

Porcupine Caribou Herd Harvest in the Yukon

JUNE 1988 — MAY 1989

ANNUAL PROGRESS REPORT

R. Ward, C. Smits, R. Quock

October 1989



PORCUPINE CARIBOU HERD HARVEST IN YUKON

June 1988 - May 1989

Annual Progress Report

R. Ward, C. Smits, R. Quock

Fish and Wildlife Branch
Yukon Department of Renewable Resources
P.O. Box 2703
Whitehorse, Yukon
Y1A 2C6



Director, Fish and Wildlife Branch



Supervisor

The wildlife projects reported here are continuing and conclusions are tentative. Persons are free to use this material for educational or informational purposes. Persons intending to use the information in scientific publications should receive prior permission from the Fish and Wildlife Branch, Government of Yukon, identifying in quotation the tentative nature of conclusions.

October 1989

TABLE OF CONTENTS

	Page
List of Tables	ii
List of Figures	ii
Summary	iii
Acknowledgements	v
Introduction	1
Methods	3
Results and Discussion	5
Possible Data Biases	9
Literature Cited	16

LIST OF TABLES

	<u>Page</u>
Table 1. Age and sex structure of the harvest of Porcupine Caribou in the Yukon, June 1, 1988 to May 31, 1989. Percent of total harvest in parenthesis	11
Table 2. Distribution of reported harvest of Porcupine Caribou in the Yukon, by month from June, 1988 to May 1989	12
Table 3. Harvest of Porcupine Caribou in Canadian jurisdictions, 1977/78 to 1988/89.....	13

LIST OF FIGURES

	<u>Page</u>
Figure 1. Porcupine Caribou harvest reported at the Dempster Highway check station by month and year, 1985-1988	14
Figure 2. Distribution of the Porcupine Caribou harvest along the Yukon portion of the Dempster Highway	15

SUMMARY

This report summarizes the harvest of caribou from the Porcupine Caribou Herd in the Yukon for the period June 1, 1988 - May 31, 1989. Three methodologies were used to gather this information: 1) Indian harvest survey program, 2) the Dempster Highway check station, and 3) declarations by non-resident sport hunters. The total reported harvest in the Yukon was 1507, of which 1317 (87%) was by Yukon residents (licenced and unlicenced hunters and big game outfitters) and 190 (13%) by N.W.T. residents.

Eighty percent of the total reported harvest was by Yukon Indians (77% Old Crow, 3% other Yukon communities), 7% by non-Indian Yukon residents and 1% by non-resident sport hunters. The remainder (13%) of the reported harvest was by Fort McPherson Indians. The reported harvest probably under-estimated the harvest of caribou from the Porcupine Caribou Herd in the Yukon since, 1) Nacho Nyak Dun (Mayo) and Carmacks/Little Salmon Bands did not take part in the Indian harvest survey program, 2) the results of the Inuvialuit Final Agreement (IFA) harvest study was not available and therefore, harvest in the Yukon by hunters from communities of the Mackenzie River delta and vicinity was not reported, 3) the Dempster Highway check station was not manned during the entire period that caribou were accessible from the highway, and 4) all kills may not have been reported.

