorage	

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

Index to Adjoining Maps

GLENLYON
YUKON TERRITORY

GLENLYON

COMPASS NEEDLE, 1950

Surveyed, compiled, drawn and printed by the ARMY SURVEY ESTABLISHMENT R.C.E., 1949-51
Aerial photography by the R.C.A.F. 1949.
Published 1951.
Interim Corrections 1974

Scale 1 : 250,000
Approximately 1 Inch to 4 Miles

Miles 0 5 10 15 20 Miles
Kilometres 0 5 10 15 20 25 30 Kilometres

Contour interval 500 Feet.
All Elevations in Feet above Mean Sea Level.
Universal Transverse Mercator Projection

REFERENCE

Road, Hard Surface, All Weather ... More than 2 Lanes / 2 Lanes / Route No. / Partially Completed / Less than 2 Lanes	
,, Hard Surface, All Weather ...	
,, Loose Surface, All Weather ... More than 2 Lanes / 2 Lanes / All Weather / Dry Weather	
,, Loose Surface, Less than 2 Lanes ...	
Railway, Multiple Track	
,, Single Track	
Boundary, International	
,, Province or State	
,, County or District	
,, Reservations, Indian, Military, Park, etc.	

ROADS - ROUTES
hard surface - pavée
loose surface - de gravier
cart track - de terre
trail - sentier
Deletions - Suppressions x x x x x

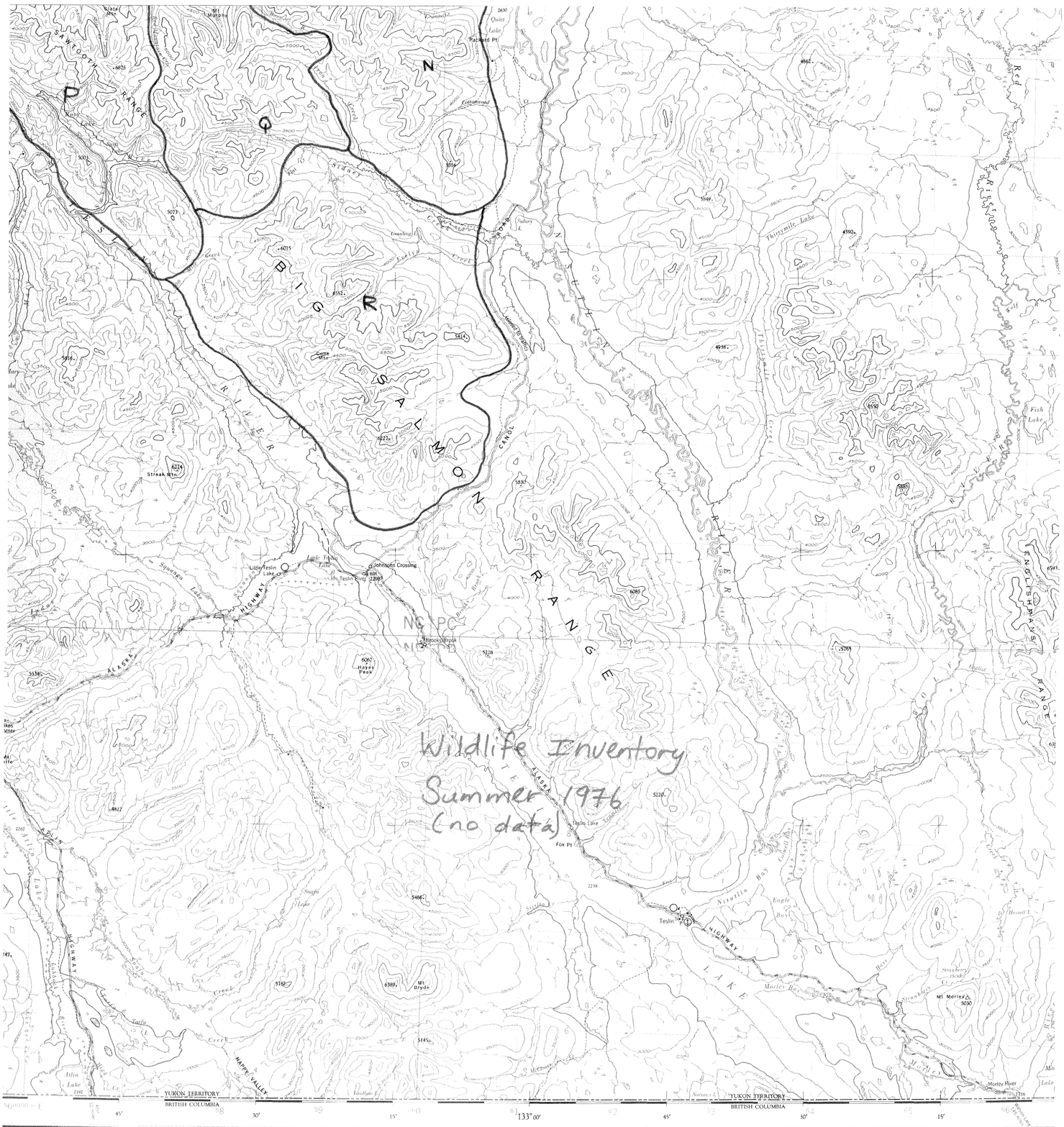
Copies may be obtained from
The Map Distribution Office,
Dept. of Mines and Technical Surveys,
Ottawa.

TAY

REFERENCE

Triangulation Station	Spot Elevation, in feet 257
Contours, Elevation ... 500 ... 1000	Wooded Areas
,, Depression ... 1000 ... 500	Swamp or Marsh
,, Approximate	
Stream, Intermittent	W.L. 241
Ferry	Mud
Navigation Light	Sand
Dam	
Falls	
Aerodrome, on Land	Elevation in Feet 250 on Water
Main Electric Power Line	

NOTE. On the above ma



Surveys in 1947 and compilation in 1950 by the Topographical Survey, from air photographs in 1948. Lithographed and printed by the Army Survey Establishment IV C.E., Department of National Defence, 1950.

