TELKWA MOUNTAINS

CARIBOU TELEMETRY PROJECT

PROGRESS REPORT #2

B. van Drimmelen
Wildlife Branch
June, 1986

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BACKGROUND AND RATIONALE:

The Telkwa caribou herd has undergone dramatic population changes during the last 40 years. In July of 1949 a two-week horseback survey estimated 60 caribou, and concluded that "a very liberal guesstimate for the whole area was not more than 100 animals" (Cox, 1977). Hunting was closed, but was reopened in 1956 when an aircraft survey established a minimum of "over 100 animals" (Cox, 1977). In 1958, annual surveys began, with counts increasing steadily to a high of 271 in 1965.

In the fall of 1965 there was a tremendous amount of helicopter traffic in the Telkwa Mountains associated with mineral claims. (Six helicopters were permanently based in Smithers, with another 4 seasonally based here.) Helicopters were reportedly used to transport hunters near goats and caribou, and in 1966 40% of the caribou could not be found (1966 count was only 166 animals). In 1968, only 34 caribou were observed, and helicopter use was made illegal for hunting in 1971.

Annual surveys were again initiated from 1975-1981, and counts increased steadily from 38 in 1975 to 51 in 1980. These data suggested that the 1968 census of only 34 caribou may have been reasonably precise.

The most recent census occurred in 1984 and revealed 68 caribou; 33 cows, 17 bulls, 15 calves and 3 unclassified.

It is concluded that the Telkwa herd was nearly extirpated in only two years, and has since increased at a slow rate of 3% per year. It has been shown that the Telkwa range can support almost 300 caribou.

In recent years, three possible impacts on the remnant caribou herd have arisen:

a) snowmobile use on two of fourteen known wintering areas;
b) heli-skiing proposals on six of fourteen known wintering areas;
c) future logging proposals which would affect high-elevation timber below five of the fourteen known wintering areas.

Accordingly, the Skeena Regional Wildlife Management Plan (van Drimmelen, 1984) ranks "Aquisition of the Telkwa Mountains Wildlife Management Area" as the single highest wildlife management priority in the region, with the development of an area management plan to accentuate non-hunting recreational use of the caribou and mountain goats of the area as a related task. This action was initiated in January of 1984.

If habitat protection is to be effective, and if non-hunting recreational use is to be described in a management plan, it was considered essential to determine the range and habitat use of the Telkwa herd.

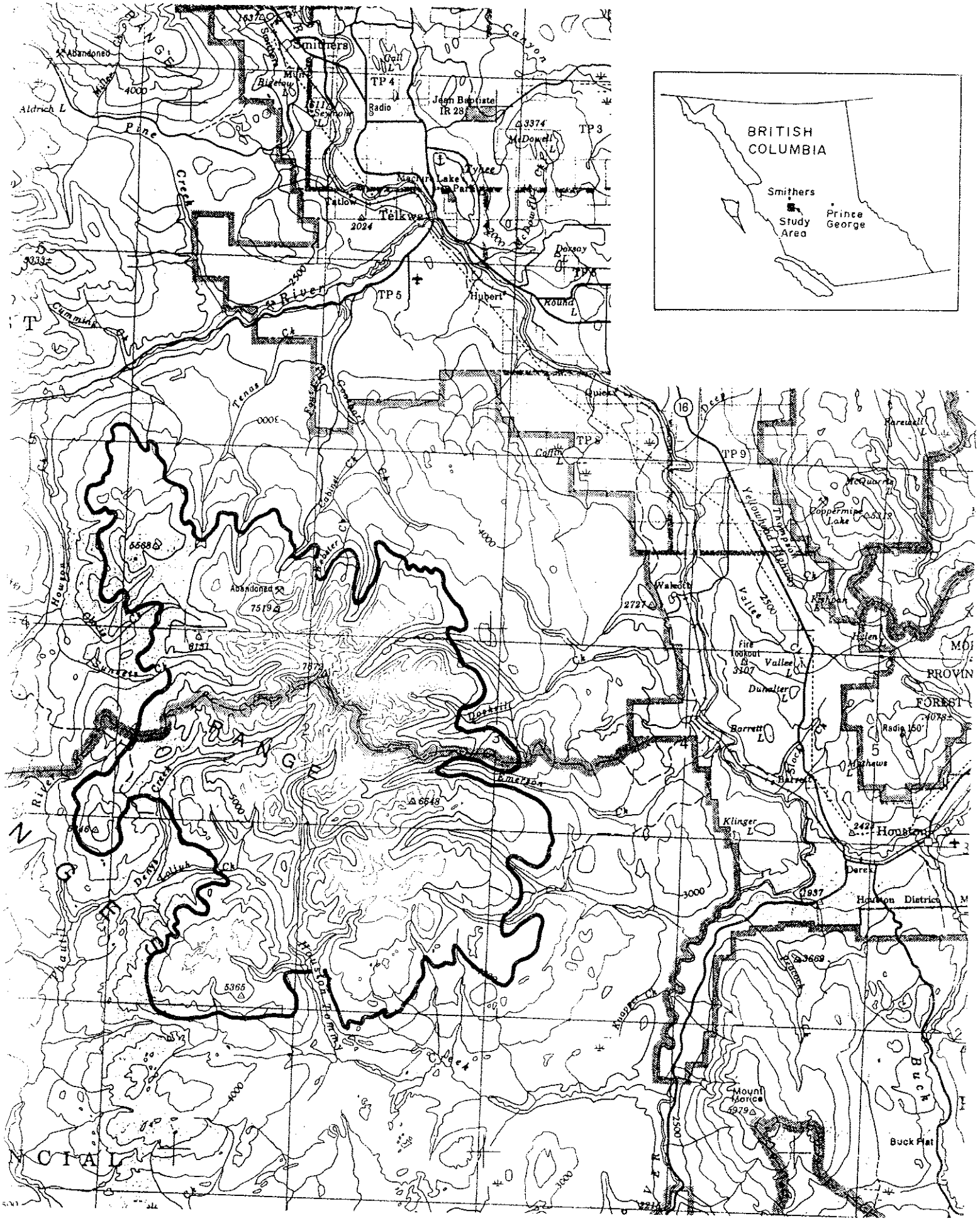
The earliest attempt to affix radio-transmitter collars on the Telkwa caribou occurred in January of 1977. One cow died as a result of capture and one collar was successfully fitted. That cow was relocated weekly until the end of April, when funding was apparently discontinued. (Hodson, 1977).