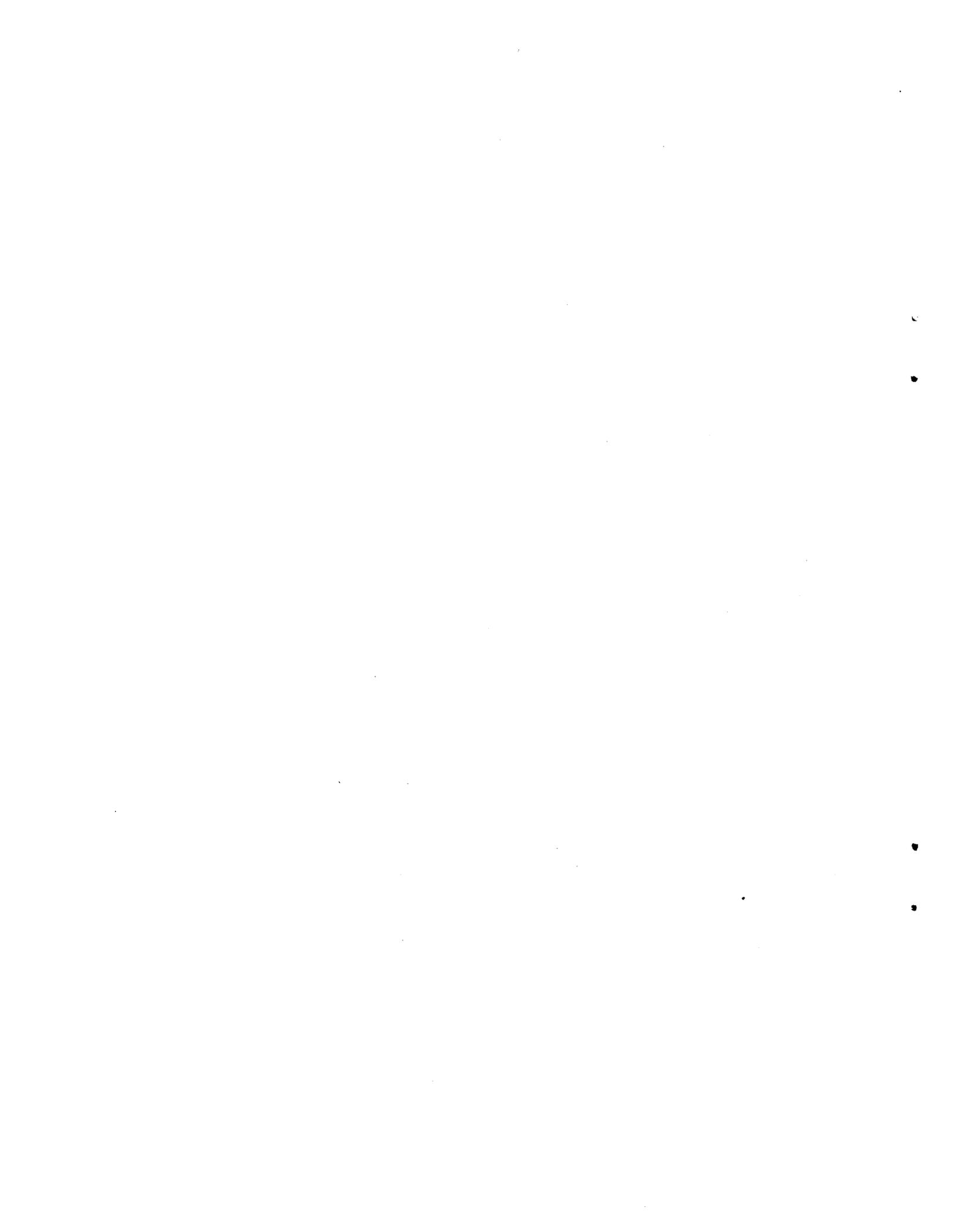
Overall, there was a preponderance of bulls (73% or 1100 animals) in the kill, with the exception of the Fort McPherson harvest where cows represented 63% (120) of the reported harvest. A negligible number of

were harvested with the exception of the harvest by Fort McPherson Indians who reported 20% (38) of their harvest were calves.

The harvest along the Dempster Highway took place from September to March which was the period during which many Porcupine Caribou were near the highway. Most of the harvest in the vicinity of the Dempster Highway was concentrated near the Yukon/NWT border. The harvest by Old Crow Indians occurred during two periods, June - October 1988, and January - May 1989, which corresponds with the migration of the herd towards their winter and summer ranges, respectively.

ACKNOWLEDGEMENTS

Many individuals were involved in collecting the data summarized in this report and in helping with the analysis. The Dempster Highway check station was manned primarily by Dave MacAulay who, once again, did a first rate job. When Dave was off duty, Ken Knutson, Phil Merchant, and Tony Grabowski ably filled the gap. Tony Grabowski also supervised the operation of the check station. Conservation Officers Sharon Benjamin, Ken Knutson, and Dan Lindsay provided additional information collected while on patrol along the Dempster. Sharon Benjamin, Neta Oulett, George Mason, Alex Morrisson, George Van Bibber, and Larry Bill were field workers for the Indian harvest survey program. Paul Fraser, N.W.T. Wildlife Service, provided us with information on the harvest by Fort McPherson residents. Mary Cardwell key punched our data while Tena Fox and Jean Carey assisted with computer programming. Brian Pelchat and Norman Barichello critically read the manuscript and provided helpful suggestions.



