WINTER MOOSE SURVEY
FEBRUARY 7-8, 1979

PROPOSED COAL RIVER
POWER PROJECT

G. M. Z. 11

D.G. LARSEN
YUKON WILDLIFE BRANCH

Proposed Coal River Power Project - Wildlife Inventory

Aerial surveys were conducted for moose along segments of the Coal, Rock, Hyland, Rancheria and Liard rivers between February 7-8, 1979.

Survey speed and height varied with habitat type and weather conditions but were between 50-100 mph. and 100-300 feet AGL., respectively.

Most of the observations were made along the Rancheria and Liard Rivers. The quality and quantity of moose habitat is far superior along these drainges, compared to the Hyland, Rock and Coal rivers.

Although there is a lack of habitat in these latter areas, our low counts may be somewhat misleading. Both the extremely cold temperatures (-30° with a 20 mph. wind) and snow depth (3-4 feet) may have forced the animals into the dense timber, and as a result were not observed.

Observations along the Rancheria and Liard were restricted to the habitat immediately adjacent to these rivers. Due to the extensive habitat in this area, our observations should be viewed as a sample of the total population.

Snow depth in these latter areas were 1-2 feet less than along the Coal and Rock rivers.

Daily flight notes

Date: February 6, 1979

Aircraft: Hughes 500

Pilot: B. Robertson

Crew: D. Larsen
W. Klassen

Weather: Cold, overcast, light snow, viability 1/2-2 miles.

Survey time: 100-1400 hours

Surveyed areas: The proposed gas pipeline (Foothills Ltd.) was surveyed from Jakes Corner to Watson Lake.

Observations:

- 2♂♂ caribou and 1 moose half way between Mt. Michie and Alaska Highway.
- 1 moose, Little Teslin Lake.
- 1 moose, Deadmans Creek.
- 1♀ and calf moose near CNT site N.W. of Teslin.
- Morley Bay (east end) 6 moose.
- 1 moose on Smart River.
- 2 moose on Swift River.

Note: Visability was poor.

Daily flight notes

Date: February 7, 1979

Aircraft: Hughes 500

Pilot: B. Robertson

Navigator-recorder: D. Larsen

Observer: W. Klassen
G. Toole

Weather: -30°C, 15-20 mph. wind, high overcast, 10 miles visibility.

Survey time: 1030-1300

Survey area:

- Rock River from Dalziel Creek to the confluence with the Coal River.

- Coal River from the B.C.-Yukon border to Quartz Creek.

- Hyland River from a point 6 miles downstream from the confluence of the Green River and the Hyland River, to the confluence of Fish Creek and the Hyland River.

Observations:

- The following list of moose observations corresponds with the accompanying map.

  Rock & Coal Rivers - 1. 1 ad.
  2. 1 ad.
  3. 1♀ with calf.
  4. 2 ad.
  5. 2 ad.
  6. 4 ad.
  7. 1 ad.
  8. 1 ad.
  9. 1 ad.
  10. 1 ad.

  Highland River -11. 1 ad.

  Tracks were counted only when we were sure the animal was not seen in the same area. A total of 10 were recorded on the Rock, 11 on the Coal and 5 on the Highland rivers.

  Wolf tracks were observed on Quartz Creek, Otter Creek, and the Rock River. Extensive wolf sign was not observed, however, this may be due in part to a recent heavy snowfall.

Daily flight notes

Date: February 8, 1979

Aircraft: Hughes 500

Pilot: B. Robertson

Navigator-recorder: D. Larsen

Observer: W. Klassen

Weather: -26°C, calm, overcast, light snow, visibility 1-10 miles.

Survey time: 1000-1120

Survey area:

- Liard River from a point directly west of the Watson Lake airport, upstream to the confluence with the Meister River.

- Rancheria River from its confluence with the Liard to its confluence with the Little Rancheria.

Observations:

- The following list of moose observations corresponds with the accompanying map.