A second attempt to affix collars occurred on January 22, 1985, but proved unsuccessful. A third effort on March 17, 1985 was successful, and the report of these latter attempts and the first post-capture relocation were described in the first Project Report (van Drimmelen, 1985).

STUDY AREA

The area referred to as the Telkwa Mountains Caribou Range is shown on Map 1. It is located on the east slope of the Coast Range between latitude 54° and 55° North, and longitude 127° and 128° West. The area is transitional between coastal and interior climates, and includes Coastal Western Hemlock (at the western extremes), Sub-boreal Spruce, Engelmann Spruce - Subalpine fir and Alpine Tundra biogeoclimatic zones.

Topographically, the area is diverse with sharp peaks to 2000 m. above sea level, and valley-bottoms at 800 m. Some slopes are extremely steep, but the area also includes gently sloping knolls or ridges which are blown relatively clear of snow in winter. Such ridges characterize the known winter ranges of the caribou.



Map 1. Proposed Telkwa Wildlife Management Area.

METHODS

Four female caribou were fitted with neck collars on March 17, 1985. All animals were relocated approximately monthly thereafter. Each cow was therefore relocated on 14 occasions between March 17, 1985 and April 29, 1986, for a total of 54 locations.

Radio-telemetry involved the use of a Telonics scanner/programmer receiver with two 2-element antennae affixed to the wing struts of a Cessna 185 aircraft. When a signal is received, a switch box in the cockpit alternates signals from the left and right sides, with the aircraft turning toward the stronger signal.

Ground location was rarely achieved by sighting the caribou. (All collars are white and not readily distinguishable.) Instead, a low-elevation pass over a collar typically exhibits rapid signal fade as soon as the collar is passed.

Ground locations were recorded on 1:100,000 scale topographic maps. Other information recorded included date, elevation, Universal Transverse Mercator (U.T.M.) grid location, aspect, and attributes of adjacent forest cover (age, height, species, site type), and group size and activity, if animals were observed. See Appendix 1.

RESULTS

Caribou were located primarily in the alpine from March to July 1985, but descended to subalpine forest (usually spruce-fir forest on poor sites, aged 150-250 years and 10-30 metres tall) in late summer (September). Alpine habitats were then used until December, when the animals descended into relatively low elevation spruce-fir forest to feed on arboreal and terrestrial lichens. They appeared to remain in this forest at only 1100-1200 metres a.s.l. for three months, emerging in the alpine again in March, 1986.

Cows #1, 2, and 4 had calves at heel in mid-June, while Cow #3 was observed without a calf. All had lost their calves by mid-October, with cows #2 and #4 losing theirs by September.

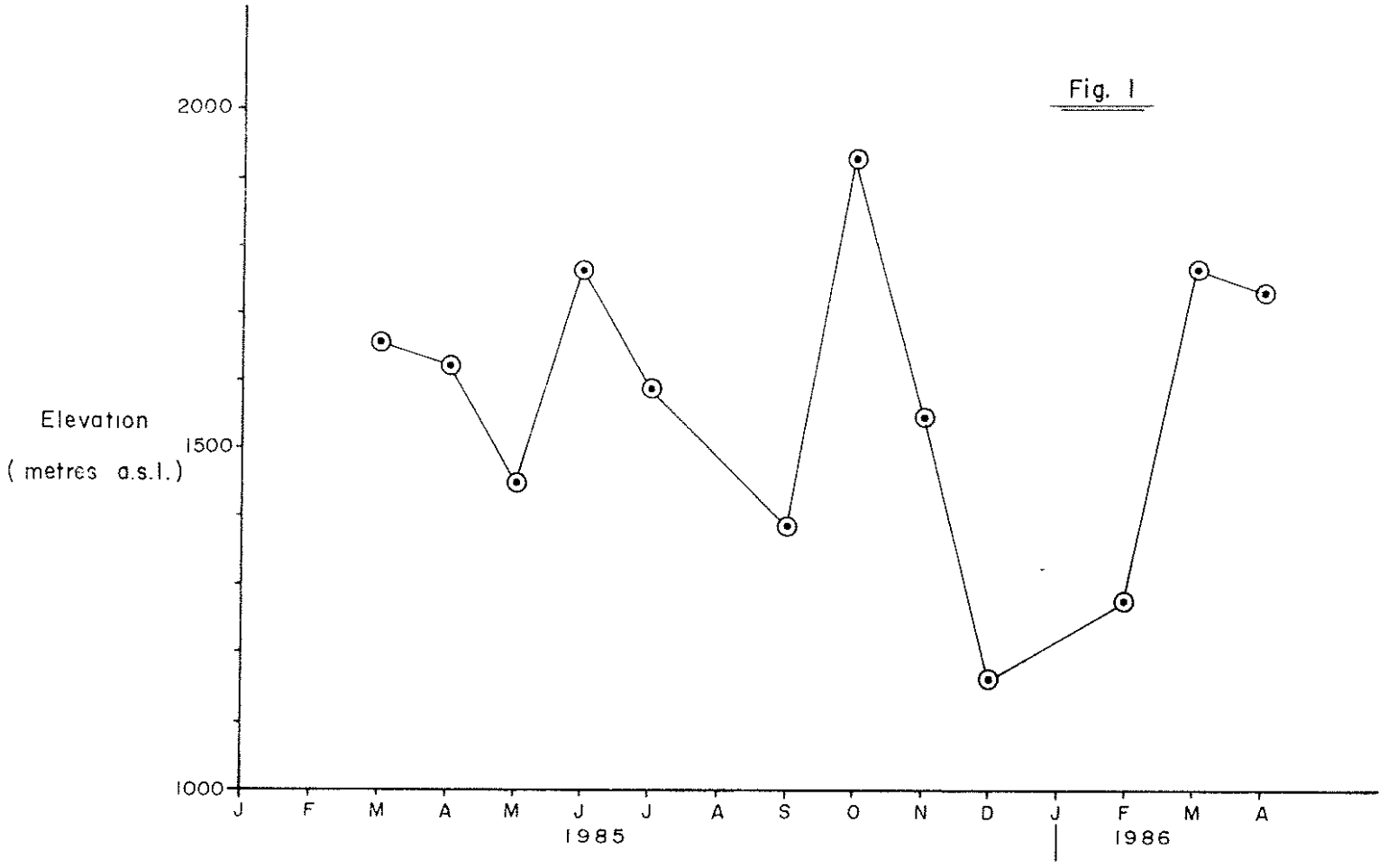
Group size could only be assessed when caribou were in the alpine, and ranged from 2 - 42, with a mean size of 8. On October 6, 1985 three of the four collared cows were in one group of 42 caribou, constituting at least half of the estimated caribou in the Telkwa "herd."