INTRODUCTION

Accurate information on recruitment, mortality, immigration and emigration rates for wildlife populations is needed in order to facilitate sound wildlife management. Harvest is a significant source of mortality, and information of harvest levels is crucial in understanding the population dynamics of the wildlife population involved and thus instrumental in determining a sustainable harvest level. Good harvest information is difficult to acquire for a population such as the Porcupine Caribou Herd which migrates across international and territorial boundaries and is harvested by three groups (Indians, non-Indian residents and non-resident sport hunters) which are subject to different harvest reporting systems.

The Porcupine Caribou herd migrates in and out of the Yukon during its annual life cycle. The young are born on the coastal plain in northeastern Alaska and northwestern Yukon in late May and early June. After the post calving period spent along the north coast during summer, the herd once again moves south and east towards their wintering grounds in either Alaska or Yukon or both. Caribou are harvested from the Porcupine Caribou Herd at differing times during the year by Indians, non-Indian residents and non-resident sport hunters. The largest proportion of the harvest in Canada occurs during the fall and winter as the herd travels to and is on its winter range. A smaller harvest occurs in the spring as the herd passes near Old Crow on its northward migration towards the calving grounds.

We summarize the reported Porcupine Caribou herd harvest in the Yukon during the period June 1, 1988 - May 31, 1989, as determined through the harvest survey programs described in the methods section.

METHODS

We summarized the Porcupine Caribou herd harvest for the period June 1 to May 31; this period covered a complete annual migration cycle of the porcupine caribou.

As mentioned previously, Porcupine Caribou herd harvest information was collected using different harvest survey programs for each user group (Indians, non-Indian residents and non-resident sport hunters). Harvest by Yukon Indians, most of which were taken by Old Crow residents, was collected as part of the Yukon Indian Harvest program (Quock and Jingfors, 1988). Their harvest was estimated through voluntary recall surveys. Hunters were contacted twice a year by a community field worker and were asked the number of animals harvested, the sex and age (calf or adult), and the general location of the kill.

Harvest information for the residents of Fort McPherson was collected by the NWT Department of Renewable Resources through their Indian harvest survey program which was similar to the Yukon program (P. Fraser, N.W.T. Wildlife Service files).

Information on the harvest along the Dempster Highway corridor was collected primarily through hunter declarations at the check station operated at km 65 of the Dempster Highway between October 20 and December 4, 1988. The check station was open for an average of 8 hours daily. The hours of operation varied but were tailored to check as many hunters as possible as they passed southward after their hunt.

Hunters stopping at the check station were asked the number of caribou killed, the sex, general age class, date and time of the kill, and the location of the kill in relation to the highway. This information was augmented with the results from the Fort McPherson Indian harvest survey program and harvest reports collected by conservation officers while on patrol along the Dempster.

The non-resident harvest was determined through compulsory declarations.

RESULTS AND DISCUSSION

The total reported harvest of Porcupine Caribou in the Yukon for the period covered was 1507 (Table 1), of which 1317 (87%) were shot by Yukon residents and 190 (13%) by N.W.T. residents. Eighty percent of the reported harvest was taken by Yukon Indians (77% Old Crow, 3% other Yukon communities), 7% by non-Indian Yukon residents and 1% by non-resident sport hunters. The remaining 13% was harvested by Fort McPherson Indians. These figures may under-represent the Porcupine Caribou harvest for the reasons discussed in the following section on possible data biases.

Overall there was a preponderance of bulls (73%) in the kill. However, there were distinct differences among user groups in the proportions of bulls, cows or calves harvested. Non-Indian Yukon residents, Old Crow Indians and non-resident sport hunters all showed strong preferences for bulls, while Fort McPherson Indians appeared to prefer cows and calves.

The apparent preference for bulls by non-Indian Yukon residents likely reflects the fact that cows were legally hunted only from August 1 - October 31 whereas the bull season extended to January 31. Most caribou harvested by non-Indian Yukon residents were taken during November. Old Crow residents preferred to hunt bulls in the fall due to their greater size, while the preference of non-resident sport hunters for bulls was related to the trophy value of bulls. The preponderance of cows in the Fort McPherson harvest is probably a result of the unpalatability of bulls during and after the rut, the

period during which the caribou were most accessible to Fort McPherson residents.

A negligible number of calves were recorded in the harvest with the exception of Fort McPherson Indians who reported 38 (20%) of their harvest as calves.

The distribution of the harvest throughout the season probably reflects the accessibility of the herd to the various user groups (Table 2). The harvest along the Dempster Highway (which includes the harvest by Indians other than those from Old Crow) took place from September to March, the period during which many Porcupine Caribou were near the highway.