Liard-Rancheria Rivers:

1. 1 ad.
2. 2 ad.
3. 3 ad.
4. ♀ with calf
5. 2 ad.
6. ♀ with calf
7. ♀ with calf
   2 ad.
8. ♀ with calf
   ♀ with calf
   1 ad.
9. ♀ with calf
10. 1 ad.
11. ♀ with calf
    3 ad.
12. 2♀♀ with 2 calves
    1 ad.
    1 ad.
    2 ad.
13. ♀ with calf
    1 ad.

14. 2 ad.
15. 2 ad.
    ♀ with calf
    1 ad.
    ♀ with calf
    ♀ with calf
16. 1 ad.
    ♀ with calf
    1 ad.
17. ♀ with calf
18. ♀ with calf
    1 ad.
19. 1 ad.
    ♀ with calf
20. ♀ with calf
    1 ad.
21. ♀ with calf
22. ♀ with calf
23. 1 ad.
24. 1 ad.
25. 1 ad.
26. ♀ with 2 calves
    1 calf

Track counts were not attempted in this area due to the spatial distribution of the moose.

Results

The following table compares actual observations between the *1976 and 1979 surveys.

	Area	Observations	Tracks	Linear density/mile (not including track counts)
*a.	Hyland River (Green R.-Blind Lk)	11	11	3.5
*b.	Hyland River (see write-up for exact area)	1	5	0.05
a.	Rock River (headwaters - Coal R.)	23	17	0.32
b.	Rock River (between Coal R. - Dalziel Cr.)	3	10	0.09
a.	Coal River (warm springs - Quartz Cr.)	8	11	.26
b.	Coal River (Quartz Cr. - B.C. border)	12	11	.20
a.	Rancheria River (Little Rancheria-Liard)	56	7	2.95
b.	Rancheria River (Little Rancheria - Liard)	43	not counted	2.26
a.	Liard River (west of airport - Francis R.)	15	2	0.75
b.	Liard River (west of airport - Meister R.)	34	not counted	1.03

*a. - survey data from Hoefs and Lortie 1976 entitled "Big Game Inventory in G.M.Z. 11".

*b. - present survey data.

These results show significantly fewer animals on the Hyland and Rock rivers and more on the Liard, compared to the 1976 Survey. As mentioned earlier, snow depth may have been a contributory factor.

Moose observations were separated according to age (calves and adults) but not sex. Sex determination was not attempted due to the loss of antlers and harassment that would be necessary to observe vulvar patches.

Therefore, the calf crop is expressed as a ratio of calves per total adults for the entire surveyed area - 24 calves:70 adults or 34 calves:100 adults.

This ratio can be compared to "productivity" ratios from areas outside of the territory. Productivity in the literature cited below refers to the percentage of calves in the total population in the fall. Pimlott (1959) concluded that a productivity of 25% could be expected on good range. Simkin (1965) obtained similar estimates from northwestern Ontario. Bishop and Rausch (1975) found that moose in Alaska approached this level of productivity on a regular basis in some areas for certain periods. However, they found this figure to vary between years and between areas as a result of various ecological factors, e.g. predation, snow depth, and range condition.

Our productivity ratio of 34:100 appears to be average when compared to other studies. The fact that this ratio was obtained at mid-winter and not during the fall, reflects a good calf crop.

There has been some concern, by local residents, over the suspected increase in wolf numbers in the area. During our survey we did observe several wolf trails along river and creek beds, however, if predation is significant in the area it is not reflected in the calf crop at this time of the year.

