

**CARIBOU MIGRATION AND
THE STATE OF THEIR HABITAT**

FINAL REPORT



Submitted by
Whaèhdò Nàowò Kò
Dogrib Treaty 11 Council

to the
West Kitikmeot Slave Study Society
Yellowknife, NT

March 2001

PHOTO CREDITS (IN ALPHABETICAL ORDER)

RESEARCH TEAM

- Georgina Chocolate
- Madeline Chocolate
- Bobby Gon
- Alice Legat
- Melissa Mantla
- Joseph Whane
- Sally Anne Zoe

NWT ARCHIVES

- G79-023 series - Richard Pierre, photographer
- G79-052 series - Henry Busse, photographer
- G95-001 series - Unknown, photographer

COVER PHOTO

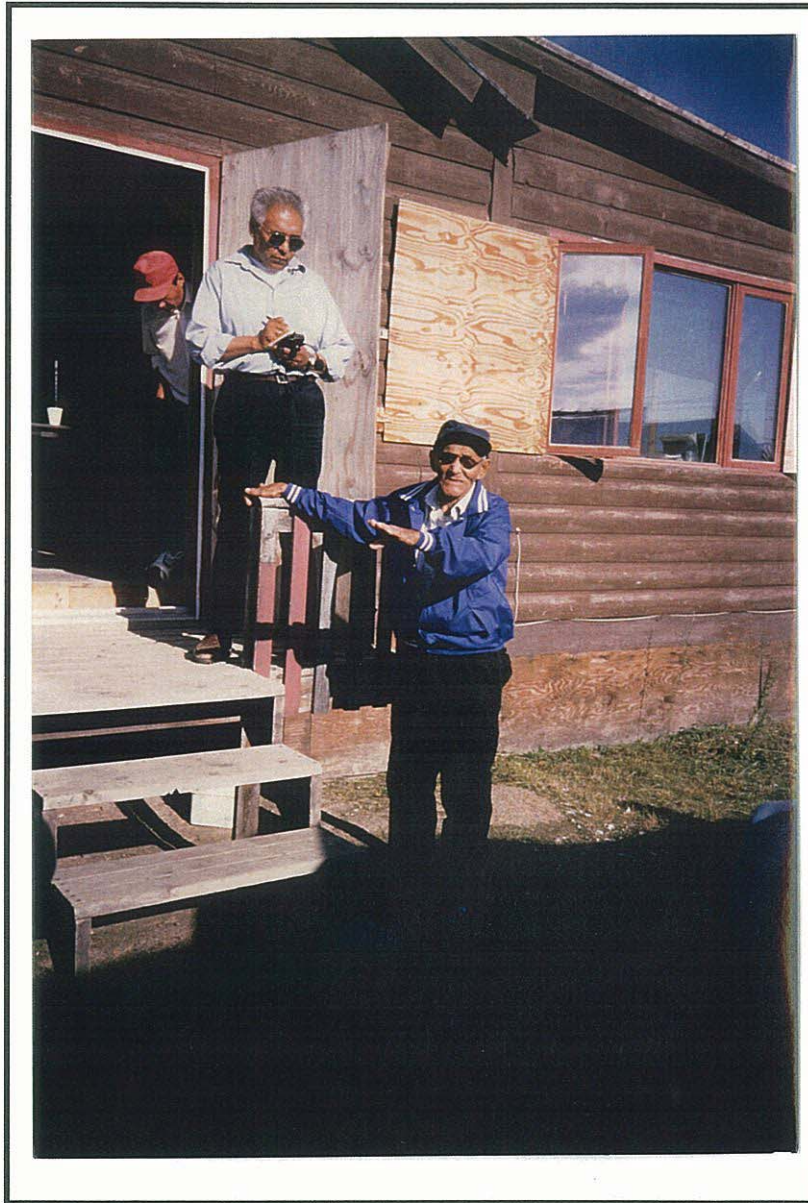
- Melissa Mantla provided the photo, which was taken on Wekweètì in 1997.

DEDICATION

This report is dedicated to the memory of Sammy Football or Sahme as he is called. Sahme stayed with his father and lived on the land in all seasons and only traveled to town when they needed supplies. Sahme came from a wealthy family, but he did not show off. All people looked up to him because of his background and how his parents raised him. He treated all his great, grandchildren with love, gave them Ṭchq̣ (Dogrib) names, and told them stories of what he knew.

He loved to tease and joke with people, and he laughed out loud. We often saw Sahme as he walked around town stopping and talking to the children, whom he treated in a fun loving and caring way.

Sahme was a great man. He spoke with a powerful voice that showed his strong character and his respect for Ṭchq̣ n̄owō (Dogrib knowledge). Sahme's character, and understanding and kind heart will always be remembered and talked about in stories.



James Rabesca interpreting for Moise Martin, who is explaining the benefits of Whaèhdqò NàowòdK'e research and thanking the West Kitikmeot Slave Study Society Board for their support

ACKNOWLEDGEMENTS

We would like to thank the following individuals and organizations for their support throughout the duration of this project:

- The Tł̥ch̥q̥ (Dogrib) leadership and Dogrib Treaty 11 Council's staff for their constant support.
- The Department of Resources, Wildlife and Economic Development for assistance with plant identification in Latin and for discussions on where collared caribou were in relation to known harvesting sites.
- Chris O'Brien for separating the lichen and mosses so they can be identification and named in Latin.
- Air Tindi for their patience and help in moving elders and equipment to the field.
- Deborah Delancy for providing personal support in continuing this research, and for reading and providing comments on the final drafts of the reports.
- The West Kitikmeot Slave Study Society for the funding with which to document Dogrib knowledge of caribou.



Ernie Camsell near Behtsokò (Rae), NT
1949

SUMMARY

The Tł̥chq̓ (Dogrib) state that they and the caribou have a very close and respectful relationship. Respect is shown by only taking what is needed, using all parts of the harvested animals, and discarding any unused parts in respectful ways. Respect is also shown by having and sharing knowledge of the caribou. A lack of knowledge, and therefore respect, will result in the caribou migrating elsewhere and a population decline. Tł̥chq̓ knowledge is collected through harvesting activities, verified through discussions with other harvesters and elders, and shared through oral narratives in association with the general truths such as:

- Caribou have unpredictable migration patterns, but when they migrate to a particular areas they are more likely to use certain trails and water crossings¹.
- Caribou return to the same birthing grounds.
- Caribou follow the same general annual cycle each year.
- Caribou leaders, who are middle-aged cows with experience, have good memories.
- Caribou migrate to where the vegetation is lush and will remain in an area if the vegetation is easily accessible and plentiful.
- Caribou have a very strong sense of smell.
- Caribou are fairly adaptable to changing environments but adaptation has its limits making them susceptible to pollutants.
- Caribou's survival and continued annual migration is dependent on the respect shown to them by humans.
- Only a few people have a spirit connection with the caribou, and therefore the knowledge and intelligence that comes from this. These people know where the caribou are at any given time, but cannot predict where the caribou will migrate to in the boreal forest.

¹ These are areas harvesters consistently frequented and where they put up caribou fences prior to the late 1930s.

Orthographic System and Pronunciation Guide

The spellings in this report are based on the orthographic system explained in the introduction to *Tł̣chq̣ Yatì Enjht'è / A Dogrib Dictionary* (Dogrib Divisional Board of Education, 1996). This appendix provides an overview of that system so that readers will understand the spelling principles.

Dogrib and English employ different sets of sounds to create words. The alphabet used for Dogrib is expanded to include characters for sounds not occurring in English. Letters are combined in ways not used in English to further increase the alphabetic possibilities.

Vowels

The most significant differences between English and Dogrib lie in the vowel system. Dogrib has four vowels [a e i o] which are pronounced approximately as in the English words **pa**, **Dene**, **ski**, and **to** or **tow**. When a vowel in Dogrib is doubled the sound is drawn out. (In contrast, doubling vowels in English usually yields a different sound entirely.) In the pairs of Dogrib words below simple and double vowels are exemplified.

dı	island
dıı	this

ts'eda	to be sitting
ts'eeda	to be living

weghà	its fur
weghàà	according to it

goxègodo	he or she is telling stories
goxègodoo	the one telling stories

Many words have double vowels from the start and many other words show double vowels as a consequence of grammatical formations, as in the last pair above.

Non-matching vowels can come next to each other, as shown below.

dea	creek
godoa	a little above
whaèhdq̣	oldtimer
dziewà	blueberry
goıde	he or she spoke

Each vowel is pronounced separately with its regular value, though in some instances there is a tendency for neighbouring vowels to be pronounced more like each other.

Dogrib is a tonal language. This means that each of the four vowels can be pronounced with a high or low pitch so as to affect meaning. For example, the words

jih	mitt
jìh	fish hook

are identical except for the low tone on the second word (written with an accent above the vowel). The change makes for a different word, so it is important to represent tone orthographically. Tonal differences can also yield a new form of a word with an altered meaning. Compare the words below.

yehtsɿ	he or she is making it
yèhtsɿ	he or she made it

The use of double vowels and tone marks greatly simplifies the comprehension of written Dogrib. Therefore double vowels and tone are consistently shown in the spellings in this report.

Dogrib vowels show another contrast not found in English, between nasal and plain vowels. Nasal vowels (not found in English) involve airflow through both the mouth and nose, while plain vowels have airflow through the mouth only. The plain vowels have no marking; nasal vowels are marked by a hook under the vowel. Compare the words below.

tso	firewood
tsɔ̃	rain

The following pair of words illustrates the fact that closely related words can differ just in the presence or absence of a nasal vowel.

ɪdà	I was there
ɪdà̃	he or she was there

Vowel doubling, tone, and nasal marks can all be combined:

kò	house
mì	net
tsàkèè	beaver lodge
gogòò	arm
geède	they left
dàà	west
nìjtłà	get up!
tabàa	shore
daht'qò	plastic

Note from the last several words above that doubled vowels don't necessarily have to match each other in tone or nasal marking. Though these aspects of Dogrib spelling take some getting used to, they allow much more accurate writing and reading in the language.

Consonants

Dogrib has many more consonants than English does. Two special characters are used in the Dogrib alphabet for sounds not found in English, and there are several letters or letter combinations with uses not found in English spelling.

The character ʔ, called 'glottal' or 'glottal stop', represents a sound like what we hear in the middle of the English expression "oh-oh". In Dogrib this sound is an ordinary consonant. It is found in many words of all types:

ʔoo	spruce boughs
ʔlhdaa	jackfish
seʔeè	my jacket
weʔòò	beyond it
nàʔeeli	he or she is sewing
nìʔʔ	it arrived
k'eʔà	(animals) are roaming

The other special character is ɬ, called 'barred-l'. It is similar to the letter l in English but has a breathy quality.

ɬèdzèh	clay
ɬie	fish
ɬekʔ	it is delicious
hàahɬà	I did that
ʔeɬèèdlj	confluence of rivers

The apostrophe (or 'click') is used following a consonant or pair of consonants in representing a class of very distinctive sounds, termed 'ejective' or 'glottalized' consonants. There is a glottal pop which accompanies the release of the consonant. The glottalized consonants are as follows, with one word illustrating each:

ch'	ʔehch'èè	pickerel
k'	k'ɪ	birch
kw'	kw'ah	moss
t'	t'oo	poplar
tɬ'	tɬ'à	bay
ts'	ts'oo	muskeg

Four other letters or letter combinations deserve mention. **X** is not pronounced as in English, but represents a sound similar to German **ch** as in **Bach**. Dogrib **gh** is similar to French **r** as in **rouge**. **Wh** represents the breathy **wh** as in some English pronunciations of **when**. Finally, **zh** is similar to **z** as in English **azure**.

x	xòo	snare
gh	goghàeda	he or she is looking at us

wh	whagweè	sandy area
zh	zhah	snow

Other letters and letter combinations are pronounced not far different from the English letter values. For details see the introduction to *Tłjchq Yatì Enjhtł'è / A Dogrib Dictionary* (Dogrib Divisional Board of Education, 1996).

Orthographic Principles

Three simple orthographic principles dictate the forms of placenames in this report, apart from matters of matching sound to symbol. The decisions behind these principles derive from discussions with the elders' committee.

The first requires that placenames begin with a capital letter, following the practice in English and many other languages.

The second requires that placenames be written without spaces as a single 'word', no matter how complex the name is in its internal structure. This decision reflects the idea that since a placename represents a unique conceptualization it should be treated as unitary orthographically as well. Two somewhat long placenames are analysed below.

?elàts'iìwek'ewhelaatì 'Lake on which there are old canoes'
 ?elà + ts'iì + wek'e + whelaa + tì
 canoe+old+on it+there are+lake

?jhdàatìdeèhàeljì 'Mouth of Jackfish Lake River'
 ?jhdàa + tì + deè + hàeljì
 jackfish+lake+river+outflowing

Of course, many placenames are of such antiquity that no analysis of them is possible.

The third principle is that a communal decision is to be reached among the elders being interviewed concerning which variant pronunciation of a placename should be most closely represented in spelling. For example, the two variants [Kàeljì, Hàeljì] are heard for a single place, rather in the way that the English names **Toronto** and **Calgary** have a range of variant pronunciations. The decision was made in these cases to use the spelling **Hàeljì**, which is more commonly used. In other cases a spelling is chosen because it is more revealing of the concepts behind the name.



Elders and Harvesters leaving from Gamètì
1998

TABLE OF CONTENTS

1.	OBJECTIVES -----	1
2.	PROJECT DESCRIPTION-----	2
	2.1 The People-----	2
	2.2 Background-----	4
	2.3 Study Area -----	6
	2.4 Methodology: Participatory Action Research -----	6
3.	ACTIVITIES -----	9
	3.1 To translate relevant information on caribou movement-----	9
	3.2 To develop Dogrib terminology on caribou and caribou habitat	9
	3.3 To document Dogrib knowledge of caribou habitat-----	9
	3.4 To document variations in migration patterns -----	10
	3.5 To document the relationship between Tłıchǵ and the caribou	11
	3.6 To complete a literature review-----	12
	3.7 Other Activities -----	13
4.	RESEARCH RESULTS -----	14
	4.1 Research Results: Oral Narratives -----	17
	4.1.1. Oral Narratives: Migration and Behaviour of Humans	19
	4.1.2. Oral Narratives: Migration Patterns Over Time -----	29
	4.1.3. Oral Narratives: Annual Cycle -----	32
	4.1.4. Oral Narratives: Spring and Fall Tłıchǵ Routes-----	38
	4.1.5. Oral Narratives: Vegetation and Foraging -----	42
	4.1.6. Research Results: Summary of Oral Narratives -----	47
	4.2 Research Results: Oral Histories of Harvesting -----	48
	4.2.1 Distribution of Harvested (Barrenlands Caribou) -----	53
	4.2.2 Underweight Harvested between -----	57
	4.2.3 Not Enough Harvested -----	59
	4.2.4 Vegetation Found -----	60
	4.2.5 Harvested Distribution Patterns -----	61
	4.2.6 Summary of Harvesting Information -----	62
	4.3 Field Research Results -----	62
	4.3.1 Field Research in Barrenlands -----	63
	4.3.2 Field Research Boreal Forest -----	65
	4.3.3 Summary of Field Work -----	67

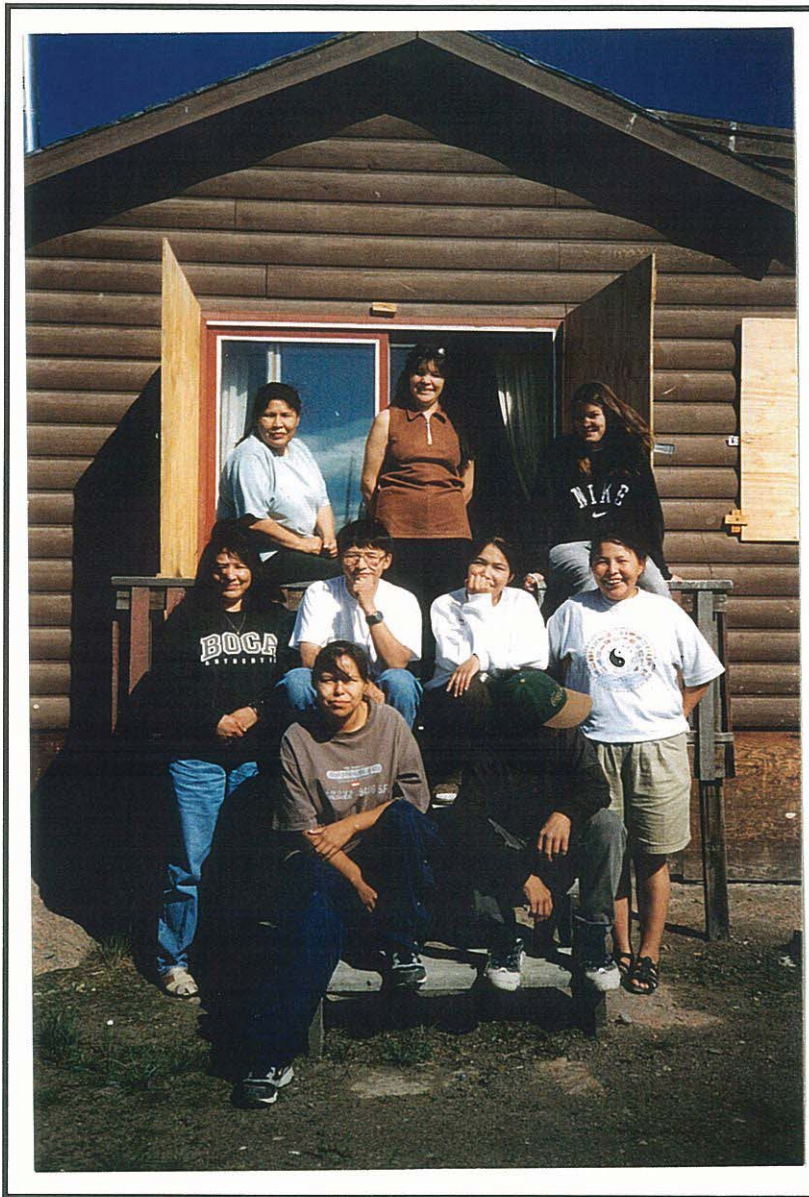
5.	DISCUSSION/CONCLUSION	68
5.1	Discussion	70
5.1.1	Unpredictable Migration Patterns	71
5.1.2	?ekwò always Return to the Birthing Grounds.....	73
5.1.3	?ekwò have an Annual Cycle	73
5.1.4	Lead ?ekwò have good memories	75
5.1.5	Particular trails and water crossings are used by ?ekwò	75
5.1.6	?ekwò have a very strong sense of smell	76
5.1.7	?ekwò migrate to where vegetation is lush	77
5.1.8	?adzìì is the most important food for ?ekwò	78
5.1.9	Although ?ekwo are Adaptable, susceptible to pollutants	79
5.1.10	?ekwò will Migrate to People with whom they have a Respect	81
5.1.11	Human Behaviour is key to the Success of ?ekwò	82
5.2	Conclusion	84
5.3	Recommendations	85
6.	LINKS WITH PARALLEL STUDIES	86
7.	REFERENCES CITED	87

APPENDICES

Appendix I:	Traditional Trails Used for Harvesting
Appendix II:	?ekwò Distribution Based on Harvesting Patterns in Winter and Spring 1925-1998
Appendix III:	Ṭḥcḥq̣ and ?ekwò (hunting trails; traditional places for harvesting; etc.)
Appendix IV:	Draft Maps from RWED on Radio Collared Caribou
Appendix V:	“Mining and Caribou Distribution Within Monfwi Territory: A Historical Look” by Gabriel MacKenzie Scott

TABLES

Table I: Terms Associated with Migration of ?ekwò (Caribou)	Page 16
Table II: Caribou Parts	Page 26
Table III: Caribou Classified by Age	Page 27
Table IV: Caribou Classified by Summer Range	Page 27
Table V: Terms Associated with Caribou Uses	Page 27
Table VI: Other Terms Associated with Caribou	Page 27
Table VII: Vegetation Preferred by ?ekwò	Page 44
Table VIII: No table	
Table IX: ?ekwò Harvested on the Lakes at Tsòtì... ..	Opposite Page 53
Table X: ?ekwò Distribution in Relation to Wekweèti.....	Opposite Page 54
Table XI: Incidents of Harvesting Where ?ekwò	Opposite Page 58
Table XII: Vegetation Found in Stomach (Fall Migration)	Between Pages60-61
Table XIII: Vegetation Found in Stomach, ... (Winter Migration)	Between Pages60-61
Table XIV: Vegetation Found in Stomach, ... (Spring Migration)	Between Pages60-61
Table XV: Vegetation Associated with...Deèzàatì	Page 64
Table XVI: Vegetation Associated with...?ḥdaaṭ	Page 67



Georgina Chocolate, Gabrielle Mackenzie-Scott, Dagha Scott
Camilla Nitsiza, Bobby Gon, Elsie Mantla, Sally Anne Zoe
Darla Beaulieu, Roger Champlain

CARIBOU MIGRATION AND THE STATE OF THEIR HABITAT

1. OBJECTIVES

The objectives for this project were:

- To translate relevant information on caribou movement contained in previous interviews.
- To develop Tł̥chq̓ (Dogrib) terminology on caribou and caribou habitat which will be used when developing interview guidelines.
- To document Tł̥chq̓ (Dogrib) knowledge of caribou habitat.
- To document variations in migration patterns, and the elders' knowledge on why variation occurred during given time periods.
- To document the relationship between the Tł̥chq̓ (Dogrib) and the caribou.
- To complete a literature review of indigenous knowledge of caribou and reindeer.