The timing of the harvest along the Dempster fluctuates annually depending on when the caribou arrive. During the fall of 1988, as in most years, caribou arrived near the highway in October and most of the harvest, as reported at the Dempster check station, occurred in October and November (Fig. 1). Reduced interest in hunting along the highway in December and January probably reflects cold weather and short days, although the season remains open until the end of January. In years when the caribou arrived at the highway earlier, the bulk of the harvest also tended to occur earlier in the season. In 1985, 94% of the estimated harvest along the Dempster harvest occurred in August and September (Fig. 1).

Most of the harvest reported at the Dempster check station during the fall of 1988 was concentrated near the Yukon/NWT border. Sixty-seven

percent of the harvest was taken between the Eagle River and the Yukon/NWT border in game management subzones 1-53 and 1-54 (Figure 2). The remainder of the harvest was scattered along the more southerly game management subzones. Most of the harvest in the Yukon by Indians from Fort McPherson was taken along the Dempster Highway north of the Eagle River (P. Fraser, pers. comm.).

The geographic distribution of the harvest reflects the distribution of the herd in relation to the highway. In 1988, most of the herd crossed the highway near the Yukon/NWT border. In contrast, in 1985, when much of the herd crossed the highway near Chapman Lake, 84% of the harvest was taken south of the Ogilvie River in game management subzones 2-27 and 2-28.

The harvest along the Dempster undoubtedly reflects the width of the no-hunting corridor, the number of animals reaching the highway, the timing of their arrival and their geographic distribution along the highway. The largest harvest recorded at the Dempster check station occurred in 1985 when conditions favored an easy and successful hunt (Barichello and Carey, 1986)). Large numbers of caribou arrived at the southern end of the highway in August and wintered in the area. In 1986, most of the herd wintered in Alaska and only a few animals arrived at the southern end of the Dempster highway in September and October (D. Russel, pers. comm.). The reported harvest along the Dempster for that year was 22 animals (Quock and Carey, 1987). In 1988, when many animals reached the northern part of the highway in October and November, the harvest reported at the check station was 144 animals.

The harvest by Old Crow Indians typically occurs during two periods and 1988-89 was no exception. About half of the Old Crow harvest (605 or 52%) took place during June - October 1988 and the other half (550 or 48%) during January - May 1989. These two periods correspond with the migration of the herd towards their winter and summer ranges, respectively.

Non-resident sport hunters are allowed to hunt Porcupine Caribou from August 1 until January 31. The majority of the non-resident harvest occurs in the Ogilvie Mountains prior to November 1. The absence of any harvest after October reflects the fact that big game outfitters generally cease operations by the end of October.

It is difficult to compare the 1988-89 harvest with those of previous years because of inconsistencies in data collection between years. In general however, the harvest appears to have increased over the past decade (Table 3). During the late 1970's, the estimated total annual Canadian harvest averaged about 1100 animals. In recent years, the estimated harvest has been roughly twice that at 2000-3000 animals. It is unknown if this apparent increase in the harvest is a function of the increase in the herd's size and greater access to the herd via the Dempster Highway or is an artifact of improved harvest survey techniques in recent years.

Although this harvest data probably under-estimates the real harvest, the current harvest level of the herd appears to be well within sustainable limits. The Porcupine Caribou Herd has grown at a mean annual rate of 5% over the period 1983-1987 in the face of the current harvest (Whitten et al. 1989).

POSSIBLE DATA BIASES

Several possible sources of bias exist in the harvest data presented. The significance of these sources of bias is unknown but most sources probably act to under-estimate the real harvest.

Harvest along the Dempster by Indians from Mayo and Carmacks is unknown because these two bands did not take part in the Indian harvest survey program. These two communities are within easy travelling distance of the Dempster and Indians from these communities likely take some caribou.

Another source of bias in the Indian harvest survey program may arise when hunters forget, or deliberately misrepresent (Strategic response bias, Jingfors 1986), their harvest.

The harvest from the Porcupine Caribou Herd by Fort McPherson residents was monitored by the NWT Department of Renewable Resources. The Fort McPherson harvest survey program did not start until October, 1988, and caribou shot before this were unrecorded. Some of the caribou harvested by Aklavik residents were taken in the Yukon. This harvest was reported as part of the IFA harvest study (M. Fabijan, in prep.) and results of this study are currently not available to YTG.