Elevational variation by individual caribou ranged from a low forest use of 1075 metres (cow #4) in February to a high of 2150 (cow #2) in late April 1986. Mean annual elevation was 1590 metres and mean monthly elevations are shown in Figure 1.

Aspect use appeared highly variable, and is summarized in Figure 2. Some preference for northerly (34%) and northeasterly (18%) aspects is suggested.

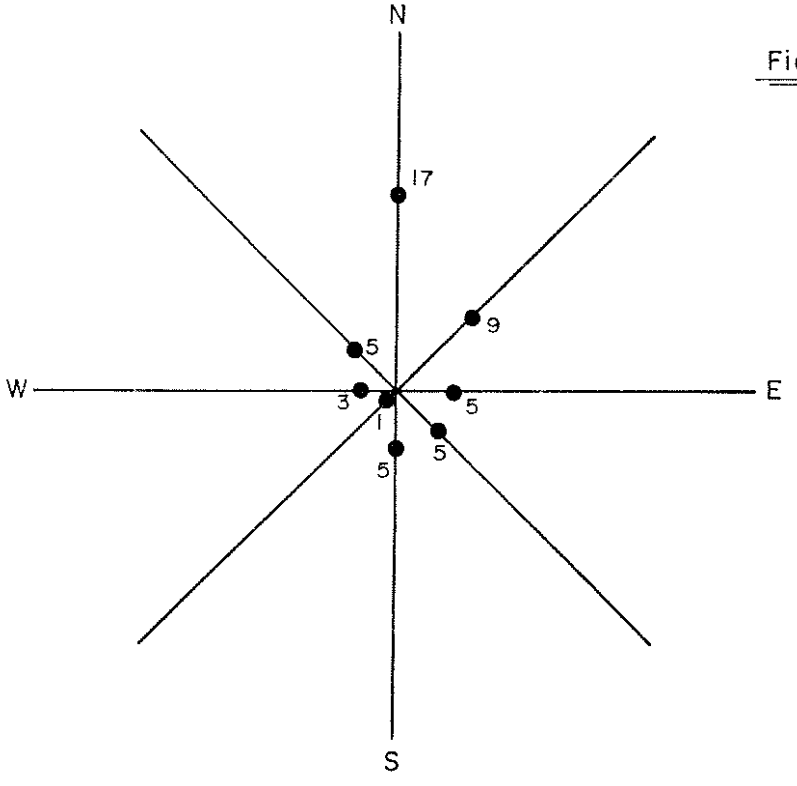
Caribou were within forested habitats during 20 relocations, or 37% of the time. Spruce/subalpine fir was used 13 times, with lodgepole pine/subalpine fir or pine/spruce stands used 7 times. The former type

Fig. 1



Mean Monthly Elevations Selected by Caribou

Fig. 2



Aspect Selected by Caribou

was age class 8 or 9 (140+ years old), height class 2 or 3 (10-30 metres tall), on poor forest sites. The pine stands were more merchantable, with ages of class 5 or 6 (80-120 years), of similar height but on medium as well as poor sites.

Generally, the caribou stayed within the bounds of the proposed Telkwa Wildlife Management Area (see Map 1) with the notable exception of their arboreal/terrestrial lichen foraging during December, January and February. Maps 2-6 depict caribou locations during four caribou "seasons."