Margaret Lafferty from Wekweètì, Roseann Martin from Behtsokò, Elise Simpson from Gametì and Lisa Mackenzie from Behtsokò are all having lunch and talking about Deèzàatì (Deèzàatì,1999)

2. PROJECT DESCRIPTION

2.1 The People

The T̥chq̥¹ are members of the Athapaskan language group and traditionally goccupied the area between T̥deè (Great Slave Lake)² and Saht̥i (Great Bear Lake), extending well past K̥k'èet̥i (Contwoyto Lake), Ts'eèhgoot̥i (Alymer Lake) and ʔedaàtsot̥i (Artillery Lake) in the barrenlands to the Dehtsot̥i (Mackenzie River) in the west (See Helm, 1981). Richardson (1851) claims the T̥chq̥ region extended to the Back River³, and Back (1836:265) stated that the T̥chq̥ traveled to the Back River mouth during war excursions against the Inuit. Petitot (1884, 1891) states that the T̥chq̥ area extended to Deèzàat̥i (Point Lake). The research team found that although both ʔek'at̥i (Lac de Gras) and Deèzàat̥i are extremely important areas for T̥chq̥ during fall caribou hunting⁴ their traditional territory also extends well to the east of the M̥wh̥i Gogha Dèṇht̥èè⁵.

As Joe Suzie Mackenzie states, most hunters consider K̥k'èet̥i part of their traditional hunting territory.

My mother used to tell me stories. Every once in a while I asked her for old stories and she would tell me stories. So she told me at one time, "your father and the others went to the barrenlands and they were not back. They were gone and still gone. It is said,

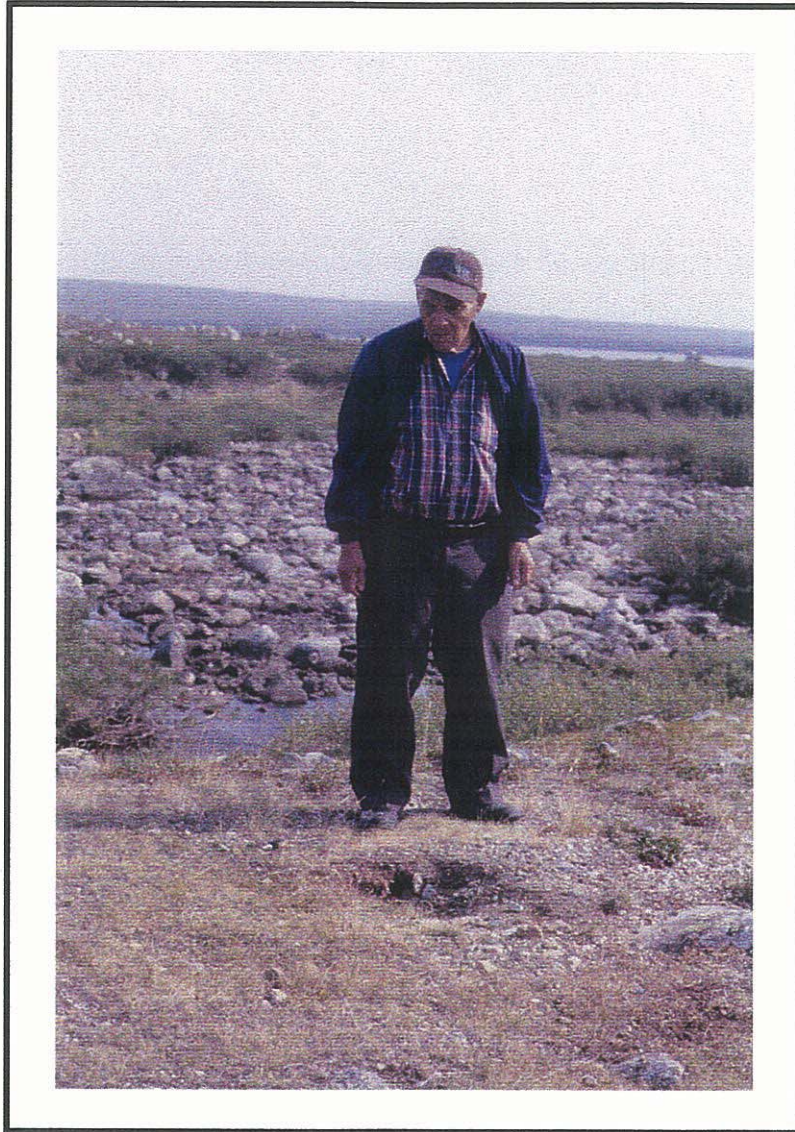
¹ The T̥chq̥ are known in English as the Dogrib. The term T̥chq̥ is used throughout this report, except on the maps and in names of committees or organizations..

² See Maps in Appendix I and II for locations of places if these sites are within the M̥wh̥i Gogha Dèṇht̥èè.

³ The research team has been unable to document the T̥chq̥ name for Back River.

⁴ The area is also important for trapping, however this report focuses on caribou.

⁵ See Map entitled: "Dogrib Traditional Caribou Harvesting Trails" to see outline of M̥wh̥i Gogha Dèṇht̥èè. Most caribou trails are found within the boundary, however, as the map illustrates, some caribou trails extend beyond it.



Joe Suzie Mackenzie
ʔek'atì 1998

when there's no caribou, they have to travel all the way to Kòk'èetì or to Yabahtì⁶ or to ?ek'atì. When there's no caribou at the edge of the tree line and when there's no caribou during the summer. It is said, that's how far they had to travel. They used just the birch-bark canoes. (Joe Suzie Mackenzie, age 83: CHP-98/05/26-1/4)

Since the 1921 Treaty agreement between Mòwhì and the Federal Commissioner, the Tłchq acknowledge that their land base diminished to those lands encompassed within the Mòwhì Gogha Dènhtlèe. Bordering the Tłchq territory are the North Slave Dene to the northwest, the South Slave Dene to the east and southwest, the Chipewyan Dene to the south and east, and the Inuit to the northeast. Traditionally the Tłchq often traveled around Sahtì and down to ?indààkò (Fort Resolution) as well as to Yabahtì (Arctic Ocean). Several elders residing in the four communities tell of these journeys, such as the journey that occurs every spring to Deline, which this year took place between March 6 and 10, 2000.

The economic, social and cultural importance of caribou to the Tłchq is substantial. As is evident from data compiled by the Department of Resources, Wildlife and Economic Development (RWED), Government of the Northwest Territories, and as stated in Dene Land Use Mapping Project done by the Dene Nation in the 1970s.

The Tłchq harvest more caribou from the Bathurst herd than any other group of people. According to RWED records, people in the four Tłchq communities harvested 71% of the total documented harvest of the Bathurst herd, or

⁶ There are two Yabàhtì: one is officially known as Yamba Lake; and the other translates as the Arctic Ocean. The one referred to here is the Arctic Ocean.



ʔekwò
Deèzàatì 1999

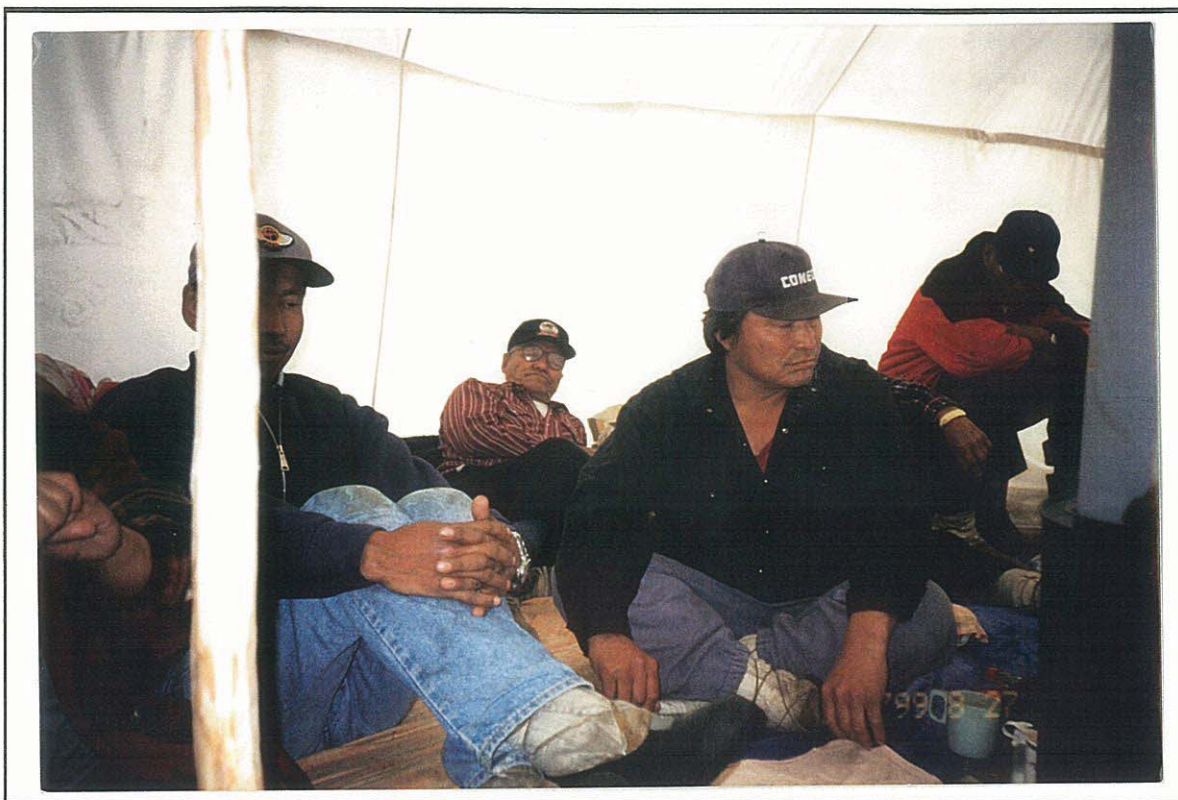
approximately 12,000, between 1988 and 1989.

To our knowledge this information has not been updated, however, the Tł̨ch̨ continue to have community hunts and most families have at least one full-time hunter, and several women who continue to dry meat, tan hides and make winter clothing. The harvesting figures from 1988-99 are therefore representative of the current situation in Tł̨ch̨ communities.

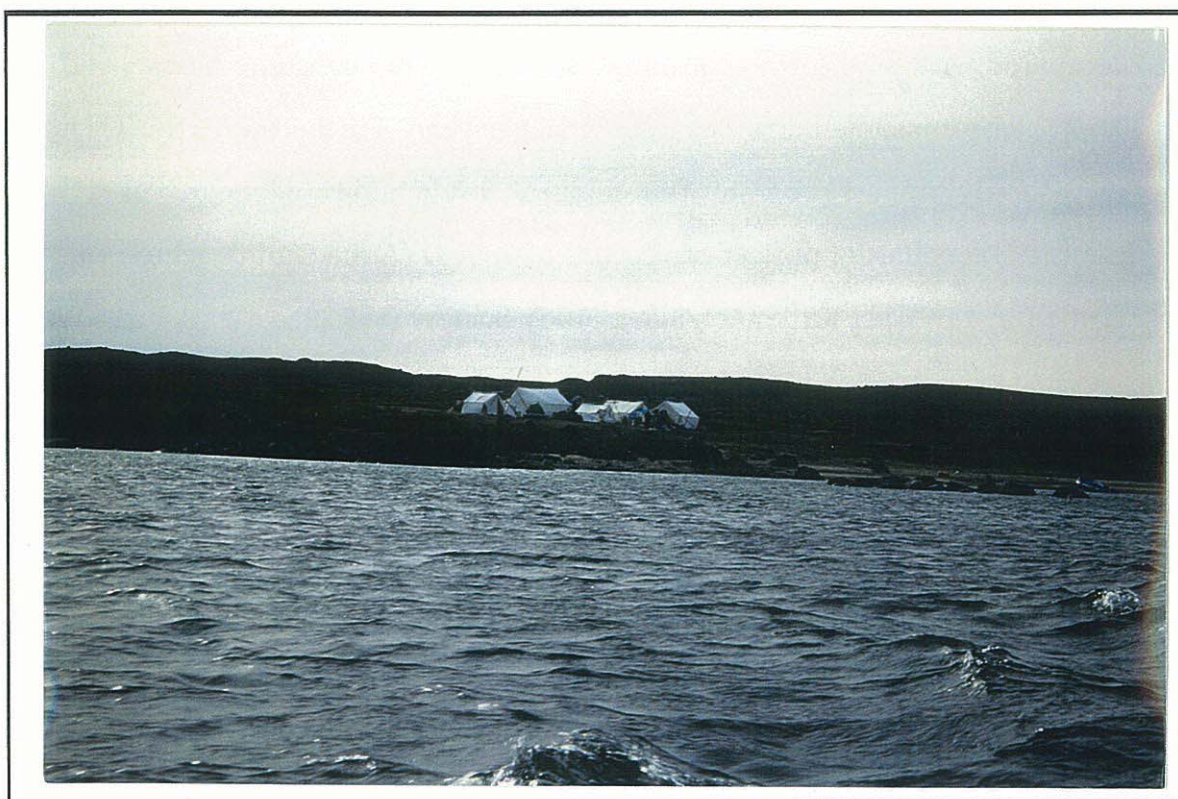
2.2 Background

Both the territorial and federal governments have long acknowledged the importance of the caribou to the Tł̨ch̨ through harvesting studies, as is evident from harvesting records kept by RWED. It can also be seen in figures such as those collected by Tracey and Kramer (2000: 47) who found that 96.8% of the residents of Rae-Edzo consume caribou at least once per year, compared with 89.6% who consume fish, 20.4% who consume moose, and 76.7% who consume berries at least once per year. Furthermore, the Tł̨ch̨ consistently support programs that monitor, study and protect caribou such as the caribou collaring project conducted by RWED (Anne Gunn), which was funded by the West Kitikmeot/Slave Study Society (WKSS).

The Tł̨ch̨ leadership and elders requested this study to ensure Tł̨ch̨ knowledge of caribou and their habitat was documented so that it could be used for monitoring caribou and their habitat, as well as for management purposes. Throughout the four years of the project, information has been gathered under the premise that caribou distribution and migration patterns are dependent on the state of the habitat. The closest Tł̨ch̨ concept to the



Joseph Whane, Harry Simpson, Charlie Tailbone, Robert Mackenzie
Deèzàatì 1999

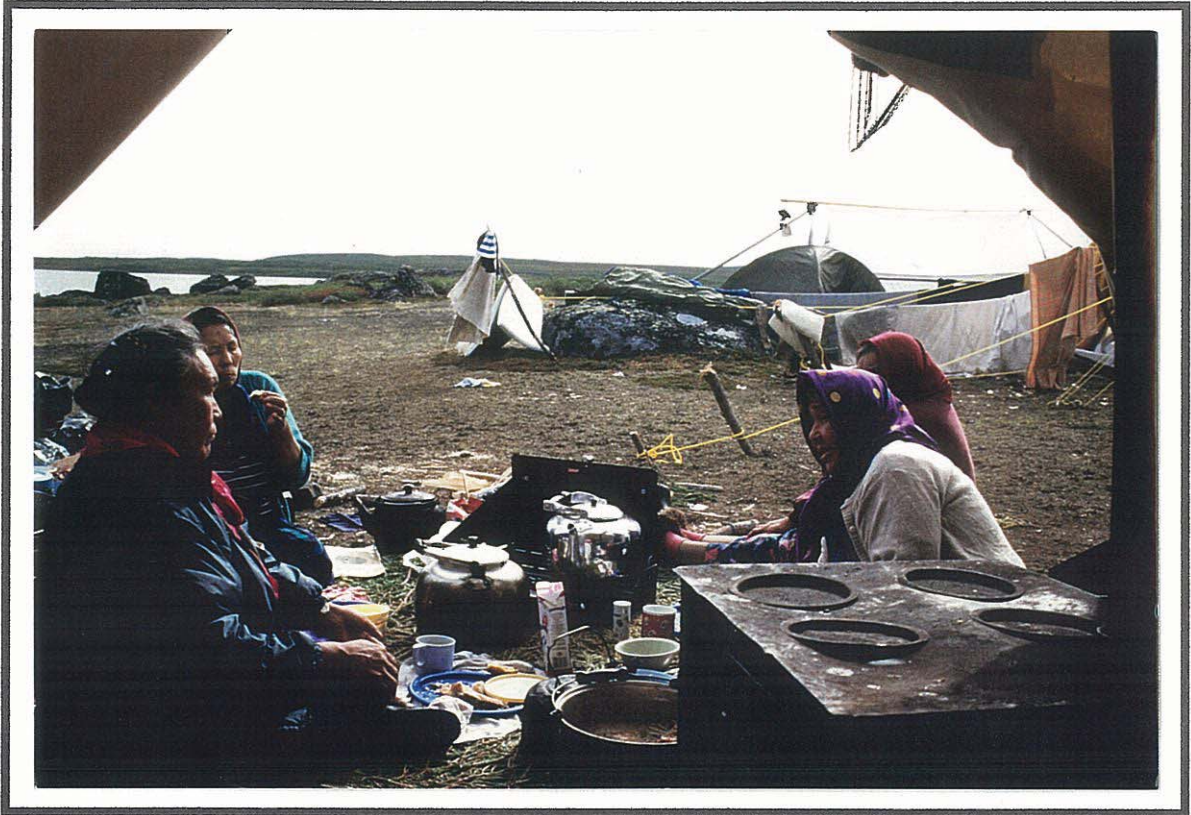


Deèzàatì 1999

scientific concept of habitat is dè, which is also similar to the scientific concept of ecosystem. Caribou dè includes everything that is in the space the caribou inhabit, including, among other things, the human spirit, predators, snow depth, ice cover, pests, vegetation on which they depend, humans and human behaviour, water, landscape, wind and temperature. Tłchq harvesters have observed that changes to the habitat result in changes to caribou migration and distribution. Scientific studies agree with Tłchq oral narratives that suggest a correlation between caribou and the state of the habitat. Tłchq harvesters have also observed that it is impossible to predict what changes to migration will occur, but that caribou will always go to the best vegetation.

Industrial development and associated infrastructure, once it is built, is also part of the dè. According to the records located by Scott (1998), mining on Tłchq traditional territory is at its lowest ebb since the 1930s. Nevertheless, current mining practices may potentially take place on a more massive scale and be more disruptive to the caribou and their dè. The Tłchq elders think the mines, which may be, in area, the size of small cities like Yellowknife, and the associated tailings ponds, noise, smoke and human activity, will disrupt migration patterns and, therefore, caribou distribution and vegetation, the latter possibly taking several hundred years to rejuvenate. For this reason they wanted to have their knowledge of the past documented so that all people concerned with caribou could have access to baseline data.

Oral narratives provide the most reliable form of baseline data, as there is no other source capable of providing a long-term perspective. The Tłchq elders have documented their knowledge of the caribou, over the past four years, from the point of view of hunters who have survived by understanding



Roseann Martin from Behtsokò, Elise Simpson from Gamètì, Elizabeth Chocolate from Gametì and Margaret Lafferty from Wekweètì are all having lunch at Deèzàatì (1999)

caribou behaviour and their dè.