Scale 1:250,000 or 1 inch = 4 miles (approximately)

Miles 5 0 5 10 15 20 Miles
Kilometres 5 0 5 10 15 20 25 30 Kilometres

UNIVERSAL TRANSVERSE MERCATOR GRID
TEN THOUSAND METRE ZONE 8

SAMPLE FORM: JOHNSONS CROSSING

SAMPLE REFERENCE: NC9306

If requiring layout 10" or any direction, prefix Grid Zone Designation as: 8VNC9306

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

REFERENCE

Building	Fire Lookout Tower	Contours, Elevation	
School	Wireless Station	Contours, Approximate	
Post Office	Mine	Contours, Depression	
Church	Cliff	Esker	
Stream, Indefinite or Unsurveyed		Wooded Areas	
Stream, Intermittent		Navigable Canal	
Stream, in Dry River Bed		Rapids and Falls	
Braided Stream		Ferry	
Marsh or Swamp		Dam	
Marsh or Swamp, in water		Lighthouse	
Glacier or Snowfield		Aerodrome (Elevation in feet)	2156
Sand, Gravel or Mud		Seaplane Anchorage	

REFERENCE

Road, Hard Surface, All Weather	More than 2 Lanes	2 Lanes	Less than 2 Lanes
Road, Loose Surface, All Weather	Dividing Strip	Passing Places	Dry Weather
Road, Special 4th	Snow Road, Pack Route	Cart Road	Portage or Trail
Boundary, International		Boundary Mon	
Boundary, Provincial		Survey Mon	
Boundary, County or District		Bench Mark	BM 1518
Boundary, Township, Seigniory or Parish		Triangulation Stn	TS
Boundary, Indian Reserves, Park		Spot Elevation (in feet)	4190
Surveyed Line		Telephone, Trunk Route	
Railway, Standard Gauge	Multiple Track	Abandoned	Single Track
Main Electric Power Line			

WOLF LAKE

YUKON TERRITORY

Scale 1:250,000

1 Inch to 4 Miles Approximately

Universal Transverse Mercator Projection.

Contour Interval 500 Feet.
All Elevations in Feet above Mean Sea Level.

Surveys by the Topographical Survey in 1947. Compiled by the Topographical Surveys 1960 from aerial photographs taken in 1958. Cartographic edit plotted by the Army Survey Est. R.C.E., Dept. of National Defence, 1962.

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa

REFERENCE

Road: Hard Surface, All Weather	More than 2 Lanes / 2 Lanes / Poor	Less than 2 Lanes	
Road: Loose Surface, All Weather	2 Lanes or More / Less than 2 Lanes	Dry Weather	
Road, Wagon, etc.	Cart Track	Trail or Portage	
Boundary, International	Boundary Mark		
Boundary, Provincial	Survey Mon.		
Boundary, County or District	Bench Mark	3516 ft.	
Boundary, Indian Reserves, Park	Triangulation Sta.		
Surveyed Line	Spot Elevation (in feet)	4340	
Main Electric Power Line	Telephone, Trunk Route		
Railway, Standard Gauge	Multiple Track / Abandoned / Single Track	Station / Siding	

Building	Fire Lookout Tower	Contours, Elevation	
School	Aviation Station	Contours, Approximate	
Post Office	Mine	Contours, Depression	
Church	Cliff	Esker	
Stream, Indefinite or Uncurveyed		Wooded Area	
Stream, Intermittent		Navigable Canal	
Stream, in Dry River Bed		Rapids and Falls	
Braided Stream		Ferry	C.F.
Marsh or Swamp		Dam	
Marsh or Swamp in water		Lighthouse	
Glacier or Snowfield		Aerodrome (Elevation in feet)	2156
Sand, Gravel or Mud	Sand / Gravel / Mud	Seaplane Anchorage	

Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilometres

Tesla 65 m

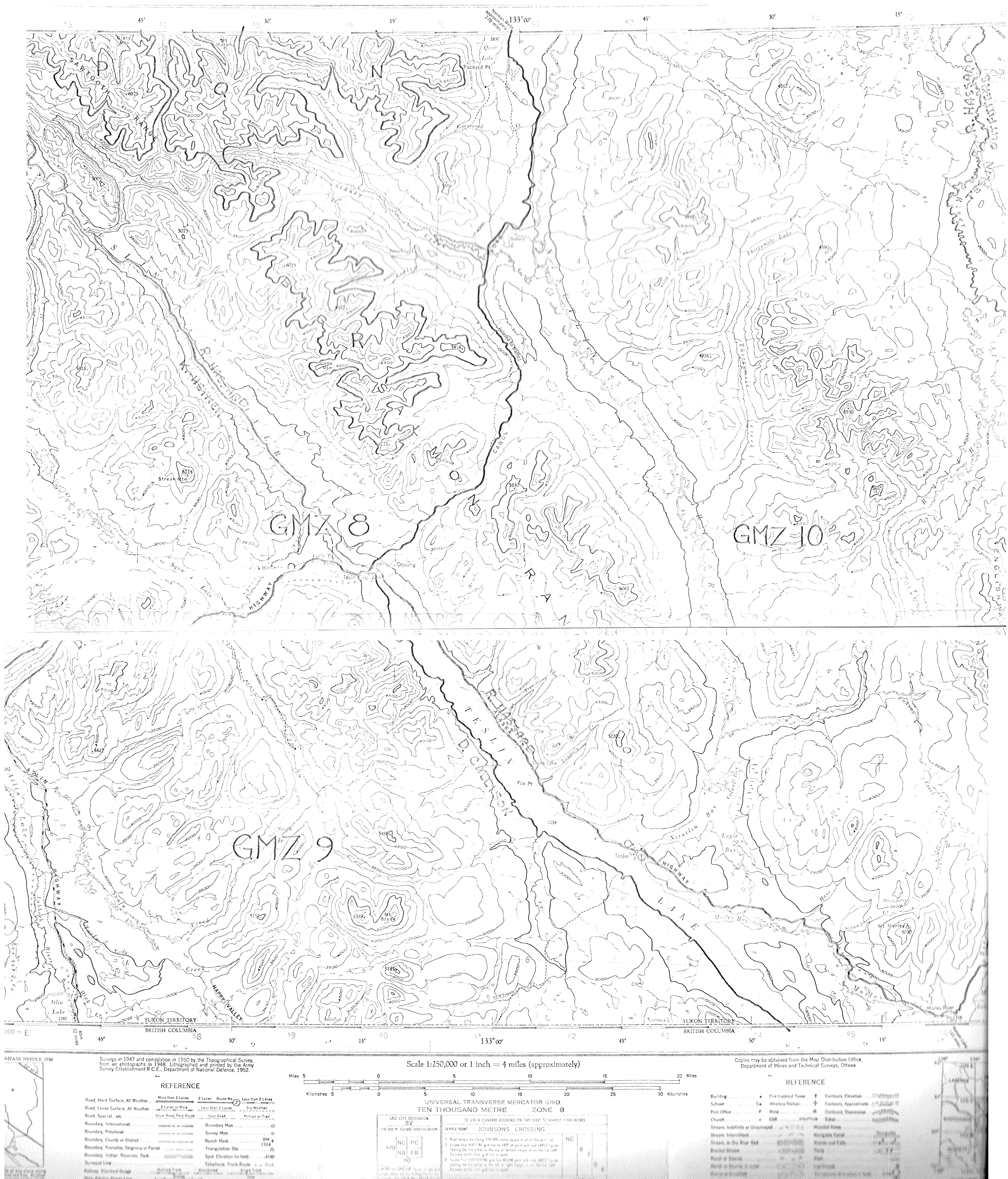
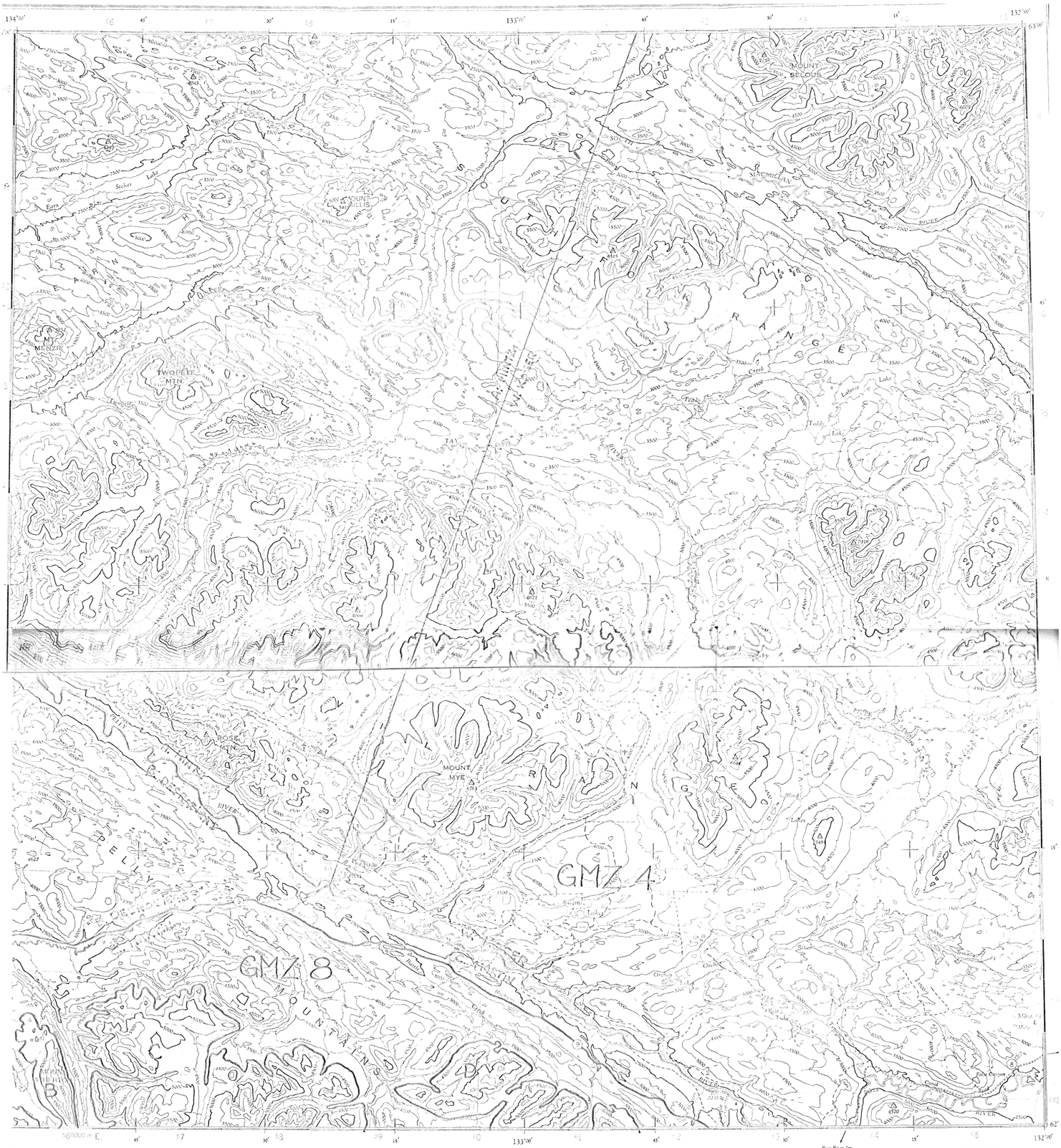

GMZ 8
GMZ 9
GMZ 10
TESLIN LAKE
R. HASSARD
D. CALLISON
SAWTOOTH RANGE
HIGHWAY
HAPPY VALLEY
Atlin Lake
Lubbock River
Fox Pt
Teslin
Packard Pt
Quiet Lake
Streak Mtn
Mt Bryde
Mt Morley
Morley Bay
Eagle Bay
Nisutlin Bay
Thirtymile Creek
Norman Wells approximately 278 miles
Atlin 32 miles
YUKON TERRITORY
BRITISH COLUMBIA
133°00'
Surveys in 1947 and compilation in 1950 by the Topographical Survey, from air photographs in 1948. Lithographed and printed by the Army Survey Establishment R.C.E., Department of National Defence, 1952.
REFERENCE
Scale 1:250,000 or 1 inch = 4 miles (approximately)
Miles
Kilometres
UNIVERSAL TRANSVERSE MERCATOR GRID
TEN THOUSAND METRE ZONE 8
JOHNSON'S CROSSING
Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.
REFERENCE