The check station at the southern end of the Dempster Highway was in operation during the peak of caribou abundance and hunter activity along the highway. In 1988 the check station was opened from October 20 to December 4. The bulk of the harvest along the Dempster

likely occurred during this period. Caribou harvested before and after the check station was in operation were not recorded. During the period when the check station was in operation, it was operated on average 8 hours per day during periods when most traffic occurs. Hunters passing outside of these hours were likely missed although several left notes on the door of the station reporting their harvest. However, it is thought (D. MacAuley pers. comm.) that relatively few hunters were missed as a result of this.

Additionally, no check station was operated at the Yukon - NWT border during the fall of 1988. Caribou taken in the Yukon by hunters from communities in the Mackenzie Delta and vicinity, other than Fort McPherson, would not be reported.

TABLE 1. Age and sex structure of the harvest of Porcupine Caribou in the Yukon, June 1, 1988 - May 31, 1989 by user group. Percent of total harvest in parenthesis.

User Group	Bulls	Cows	Calves	Unknown	Total
Yukon residents:					
Old Crow	957 (82)	200 (17)	?	7 (1)	1164 (77)
Indians other than from Old Crow	22 (55)	15 (38)	0	3 (7)	40 (3)*
Non-Indian residents	79 (80)	13 (13)	2 (2)	5 (5)	99 (7)
Non-Resident sport hunters	13 (93)	1 (7)	0	0	14 (1)
Total	1071 (81)	229 (18)	2 (0)	15 (1)	1317 (87)
N.W.T. Residents:					
Fort McPherson	32 (17)	120 (63)	38 (20)	0	190 (13)
Total	1103 (73)	349 (23)	40 (3)	15 (1)	1507*

* 24 of these were reported at the Dempster Check station, 16 through the Yukon Indian harvest survey program.

TABLE 2. Distribution of reported harvest of Porcupine Caribou in the Yukon by month from June, 1988 to May 1989.

User Group/Location	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	Total
Yukon:													
Dempster	0	0	0	5	125	109	29	9	34	18	0	0	329
Old Crow	46	0	276	271	12	0	0	25	43	80	98	313	1164
Non-resident sport harvest *	0	0	0	2	10	2	0	0	0	0	0	0	14
Total	46	0	276	278	147	111	29	34	77	98	98	313	1507

* Harvested along the Dempster Highway or in Ogilvie Mountains.

TABLE 3. Harvest of Porcupine Caribou in Canadian jurisdictions, 1977/78 to 1988/1989.

1988/89	Community					Total
	Dempster Highway	Old Crow	Fort McPherson	Aklavik	Non-residents	
1977/78 ¹						1,120
1978/79 ¹						1,110
1979/80 ¹						1,159
1980/81 ¹						785
1981/82 ¹						3,800
1982/83 ¹						1,641
1983/84 ¹						?
1984/85 ¹						?
1985/86 ²	525 ⁴	349	┌ 1,570 ─┐		18	2,462
1986/87 ³	22 ⁴	638	┌ 858 ─┐		8	1,424
1987/88	216 ⁴	829			25	1,070
1988/89	343 ⁵	1,164	1,270	? ⁶	14	2,791