2.3 Study Area

The Tł̨ch̨q̨ occupy the largest portion of the North Slave Geological Area and represent the largest Athapaskan-speaking population in the Northwest Territories. The research area consists of the M̨q̨wh̨ Gogha D̨n̨ht̨l̨ę⁷, an area smaller than the traditional territory used by the ancestors of the people now living in Behtsok̨ (Rae-Edzo), Gamet̨ (Rae Lakes), Wekwęt̨ (Snare Lake), and Waht̨ (Wha T̨).

2.4 Participatory Action Research (PAR)

The participatory action research (PAR) methodology is used as it provides a structure that incorporates the Tł̨ch̨q̨ philosophical approach. They know the elders and harvesters have extensive knowledge of the caribou in both the barrenlands and the boreal forest, and they want to maintain control over the way research is being conducted and the manner in which their knowledge is presented. The implementation of PAR was as follows:

- Throughout the process the Community Elders' Committee (CEC), particularly the Community Elders' Committee in Behtsok̨, provided direction on who was to be interviewed and why. Since they were concerned with documenting knowledge that would provide baseline data, they recommended those elders over 75 years in age.
- During 1996-99 the Researchers and Research Director met with the Elders' Committees from each community and sought their advice and direction on an on-going basis.



Sally Ann Zoe Initial Research Office
1999

- During the Dogrib Assembly in 1999, the Tł̨chq̨ (Dogrib) elders requested a regional elders' committee be set up to oversee the projects documenting and using Tł̨chq̨ (Dogrib) knowledge.
- The Research Director continually worked with the researchers to ensure reliable research techniques.
- The Researchers and Research Director interviewed elders to understand the flora associated with caribou habitat.
- A botanist from RWED worked with the Researchers to determine the Latin names for the plants.
- The Researchers and Research Director worked together with elders to understand the concept of respect in relation to the caribou.
- The GIS Administrator input the harvesting data to the electronic database and GIS system.
- The Research Director ensured consistent data collection and analysis.
- The Research Director ensured funding was spent according to budget plans.
- The Researchers and Research Director verified data collected with both the Community Elders' Committee (CEC) in Behtsok̨, and at a Dogrib Regional Elders' Committee. Approximately 80 elders, currently residing in Behtsok̨, were invited to a meeting at which the caribou report was read for verification. Discrepancies were noted and changed if directed to do so.
- As in previous years, the Researchers were responsible for research and organization of data collection, and the Research Assistants in the communities collected and documented the life histories of harvesting

⁷ See Map entitled Dogrib Traditional Caribou Harvesting Trails.



Georgina Chocolate, Louie Whane, Romie Wetrade and Sally Zoe
are looking out for caribou at Deèzàatì, 1999.

following the system designed by the research team. The GIS Administrator input data relating to the spatial distribution of harvested caribou as well as data on water crossing and location of caribou fences.

- The Research Director, was responsible for overseeing the field research, data management, analyzing the data and writing the reports, as well as for doing the accounting and coordinating the training. Dawn Sprecher assisted with this process.
- WKSS provided peer review of the annual reports as well the final report.



Paul Wetrade and Madelaine Chocolate at Deèzàatì (1999).

3. ACTIVITIES

Activities between 1997 and 2000 can be related to the long-term objectives of this project.

3.1 To translate relevant information on caribou movement contained in previous interviews

- During the three years this research took place, a total of 44 taped interviews from previous projects were translated. As the researchers learned to understand and explain the elders' oral narratives, interviews were summarized in report format, as the translations were time consuming.

3.2 To develop Dogrib terminology on caribou and caribou habitat that will be used when developing interview guidelines

- Initially the researchers worked with Madeleine Chocolate, the Language Coordinator, for approximately one hour/week on literal and conceptual interpretations of terms. Problems were discussed during two workshops, one in November 1997 and the other in February 1998, in which both elders and Linguist, Dr. Leslie Saxon from the University of Victoria participated. Traditional terms associated with caribou and habitat was used during interviews, discussion and verification.

3.3 To document Dogrib knowledge of caribou habitat

- Several activities took place in order to document elders' knowledge of caribou habitat.
- Initially 20 hours of interviews took place with the elders' committee. After each interview and transcribing the tape the researchers worked with the elders to put relevant habitat on topographic maps.
- In 1998 Researcher, Georgina Chocolate, along with high school student Roger Champlain, traveled with the elders Jimmy Martin (age 76), Louise



Jimmy Martin with ?qhtsi (canvas bag) of ?ekwòkwo (caribou meat)
Deèzàatì 1999

Whane (age 77) and Elizabeth Michel (age 77) to ʔek'atìretsìlì¹ to observe caribou and document the barrenland vegetation eaten by caribou.

- During May 1999 Georgina Chocolate, Researcher, traveled to ʔìhdaatì (Stagg River) with 15 elders from Behtsokò to document vegetation that caribou forage on in the boreal forest. Eight (8) taped interviews were completed along with 19 field forms and nine (9) rolls of film.
- During August 1999 Georgina Chocolate, Researcher, worked with elders Romie Wetrade, Elizabeth Chocolate, Jimmy Martin, Louis Whane and Phillip Zoe at Deèzàatì (Point Lake) to document information on caribou habitat in the barrenlands. Twenty-four (24) field forms were completed. Due to the circumstances in the field it was more appropriate to conduct videotaped interviews. Vegetation was photographed, pressed and identified, and habitat types were photographed. Joseph Whane, Research Assistant, videotaped approximately two-hour of elders and harvesters hunting, butchering and using the caribou.

3.4 To document variations in migration patterns, and the elders' knowledge on why variation occurred during given time period

- Initially 33 interviews were conducted with 25 elders from Behtsokò, Gamètì, Wekweètì and Whatì that resulted in 54 hours of taped information. After each interview and transcribing the tape the researchers worked with the elders to put relevant places and trails on topographic maps.
- Next Researchers Bobby Gon and Christine Sanspariel in Behtsokò, Adele Tatchia and Noella Kodzin in Wekweètì, and Gloria Ekendia in Gamètì worked with assistant researchers and harvesters, Joe Mìgwì and Charlie Bishop in Behtsokò, Joseph Whane in Wekweètì and Joe Mantla in Gamètì. These individuals documented the elders' oral histories associated with harvesting caribou. A total of 28 harvesters/elders were interviewed each continuously between one (1) to three (3) weeks. These interviews resulted in a time span of 73 years of information relating to: location of caribou in a given year, foraging habits, health and fitness and whether there were enough caribou for the harvester and their family or not. The

¹ See any of the Maps for location of Tìchq (Dogrib) place names.



Arriving at Deèzàatì
1999



elders listed in the table below provided their life histories of harvesting caribou, which resulted in 1269 data entries, spanning between 1917 and 1998

**Name, Age as of 1999, and Community of Elders'
Interviewed on Harvesting**

Behtsokò	Gamètì	Wekweètì
Suzie J. Bruneau (94)	Madeline Drybone (94)	Margaret Lafferty (82)
Sammy Football (94)	Romie Wetrade (81)	Louis Whane (80)
Joseph Rabesca (93)	Alphone Quitte (81)	
Moise Martin (88)	Louis Zoe (60)	
Adele Wedawin (86)	Joe Mantla (60)	
Liza Lamouelle (84)		
Matto Mantla (85)		
Joe S. Mackenzie (84)		
Harry Koyina (83)		
Liza Koyina (81)		
Nick Black (81)		
Paul Rabesca (81)		
Zimmy Mantla (80)		
Madeline Martin (80)		
Elizabeth Michel (77)		
Annie Black (77)		
Elizabeth Rabesca (71)		
Elizabeth Mantla (66)		
Robert Mackenzie (66)		
Joe Migwi (65)		
Charlie Bishop (65)		

3.5 To document the relationship between the Tłı̨cẖ and the caribou.

- In 1997, Bobby Gon, Researchers, and two elders, Jimmy Martin (age 76) and Robert Mackenzie (age 64), traveled on the winter road to the BHP Ek'atı Mine. They observed and discuss caribou and people's relationship to the caribou.
- Georgina Chocolate and Bobby Gon, Researchers, spent between May 22



Georgina Chocolate at Deèzàatì (1999)

and 29, 1998 in Whagweètì ² where they interviewed 13 elders. These interviews focused on ways of knowing and respecting caribou.

- Elders were interviewed on issues associated with respecting caribou and how this affects the relationship between caribou and humans. Twenty-two (22) tapes are associated with this information.
- Georgina Chocolate, Researcher, reviewed the tapes on caribou , translations and summaries for information on respect.
- In 1999, Sally Anne Zoe, acting as a Researcher, and Alice Legat, Research Director, traveled between Whatì and Gamètì with Romie Wetrade, Angelique Mantla and Adele Wedawin to observe caribou in their winter range, and to observe human behaviour associated with the winter road.

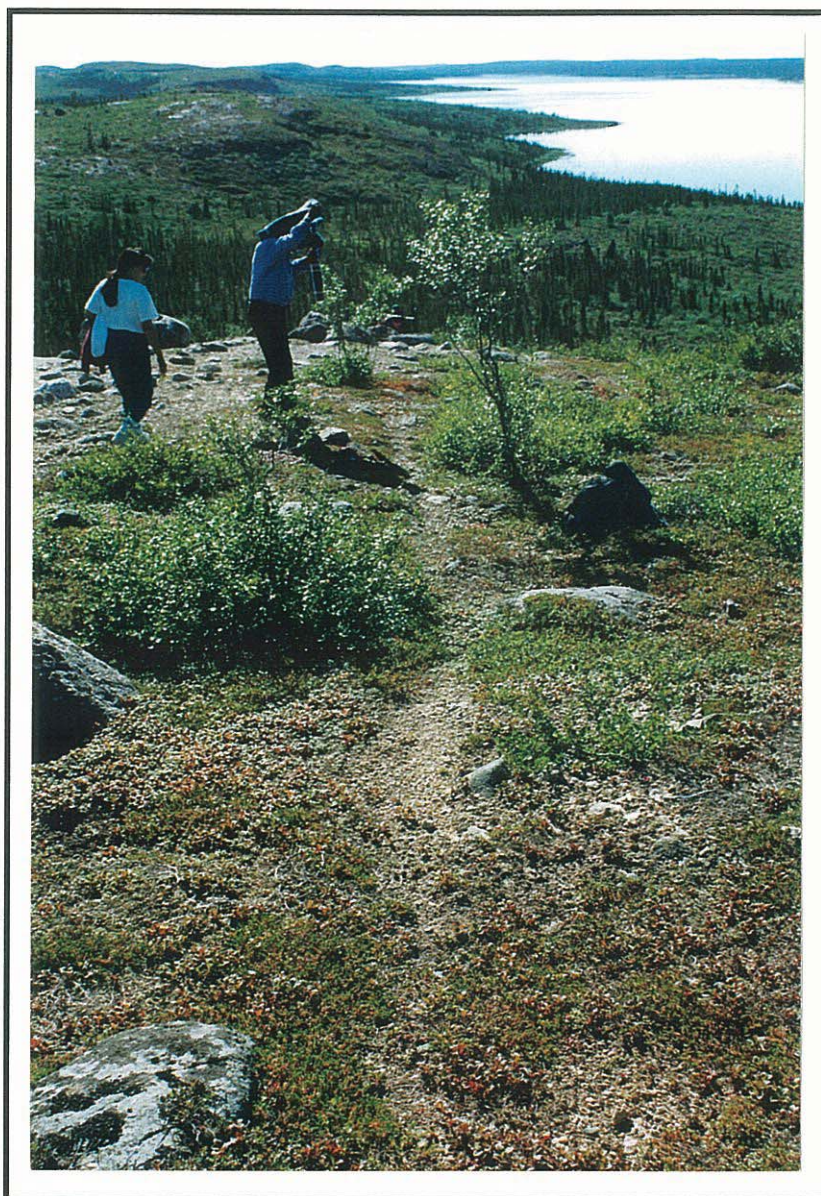
3.6 To complete a literature review of indigenous knowledge of caribou and reindeer

- Initially, a literature search of indigenous knowledge on caribou and reindeer was conducted through the University of Calgary, Alberta, the University of Aberdeen, Scotland and the Scott Polar Institute, Cambridge, England, as well as through related websites. Fifty-three (53) references were reviewed. Most traditional knowledge studies were done in other languages (for example, Zhigunov 1961; Herre 1956), and money was not available for translation. The literature has been reviewed for links with this study. Relevant articles are discussed in Section 5: Discussion/Conclusions of this report and all are listed under the bibliographic section, whether directly referred to in the report or not.

3.7 Other Activities

- On-the-job training is an important aspect for the research team and the Dogrib Regional Elders' Committee. Training includes Tł̨ch̨ literacy and transferring data to topographic maps and a database in addition to data analysis and report writing.

² Officially known as Russell Lake



Madelaine Chocolate and Jimmy Martin
Following ?ekwò trail

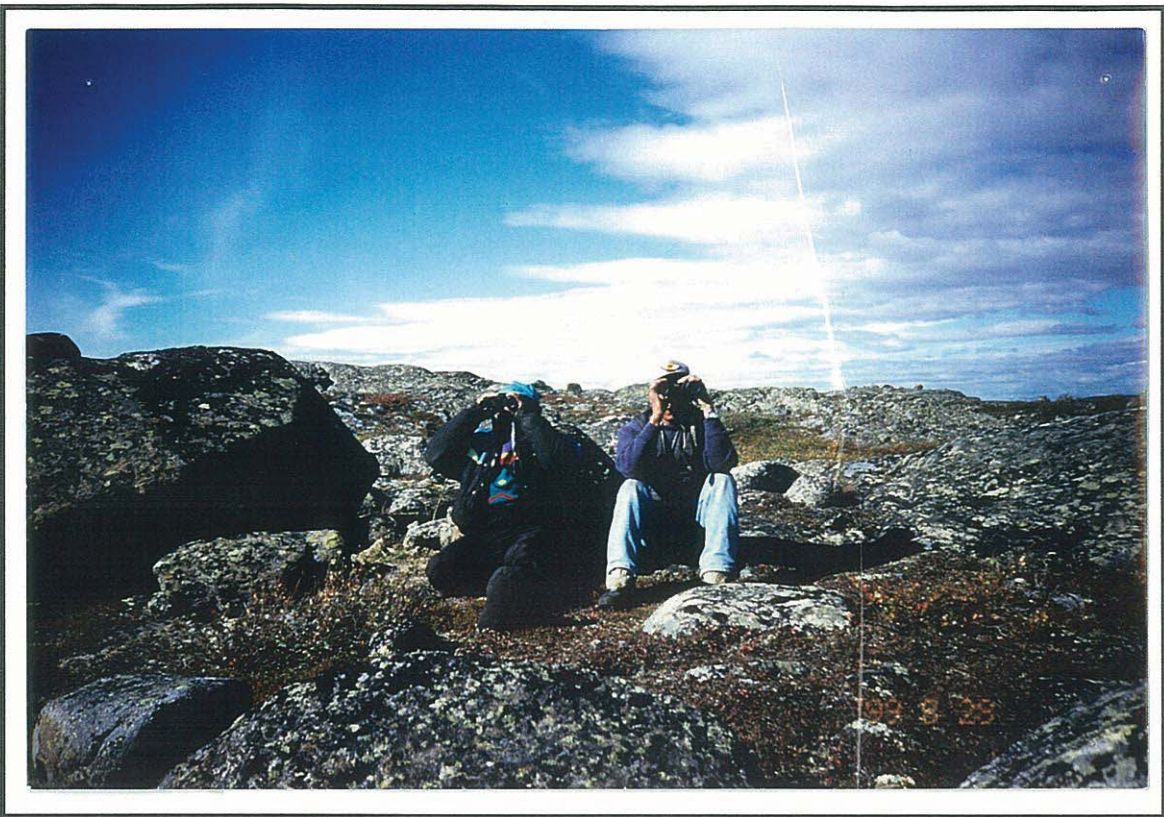
Wekweètì 1997

- In conjunction with the elders' discussion of mining activities, Gabriel Mackenzie-Scott was contracted in 1998 to compile a report, using archival information on mining activity and caribou distribution on Dogrib Traditional Territory, as recorded by Wildlife Officers. 71 years of mining data was entered into the GIS (Scott (1998). This information can be compared to where caribou were harvested during that period.
- In conjunction with elders' statements about their concern about fires destroying important caribou habitat, the research team requested and received fire data from the RWED. Twenty-four (24) years of information was entered into the GIS and can be used to compare where caribou were during that period.
- Photos were produced for families whose members participated in the research
- Reports were sent to all Dogrib band office and schools, and made available to delegates at the Dogrib General Assemblies.

3.8 Storage of Material and Data

All materials and data are the property of Dogrib Treaty 11 Council and are stored at the Whàehdòè Nàowòè program office where staff have catalogued tapes and photos. Currently this information is being entered into a data base so the material will be accessible to Dogrib students, Dogrib Band Councils and Dogrib Community Services Boards

- Audio and video tapes as well as photos are stored in locked safes
- Topographic data is stored in access and maps are in MapInfo format on computers where data can be continually updated
- Plant specimens have been pressed and are stored in metal cabinets
- Topographic maps have been storied in filing cabinets but are being transferred to map drawers



Paul Wetrade and Joseph Whane looking for caribou
Deèzàatì 1999



Paul Wetrade and Sally Zoe looking for caribou
Deèzàatì

4. RESEARCH RESULTS

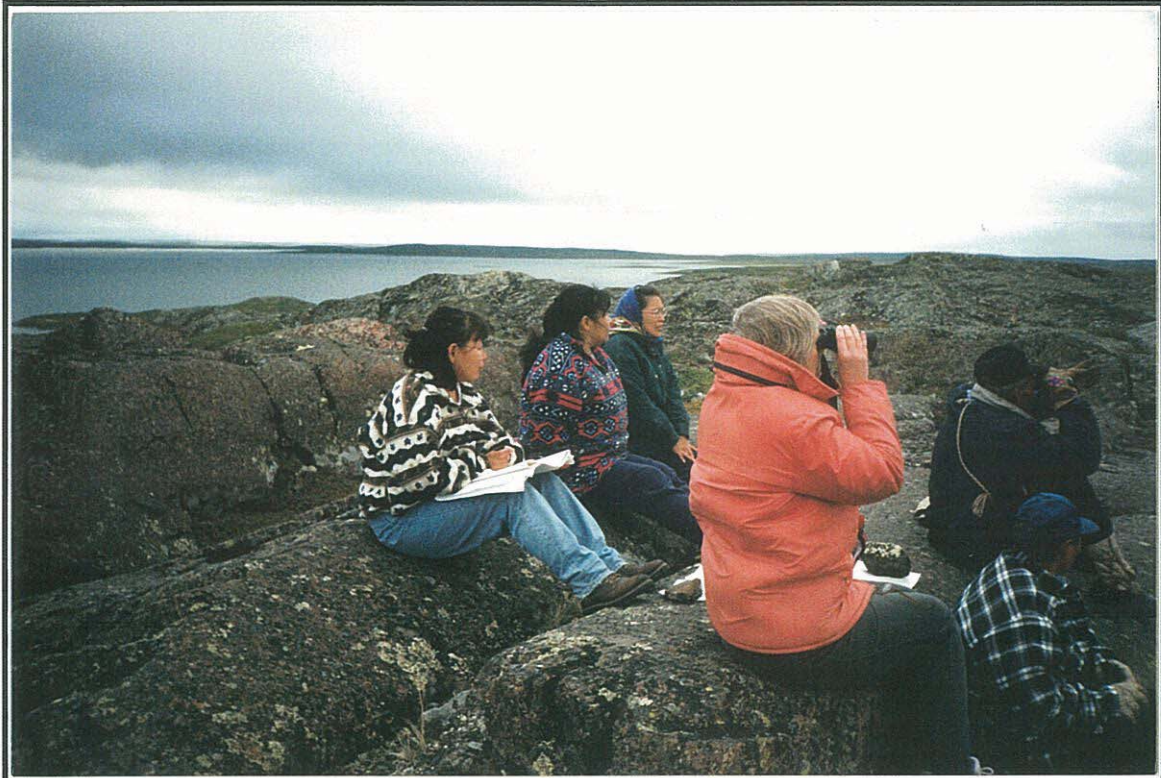
The basis for this research was the premise that ɬekwə¹ migration is dependent on the state of the habitat. The elders discuss ɬekwə² from the point of view of hunters who survived by knowing caribou behavior and their dè, and who have a sophisticated understanding of wildlife management in relation to the dè and the inter-relations between animal and human behaviour. The interviews were done within the context of the elders' concern for the future, especially in relation to their grandchildren, whose lifestyles will most be affected by industrial development. The elders want the caribou and their dè to be respected so their grandchildren will thrive and continue to use the Tłchq (Dogrib) traditional territory.