1) Spring, March - May (Map 2, 6)

2) Summer, June - September (Map 3)

3) Fall, October - November (Map 4)

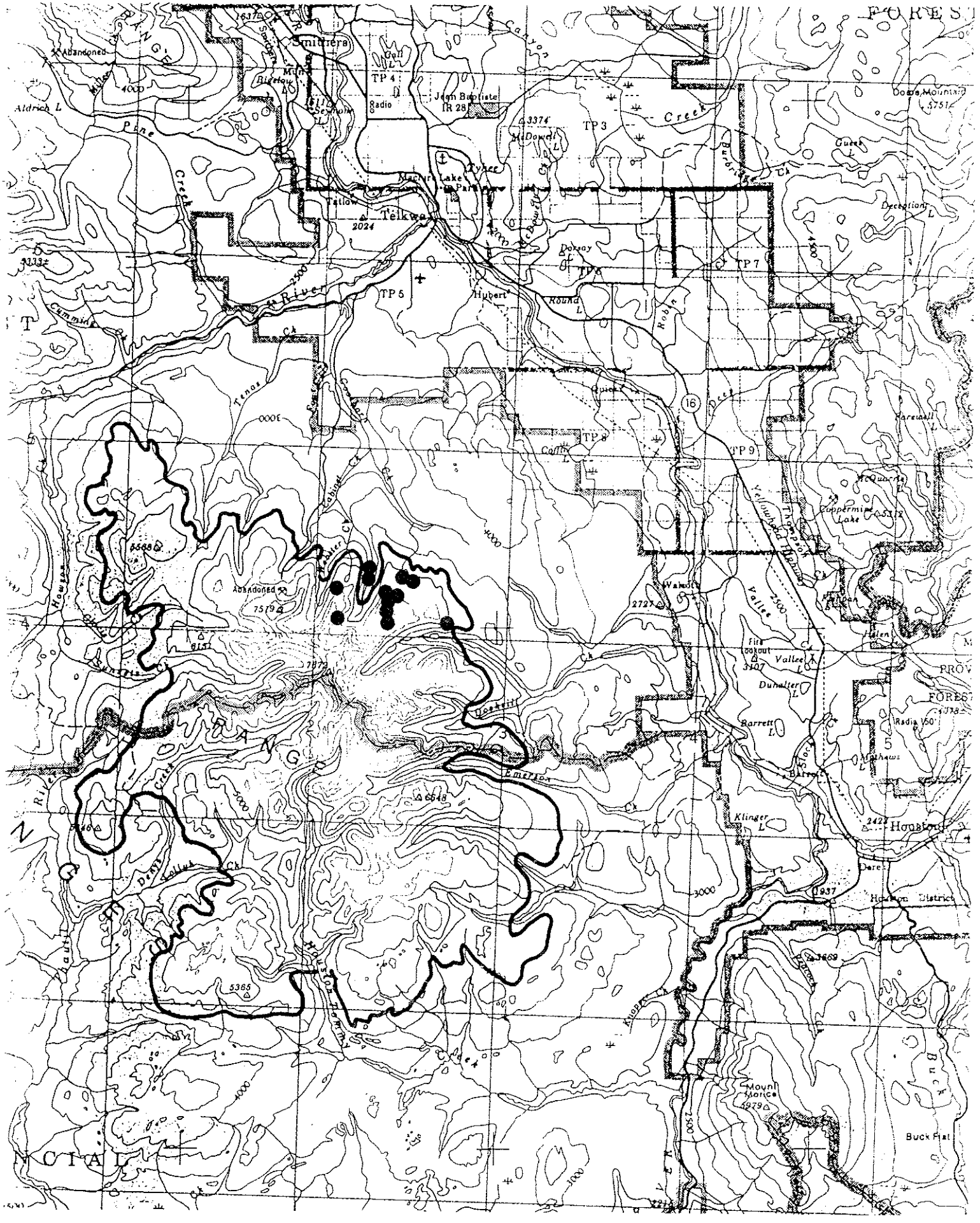
4) Winter, December - February (Map 5).

A full listing of the data collected is presented in Appendix 1.