TABLE II

OBSERVED AND ESTIMATED NUMBERS OF SHEEP IN G.M.Z. #8 AND #10

Block	OBSERVED Nursery Sheep	Lambs	Total Rams	Mature Rams	Young Rams	Total Adults	Total Sheep	% Coverage	Observer	ESTIMATED Nursery Sheep	Lambs	Total Rams	Mature Rams	Young Rams	Total Adults	Total Sheep	REMARKS
I								85%	K								nil
J	27	15	8	3	5	35	50	85%	K	32	18	11	3	8	43	61	R. Hassard G.M.Z. #8
K								85%	K								nil
L	29	6	17	7	10	46	52	75%	L	39	8	17	7	10	56	64	
M								85%	K								nil
N								90%	K								nil
O								75%	L								nil
P								90%	K								nil
Q								90%	K								nil
R								75%	L								nil
	56	21	25	10	15	81	102			71	26	28	10	18	99	125	R. Hassard Total
S	9	5	8	2	6												Heynen (W. of Teslin River) G.M.Z. #8
	20	6								29	11	10	3	7			
	29	11	8	2	6	45	56			29	11	10	3	7	49	60	Heynen Total
B	1		1		1	2	2	85%	L&K	1		1		1	2	2	
C	52	18	57	18	39	109	127	85%	L&K	79	27	66	21	45	145	172	
E	24	12	35	9	26	59	71	90%	L&K	37	18	39	10	29	76	94	
G	24	8				24	32	90%	L&K	37	12				37	49	
H	6	3	1		1	7	10	80%	L	9	5	1		1	10	15	Martin G.M.Z. #8
	107	41	94	27	67	201	242			163	62	107	31	76	270	332	
							400									517	G.M.Z. #8 Total
A	28	7	10	3	7	38	45	90%	L	43	11	11	3	8	54	65	
B	50	15	24	8	16	74	89	80%	L	76	23	27	9	18	103	126	
C			8	3	5	8	8	90%	L			9	3	6	9	9	
D	29	12	4	1	3	33	45	90%	L	44	18	4	1	3	48	66	
E	14	6	2		2	16	22	90%	L	21	9	2		2	23	32	
J	18	5				18	23	90%	L	27	8				27	35	
K	42	11	4	3	1	46	57	90%	L	64	17	4	3	1	68	85	
L	2	3	9	5	4	11	14	90%	O	3	5	10	6	4	13	18	
O	8	2	1	1		9	11	80%	L	12	3	1	1		13	16	Martin G.M.Z. #10
	191	61	62	24	38	253	314			290	94	68	26	42	359	452	
	298	102	156	51	105	454	556			454	155	175	57	118	629	784	Martin Total
F	42	18	23	11	12	65	83	90%	L	61	26	23	11	12	84	110	Teslin Out-fitters G.M.Z. #10 Pelly Range
V	1	1	5	1	4	6	7	80%	H	1	1	5	1	4	6	7	
	43	19	28	12	16	71	90			62	27	28	12	16	90	117	
							404									569	Total G.M.Z. #10 Pelly Range
D	19	9	3		3	22	31										Teslin Out-fitters G.M.Z. #10 Cassiar Range
H	9	3	4	2	2	13	16										
	28	12	7	2	5	35	47										
							47									47	Total observed G.M.Z. #10 Cassiar Range



THE COMPASS NEEDLE, 1950

Surveyed, compiled, drawn and printed by the ARMY SURVEY ESTABLISHMENT R.C.E., 1949-51
Aerial photography by the R.C.A.F. 1949
Published 1951
Interim Corrections 1974

REFERENCE

Road: Hard Surface, All Weather	More than 2 Lanes	Partially Completed
" Hard Surface, All Weather	2 Lanes, Route No.	Less than 2 Lanes
" Loose Surface, All Weather	More than 2 Lanes	2 Lanes
" Loose Surface, Less than 2 Lanes	All Weather	Dry Weather
Railway, Multiple Track		
" Single Track		
Boundary, International		
" Province or State		
" County or District		
" Reservation, Indian, Military, Park, etc.		

Scale 1 : 250,000
Approximately 1 Inch to 4 Miles

Miles 0 5 10 15 20 Miles
Kilometres 0 5 10 15 20 25 30 Kilometres

TAY RIVER

ROADS - ROUTES
hard surface - pavée
loose surface - de gravier
Cart track - de terre
trail - sentier
Deletions - Suppressions x x x x x