While the elders are working within the context of harvesters concerned for the future of their descendants, the research team worked within the methodological framework known as Participatory Action Research (PAR). The decision to conduct research with the elders on caribou and habitat came from the elders and the leadership through the Dogrib Renewable Resources Committee³ (DRRC), who wanted baseline data that reflected Tłchq (Dogrib) knowledge to be used in future monitoring and cumulative effects studies. Within the PAR context, the elders were responsible for sharing knowledge that had been verified through the traditional methods of group discussions,

¹ See Orthographic System and Pronunciation Guide by Dr. L. Saxon, Linguist, University of Victoria. The guide is located before Table of Contents.

² When the word caribou is used, it denotes both woodland and barrenland caribou. The Tłchq term ɬekwə is used when discussing barrenland caribou and tɔdzı when referring to woodland caribou.

³ This committee consisted of Harry Simpson and Romie Wetrade, Jimmy Nitsıza, Phillip Dryneck and Eddie Camille, Louis Whane and Joe Pea'a and was chaired by Violet Camsel-Blondin



Sally Anne Zoe, Georgina Chocolate, Madeline Chocolate
Allice Legat, Louis Whane, Romie Wetrade
Observing ʔekwò at Deèzàatì
1999

whereas the researchers, who were chosen by the elders, were responsible for documenting caribou knowledge that has been verified and shared through oral narratives. The Research Director was responsible for overseeing the project, particularly the documentation of the Tłchq knowledge, the analysis and the report writing. Research methods will be described in association with the research results under the following sections.

- Oral Narratives: This section will describe accepted Tłchq knowledge of ɤekwò that has been traditionally verified through discussions among hunters and can now be shared through oral narratives.
- Life Histories of ɤekwò Harvesting: This section will describe ɤekwò harvesting of specific individuals. It is during harvesting activities that hunters observe and come to understand the knowledge that is contained in the oral narratives. They also share their experiences among groups of harvesters where their experiences are verified by others and then become part of Tłchq oral narratives that are told and retold to pass knowledge of caribou.
- Field Research: This section describes specific vegetation communities and landscape in specific location in the boreal forest and in the barrenland. During these field research trips the researchers took photos, pressed plants and filled in data forms specific of the ɤekwò dè explained in oral narratives.

Throughout the life of the project the research team spent time considering concepts relevant to understand the elders' knowledge. The English concept 'habitat' was not easily translated. The term habitat is usually translated as "tłts'aàdì ɤɤq", or "animal den" in public meetings, however the researchers and elders found 'tłts'aàdì ɤɤq' to be too narrow in meaning. A more appropriate concept is the word ɤekwò dè⁴, which allows the elders to discuss

⁴ Dè is similar to the scientific concept 'ecosystem', however where ecosystem is based on the idea that living things exist in association with non-living elements, the Tłchq term dè is based on the idea that everything in the environment has life and spirit. Dè includes both the spiritual



ʔekwòretq (ʔekwò trail) in Tʔotia (wet, marshy grass)

anything that they consider to be linked to the caribou, including such phenomena as ɬk'q̄ (medicine power) and peoples' behaviour, predators such as wolves and people, pests such as mosquitoes and flies, landscape such as eskers and smooth bedrock leading to areas to cross water, weather conditions creating particular kinds of snow conditions, and favoured vegetation.

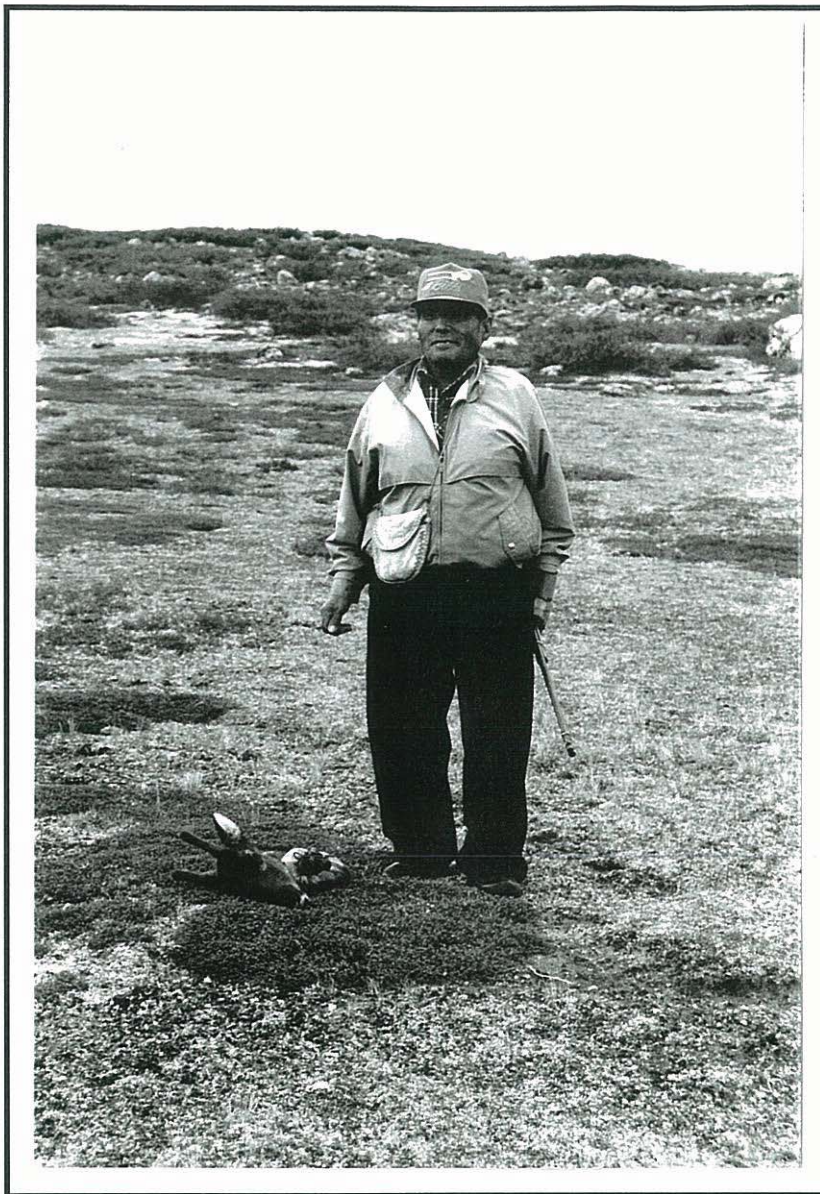
During interviews the researchers used terms related to migration, which are listed in Table I. These concepts explain the actions taken by the ɬekw̄ (barrenlands caribou) and are more meaningful to the hunters who are trying to understand the ɬekwo's (barrenland caribou) behaviour in relation to the dè.

Table I
Terms Associated with Migration of ɬekw̄

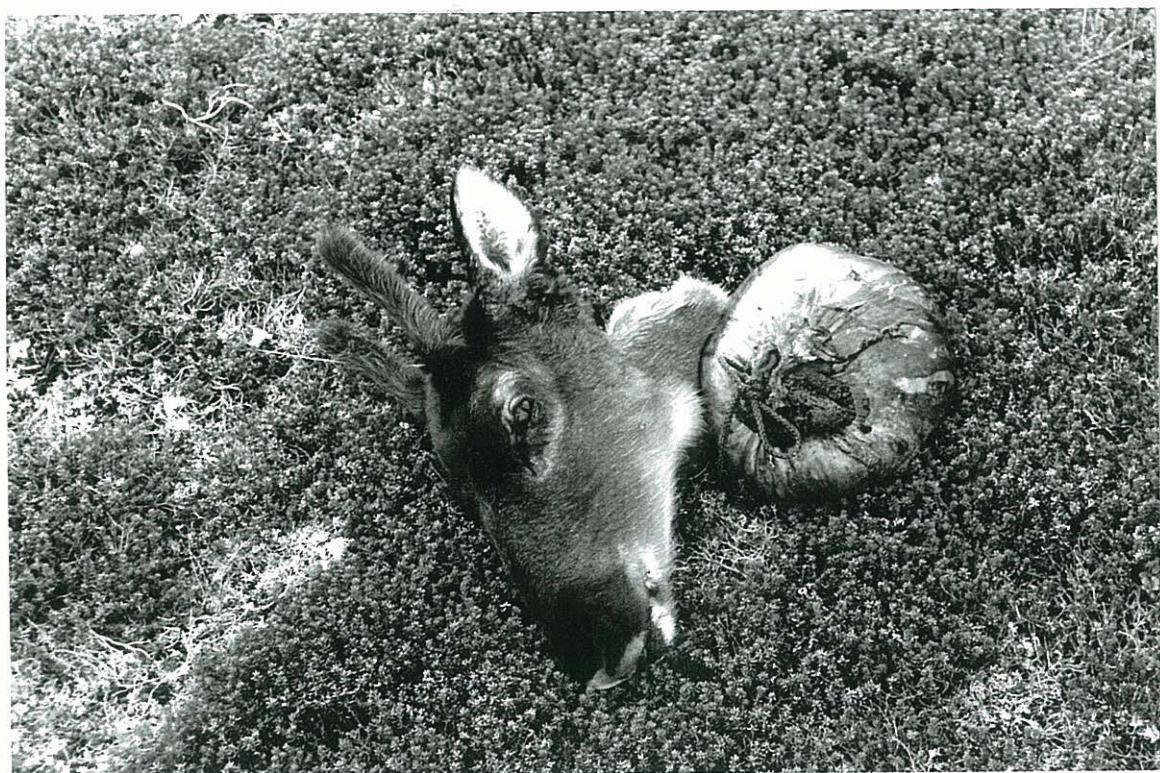
Detsiìllààɬekw̄	ɬekw̄ that winter in the boreal forest
Hozìɬekw̄	ɬekw̄ that winter in the barrenlands
Naèdaadì	ɬekw̄ that summer in the forest
Nadeɬà	Migrating ɬekw̄
Nj̄zaa	ɬekw̄ migrating towards the forest in the fall
Nadèezoḡ	ɬekw̄ migrating to the birthing grounds
ɬekw̄keè	ɬekw̄ tracks

and physical aspects of the land, people, wildlife and their habitats. ɬekw̄ translates as barren land caribou.

T̄chq̄ words follow the orthography found in the Dogrib dictionary, “T̄chq̄ Yatì En̄t̄'è”, or in the case of compound place names they follow the spelling rules established by the Place Names Project.



Joe Migwi



4.1 Research Results: Oral Narratives

As stated above, the Tł̥chq̓ (Dogrib) elders interviewed discussed caribou from the point of view of hunters within the dè. Elders were interviewed in: Whatì (Wha Tı), Gametì (Rae Lakes), Wekweètì (Snare Lake) and Behtsokò (Fort Rae). During the first segment of research the Researchers, interviewed, documented and transcribed the oral narratives on caribou migration and caribou habitat. Since this type of data and data collections are qualitative rather than quantitative data the Community Elders' Committee⁵ (CEC) was vital to directing the Researchers to interview the most qualified and knowledgeable elders.

The CEC directed the researchers to interview elders over the age of 75 as they are the ones who rarely, if at all, worked for a wage. They used canoes to travel throughout the Tł̥chq̓ territory, and therefore have the most intimate knowledge of the dè. Most interviews were done in groups of four to six, as we were not asking the elders to discuss their own personal experience but more general Tł̥chq̓ (Dogrib) knowledge contained in oral narratives. These interviews took place in camps in the boreal forest, in the barrenlands and in the office in Behtsokò. The interview guidelines, which included such open-ended statements as the following, were designed to solicit the elders' knowledge on caribou migration and habitat.

- Please talk about where the caribou travel and why
- Please talk about what part of the dè influences where the caribou travel and why

After being interviewed, the researchers and research director documented

⁵ The Behtsokò (Rae) Elders' Committee, consisting of Jimmy Martin, Adele Wedawin, Robert Mackenzie and Elizabeth Michel, oversaw this project.



Liza Mackenzie, Harry Quitte, Eddie Lafferty, Adele Wedawin, Theresa Lafferty, Sally Anne Zoe, Robert Mackenzie and Johnny Eyakfwo

the knowledge contained in oral narratives on data sheets. If an oral narrative is considered by the team to be particularly useful, in that it clarifies or clearly states what many other elders have expressed to be true, the tape was translated by a professional translator. Tapes are also translated if the elder speaking is the only one to make a certain point, based on their knowledge of a particular area or experience that contributed significantly to the data⁶. The research team used these translations to direct research and discussions when evaluating and changing interview guidelines, analyzing data and writing reports.

Oral narratives provide information, in context, to the listener. In this case the context is land claims, self-government and industrial development. Elders consistently talk about their concerns around mining and their desire to have authority over decisions about caribou, the habitat and over development that effects caribou and the Tłı̨chǫ. The research team agreed to continue making inquiries that allowed elders to share information through oral narratives, but would also solicit more detailed information about foraging behaviour, relationship with predators and distribution. In order to accomplish this the researchers had to let the elders know that they understood what had been expressed to date. This was done by:

- Using appropriate terms and concepts. On one occasion the Community Elders Committee (CEC) spoke firmly to a researcher about using terms that had not been verified and that only one elder had used in a descriptive way. They felt that classic Tłı̨chǫ terms should have been discussed to verify the meaning. By using the misunderstood term it had mislead the elders, confused the issue and was seen as attempting to have elders talk about what they did not know.

⁶ Given that one hour of taped interviews take approximately 40 hours to translate, a system was devised to select relevant tapes to be translated, rather than translating all tapes.



NWT Archives N79-0-1537
1950s

- Verifying the data contained in the annual report.
- Asking open-ended questions that contained information that had previously been verified in order to avoid asking leading questions. For example, all the Tł̥ch̥q̥ elders agree that smoke and fumes will cause caribou to move away from those smells, but they also agree that caribou will travel wherever they want when they are “on the move” during migrations. The researcher pointed out that oral narratives appear to be contradictory and asked if the elders could further explain what they mean.⁷

Interviews usually emphasized: the Relationship between ʔekw̥ Migration Patterns and the Behaviour of Humans; Annual Cycle of ʔekw̥ (barrenland caribou); Spring and Fall ʔekw̥ Routes; and ʔekw̥ Migration in Relation to Vegetation and Ability to Forage.

4.1.1 Oral Narratives: The Relationship between ʔekw̥ Migration and the Behaviour of Humans

The relationship between the Tł̥ch̥q̥ and the caribou is based on mutual respect. The ʔekw̥ (barrenlands caribou) show their respect towards people by traveling to the Tł̥ch̥q̥ from their birthing grounds. The elders say that even though the ʔekw̥ know that they will be killed they still come to the Tł̥ch̥q̥; by giving themselves to the Tł̥ch̥q̥ the ʔekw̥ spirit will be reborn and the ʔekw̥ population will remain strong. The people show their respect towards the caribou in various ways. First, all individuals must have knowledge of the caribou. Second, people must use all possible parts of the caribou that they harvest. Third, they must care for the stored meat and discard bones and other unused parts in a manner that will not offend the

⁷ To summarize, the elders mean that when ʔekw̥ are on the barrenlands grazing on the rich vegetation, prior to migration, they will move away from what bothers them, but when they are migrating they will go through and/or over most obstacles to get where they are going.



Elizabeth Chocolate preparing Bògqò (dry meat)
Deèzàatì 1999



Elizabeth Chocolate and Bella Zoe scraping Deghq (hair) off zewò (caribou hide)
Deèzàatì 1999

caribou. Fourth, the rules regarding caribou respect must be obeyed.

Georgina Chocolate (Personal Communication: 00/02/29) has heard several elders, including her grandfather Pierre Quitte, state that,

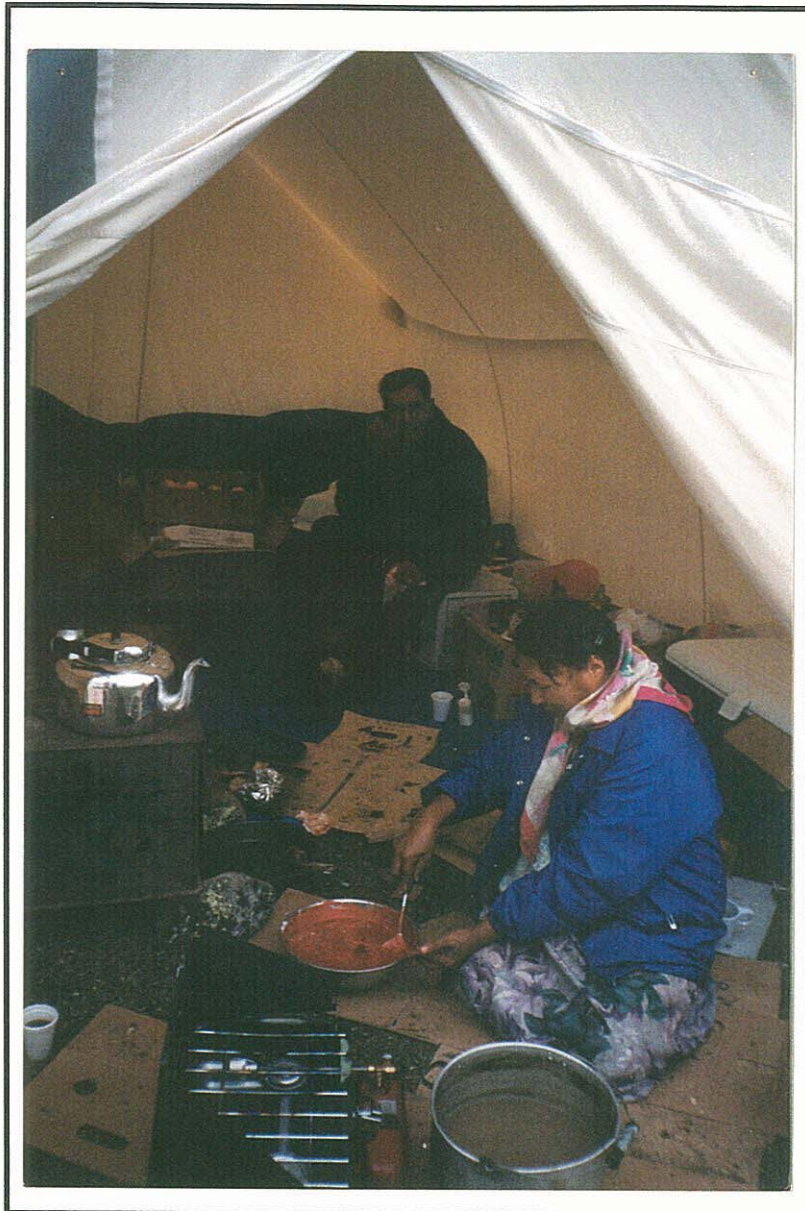
the caribou are like the creator, when they know you need them they will come to you; when you are alone and you pray to them they will come and you will have food and clothing. Like the creator they take care of us. When they know you are in need they will help you.

Since the Tł̥ch̥q̥ elders insist that no one can ever know where the ɬekw̥ò will migrate they constantly tell stories that explain how to find sites where ɬekw̥ò frequent and where, in the past, ɬekw̥ò have been harvested successfully. Some of these places are around Wekweètì (Snare Lakes), ɬek'atì (Lac de Gras), Gots'òkàtì (Mesa Lake), and as far into the barrenlands as Kòk'èetì (Contwoyto Lake).

...Louie Whane's father used to tell [him] a story. ...Louie's father used to canoe to Kok'eghotì with birch bark canoe. And to ɬek'atì (Lac de Gras) where there is a mine today around that area there used to be lots of ɬekw̥ò (barrenland caribou). Because there's a place called Kwek'aghotì (southern end of Point Lake) and that's where there is a lot of ɬekw̥ò, that's where the water crossing is. That's why there's people living around that area. (Eddie Lafferty, age 71: 97/04/17)

It is generally believed by the Tł̥ch̥q̥ that the ɬekw̥ò migrate to people who live well and behave properly.