Literature cited

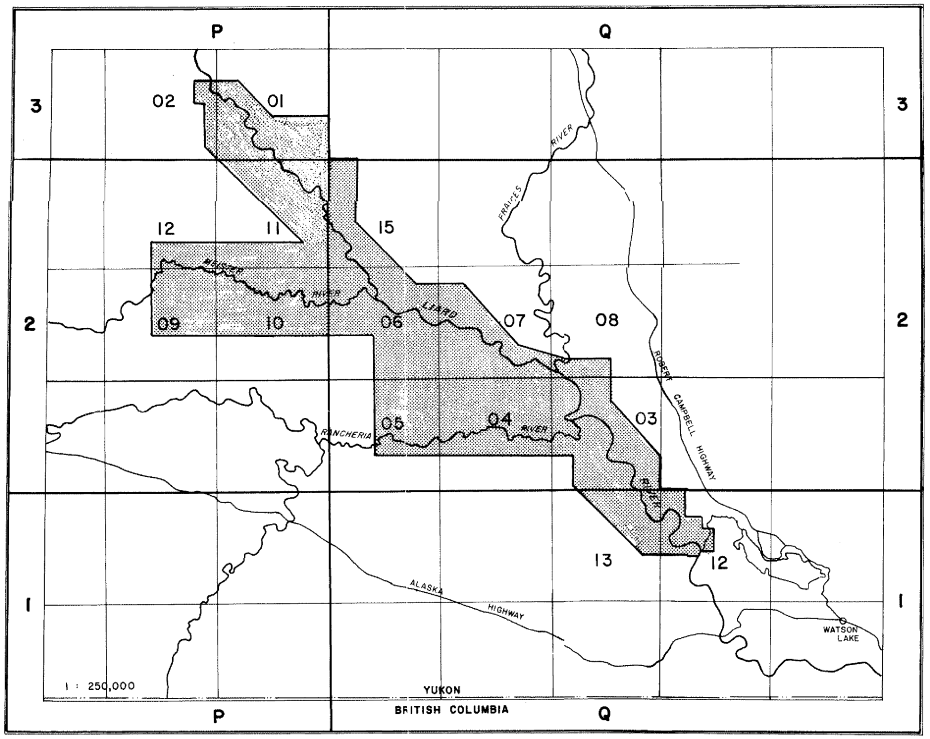
Pimlott, D.H. 1959. Reproduction and productivity of Newfoundland moose. J. Wildl. Mgmt., 23(4): 381-401.

Simkin, D.W. 1965. Reproduction and productivity of moose in northwestern Ontario. J. Wildl. Mgmt., 29(4): 740-750.