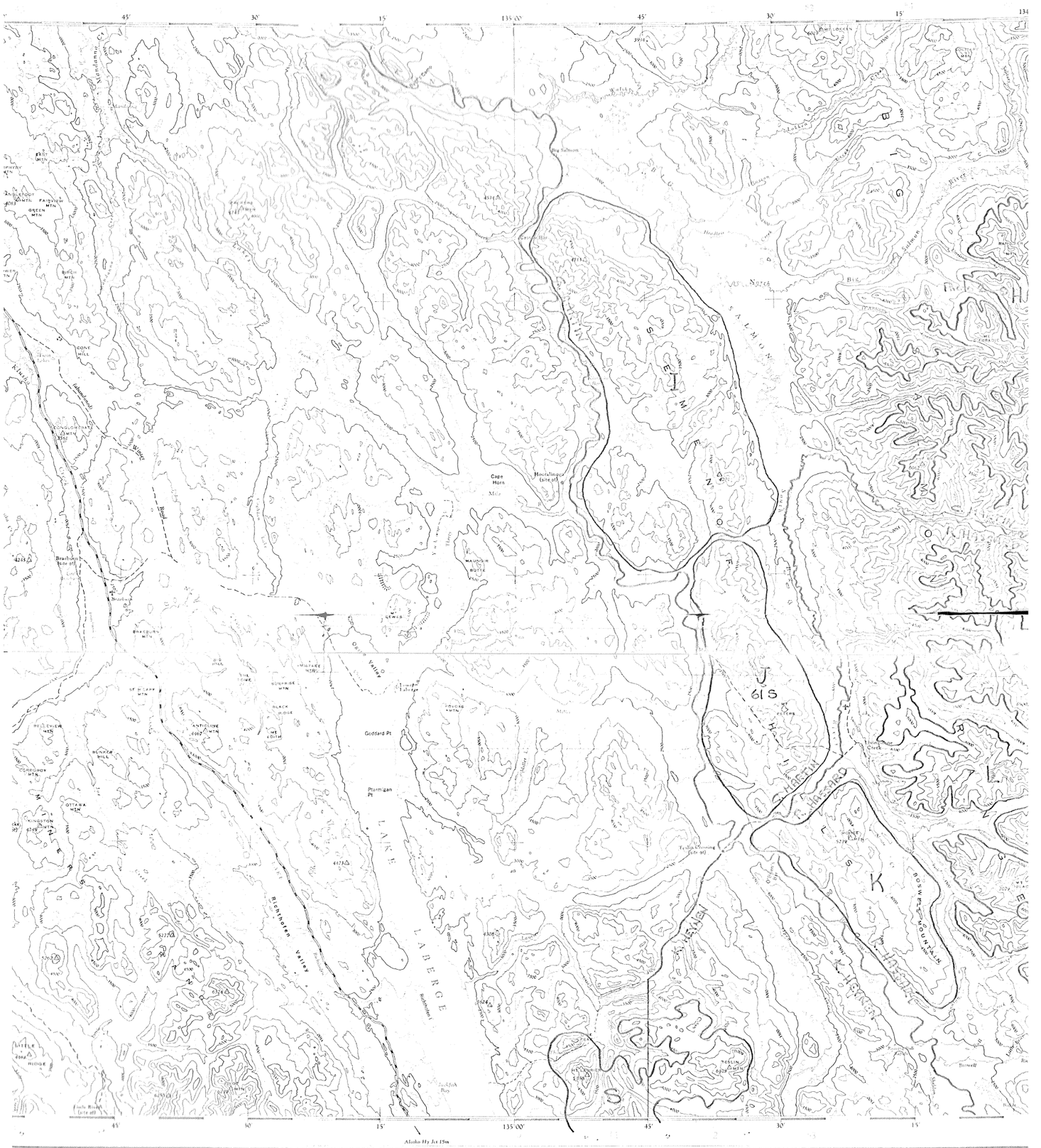
Copies may be obtained from
The Map Distribution Office,
Dept. of Mines and Technical Surveys,
Ottawa.

Contour interval 500 Feet.
All Elevations in Feet above Mean Sea Level.
Universal Transverse Mercator Projection

REFERENCE

Triangulation Station	△	Spot Elevation, in feet	257
Contours, Elevation	500	Wooded Areas	
" Depression	1000	Swamp or Marsh	
" Approximate		W.L. 241	
Stream, Intermittent		Ferry	
Dam		Mud	
Falls		Navigation Light	Sand
Aerodrome, or Land		Elevation in Feet 250	on Water
Main Electric Power Line			

NOTE



LABERGE

YUKON TERRITORY

Scale 1:250,000

1 Inch to 4 Miles Approximately

Universal Transverse Mercator Projection

Contour interval 500 Feet
Elevations in Feet above Mean Sea Level
North American Datum 1927

Produced and printed by the SURVEYS AND MAPPING BRANCH
DEPARTMENT OF MINES AND TECHNICAL SURVEYS, OTTAWA
from air photographs taken in 1949 and 1952

Copies may be obtained from the Map Distribution
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Ottawa

REFERENCE

REFERENCE

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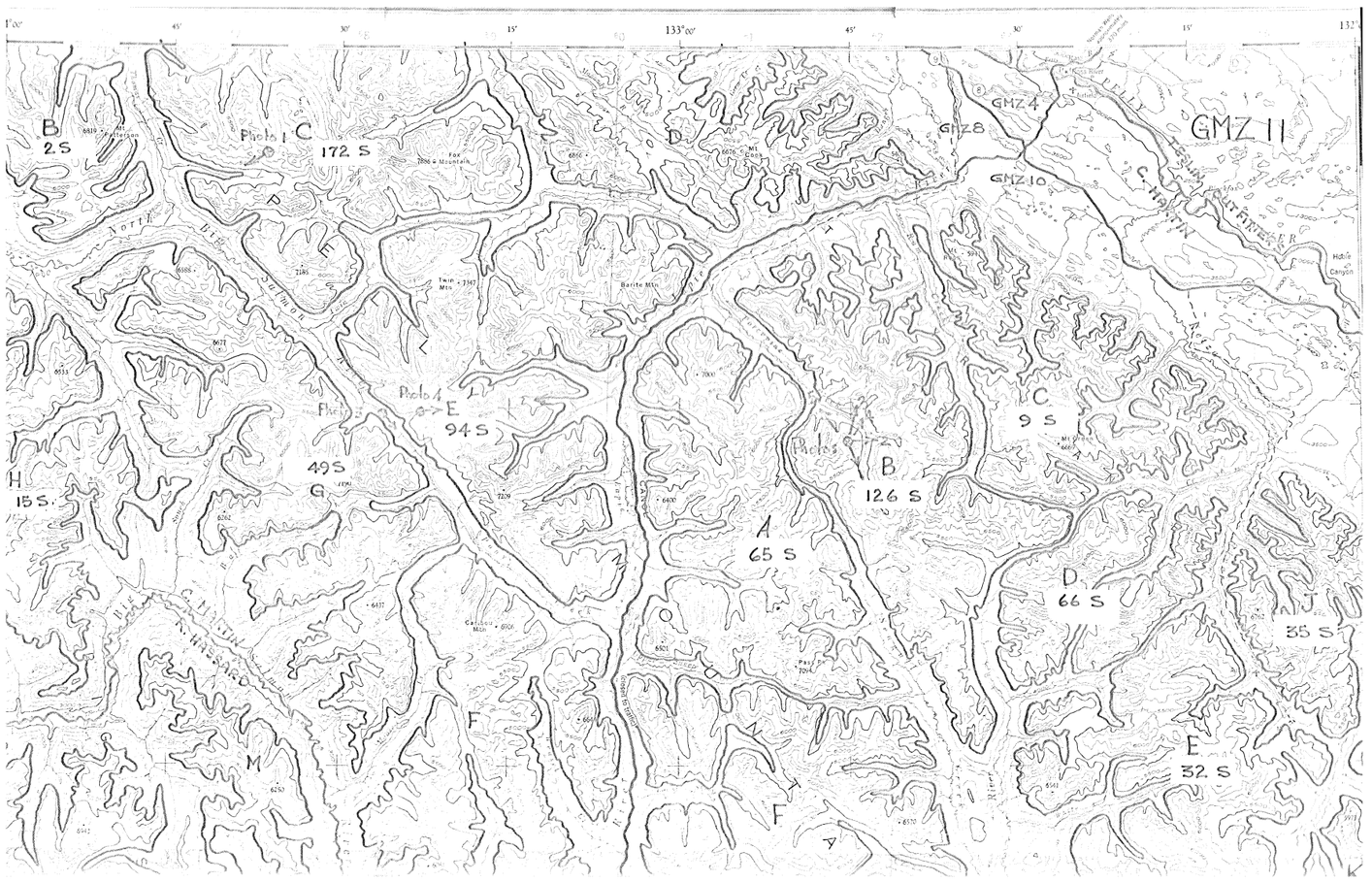