When I was a young man I lived at Whatì, there used to be a ɬekw̥ò around there at the time. But someone had hit the ɬekw̥ò with the stick, and the elders had said "if you guys [the older elders] are right, next year there will be lots and lots of ɬekw̥ò." Sure enough that next year there was ever lots of ɬekw̥ò. But that next year after that, there was no more ɬekw̥ò.



Alice Simpson making ʔedoò tiiwo (blood soup)
Deèzàatì 1999

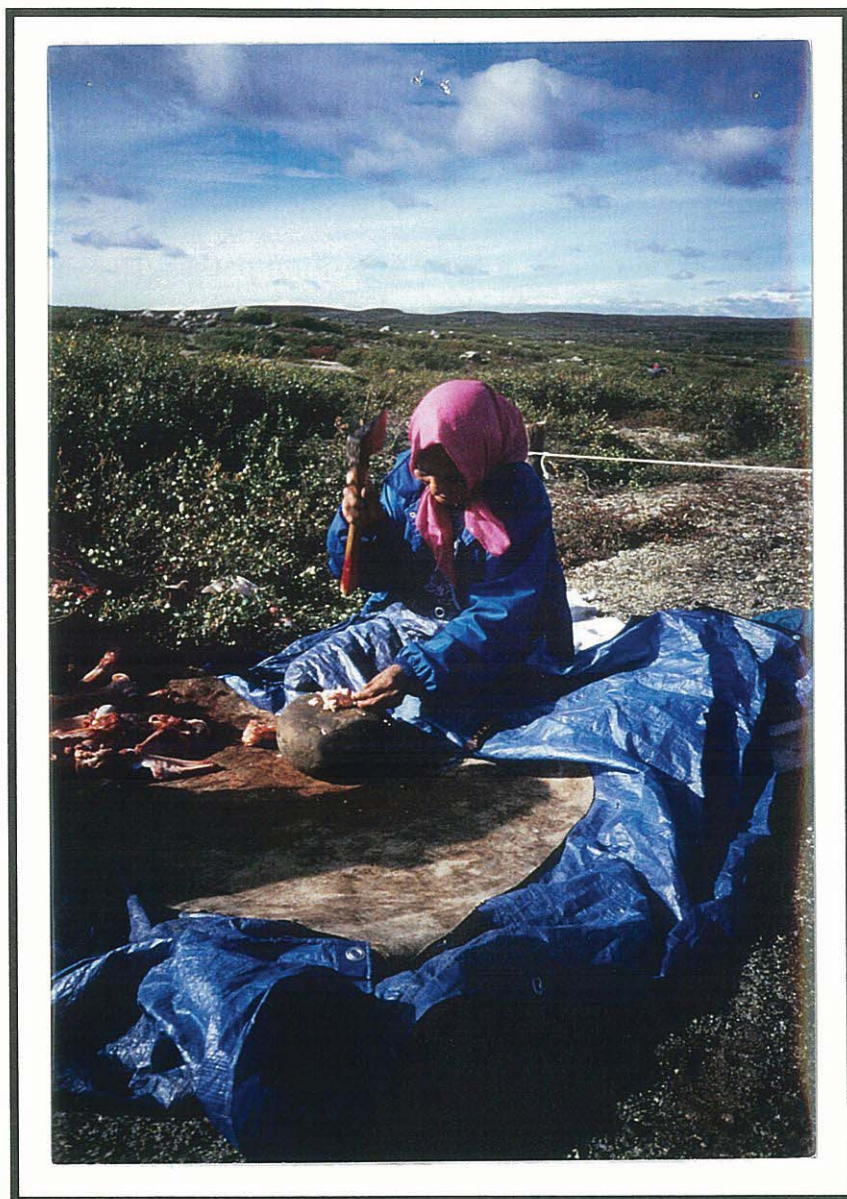
Because the ɾekwò was hit, that's why. Now I'm over seventy years old. ... From then on [and] for the next thirty or forty years thereabout, only then will the animal return they say. (Johnny Eyakfwo, age 73: 97/04/17)

With the loss of ɾekwò to the Whatì area for approximately 30 years, many Ṭḥcḥ people are very cautious about how the ɾekwò is treated and what developments should be placed in their migration paths. The ɾekwò stopped migrating to the Whatì area when a young man hit the ɾekwò with a stick and about the same time as Ray Rock uranium mine was under construction. Elders continually encourage all people to treat the ɾekwò with respect because

...ɾekwò are the ones that struggle to get to us, even though they know they are going to be killed. They are happy to see people. We people are not the ones to struggle for the ɾekwò. (Caroline Beaulieu, age 86: CHP-98/02/05-1-3/3).

The Ṭḥcḥ elders continually state that it is important to respect the ɾekwò if it is to continue coming back to them. To respect is to use the various parts of the ɾekwò:

The ɾekwò are not human. They are not human, but like prophets they can foresee everything that's on this part of the land. They don't talk, they don't understand one another but still, that's the way they roam on the land. The old timers have really respected the ɾekwò because they are all we depend on. People don't do things without the ɾekwò being aware of it. We depend on the ɾekwò and so, when we kill a ɾekwò, we show it respect. If we don't do that and we don't treat them really well, the ɾekwò know about it. They say, " people don't treat us very well and they don't show us respect at all." Right now, during the spring when the ɾekwò start to migrate, there are usually many of them. The young men go hunting and bring back fresh

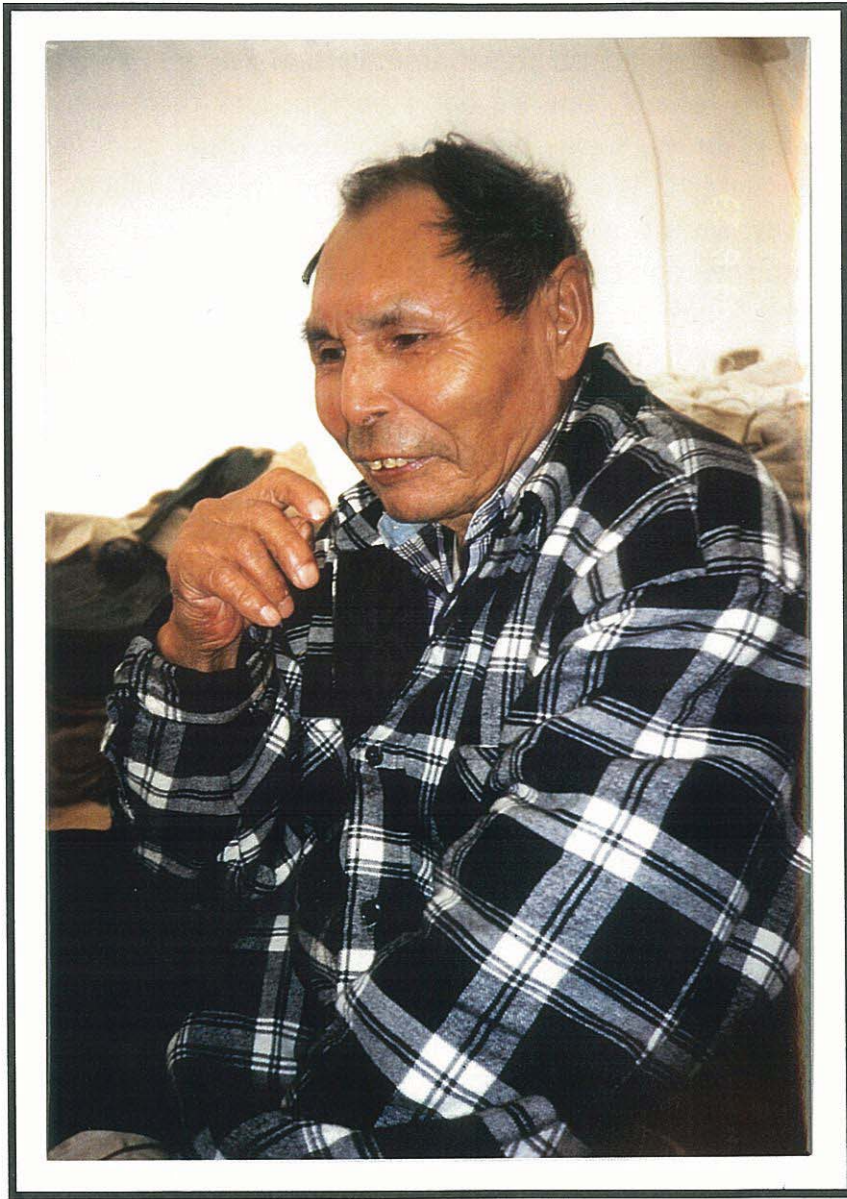


Elizabeth Chocolate smashing ʔekwòò (caribou bones)
to make ʔekw'qòtleeè (bone fat)
Deèzàatì 1999

meat. If their wives are not able to prepare or fix the fresh meat, why do they bother to go hunting and kill that many Ɂekwò. We depend on these animals and we are suppose to show them respect. But we don't do that and that's why you find Ɂekwò-hides, meat, heads and various other parts at the garbage dumps. We hear about all the wasted Ɂekwò meat being thrown away at the dumps. As old timers, that is something we don't like at all. If they bring Ɂekwò meat to us we will prepare or fix the meat because we love the animal. And the Ɂekwò knows about these things. That was the way our elders have talk to us about these things. As for the Ɂekwò leader who they follow, she was born with the grace of God and it is like she knows what is up ahead of them. That's the way it is with the Ɂekwò. They don't see people all year but... they leave the barrenlands for the tree line when they start migrating. So it is said that; when they see the people for the first time, they are really, really happy. That is when they see people the first time. We are happy too, because we depend on them to survive. It is said, they probably sense that they will be killed but they're still happy anyway. In the old timer's way, they're like our relatives and we depend on them, so we are really happy. In the same way, they know they will not live but they are happy too. That's when they see people for first time and that's what is said. How long do we have to talk, is that it? (laughter) Did I speak a little bit too long? Ok that's all. (Rosalie Drybones, age 82: 98/02/05)

The Tłchq elders know it is human behaviour on the Ɂekwò dè (caribou territory) that is the most important factor affecting Ɂekwò migration patterns. The elders frequently mention the importance of human behaviour, while the biologists concentrate on other predators and pests such as the wolf, mosquitoes and black flies. When asked about predators the elders made statements such as:

Wolves, fox, raven and people are supposed to eat [and use] Ɂekwò. Raven and fox scavenge on the Ɂekwò and wolves,



Romie Wetrade
Deèzàatì 1999

grizzly and people harvest the ʔekwò. (Joe Suzie Mackenzie, Personal Communication, age 80: 95/05/20)⁸

The mines are the product of human behaviour, and humans are an aspect of ʔekwò dè. The possible effects of mines, all weather roads, winter roads and communities on ʔekwò migration and distribution concern the elders because they all affect the ʔekwò habitat and therefore show disrespect for ʔekwò. The Tłchq elders feel that the developers seem to build without adequate knowledge. They fear this lack of knowledge and the building of containers for the tailing at Diavek. Several elders have made the comment. “We do not think they know how strong the ice is, and, if the containers break, how much pollution will be in the water.”

Although we have all seen ʔekwò in association with the ice road, the ʔekwò do not like to cross roads unless they are in the migration mode. They become very skittish when trying to cross roads, as they can smell the human scent. When they are not in migration mode and simply foraging during the winter, if the ʔekwò “sniff our scent, they will turn back” (Romie Wetrade, age 77: BHP-95/05/10).

It is generally believed by the Tłchq that the ʔekwò migrate to people who live well and behave properly.

Respect Through Knowledge

The elders acknowledge that during an earlier time the ʔekwò did not come to the Tłchq territory within the boreal forest. It is said that,

A long time ago when the ʔekwò did not travel the trails to this area, the Tłchq were starving. A man had a dream and the next day he walked straight to the barrenlands and invited the

⁸ Also referred to in Legat et al 1995: 16)



Charlie Tailbone teaching Alice Legat to skin caribou
Deèzàatì 1999

ʔekwò to follow him to this land... (Romie Wetrade, in Legat et al:1995)

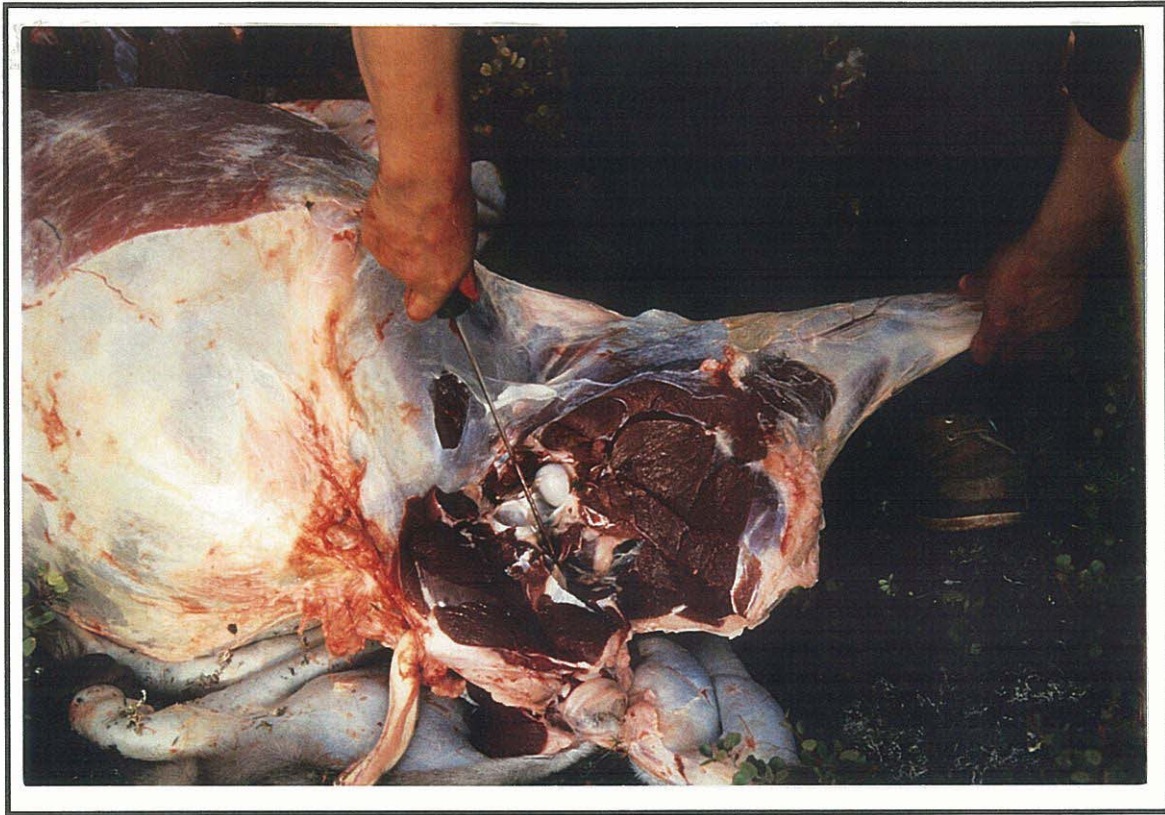
Since the T̥chq know that the ʔekwò (barrenlands caribou) did not always migrate to the boreal forest, they are very concerned about knowing everything about the ʔekwò and not creating a situation that will cause the ʔekwò to stay away or migrate elsewhere. Probably the most important way of showing respect for the ʔekwò is by knowing everything they can about ʔekwò and, to respect people who have the intelligence to know more about ʔekwò and those who know the spirit of the ʔekwò. The elders know that to lack knowledge will result in lack of respect in such ways as taking more ʔekwò that is necessary, destroying ʔekwò food, and ʔekwò water crossings and travel routes. It is believed that only those who know little about ʔekwò would act in way that would destroy the ʔekwò. As Amen Tailbone (in Legat et al, 1995) said,

you must know the ʔekwò and observe the ʔekwò and if the ʔekwò does something that is different than you expect, then you must watch it even harder so you understand why it did not behave the way you expected it to.

T̥chq elders emphasized that there is different ʔekwo nàowo⁹ for the barrenlands and for the boreal forest, which people should know as well as know the difference between the t̥dzı (woodland caribou) and ʔekwò (barrenland caribou). To know that the t̥dzı are darker than the ʔekwo and the t̥dzı have white around its throat and it is bigger, more like a moose, and has long legs is a sign the person has respect, as is the knowledge that t̥dzı prefer the habitat of the n̥dì (plateau) west of Whatì¹⁰ yet still like the same food as the ʔekwò.

⁹ Caribou knowledge.

¹⁰ See Appendix I: map entitled, 'Dogrib Traditional Caribou Harvesting Trails.'

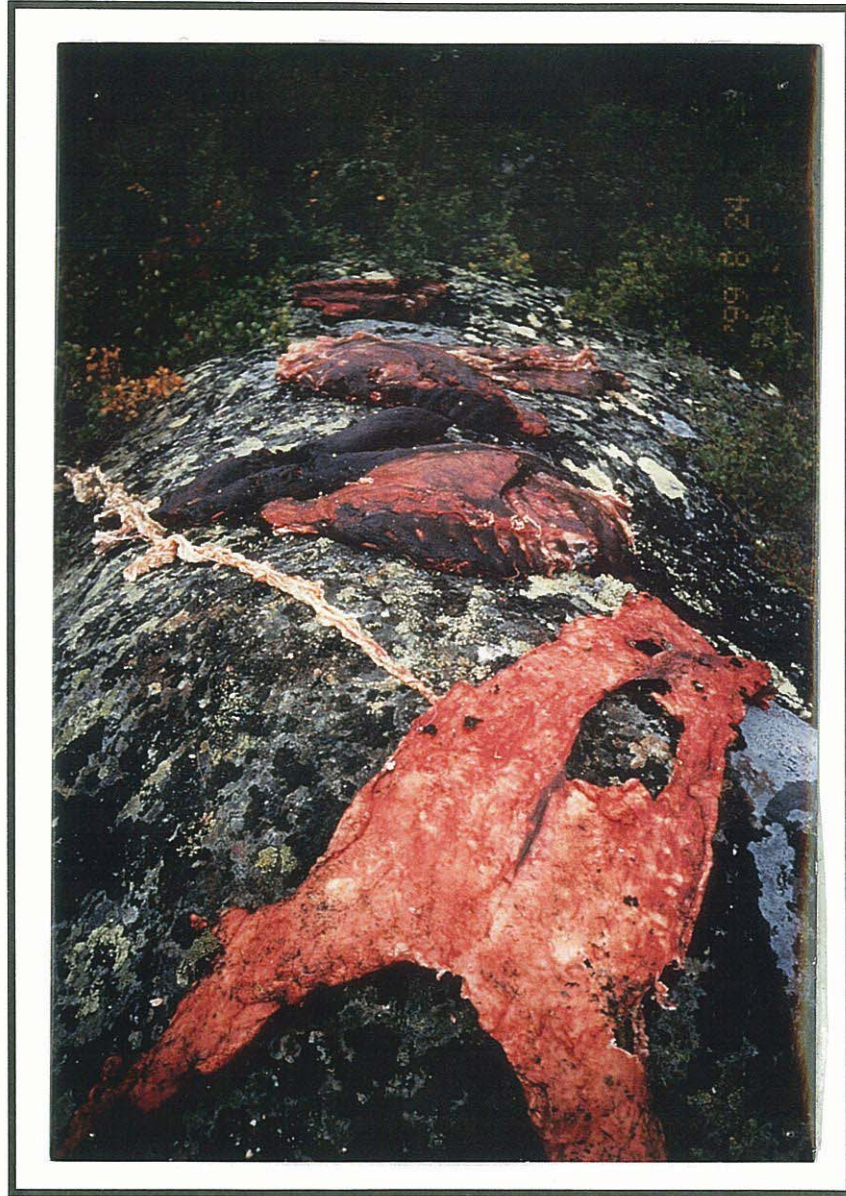


Cutting pedza (hind legs) from ekwò
Deèzàatì 1999

Respect is also shown by knowing that there is only one type of ʔekwò, and even though names such as hozıʔekwò and detsiìllààʔekwò are used, the name has more to do with where each winters. The hozıʔekwò winters on the barrenlands where as the detsiìllààʔekwò winter in the boreal forest; and knowing that in general the ʔekwò is dark grey in colour with white around the throat, yet is lighter in the winter, and almost a reddish brown in the summer with the same white around the throat is considered showing respect for this important animal.