1 From McEwen, 1985.

2 From Quock and Carey, 1987.

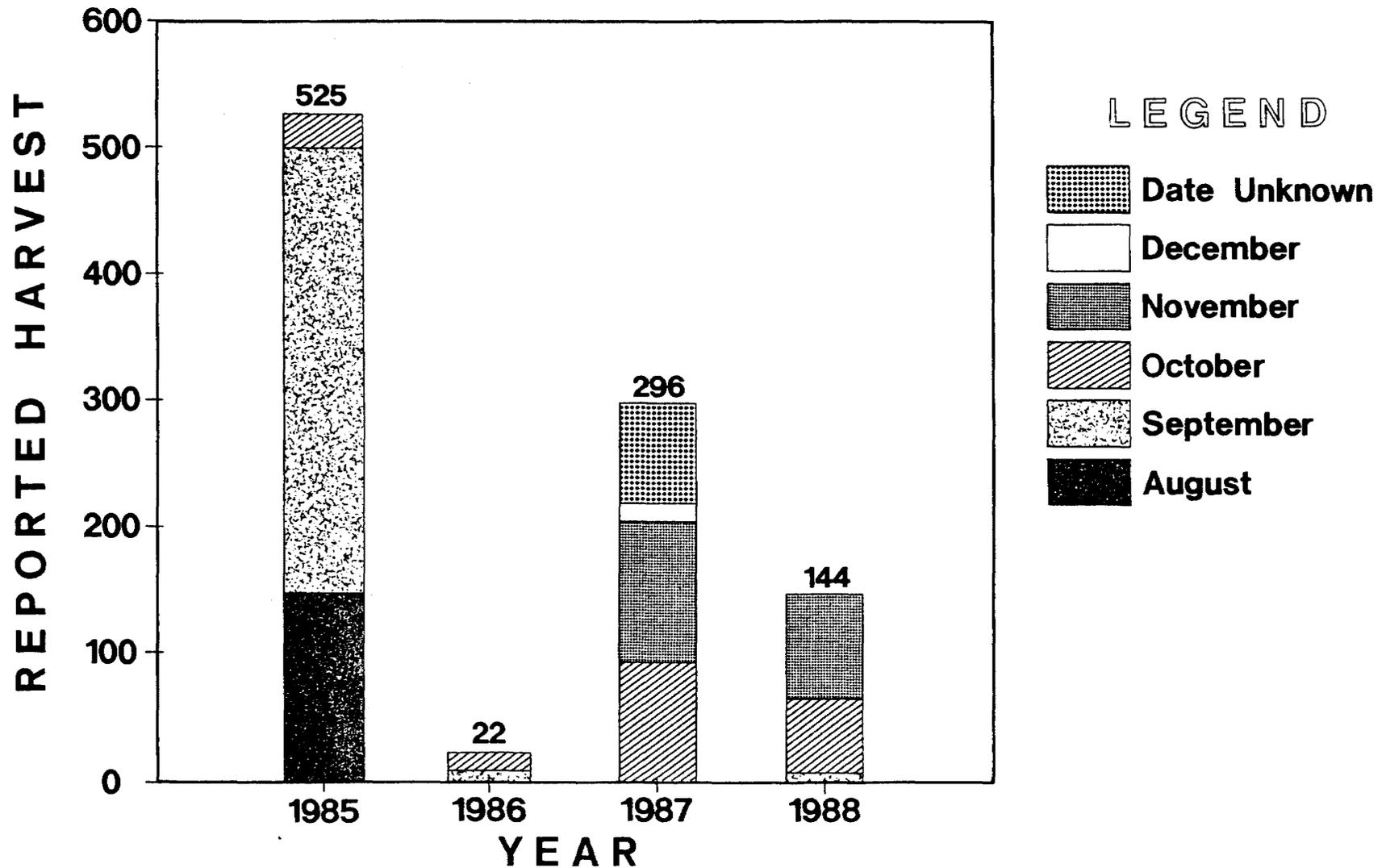
3 From Quock and Carey, 1987 and Porcupine Caribou Harvest update: January - June, 1987. FW/KJ#1/update. Fort McPherson Harvest from January to June unknown.

4 Dempster Highway check station.

5 Dempster Highway check station (329) hunter declarations (14) and Fort McPherson harvest study (190)

6 Aklavik harvest unknown.

Figure 1. Porcupine Caribou Harvest Reported at the Dempster Highway Check Station, 1985 to 1988