Surveys in 1948 and compilation in 1950 by the Topographical Survey from air photographs taken in 1949. Lithographed and printed by the Army Survey Establishment, R.C.E., Department of National Defence, 1952
Interim Corrections, 1974

QUIET LAKE

YUKON TERRITORY

Scale 1:250,000 or 1 inch = 4 miles (approximately)

Miles 5 0 5 10 15 20 Miles
Kilometres 5 0 5 10 15 20 25 30 Kilometres

Copies may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, or your nearest map dealer.

Des cartes sont en vente au Bureau des Cartes du Canada, ministère de l'Energie, des Mines et des Ressources, Ottawa, ou chez le vendeur de cartes le plus près.

REFERENCE

Road, Hard Surface, All Weather	More than 2 Lanes / 2 Lanes	Route No.	Less than 2 Lanes
Road, Loose Surface, All Weather	2 Lanes or More / Less than 2 Lanes		Dry Weather
Road, Special, etc	Snow Road, Pack Route / Cart Road		Portage or Trail
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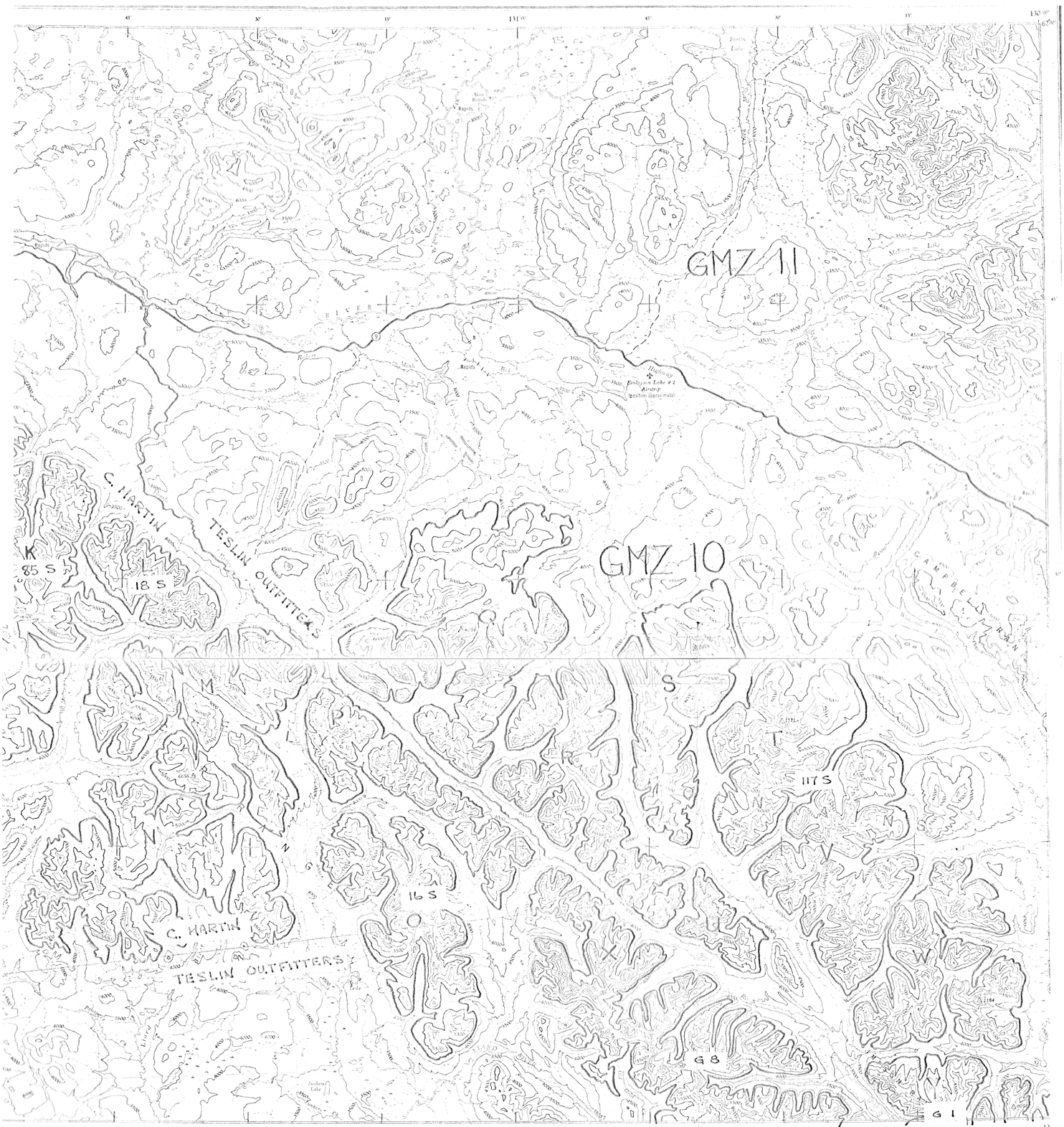
Boundary, Provincial	Survey Mon		
Boundary, County or District	Bench Mark		BM 1514
Boundary, Township, Seigniory or Parish	Triangulation Sta		
Boundary, Indian Reserves, Park	Spot Elevation (in feet)		459
Surveyed Line	Triangulation, Traverse Station		
Railway, Standard Gauge	Multiple Track / Main Track	Abandoned	Single Track