Bishop, R.H.; Rausch, R.A. 1974. Moose population fluctuations in Alaska, 1950-1972. Naturaliste Can., 101: 559-593.

FOREST DEVELOPMENT PLAN
LIARD RIVER AGREEMENT AREA

MAP SHEET INDEX



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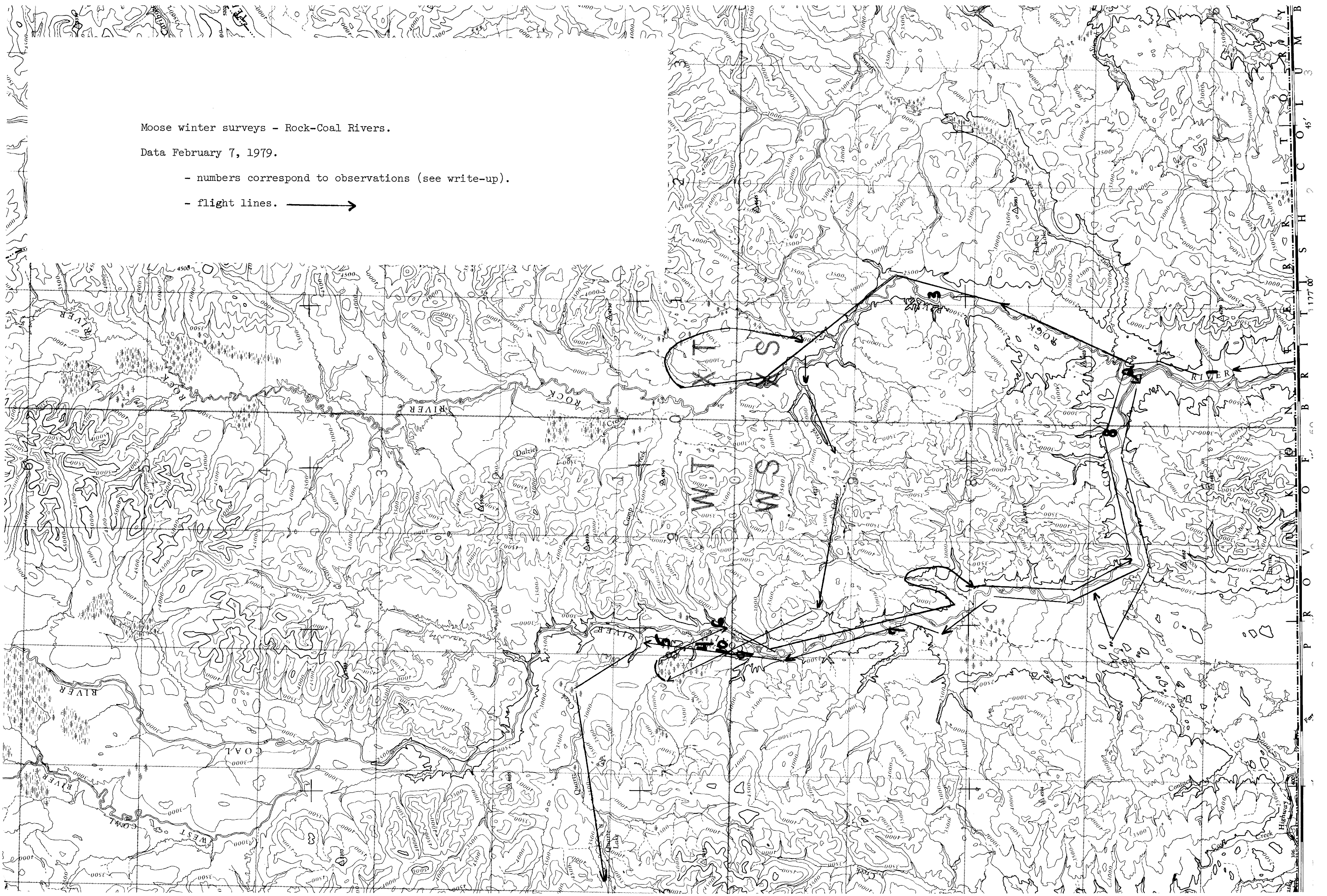
Moose winter surveys - Rock-Coal Rivers.