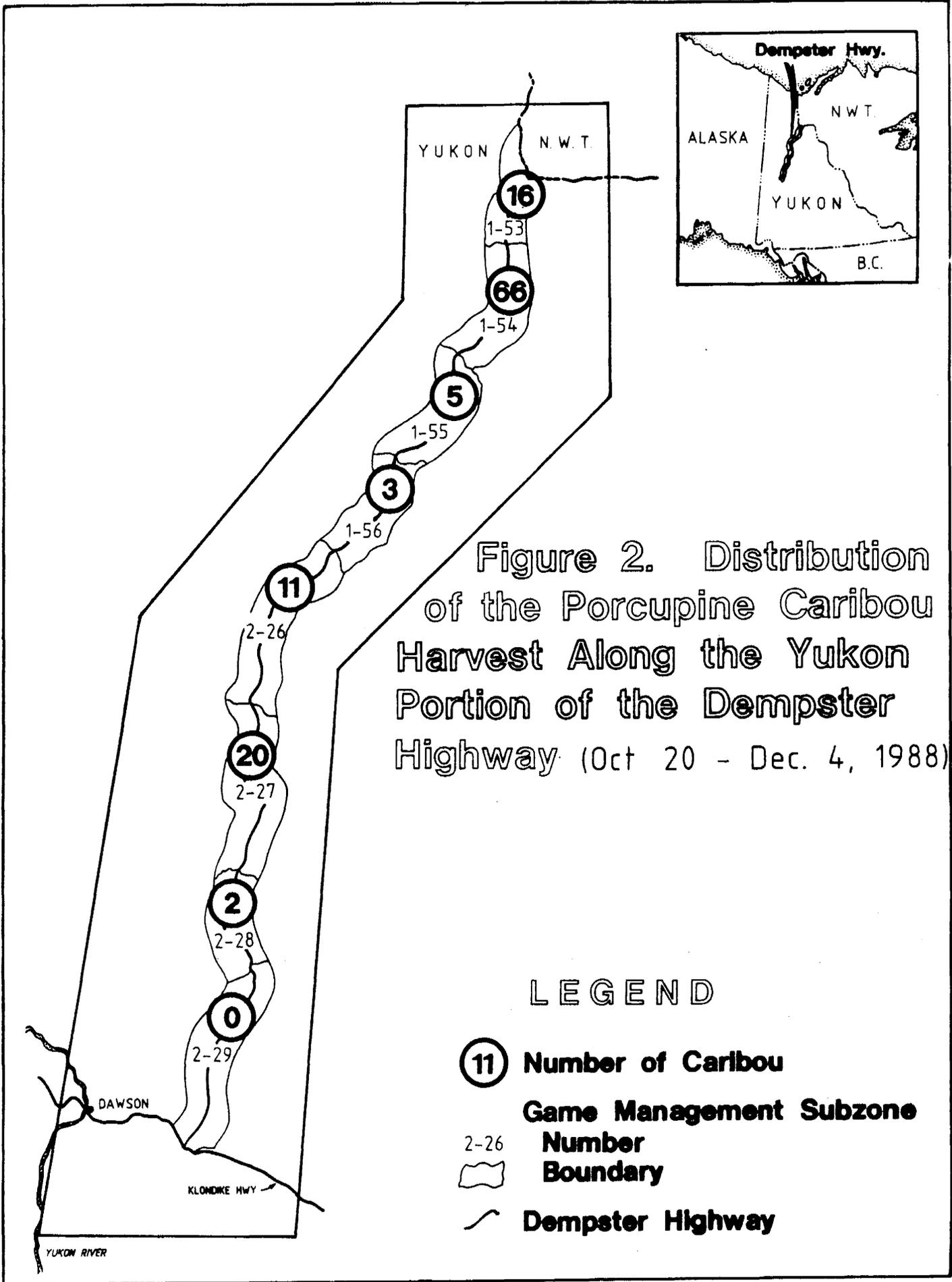


Figure 2. Distribution of the Porcupine Caribou Harvest Along the Yukon Portion of the Dempster Highway (Oct 20 - Dec. 4, 1988)

LEGEND

- 11** Number of Caribou
- Game Management Subzone Number**
-  **Boundary**
-  **Dempster Highway**

LITERATURE CITED

- Barichello, N. and J. Carey. 1986. Porcupine Caribou harvest by Canadian users, January 1985 - June 1986. Government of Yukon, Dept. of Renewable Resources internal report. 34 pp.
- Jingfors, K. 1986. Inuit harvesting levels of caribou in the Kitikmeot Region, Northwest Territories, Canada, 1982-1984. Rangifer, Special Issue. No. 1:167-172.
- McEwen, C.A. 1985. Porcupine Caribou herd, 1977-1982. Part I: Population dynamics. Report prepared by Northern Biomes Ltd. for Wildlife and Fisheries Branch, Dept. of Renewable Resources, Government of Yukon. 34 pp.
- Quock, R. and J. Carey. 1987. Porcupine Caribou harvest by Canadian users June 1986 - December 1986. Government of Yukon, Dept. of Renewable Resources internal report. 7 pp.
- Quock, R. and K. Jingfors. 1988. Yukon Indian harvest survey progress report, Government of Yukon, Dept. of Renewable Resources annual report. 35 pp.
- Whitten, K.R., S.G. Fancy, C. Smits, and D.E. Russell. 1989. Population status and trend of the Porcupine Caribou herd, 1988. ANWR Progress Report, Fairbanks. 4 pp.