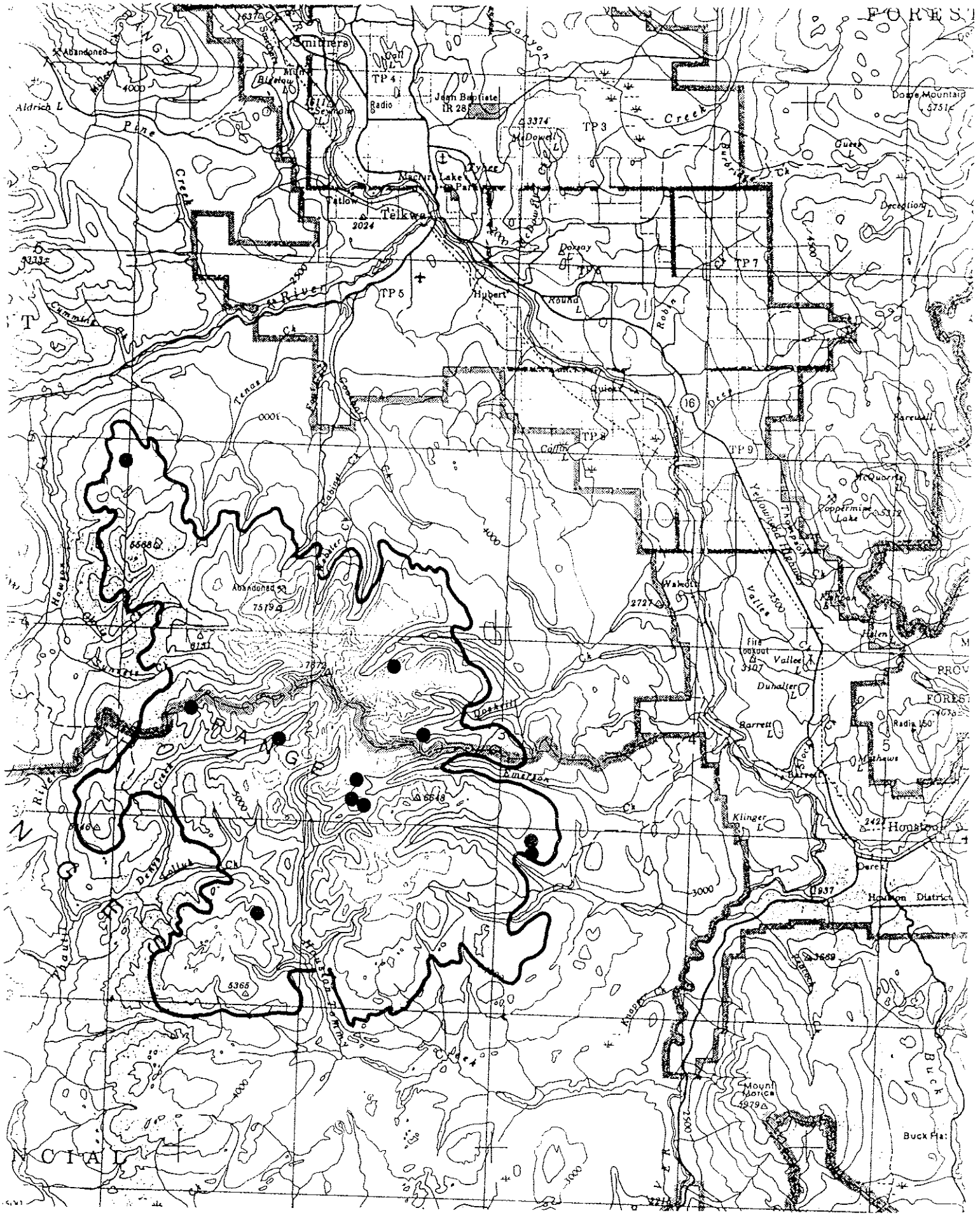
DISCUSSION

The first year's results have provided a good deal of needed information. It has been confirmed that, for this year at least, the proposed boundaries of the Telkwa Wildlife Management Area would appear to encompass most of the range of the caribou.

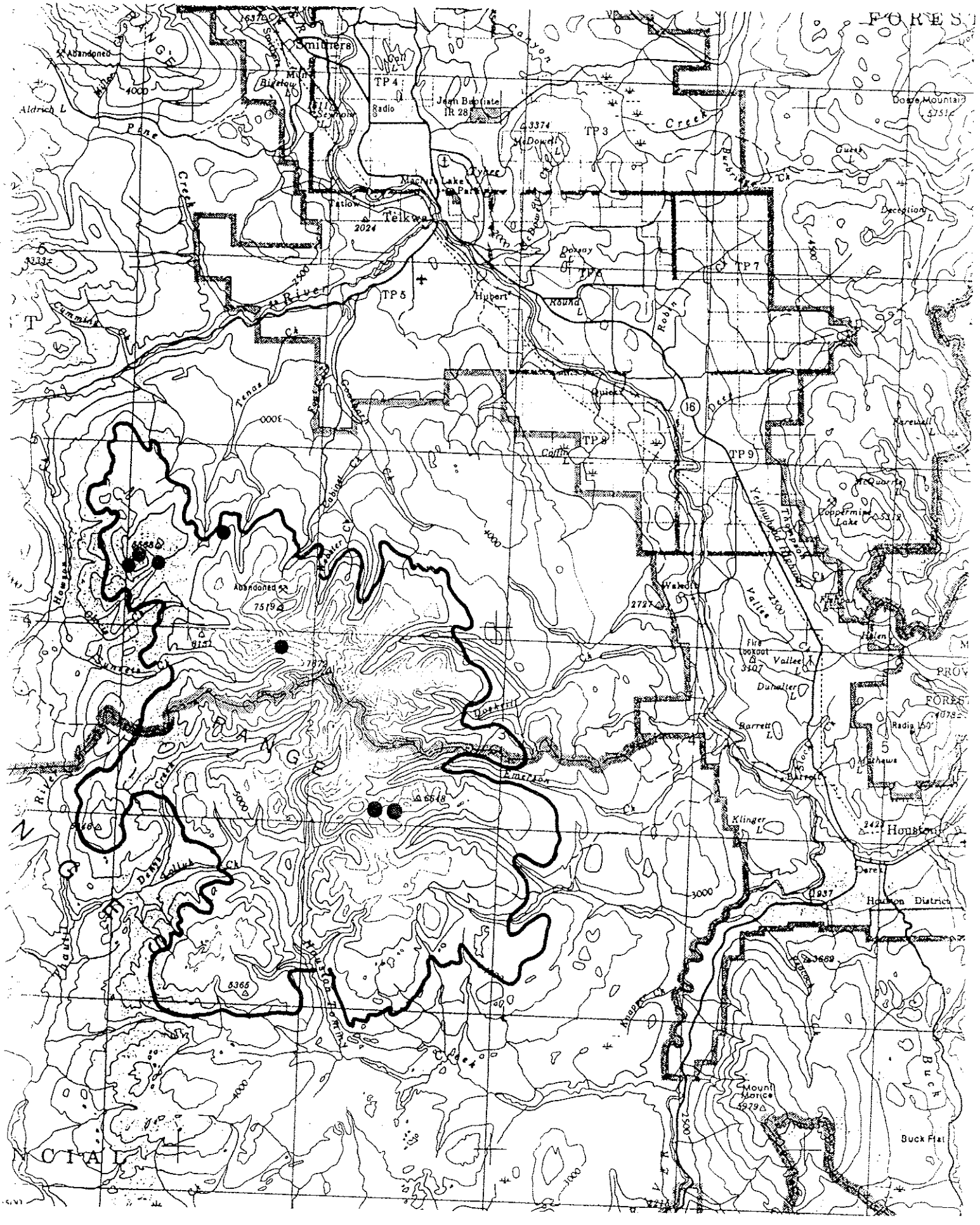
Notwithstanding the above, there were indications of nonrepresenta-