Data February 7, 1979.

- numbers correspond to observations (see write-up).

- flight lines. →

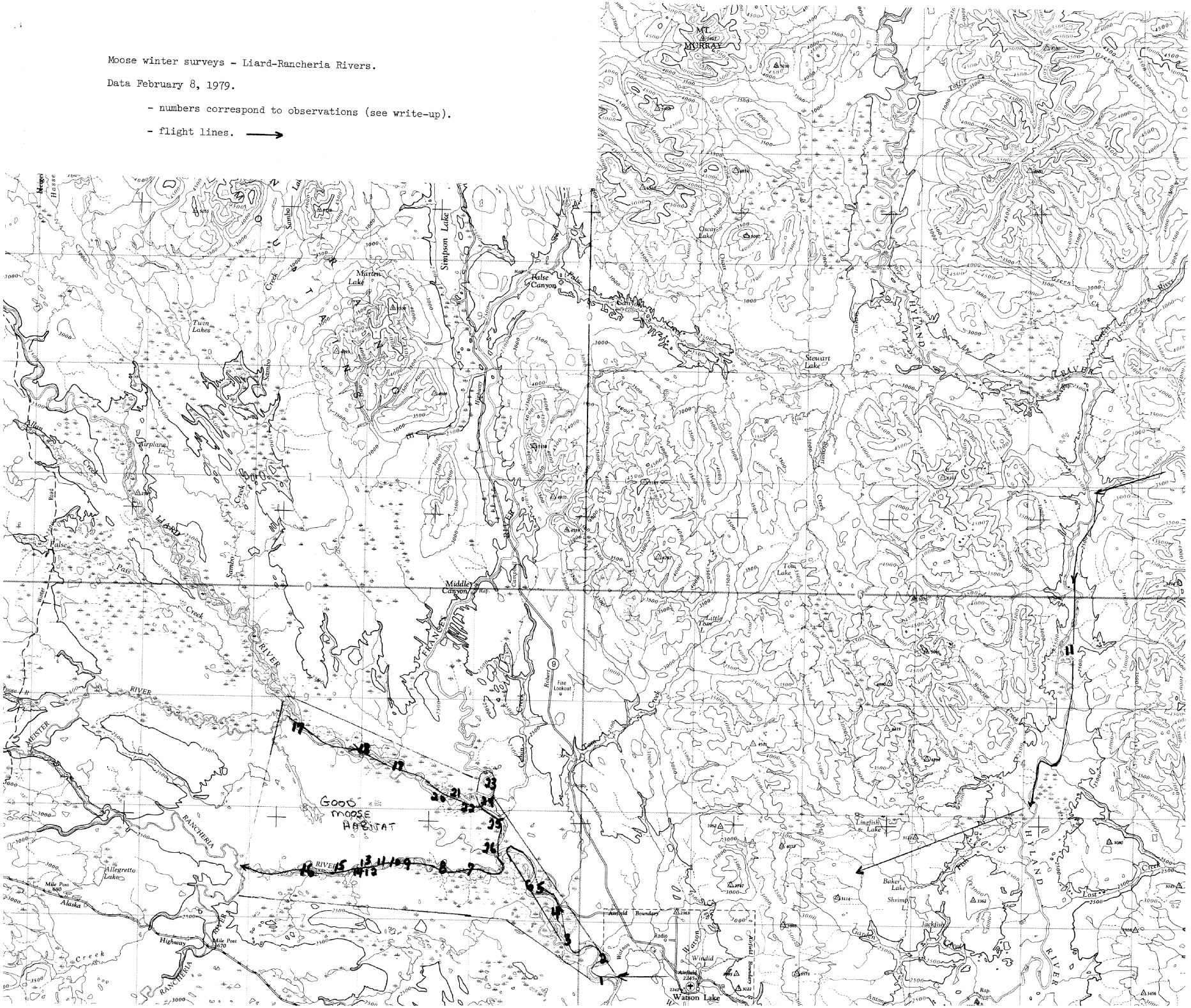


Moose winter surveys - Liard-Rancheria Rivers.

Data February 8, 1979.

- numbers correspond to observations (see write-up).

- flight lines. ⟶



- Manfred - McArthur sanctuary - use his money to survey.

- moose (1) 3-20 402 411 412 413
(2) 4-01 404 253

- Secretary memo - moose - was taken out of moose 87/88

- Liard - how long left to act - 2 yrs?

- March 86 - Rick - moose in clear cut areas

is there a potential problem - (1) access (2) habitat

- Island theory - concentrate or disperse moose? depend on surrounding habitat

- access as issue - not habitat. ∴ control access.

- if we want to do a potential impact study then let design one

- where are the existing roads where do they propose roads in the future? where is the timber

R D Dentry

- Hoefs late winter survey.

- Caribou habitat problem

- types of roads.

- cutting procedure & timing

Survey (1) Feb/79 – Larsen
– Ranchería & Hland
– river survey

Hland R (Watson) to Meister R. – 34 moose
1976 results – 1.03 moose/mile
– 0.75 " " Run

Ranchería R (Hland to Little Ranchería)
– 43 moose.
– 2.26 moose/mile of river
– 2.95 moose/mile

(2) Hoofs: Route Feb/76

Hland (Watson) – Frames – 15
Ranchería – 56

Is there a potential problem?