REFERENCE

Building	Fire Lookout Tower		Contours, Elevation
School	Wireless Station		Contours, Approximate
Post Office	Mine		Contours, Depression
Church	Cult		Ester
Stream, Indefinite or Unsurveyed			Wooded Areas
Stream, Intermittent			Navigable Canal
Stream, in Dry River Bed			Rapids and Falls
Braided Stream			Ferry
Marsh or Swamp			Dam
Marsh or Swamp, Impassable			Lighthouse
Glacier or Snowfield			Aerodrome, Hard Surface or Turf
Sand, Gravel or Mud			Seigniorial Limit



E COMPASS NEEDLE, 1952

Surveyed, compiled, drawn and printed by the ARMY SURVEY ESTABLISHMENT R.C.E., 1949-52.
Aerial photography by the R.C.A.F. 1949
Universal Transverse Mercator Projection.

Interim Corrections 1976(1977)

FINLAYSON LAKE
YUKON TERRITORY

Scale 1 : 250,000
1 Inch to 4 Miles Approximately

Miles 0 5 10 15 20 Miles
Kilometres 0 5 10 15 20 25 Kilometres

ROADS - ROUTES
Hard surface - paved
Loose surface - dry gravel
Earth track - dry base

The general public may obtain copies of this map from the Map Distribution Office, Dept. of Mines and Technical Surveys, Ottawa.

Contour interval 500 Feet.
All Elevations in Feet above Mean Sea Level.

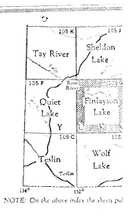
Corrections Provisoires, 1977

REFERENCE

Triangulation Station
Contours, Elevation
" Depression
" Approximate
Church, School
Stream, Intermittent
Dam
Falls
Armstrong, on Land
Spot Elevation, in feet
Wooded Areas
Swamp or Marsh
W.L. 241
Ferry
Navigation Light
Mud
Sand
Elevation in Feet
on Water

REFERENCE

Road, Loose Surface, All Weather — More than 1 Lane, 1 Lane
" Loose Surface, Less than 1 Lane — All Weather, Dry Weather
Cart Track
Trail
Railway, Multiple Track
" Single Track
Boundary, International
" Provincial or State
" County or District