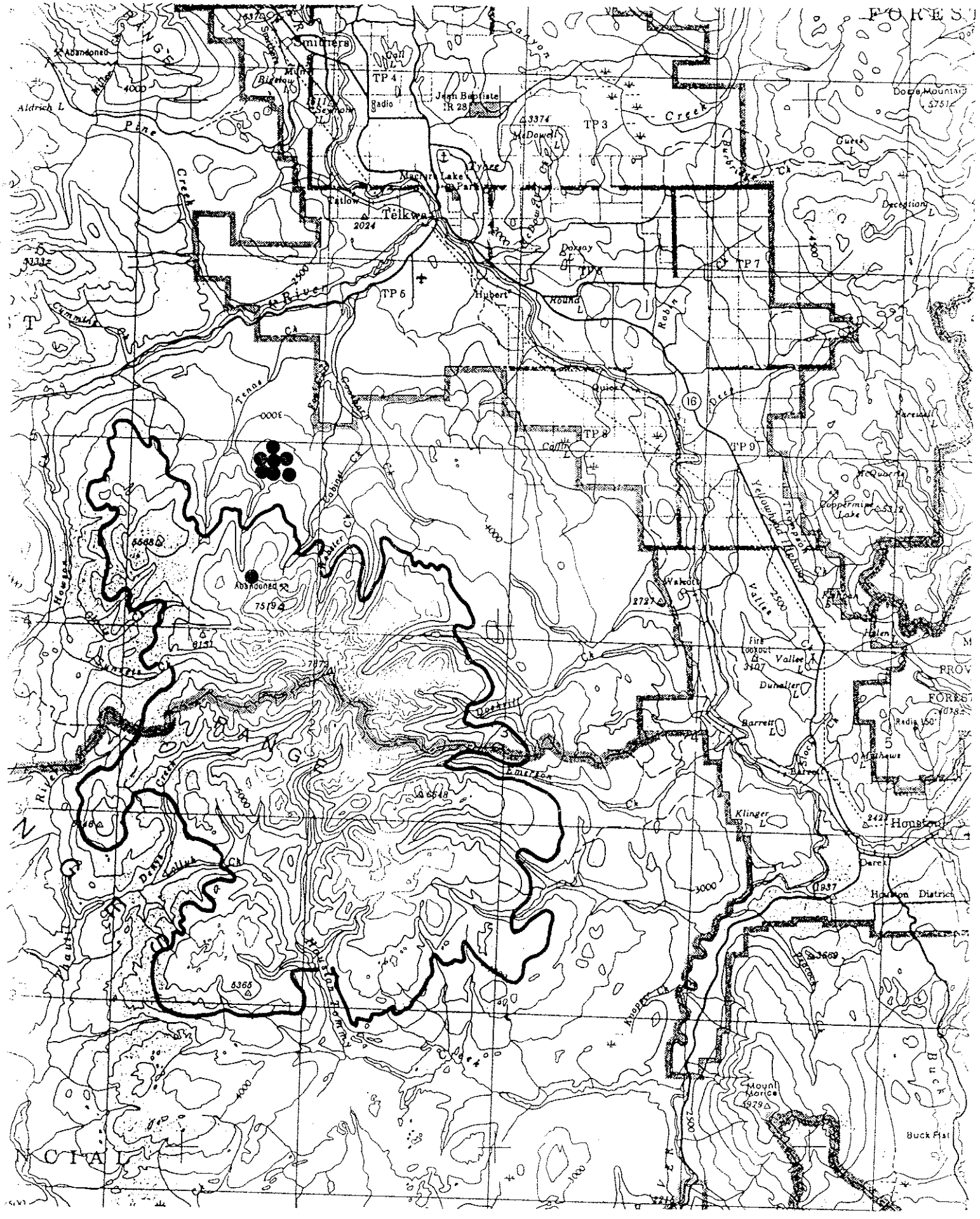
Map 2. Caribou Locations, March — May 1985