Respect for the caribou is also shown by knowing caribou behaviour as well as knowing how to think and talk about caribou. This means knowing terms associated with caribou. When discussing migration patterns and distribution of caribou, male elders often start by discussing the importance of respecting the animal and often suggest we go to the bush with a video camera and name the caribou parts as the animal is being butchered. Female elders will often begin by discussing what should be done with the meat for storage and meal preparation purposes, as well as what should be made with different types of hides. The research team realizes that if the caribou are not respected and used after they have given their lives, they may not return. As Elizabeth Charlo, age 91 (CHP-98/02/05-1/3) explained when discussing ʔekwò leaders: "if the people show you respect, and if they show respect for your bones, then you're to go back to them."

It is interesting to note that similar issues of respect and knowledge were documented by the Wildlife, Land and Environment Committee in Łutselk'e as well as by the CEC overseeing this project on caribou migration and



From front to back: ʔek'a (fat), ʔechqò (ribs), and Kw'èhkwò (tenderloin)
Deèzàatì 1999

distribution. In Łutselk'e knowledge of caribou terminology is considered to be an indicator of change and stability in community members' knowledge of Chipewyan ways and skills (Parlee, pers.comm:99/02 & 99/03/14)¹¹

Although not mentioned directly as respecting caribou, we assume the concern about this knowledge is based on the importance of caribou for survival, just as with the Tłıchǫ. The CEC felt that if caribou terms were not known, it showed disrespect and could significantly effect caribou distribution. Tables II through Table VI list terms important to respecting caribou.

TABLE II
Caribou Parts

degho	caribou hair
det'lo	caribou hide with thick, bushy fur
?edza	hind legs
?edzekw'oq	cartilage inside the caribou heart
?edzets'li	tendons of the caribou heart
?eghatsi	stubble on caribou hide
?eghohkwq	meat from the thigh and buttocks of caribou
?ekè	caribou hoof
?enqhgò	stomach of caribou which is long and fatty
?enqhgòwò	caribou intestine
?ekwq	bones
?enqkw'oq	backbone
?et'oòkwq	caribou nose meat from around the eyes
?etsjhta	breast meat of caribou
?ewò	caribou hide

¹¹ For more information see the Łutselk'e's Community Based Monitoring: Four Interim Report for WKSS.

TABLE III
Caribou Classified by Age

ʔekwòtsia	caribou calf in the first year
dets'è	mature female caribou
dets'èa	young caribou cow
k'òqotsia	recently born in summer, first winter
ts'idaa	immature female caribou
wedziaa	small bull caribou
wedzih	biggest bull caribou
wezhàa	mother caribou
whaàtsia	second year caribou calf
yaagoo	third year bull caribou/next in size to yaagoo
yaagoo	Bull caribou next in size to yaagoocho
yaagoocho	fourth year bull caribou/next in size to wedzih

TABLE IV
Caribou Classified by Summer Range

ʔekwò	barrenlands caribou
tòdzì	woodland caribou

TABLE V
Terms Associated with Caribou Uses

deghòzeh	caribou hide parka with hair left on
deghòdzih	mitts of caribou hide with hair left on
det'òzeh	caribou skin coat
det'òts'ò	caribou skin blanket
ʔedzawàhke	caribou leg skin (mukluks)
ʔekwòwò t'àzeh	caribou hide pants
ʔekwòwò (ʔekwò)	caribou hide
idaa kwòò	caribou left overnight before butchering
Deghò	hair from a caribou skin
ʔekw'òòtèè	bone fat
Bògòò	drymeat
ʔekwòkwò	caribou meat

Table VI
Other Terms Associated with Caribou

ʔek'àhgoò	maggots from caribou throat
ʔenogòò	maggots in caribou hide
ʔetsihtagoo	larva in caribou hide



Philip Zoe preparing a Deghõtè (caribou hair rug)
Deèzàatì 1999



Deghõtè drying
Deèzàatì 1999

Respect Shown By Knowing How to Use and By Using Caribou

As already mentioned, caribou are used for food, clothing, shelter, tools, and given to the dog as scraps for food. Caribou are used for making clothing such as moccasins, mitts, gloves, rugs, parkas, pants, dresses and hats. They were also used for making food like dry meat and pemmican. Caribou brains continue to be used by some woman for tanning hides, caribou blood is used to make a bloods soup, caribou marrow is eaten with pemmican and some caribou bones are used in making fat. The skin of caribou are used to make sled toboggan covers, tents, caribou hair blankets, dog harnesses, string, drums, balls for games and snowshoes. The hair must be taken off the caribou skin or else left on and the skin dried for use as a rug or for winter clothing. The meat and hides must be smoked with the most appropriate rotten wood found in the bush.

Respect Shown by Knowing How to Discard

For the Tłıchǫ elders it is just as important to discard unused caribou bones in an appropriate way as to use the animals. For example, bones, hair and the intestines of the caribou should be put down crevasses, or left in places where they cannot be seen. Other elders make statements such as:

We are supposed to treat the caribou with respect, but some young people just throw caribou parts at the dump. (Rosalie Drybone, age 82: CHP-98/02/05-1to3/3)

When I was a young man my father used to have me build a cache on the trees and store all the caribou bones and scrap, then they would spill all the caribou bones where nobody goes. Maybe like between rocks. Our parents used to tell us to take them by dog team out farther away to spill these bones of caribou. That's how much the old people used to respect the caribou because the caribou was really important to them. For food as well clothing too. (Jimmy Martin, age 75:CHP-97/03/11-1/1)



Deèzàatì 1999

4.1.2 Oral Narratives: Migration Patterns Over Time

All Tłıchǵ elders agree that they never predict where ɤekwǵ will migrate or travel, nevertheless they constantly tell stories about where ɤekwǵ have been, at what time of the year ɤekwǵ are expected. For example, Adele Wedawin tells of a time when the ɤekwǵ did migrate to Behtsokǵ:

The ɤekwǵ, there used to be ɤekwǵ [around Fort Rae], said my late father. Since then, since they hit a ɤekwǵ, there been no more ɤekwǵ he said. Nothing! Nothing! Nothing! There was none and there remain none. (Adele Wedawin, age 84: CHP-97/04/17).

And Matton Mantla also tells,

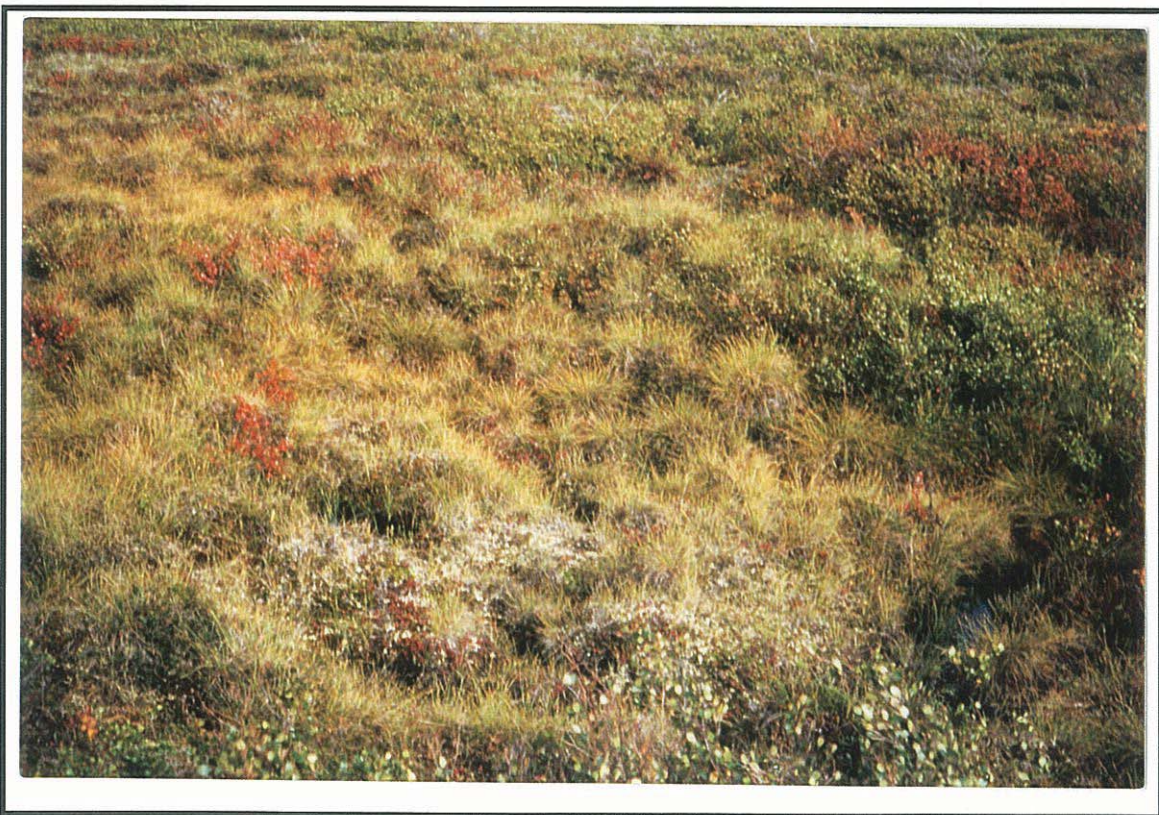
In the past ɤekwǵ have migrated much further to the southwest than they presently do. "The ɤekwǵ used to come to Behchokǵ and to Nǵdìì, which runs from Whatì to Fort Providence" (Matton Mantla, age 84: CHP-98/02/09).

According to most elders the ɤekwǵ no longer migrate as far south as Behtsokǵ or Wahtì, but come further south than Gametì. It is interesting to note that Archival evidence also suggests that migration as far as Behtsokǵ has fluctuated through time. It was stated by George Ramsey Rae (Scott, 1998:5)¹² that in 1910 when the RCMP made their first patrol to Fort Rae, they observed that the people were starving because of the complete absence of ɤekwǵ. Father Roure, who had been a missionary at Old Fort Rae for 42 years, said it was the first time they failed to arrive. During these interviews documenting the knowledge contained in the oral narratives, Jimmy Martin (CHP-97/03/11) gave a personal account stating that when he was a young man the ɤekwǵ migrated twice as far south as Old Fort Rae, but have not

¹² See Appendix VI for this document.



ʔekwòkee (barrenland caribou tracks) in ʔele¹ associated with ts'oo
Deèzàatì, 1999



Ts'oo (muskeg) at Deèzàatì

¹ Type of mud the ʔekwò coat themselves with to protect themselves from insects

done so since.

Jimmy Martin, like other elders likes to explain, the importance of knowing when ɹekwò migrate. He states that

when it gets warm [in the barrenlands] and when the ɹekwò... fetus is growing, [the ɹekwò will return to] where it is used to raising its young. (Jimmy Martin, age 75: CHP-97/04/17).

The elders go on to explain that often the ɹekwò will travel towards the boreal forest in the fall and will then turn back to the barrenlands, and in Johnny Eyakfwo's (CHP-97/04/17) statement:

... when they (the ɹekwò) get to the border of them barrenland, and they are not all that keen on swimming across ... [the water], ... they will go back again and then return [to the boreal forest]. (Johnny Eyakfwo, age 73:CHP-97/04/17).

Likewise the oral narratives contain much on the places where ɹekwò are more likely to cross water,

... many of the ɹekwò go through when they migrate. Kwek'aghoti as we call it, it is the place where ɹekwò swim across. (Edward Lafferty, age 71 :CHP: 97/04/17)

The oral narratives contain more than specific locations about where to find the ɹekwò, they also contain knowledge of behaviour. Elders state that because the ɹekwò move between very different environments they follow a k'aawo (leader), who is the mother of a large bull. This middle aged cow shows the other ɹekwò the way and leads them to food (Jimmy Martin, age 76:CHP: 97/03/11). The k'aawo may change the migration route depending on food availability, and whether she decides to swim across lakes and rivers or not. As Adele Wedawin, age 84: 97/04/17) explained, wherever there is ɹadzìi, that is where they [the ɹekwò] ... roam.



ʔekwò on ʔits'èetì (Hottah Lake)
1950

Whereas other elders tell, ...when we see ɤekwò roaming on [the eskers]. That's [often] where we find ɤekwò. On top the hill! What else would it live on? Gravelly rocks and lichen ... (Edward Lafferty, age 71: 97/04/17)

The elders explain when calves are weaned off their mother's milk they will begin to follow her example and eat the lichen and fungus as she does:

... When the calf is about to go off milk, it will eat whatever its mother eats. Its mother will teach it. (Jimmy Martin, age 75: 97/04/17)

Often the ɤekwò encounter deep snow when returning to the barrenlands in the spring or when traveling in the boreal forest in the winter. At this time a number of ɤekwò's (leaders) and their bands come together, and each of the k'aawo will take turns breaking trail through deep snow. As Jimmy Martin (97/03/11) says:

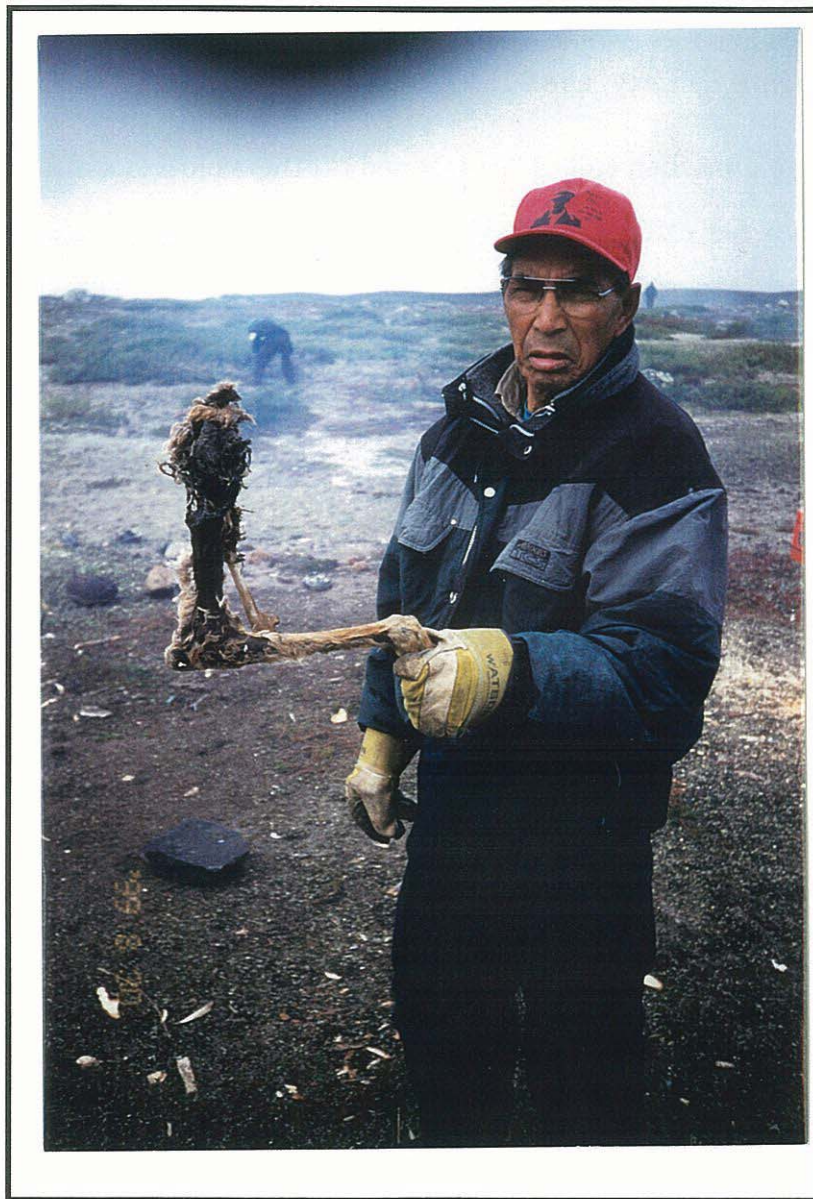
When the ɤekwò runs into deep snow, ... the leaders of the ɤekwò go first and the other ɤekwò follow the leaders. When their leader jumps off to the side the other takes over the lead. They all take turns, that is how they lived...

The elders say that the ɤekwò migrate to the boreal forest in the winter because the trees shelter them from the wind and cold. For example:

... because there's no trees in the barrenland and the ɤekwò are not so cold in the bush, they will move into the bush [during the winter]. (Jimmy Martin, age 75: 97/04/17)

Furthermore, the elders claim that the ɤekwò move to the boreal forest because they can get food easily by digging through the snow with their hooves. In the barrenland, the snow is hard packed from the wind and the cold.

In the boreal forest, even if it snows, the ɤekwò will kick away the snow and get to the ground and that's how they eat till they have their fill. (Jimmy Martin, age 75: 97/04/17)



Pierre Beaverhoe holding the leg of a ?ekwòtsia (caribou calf)
Eaten by a Wolf
1999

The middle aged cows are the k'aawo and lead groups of ʔekwò, while the larger bulls protect the smaller, weaker members from dangerous animals such as wolves:

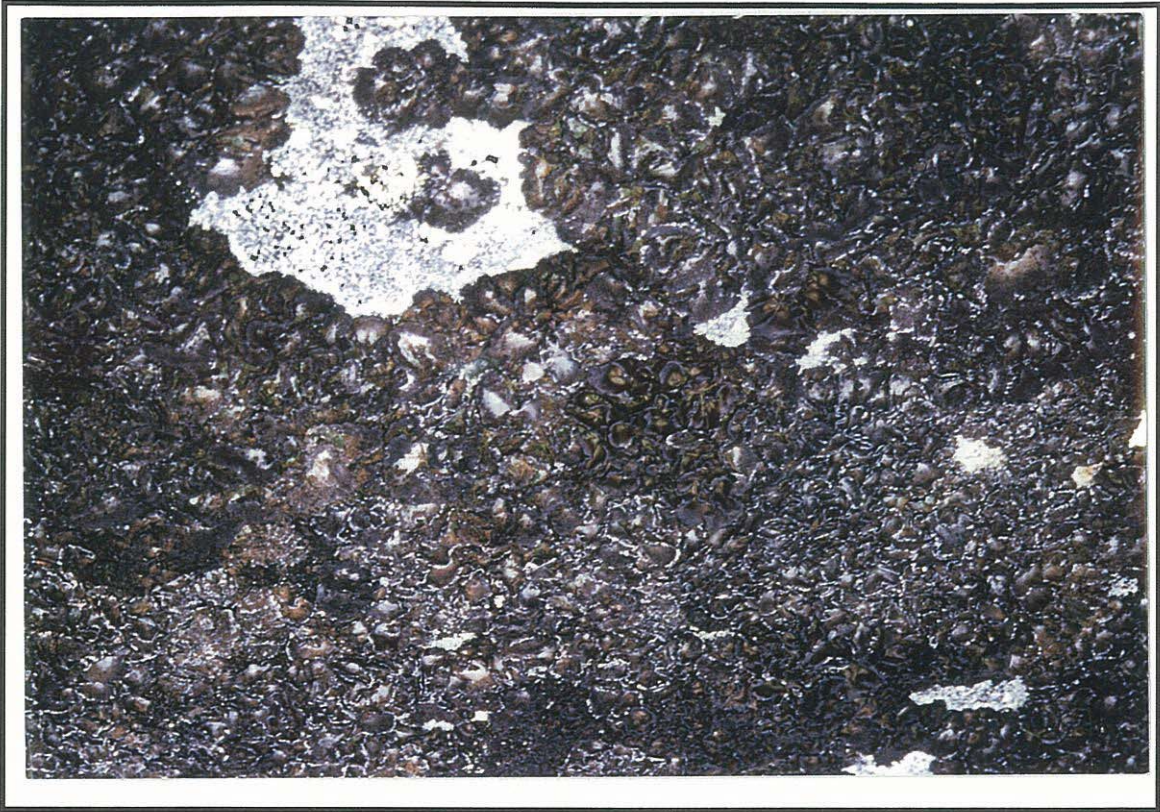
If there were some other animals or a wolf, a bigger ʔekwò would block [the smaller ʔekwò from] it, they say. Because that big ʔekwò have antlers, the wolf is afraid of it, they say. But the smaller ʔekwò, they are unable to defend themselves, so the big animal like a big ʔekwò will shield the little ʔekwò. That is how they move. If it were not so and if the bigger animal were not with it, [the wolves] would easily kill it. [That is what we learned from our elders] ... (Johnny Eyakfwo, age 73: 97/04/17)

4.1.3 Oral Narratives: Annual Cycle

Initially the elders' oral narratives explained the annual cycle of ʔekwò, which usually began with the birthing grounds. The elders consider the birthing grounds as the home of the ʔekwò, as is indicated in the following statement:

Before in the past the ʔekwò used to live out in the barrenlands. But now today it roams out toward here in our land for people to kill it. But it was not like that before. ʔekwò used to live only out in the barrenlands, and that is why they return there to give birth. (Harry Wedawin, age 82: 97/04/11).