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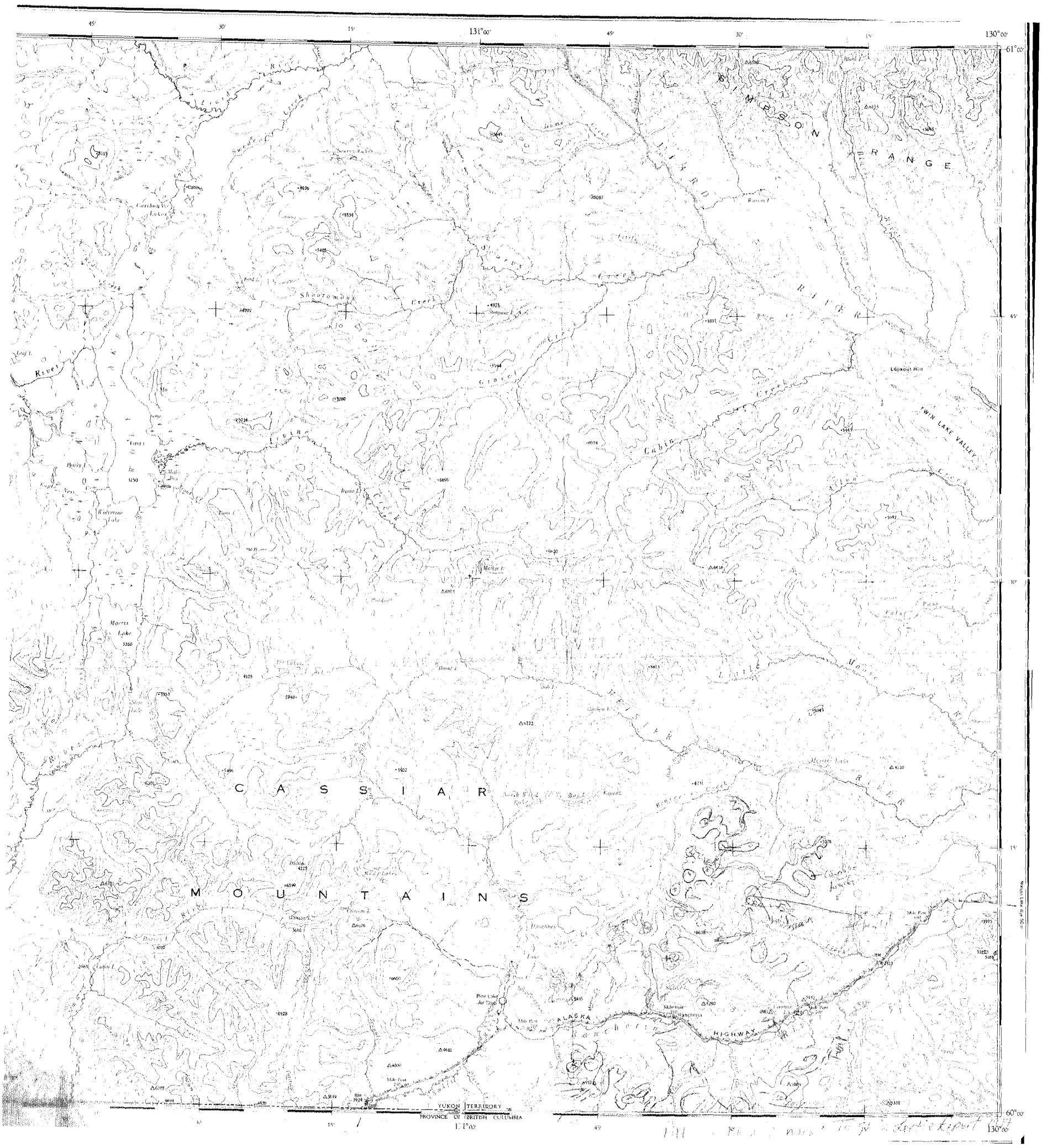
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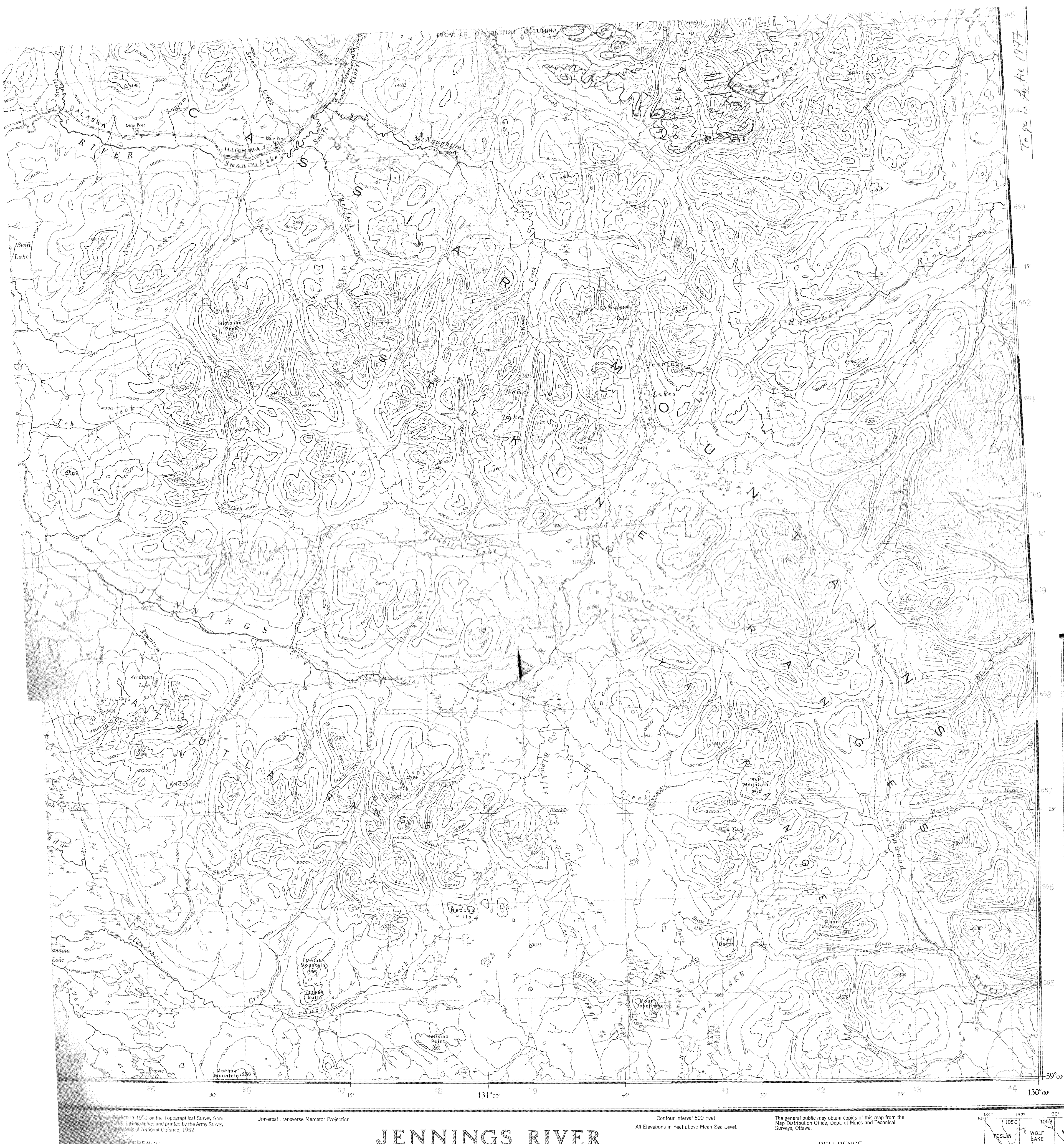
YUKON TERRITORY
PROVINCE OF BRITISH COLUMBIA


PROVINCE OF BRITISH COLUMBIA
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ALASKA HIGHWAY
RIVER
Swan Lake
Swift Lake
Simpson Peak
McNaughton Creek
Redfish Creek
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Screw Creek
Partridge Creek
Teh Creek
Nome Lake
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Little Rancheria River
Rancheria River
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131°00′
45′
30′
15′
To go in file 1977

Universal Transverse Mercator Projection.

Contour interval 500 Feet
All Elevations in Feet above Mean Sea Level.

The general public may obtain copies of this map from the Map Distribution Office, Dept. of Mines and Technical Surveys, Ottawa.

JENNINGS RIVER

BRITISH COLUMBIA

Scale 1:250,000

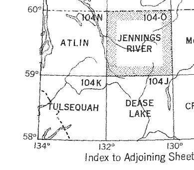
1 Inch to 4 Miles Approximately

Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilometres

REFERENCE

Building; School; Post Office; Church; Stream, Indefinite or Unsurveyed; Stream, Intermittent; Stream, in Dry River Bed; Braided Stream; Marsh or Swamp; Marsh or Swamp, in water; Glacier or Snowfield; Sand, Gravel or Mud; Fire Lookout Tower; Wireless Station; Mine; Cliff; Contours, Elevation; Contours, Approximate; Contours, Depression; Esker; Wooded Areas; Navigable Canal; Rapids and Falls; Ferry; Dam; Lighthouse; Aerodrome (Elevation in feet) 2974; Seaplane Anchorage



Index to Adjoining Sheets