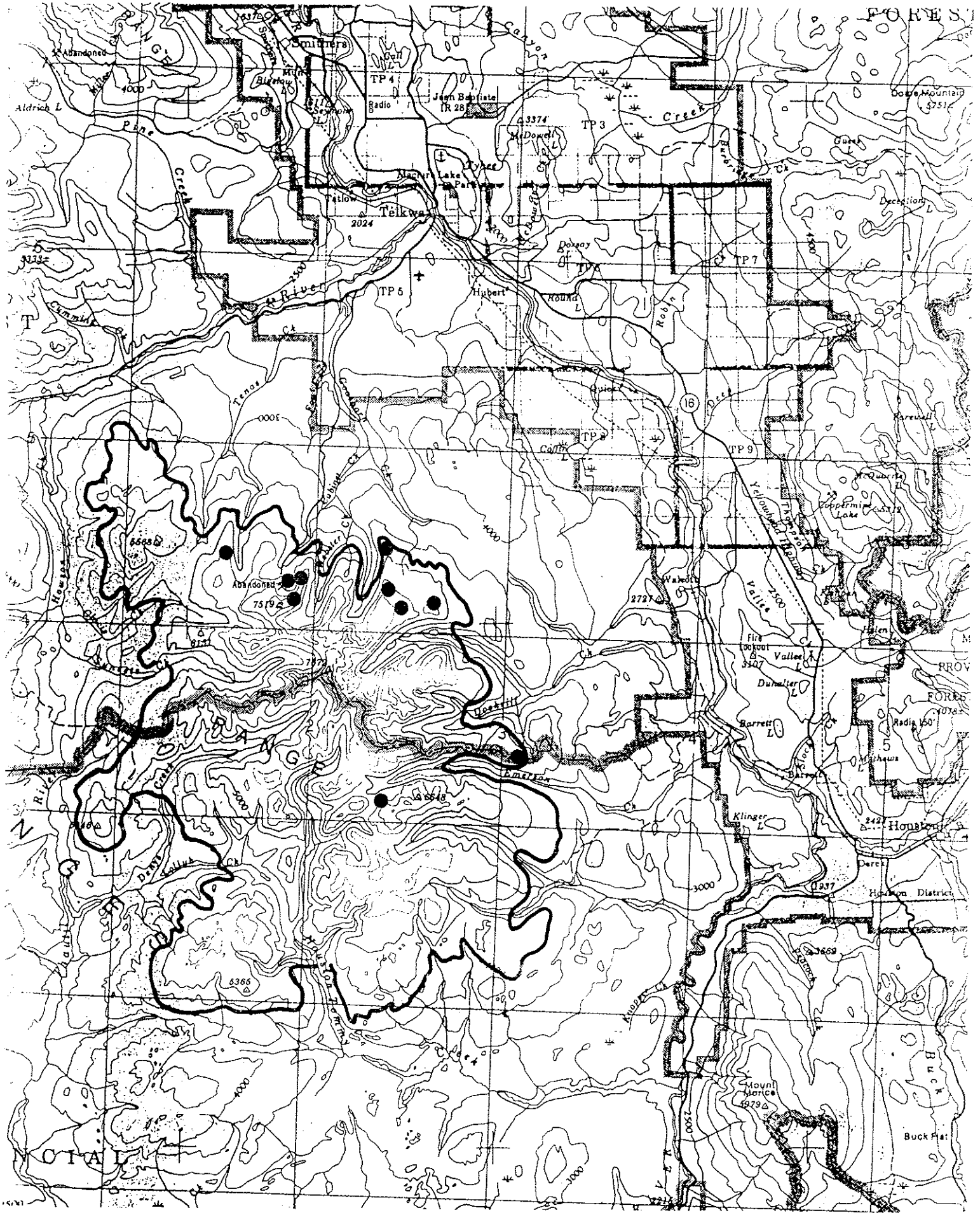
Map 3. Caribou Locations, June – September 1985



Map 4. Caribou Locations, October – November 1985



Map 5. Caribou Locations, December 1985 — February 1986



Map 6. Caribou Locations, March — May 1986

tiveness of the movements of the four collared animals. In October and November non-tagged caribou were observed at very low elevations. On October 20, 1985, Conservation Officer S. Ward discovered 6 caribou, including 3 bulls and 3 cows, near the Telkwa River floodplain in a farmer's field. On November 7, Conservation Officer D. Crack observed and photographed a single bull on the east side of the Bulkley River near Houston (see Appendix 2). Another sighting of a single bull was made at Deep Creek near Quick (W. Clark, pers comm) and a cow was observed by Branch staff at Quick (Wolfe, pers comm). During these months the collared animals were all in the alpine, and if their movement had been representative, we would have expected few caribou at low elevations. Then, in January when all collared animals had finally moved into the low-elevation pine forest, wildlife staff accompanied members of the Houston snowmobile club to observe the response of six caribou which were located in the alpine above Emerson Creek to snowmobile activity.

Another year's monitoring is expected to confirm some observed movement patterns and contradict others. In the interim, tentative conclusions will be based on the movements of the collared caribou, and they will be assumed to be representative.

Seasonal Movements

The Telkwa caribou seem to spend a majority of their time at or

above the treeline, in contrast to the Tweedsmuir caribou 160 km to the south (R. Marshall, pers. comm.). Use of forest with possible commercial interest appears to occur in response to winter glazing and crusting of snow in the alpine which would make alpine food sources unavailable without a major energy expenditure in pawing through the icy barrier. A snowmobile expedition in January; an icy "sheen" visible during telemetry flights; and a marked absence of brown "windblown" snow-free areas along ridges all indicated the presence of a prohibitive crust in the alpine during December, January and February. The circumstances leading to such crusting were believed to involve the mild weather conditions during early winter. Wetter, heavier snow than normal would be expected at high elevations, possibly exacerbated by periodic thaws.

It is possible that, with a cold winter and resultant light, wind-movable snow, caribou would winter in the alpine. The fact that past surveys of the Telkwa herd found caribou in the alpine in January and February (when, in 1986, the herd was in low-elevation forest), corroborate the theory of use of alpine winter ranges in other years.

CONCLUSIONS

1. The Telkwa caribou used alpine or subalpine habitat types in spring and summer and again in early winter (63% of relocations). Forested habitats were untilized in September and again in mid-to-late winter (37% of relocations).

2. Forest use in late winter appeared to be related to severe crusting of alpine snow preventing energy-efficient foraging.

3. Calf survival is low, with calves disappearing in the first four months of life.

4. Forest types usually used were not merchantable, consisting of old (140-250 years) small (10-20 metres) spruce/fir types. In late winter, younger (80-120 year old) pine stands were used, which may have economic significance.

5. Several incidental observations suggested that the movements of the four collared cows may not be representative of the other unmarked caribou in the herd.

6. The boundaries of the proposed Telkwa Wildlife Management Area encompass most of the annual range of the radio-collared caribou.