The elders explain that the ʔekwò moving away from the birthing ground in late summer, and arriving in the boreal forest in early fall. It is the middle-aged cows that lead the herd to the food and who keep the herd from returning to the same spot. In the spring, the females are the first to return



Kwetsj



Kwetsjdegoo

to the barrenlands, followed by the bulls.

Following are a series of elder's statements that best describe the annual cycle of ʔekwò. Rosalie Drybone, who is 82 years old, explains:

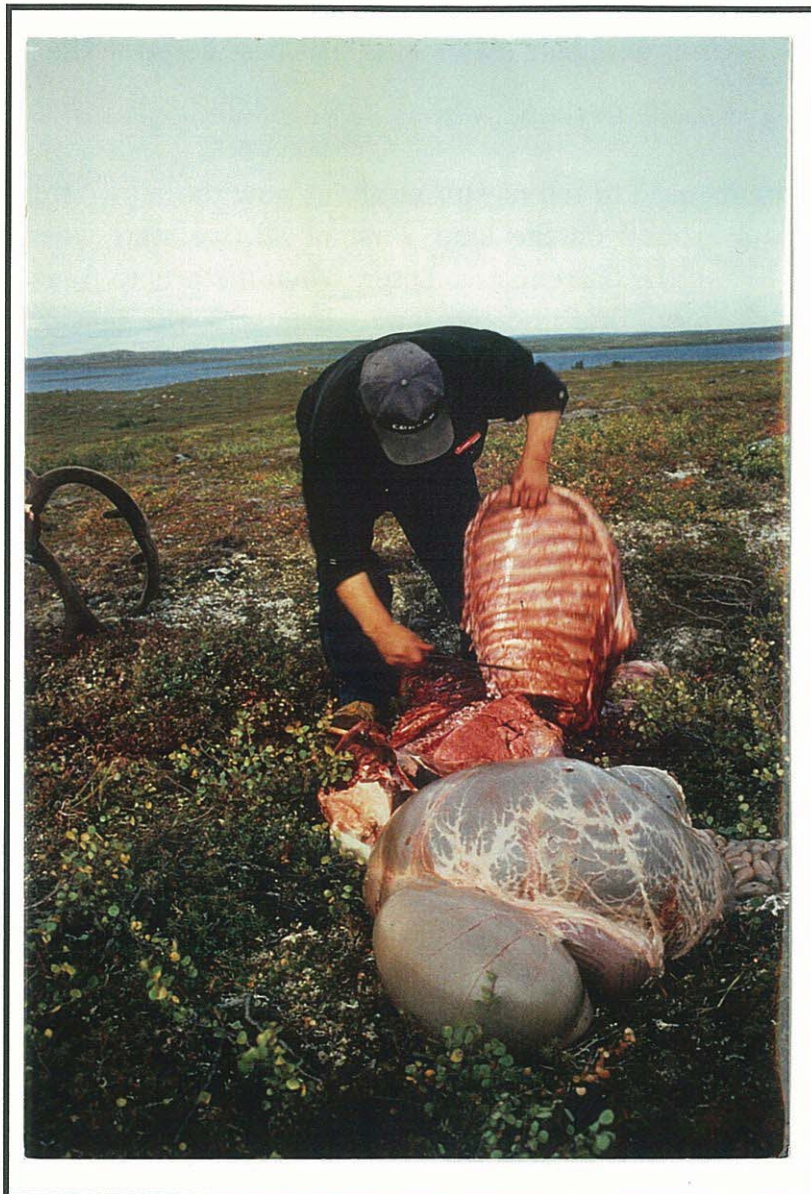
Our parents used to tell us stories about how the ʔekwò migrate and roam around on the land. First of all, we start when the ʔekwò live in the barrenlands. Later, when it starts to freeze-up, they start to migrate into our land. It is said, the ʔekwò have k'àowo [a leader, who is the mother of a large bull]. When many ʔekwò are migrating, she goes ahead of them and they follow her. That is the way they roam on the land. ... They feed on the land and go to wherever they remember a good feeding area. She goes ahead of them to these places. She goes ahead of the other ʔekwò. That is what they do and that's how they travel to places where it is good for feeding. They really know the land. (Rosalie Drybones, age 82: 98/02/05).

When ... [the calf] is about to go off its mother's milk, ..., the month of July ... is when they start moving again. They are moving in this direction [southwest]. ... We paddled [in a birch bark canoe towards them. Often meeting the ʔekwò] around [Beʔaitì, north of wekweetì, ʔek'atì, Kòkèet'ì]¹³. The young calves were really small. They looked like they still nursed from their mothers, but they walked after their mother.... (Jimmy Martin, age 75: 97/04/17)

Since it's their land [barrenlands], that's where they roamed around in that area until fall time. Just when they become wedziaa (small bull barrenland caribou) and fat, they roamed back into the bush. They do that every year and that's what they do with themselves. They don't roamed in this area only, they roamed all over to Łihtsok'è¹⁴, ... that's how far they traveled to. Therefore, all the people over there depend on it since it's their livelihood, too. They traveled to here and to

¹³ See map in Appendix I

¹⁴ Known officially as Lutselk'e, and still referred to by many as Snowdrift.



Hunter cutting up ʔıts'o (ribs) and ʔenq̄ghq̄ (stomach)
1999

Sahti¹⁵ and towards treeline and that's what the ʔekwò does. ... Whatever its knowledge is, it doesn't get rid of it [it travels the same route wherever their good feeding ground is]. (Joe Zoe Fish, age 70: 97/08/22)

... However the animal roams around it don't usually go back the same way, even our ancestors say that Like out in Wekweètì near where they call Kw'ìkw'atì. And it goes straight to Nòdìì we know that. And when it has to travel back to barrenlands it goes all the way back on the other side of wekweètì called Ts'ìnàzèè back to barrenlands. ... (Johnny Eyakfwo, age 73: 97/03/11)

The ʔekwò traveled towards our area and then they traveled towards Behtsokò and roamed around in that area, that was a long time ago. And then, they traveled towards ʔìts'èetì and Gametì¹⁶ and once they all come on the land, they traveled towards our area. ... And then, they all go towards a ridge or high hill, but I haven't been there, therefore, I don't know that area. But all the ʔekwò traveled towards the high hill, since there's lot of twigs that are good [to eat]. ... They traveled towards the treeline, looking for good plants to eat. When they get fatter, they roamed back towards the barrenlands. ... After the ʔekwò have their calves in the barrenlands, and when they get a little bit bigger [the calves], they lead their calves back to the bush. ... After it has its calves, they wander into the bush, and they rubbed off the velvet of their antlers by rubbing their antlers against the trees. They rubbed their antlers against the trees so that they can get rid of the velvet from their antlers.

After their antlers are dry, only then they go back into the barrenlands. It lives on the great barrenlands and when it gets fall time, that's when it gets excited and they wandered back into the bush again. ... When the ʔekwò came to ʔhdaak'ètì¹⁷, the ice was still slushy when the ʔekwò came. The full-grown

Appendix I: Traditional Trails Used for Harvesting ʔekwo

¹⁵ Known officially as Great Bear Lake, NT.

¹⁶ Known officially as Rae Lakes, NT.

¹⁷ Known officially as Marian Lake, NT.



ʔekwò
Spring 2000

ʔekwò that arrived were really fat...I recall when I was a young man, we used to live in Behtsokò. At that time the ʔekwò migrates back, they come back when it just getting to warm up, that's when they're full-grown, that's when they come back. They [the hunters] take their dog team to Behtsokò for ʔekwò and they used to shoot ʔekwò that were full grown, that's what I recalled. The ʔekwò used to travel past Behtsokò and towards Yahtideèkò¹⁸ as far as to a place called K'itì and along Edazì¹⁹, and once they settled in the area, if the food is plentiful, they lived and ate there for a long time. Later on, when they're traveling back, sometimes they come back when there's no snow on the ground at all. That's how the ʔekwò survived on the land, therefore the animals have stronger mind than the human. They traveled to any land that they set their mind to. They traveled from the barrenlands, along Yabatì²⁰ all the way near Kwedzèhkò²¹ and to Sahtì²². ... That's how far the ʔekwò traveled to. Although there are no ʔekwò beyond Dehtso²³, the ʔekwò traveled around to near Dehtso. ... (Joe Zoe Fish, age 70: 97/08/22)

... When it gets warm, the snow melts and it gets warmer, that is when the smaller cow called ts'idaa start migrating. They move first. When the fetuses start to get big, they [the females] start to migrate before the wedzìh (bull caribou). ... The cows migrate to the great barrenlands, back to their calving grounds. They travel back there, back to the barrenlands and that's what the cows do. That is where they probably give birth to their calves, in spring or in the summer. As for the wedzìh, they start to migrate when all the snow melts and turns really slushy. ... And they have leaders for themselves as well. They have a leader for themselves just like we have leaders for us, right here. That's the way it is and when they feel that it is time, and when snow starts to melt and it gets really slushy, that is when they start to migrate last. As for ʔekwò antlers,

¹⁸ Known officially as Fort Providence, NT.

¹⁹ Can be translated as high hill or ridge.

²⁰ Known officially as Yamba Lake, NT.

²¹ Known officially as Fort Wrigley, NT.

²² Known officially as Great Bear Lake, NT.

²³ Known officially as Mackenzie River, NT.



ʔekwò Migrating to Birthing Grounds
ʔek'atì Area, 1999



Jimmy Martin and Phillip Nitsiza
ʔekwò Migrating to Birthing Ground in Background, ʔek'atì area, 1999

their antlers get really long and it's all covered with velvet. ... They live here all winter and migrate in the spring (when snow melts and gets slushy) and their antlers grow all the time. Their antlers grow about a foot and it's usually covered with velvet. The wedzih (bull caribou) start to migrate to the barrenlands when that happens. When they feel that it's time, they go back to their country in the barrenlands and live there all summer. They probably roam around and feed in the barrenlands. In the summer or in the autumn, they return to this land as they done before. And they do this by following their k'àowo. That's the way it is and for them to head back this way again, their minds turn this way. So that is why it is said, when it's the autumn, the ʔekwò migrate back this way all together. That is what they do. The dets'è (cow caribou) calves that were born in the barrenlands, migrate with all the other ʔekwò's, along with the cows and they all travel this way. They come to our land. They come to our land again for all winter. The calves are two feet high when you see them and they follow their mothers. They are small but they still manage to travel great distances here with their mothers, the cows. And so, they come back here again, to live here all winter. As for the antlers that grow about a foot long ... they grow all summer and in the autumn they get really huge. ... So they continue to migrate down this way and arrive into the tree line. They have velvet on their antlers so, they scrape their antlers in the bushes to get them off. Later their antlers become clean of the velvets and they come off. It is said, that is the reason why the bull caribou's with big antlers start migrating into the treeline. Afterwards they live here all winter. From recalling where they roamed the year before and places they know of or where they know of good feeding areas, they return there again. They live there too. They travel around and when there's no food there, they go to a different place. They travel to places where they know it's a good area for feeding and that's how they travel around. (Rosalie Drybones, age 82: 98/02/05)

When they traveled back to the barrenlands, they just love it when the snow is melting and slushy. They just like it when it gets really slushy and that ice is melting, that way they swim through the water, so that their ʔekwò leg isn't in pain and also



Wekweètì
1997

their hoofs aren't in pain, too. Therefore, if there's ice on the lake, they're careful while they walk on the ice, if they have to they all go back to the hozì (barrenlands) and it's like that every year. (Joe Zoe Fish, age 72: 97/08/22)

The elders further explain that in the spring the ɤekwò return to the barrenlands to give birth and raise their calves, and only return to the boreal forest in the fall when the calves are older. Jimmy Martin states:

When it gets warm [in the barrenlands] and when the ɤekwò ... fetus is growing, [the caribou will return to] where it is used to raising its young. (Jimmy Martin, age 75: 97/04/17)

In fall time the ɤekwò migrate toward this way. Near our land passing nearby Behtsokò, toward the side of the Snare Hydro, all the way to Gametì toward Nòdì. Way past Whatì that's where it migrates to. (Jimmy Martin, age 75: 97/04/17)

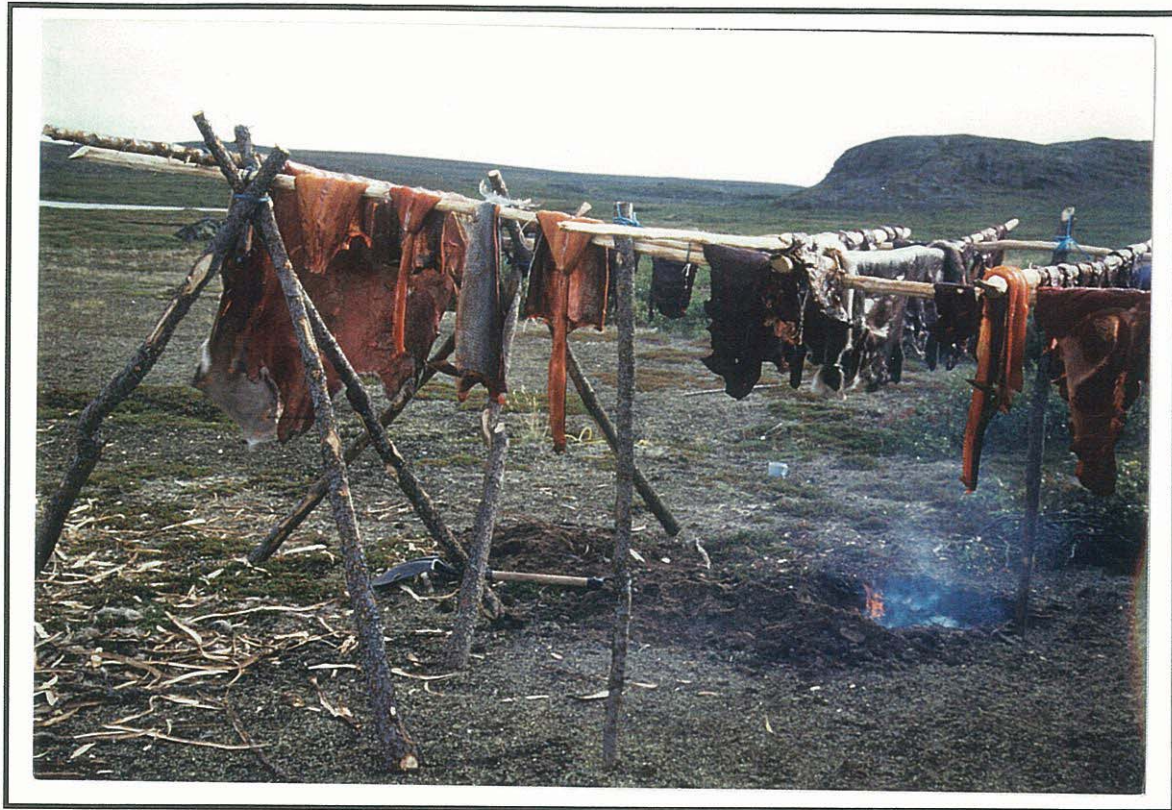
The elders go on to explain that often the ɤekwò will travel towards the boreal forest in the fall and will then turn back to the barrenlands. This is exemplified by following the route of one radio collared cow²⁴ and in Johnny Eyakfwo's (97/04/17) statement:

... When they [the ɤekwò] get to the border of the barrenlands, and they are not all that keen on swimming across ... [the water], ... they will go back again and then return [later to the boreal forest]. (Johnny Eyakfwo, age 73: 97/04/17)

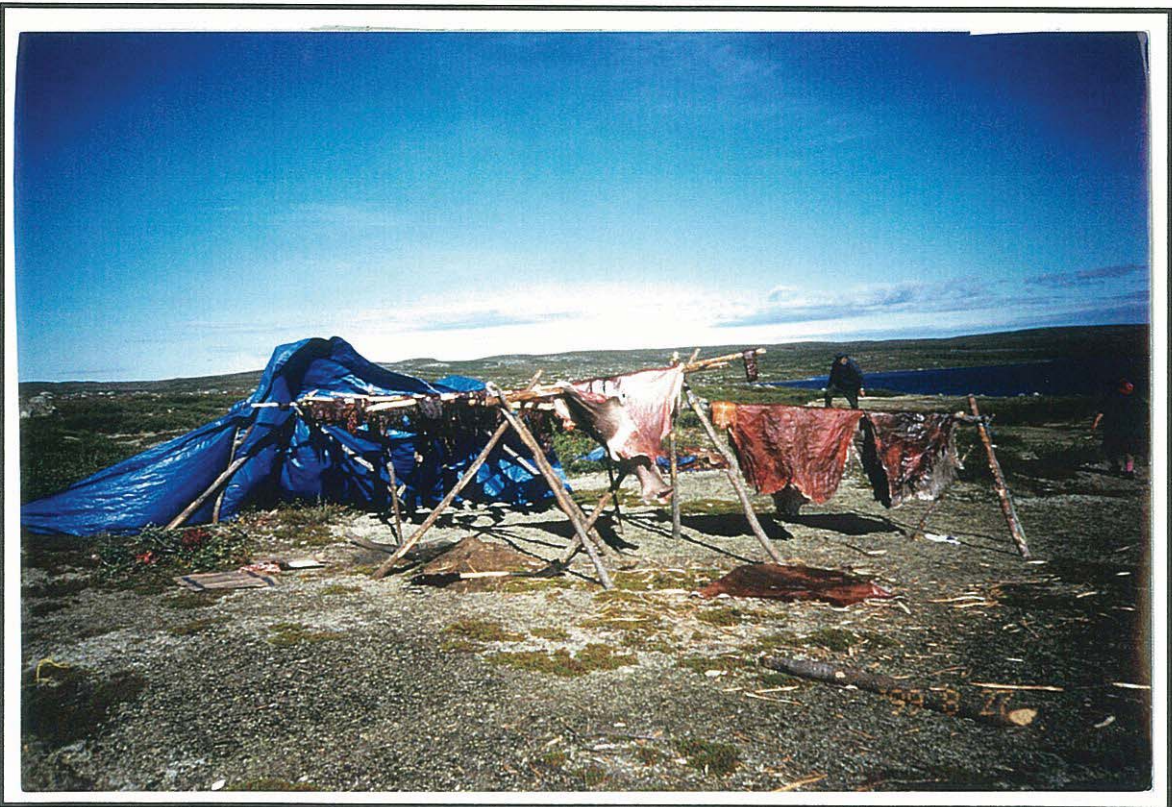
Elders' statements indicate that annual cycles have changed over time. Several elders stated that there was a time when people had to travel much further to find ɤekwò:

Before, in the past, the ɤekwò used to live out in barrenlands. But now today it roams out toward here in our land for people

²⁴ See Appendix IV, Map entitled: Route of One Radio Collared Caribou-1996-2000



Smoking ʔekwòkwo (caribou meat) and Łiekwò (fish)
Deèzàatì 1999



ʔewò (caribou hide) and Bògòò (drymeat)
Deèzàatì 1999

to kill it. But it was not like that at all, ɬekwò used to live out in barrenlands only ... in the past. (Harry Wedawin, age 82: 97/04/11)

In the past they used to use dog teams, canoes, and by walking. In order to hunt ɬekwò they had to walk long ways. Before, in the past, there use to be ɬekwò as far as Ts'iedaa²⁵, that's how far there used to be ɬekwò at that time. But now today the ɬekwò comes to our land every year. (Moise Martin, age 86: 97/09/11)

The Tł̥chò used to travel long ways for ɬekwò, all the way canoeing to Kòk'èetì. Because the ɬekwò used to live as far as Ts'iedaa. Because before in the past the ɬekwò doesn't come around here. [He's talking about the story when he was a young man] This here we call Tìdeh (Great Slave Lake), not long ago, when I was a young man the ɬekwò came to Great Slave Lake, let's say like twice. Once at Nìshìk'e, [Old Fort Rae] too. And Great Slave Lake, all over there is how the ɬekwò used to migrate in the past. ... Every since that time, there was ɬekwò for people to live on. Till today people are still living on it. Now there is ɬekwò at Łutselk'é (Snowdrift). (Jimmy Martin, age 75: 97/03/11)

4.1.4 Oral Narratives: Spring and Fall ɬekwò Routes

The elders discuss the extensive distribution of ɬekwò that migrate to Tł̥chò traditional territory. The oral narratives describe the ɬekwò ranging from the Dehtso²⁶, Kwedzèkò²⁷, Shatì²⁸, Łìhtsok'è²⁹ and the Arctic Ocean. More specifically the elders discuss places where they expect to find ɬekwò during

²⁵ An important site on Courageous Lake

²⁶ Known officially as MacKenzie River, NT.