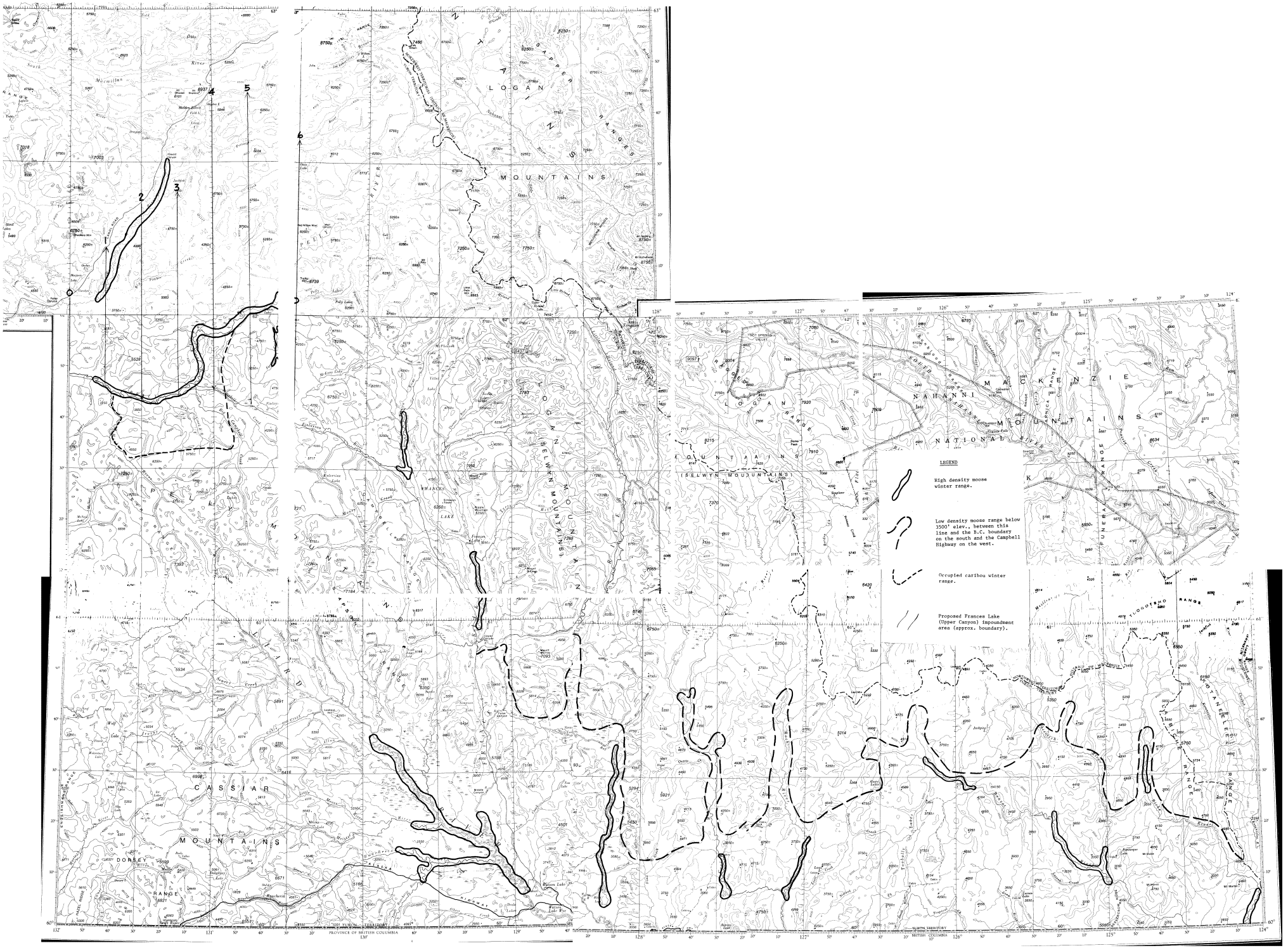
Yes - 76 & 99 surveys indicate concentrations in Feb.
- especially on the Pandemici.

What is the problem? — access or habitat.
possible approach - distribution of existing habitat
- " " " " access.

active approach - survey of clear cuts without access.
" " access areas " clear cut
- full scale impact study.

options to resolving problem — is a total or significant development free area possible?
- if it's access can we control it?

How to use surplus funds?


LEGEND
High density moose winter range.
Low density moose range below 3500' elev., between this line and the B.C. boundary on the south and the Campbell Highway on the west.
Occupied caribou winter range.
Proposed Frances Lake (Upper Canyon) impoundment area (approx. boundary).
LOGAN MOUNTAINS
MACKENZIE MOUNTAINS
NAHANNI NATIONAL PARK
CASSIAR MOUNTAINS
DORSEY RANGE
PELLY MOUNTAINS
SELWYN MOUNTAINS
ISELWYN MOUNTAINS
TUGGOTHO RANGE
PROVINCE OF BRITISH COLUMBIA
YUKON TERRITORY
N.W.T.