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APPENDIX 1

Relocation Data, March 1985 - April 1986

TELKWA RELOCATION DATA

No.	Elev	Aspect	UTM Location	For Type	Al	Hl	Dl	Sl	Hab 2	A2	H2	D2	S2	Hab 3	A3	H3	D3	S3	Date	Grp size	Activity
1	1900	35	9623860408	Alp															85/03/17	12	Feed
2	1850	45	9621160416	Alp															85/03/17	15	Feed
3	1700	350	9621160425	Alp															85/03/17	15	Rest
4	1900	30	9623360414	Alp															85/03/17	4	Feed
1	1835	20	9623960421	Alp															85/03/25	4	Feed
2	1200	20	9622760431	BS	8	3	1	2	B	4	2		2						85/03/25		Unkn
3	1200	999	9622660426	Alp					B	8	3	1	2	B	8	1	2		85/03/25		Unkn
1	1835	20	9623960421	Alp															85/04/06	4	Feed
3	1200	20	9622760431	Alp					B	8	3	1	2	B	8	1	2		85/04/06		Unkn
4	1830	40	9623660421	Alp															85/04/06	4	Feed
4	1555	999	9625060430	Alp															85/05/14		Unkn
1	1554	999	9624760430	Alp															85/05/14		Unkn
2	1158	999	9622560431	BS	8	3	1	2	B	4	2		2						85/05/14	14	Unkn
3	1539	225	9626860409	Alp															85/05/14		Unkn
1	1500	30	9625860349	Alp															85/06/16	6	Calf
2	1800	80	9622960310	Alp															85/06/16	2	Calf
3	2000	340	9624260385	Alp															85/06/16	9	Rest
4	1750	70	9622560323	Alp															85/06/16	6	Calf
1	1520	120	9613960360	Alp															85/07/16	14	Calf
2	1510	300	9618560343	BS	9	2	1	2	Alp										85/07/16		Unkn
3	1520	120	9613960360	A															85/07/16		Unkn
4	1790	330	9622260312	Alp															85/07/16	25	Calf
1	1550	100	9617760249	B	8	2	2	2	Alp					B	8	2	1	2	85/09/09		Unkn
2	1280	300	9609960489	BS	8	3	1	2	SW										85/09/09	6	Feed
3	1350	120	9631660288	BS	9	3	1	3	BS	9	3	1	2						85/09/09	12	Rest
4	1350	120	9631660294	BS	9	3	1	3	BS	9	3	1	2						85/09/09	12	Rest
1	1900	190	9624060307	Alp															85/10/06	42	Feed
2	2000	250	9618360393	Alp															85/10/06	6	Feed
3	1900	190	9624060307	Alp															85/10/06	42	Feed
4	1900	190	9624060307	Alp															85/10/06	42	Feed
1	1550	300	9610060437	Alp					BS	8	2	1	2						85/11/11	12	Feed
2	1600	330	9610360439	Alp					BS	8	2	1	2						85/11/11	12	Feed
3	1675	330	9615160454	Alp															85/11/11	17	Feed
4	1550	100	9611060437	Alp					BS	8	2	1	2						85/11/11	12	Feed
1	1175	300	9617160487	Plb	5	2	1	2	Alp	5	3	1	3	Pl	4	2		2	85/12/23		Unkn
2	1200	340	9617460485	Pls	6	3	1	2	Plb	5	2	1	2	Pl	4	2		2	85/12/23		Unkn
3	1175	360	9617760490	Pl	5	2	1	2	Plb	5	2	1	2	Pls	6	3	1	3	85/12/23		Unkn
4	1100	290	9617360498	Plb	6	3	1	3	Pls	6	3	1	3	Pl	5	2	1	2	85/12/23		Unkn
1	1125	10	9618260491	Pls	6	3	1	3	Pl	5	2	1	2						86/02/06		Unkn
2	1130	350	9618460486	Pl	5	2	1	2	Pl	6	3	1	3						86/02/06		Unkn
3	1775	360	9616860428	Alp															86/02/06		Unkn
4	1075	360	96177600494	Plb	6	3	1	3	Pls	6	3	1	3	Pl	5	2	1	2	86/02/06	11	Feed
1	1925	40	9618760424	Alp															86/03/12		Unkn
2	1650	30	9615460440	Alp															86/03/12	10	Feed

TELKWA RELOCATION DATA continued

No.	Elev	Aspect	UTM Location	For Type	A1	H1	D1	S1	Hab 2	A2	H2	D2	S2	Hab 3	A3	H3	D3	S3	Date	Grp size	Activity
3	1825	50	9623860421	Alp															86/03/12	14	Feed
4	1650	30	9615460440	Alp															86/03/12	10	Rest
1	1740	190	9626060415	Alp															86/04/14	18	Feed
2	1900	275	96192600426	Alp															86/04/14	6	Feed
3	1725	350	9623760313	Alp															86/04/14	2	Rest
4	1740	190	9626060415	Alp															86/04/14	18	Feed
1	1450	280	9623560444	Alp					B	4	2		2						86/04/29	2	Feed
2	2150	340	9618960417	Alp															86/04/29	3	Feed
3	1350	120	9631560339	Alp															86/04/29	9	Feed
4	1750	80	9624760414	Alp															86/04/29	6	Rest

APPENDIX II

Incidental Caribou Observation Report

Province of British Columbia
Ministry of Environment
CONSERVATION OFFICER SERVICE

MEMORANDUM

To: Ben van Drimmelen
Regional Wildlife Biologist
Wildlife Branch
Bag 5000
Smithers, B.C., V0J 2N0

Date: November 13, 1985

Dear Ben,

On November 7th, 1985 I was travelling from Terrace to Merritt for my transfer and observed something you may be interested in. On the Smithers side of Houston at the "Welcome to Houston" sign (Eichenburger Road?? - spelling?) I saw a bull caribou. The fellow I was travelling with had a 35 mm camera and a video camera. We spent approximately two hours (0930 - 1130) following and filming the animal. If you are interested I could probably get copies of the pictures and film for your records. Let me know if you want them and I'll see what I can do.

Yours truly

D.T. Crack
C/O Service
Merritt
DC/jw