²⁷ Known officially as Wrigley, NT.

²⁸ Known officially as Great Bear Lake, NT

²⁹ Known officially as Lutselk'e.



ʔekwò ʔetq (caribou trails)
Deèzàatì 1999

fall and spring migration. For example, they expect ʔekwò will swim across Deèzàatideè³⁰ at ʔehdaaghoò and “over here on this lake, over beyond Deèzhàatì a place called Kwík’ìíʔedaà it is said the ʔekwò swim across this great lake at this point.”³¹ The T̥chq̓ also expect to find ʔekwò in such locations as Wets’ìtì where caribou fences were erected during the spring migration. The map entitled “T̥chq̓ and ʔekwò”³² shows the canoe routes as well as known caribou water crossings and the location of caribou fences.

The trails marked on this map were first documented by the Dene Mapping Project in the 1970s and are consistent with the travel narratives told by the T̥chq̓ in the 1990s. Although variations occur, the documented trails and the oral narratives are interesting in that they show how the T̥chq̓ traveled towards the calving grounds with routes leading to Kòk’èetì, a large lake just west of the birthing grounds. The information shows how they traveled by birch bark canoe, harvesting ʔekwò, through ʔezòtì, ʔewaànit’ìtì, Nq̓dìihatì, Deèzàatì, Deèzàatideè and ʔek’atì in the fall. Louis Whane explains traveling on one of the routes towards Kòk’èetì³³ from Wekweètì.

The people would continue on to Wekweètì, using birch-bark canoes along here [checking the spot where ʔekwò swim across the lake] and on to ... Bezatì searching. If they did not find anything, they would go north to [check the water crossing at] Ts’òtì [and from there they would travel to] they would go towards Deèzàatideetì ... Again, if there was nothing to be found there, they would proceed along the great route leading to Sq̓deè. ... then the people would go north to Deèzàatì- all the way to Kwík’ìíʔedaàts’ah̥tì. They would continue to search

³⁰ See Map entitled, ‘Traditional Trails Used for Harvesting ʔekwò’ in Appendix I

³¹ Misplaced reference.

³² See Appendix I.

³³ Officially known in English as Contoyto Lake



Louis Whane
2000

way to Kwik'ìzèdaàts'ah̀tì. They would continue to search hoping to find ʔekwò. Then they would all assemble at one place by canoe. Once they have canoed to one area and assembled and having said that they wanted to go to the great lake, my father said that they would go to ... Yabahtì [Yamba Lake]. ... [then to] Kòk'èetì... And they would camp and live at various bays, points and along channels between islands. ... Once they have canoed to live in a series of camps, if the forward camps sighted ʔekwò, they would send back messages. Then at channels where the ʔekwò swam across, the ʔekwò would be killed by spearing. (Louis Whane, age 76: 95/10/28).

Pierre Wedzin, also from Behtsokò, describes traveling and hunting through ʔek'atìtata [area south of ʔek'atì], ʔek'atì, and up to Kòk'èetì. He also describes the campsites where ʔekwò were harvested.

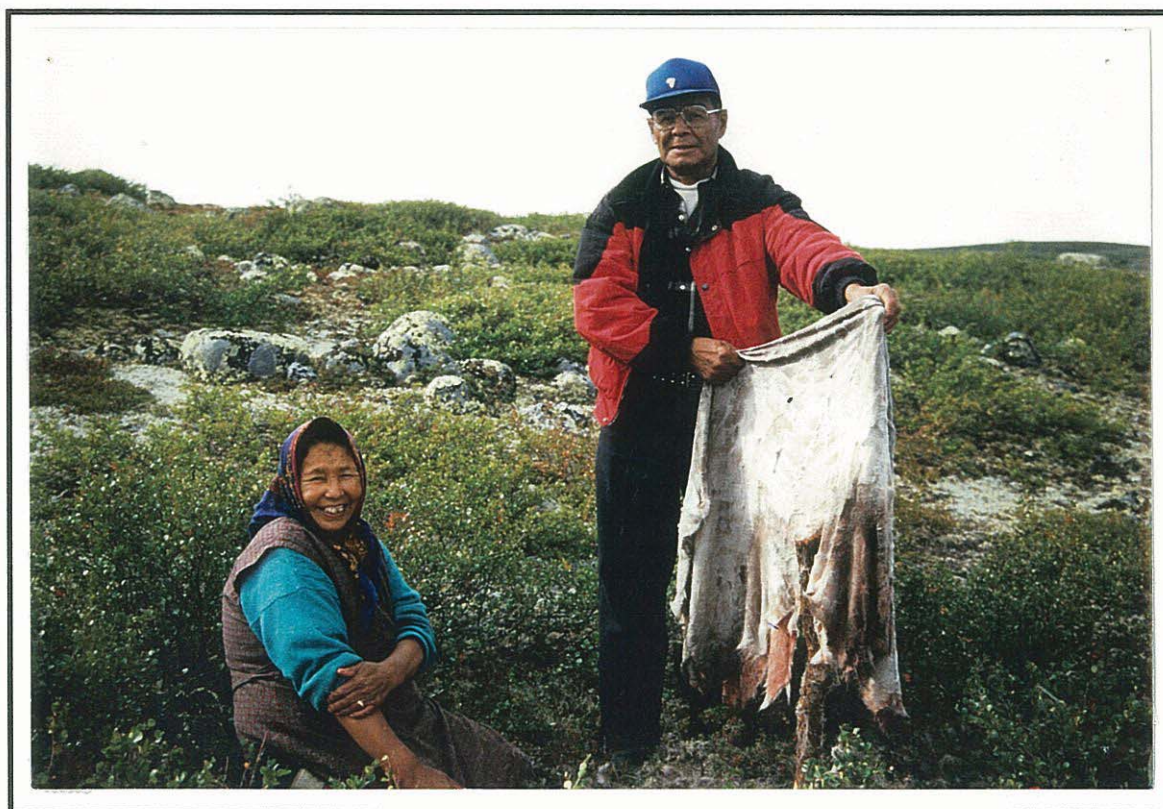
ʔek'atì, that which they call ʔek'atì, every year I work on it. When I was younger every year I work there ... [We were at the end of ʔek'atì and] I killed a ʔekwò. ... It was on this point that a great many people lived for the ʔekwò. It was from there that he paddled after me. That point was called ʔek'adiìlò. ... At the end of ʔek'atì where there was a river flowing, that river flowing from ʔek'atìtata was where my uncle had shot ʔekwò for himself. ... at the end of ʔek'adiìtso a great many people lived there. A great many people. We lived there for the ʔekwò. ... There was no lack of ʔekwò. But today, this mine that is there, it is hard to predict if wildlife will continue. (Pierre Wedzin, age 94: 95/05/11).

Moise Martin, from Behtsokò, describes a slightly different route:

We have worked in the land stretching far beyond the tree line since we became aware [of our existence]. Since I became aware - and before my time - the people used to travel past Wekweètì, to a place called Kwedashì. The people used to go there by canoe for ʔekwò. There, they killed ʔekwò with spears. So it was said. At the end of the place called Kwedashì the ʔekwò used to swim across here. They killed a lot of ʔekwò



Elise Simpson finishing scraping Deghq off 7ewq (caribou hide)
Deèzàatì 1999



Robert Mackenzie and Elise Simpson with newly scraped 7ewq
Deèzàatì 1999

there. It is so along there. Then it was also said that on our land by a rock called Kwek'ak'e?o on Tsotì near a point a lot of ʔekwò were killed. ... Before, the ʔekwò used to come in this direction into our land so that there were ʔekwò trails going in this direction from ʔezhatì. ... [they] told us stories. He said that there are a lot of ʔedaetì [Living Lakes]. There, an ʔedaetì [place where [ekw8o swim across] is located; that is called ʔedaetì. ʔedaetì is called that because ʔekwò swim across ... (Moise Martin, age 85: 96/03/13)

Although ʔekwò do not like deep snow, they often encounter it when returning to the barrenlands in the spring or when traveling in the boreal forest in the winter. At this time a number of ʔekwò k'aawo (leaders) and their bands come together, and each of the k'aawo will take turns breaking trail through deep snow. As Jimmy Martin (97/03/11) says:

When the ʔekwò runs into deep snow, ... the leaders of the ʔekwò go first and the other ʔekwò follow the leaders. When their leader jumps off to the side the other takes over the lead. They all take turns, that is how they lived...

Nevertheless, slushy snow, whether deep or otherwise, is preferred by ʔekwò in the spring. According to the elders, slushy snow soothes the ʔekwò's hooves, and according Alphone Quitte, ʔekwò also soothes their sun-burned eyes by putting their heads in the snow.

Even the moose, the caribou, the wolf, all of them. All of them, even the raven can catch nawhì [snow blindness], it is said. ... when it is snow blind, at this time, it cries out like. It cries out like. It says that because it's tormented. That's what they used to say. They use to say that as they talked to one another. ... During this time when the ʔekwò catches nawhì, it walks as if it's head were on the snow. It can't look up. Because of nawhì. Because it can't look up because of nawhì, it wanders like that. Sometimes, because it wants to cool its eyes, it would dunk it's head in the snow like that. So, when it's eyes are



K'dòzɿt'ò

ʔekwò, we say, is an animal but it knows what to eat everyday to survive. Even for us, some time passes beyond the time for us to eat. Sometimes, there does not seem to be anything. Perhaps it is that way for the animals too. They travel to be able to feed. In their migration should they encounter a burnt area, a large burnt area, they will not eat over the expanse of that area. Because it lives on the land, if the wind is blowing from an unburned area, it will be able to detect the scent of even the trees; it will be able to detect this scent even from a long distance. Detecting the scent of fresh, green trees, they will travel towards them. Once it has arrived at this destination, for instance in a swampy area, it will get a good feed from it even if it's in the snow once it has pushed the snow away. It is said that the ʔekwò eats a large variety of things.... (Jimmy Martin, age 76: CHP-98/03/20-1&2/2)

Table VII shows the vegetation mentioned in oral narratives and was taken from statements such as: “ʔekwò eat k'òò, ʔadzìidegoo. ... I guess that ʔadaì turns to fat on ʔekwò, that's why they like to eat it.” (Elizabeth Charlo, age 91: CHP:98/02/05)

The ʔekwò also eat lichen-like vegetation, called dààghò that are on trees. ... there is a lot of this vegetation on the trees, they also eat this. (Robert Mackenzie, age 63:CHP-97/03/20)

When they come to this land, they must like ʔadzì, especially kwetsì. Also, if there is a muskrat push-up, they will go to it and look. ... They also live on t'ògà at these times during the winter. (Eddy Lafferty, age 71: CHP-97/03/20)

There is good ʔekwò food around Wekweètì.... If there are muskrat dens, ʔekwò always seem to crush the den, probably because the ʔekwò eat the t'ò (grass like plants) in it... In summer there is good ʔekwò feed: t'ò, hozìʔt'ò, K'òòʔt'ò, ʔadzì. (Moise Martin, age 87: CHP-98/12/14)

In winter, the ʔekwò eat t'ò (grass-like plants), especially t'òdzì (type of grass/sedge) found on the shoreline. (Madeline



Dààghò on Ts'1 (spruce)

cooled off, it'll continue to wander. It'll do that, I remember. That's how my late grandmother talked about this time of the year. (Alphone Quitte, age 80: 95/04/21)

4.1.5 Oral Narratives: Vegetation and Foraging Behaviour in Relation to Migration

Most Ṭḥcḥq̣ know that the ɤekẉɔ̣ put on weight in the barrenlands because they have lots of fresh, lush vegetation to forage on. As Rosalie Drybone (age 83:CHP-98/02/05) says, "In the summer when there is bad weather the ground is kind of moist. The ɤadẓị, especially the ɤadẓịdegoo (white lichen) gets soft, that is what the ɤekẉɔ̣ really like. They get fat with it." The layer of fat developed in the summer is what helps them survive during the cold winters and deep snow.

All of the Ṭḥcḥq̣ elders interviewed agree that the ɤekẉɔ̣ know where to find the best food. However many say they do not know how the ɤekẉɔ̣ consistently go directly for the best food. Many state that the ɤekẉɔ̣ know the land:

They really know the land. They live on the land all winter and feed and that's why they know where their food is. They remember ...(Rosalie Drybone, age 82: CHP-98/03/05-1/3). Yet others state:

We know what they eat by their droppings,...the ɤekẉɔ̣ seem to know where the good food is, possibly they see and smell through the snow, we don't know how the ɤekẉɔ̣ know where the good food is. (Moise Martin, age 87:CHP-98/12/12-1/1)

Jimmy Martin, agrees that the ɤekẉɔ̣'s well developed sense of smell allows them to find the best foraging areas:



Dààghò on K'1 (birch)

Martin, age 79: CHP-98/12/14)

In barrenlands there lots of dègogaet'ìì, which the ɹekwò eat even if it is lying on the ground (Madeline Martin, age 79:CHP-98/12/15)

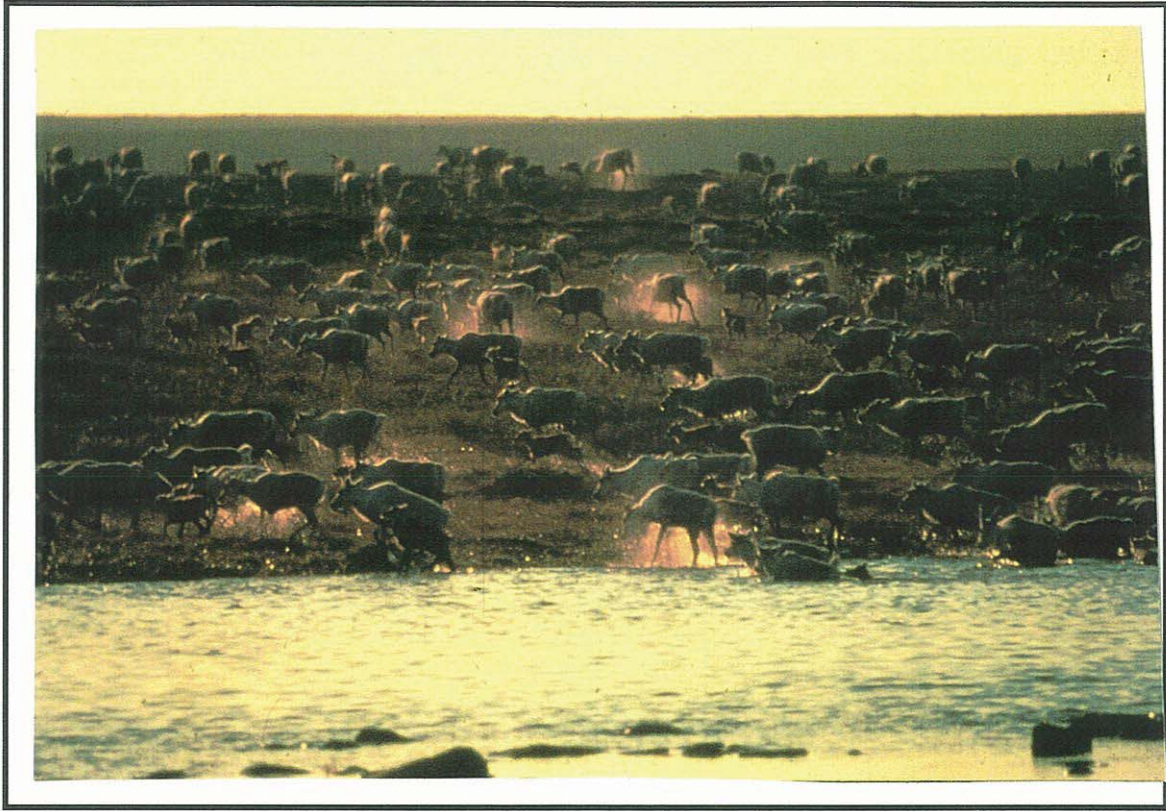
Although elders have made comments such as, "The stomach shows all the food that the ɹekwò has been eating: t'ò, ɹadzìì, ɹɹt'ò, kwɪtsɪ... most elders, believe the ɹekwò will continue looking until they find the very best food source.

TABLE VII
Vegetation³⁴ Preferred by ɹekwò
Mentioned in Oral Narratives to February, 2000

Tɥchɔ	English Translation
ɹadzìì	lichen-general
ɹadzìidegoo	white lichen
Kwetsɪ	rock tripe
ɹadzìidet'e	type of lichen
ɹadzìidezo	type of lichen
dààghò	lichen-like vegetation on trees
dègogaet'ìì	red vine-like plant
dìòdìì	type of mushroom
dzɪwawɹɹt'ò	blueberry leaves
gots'òkɹɹt'ò	cloudberry leaves
hozɪɹɹt'ò	translates as barrenlands leaves
k'òdòɹɹt'ò	willow leaves
t'òdzìì	type of sedge or dog berries
t'òdzììɹɹt'ò	leaves- type sedge or dogberries
t'ò	Varioustype of grass and sedge

The elders' statements suggest that ɹekwò change their dè seasonally to ensure access to adequate food and shelter. Within their winter dè they make regional and local changes to ensure ease of travel and adequate food.

³⁴ The research team had hoped to identify the Latin names for all ɹekwò food. This task will be completed in 2001.



ʔekwò on Hozìè (Barrenland)
1995

make regional and local changes to ensure ease of travel and adequate food. ʔekwò leave the barrenlands and wander throughout the boreal forest in the winter because the boreal forest protects them from the bitter winds and cold of the barrenlands. Elders also agree that the ʔekwò's preferred food, lichen, is easier to access in the boreal forest given that the snow is easier to dig with their hooves than the hard packed and crusty snow above the treeline. The elders say that the ʔekwò migrate to the boreal forest in the winter because the trees shelter them from the wind and cold. For example:

... Because there's no trees in the barrenlands and the ʔekwò are not so cold in the bush, they will move into the bush [during the winter]. (Jimmy Martin, age 76: 98/04/17)

Often the ʔekwò will swim across at such places as "Kwekaghooti as we call it, it is the place where ʔekwò swim across." (Edward Lafferty, age 71: 97/04/17)

The elders' statements also demonstrate that ʔekwò migration patterns are related to the availability of food on a more regional level. As in the above quote, the data from the elders suggests that the ʔekwò travel to particular regions based on their ability to know where there is available food. "This middle aged cow shows the other ʔekwò the way and leads them to food" (Jimmy Martin, age 84: 97/03/11). The k'aowo may change the migration route depending on food availability, which creates a situation that "Wherever there is good lichen, that is where they [the ʔekwò] ... roam." (Adele Wedawin, age 76: 97/04/17)

The elders also explain:

When the calf is about to go off milk, it will eat whatever its mother eats. Its mother will teach it to eat the ʔadzì (lichen)



Tfo

and kwetsı (black rock tripe) as she does. Within the boreal forest ʔekwò prefer to eat white lichen but will also eat yellow grass, green leaves and twigs. [They will] kick away the snow and get to the ground ... (Jimmy Martin, age 75: 97/04/17).

Even though we do not see the ʔekwò give birth, we know the mother teaches their young to survive. ... We all know the ʔekwò eat lichen, in summer time they eat grass, and also eat. ... All animals are like people, they parent their young and teach them what they need to survive. (Jimmy Martin, age 76: 98/05/23)

ʔekwò will not migrate to a region if the area has been burned. The elders state that the ʔekwò smell only burned bush rather than their food.

ʔekwò used to come this way and traveled to Nòdìik'e. Now almost every year that land has been burning [forest fire]. The ʔekwò has been traveled out there for their food to eat. But this is what had happened. (Rosalie Drybone, age 82: 98/02/05)

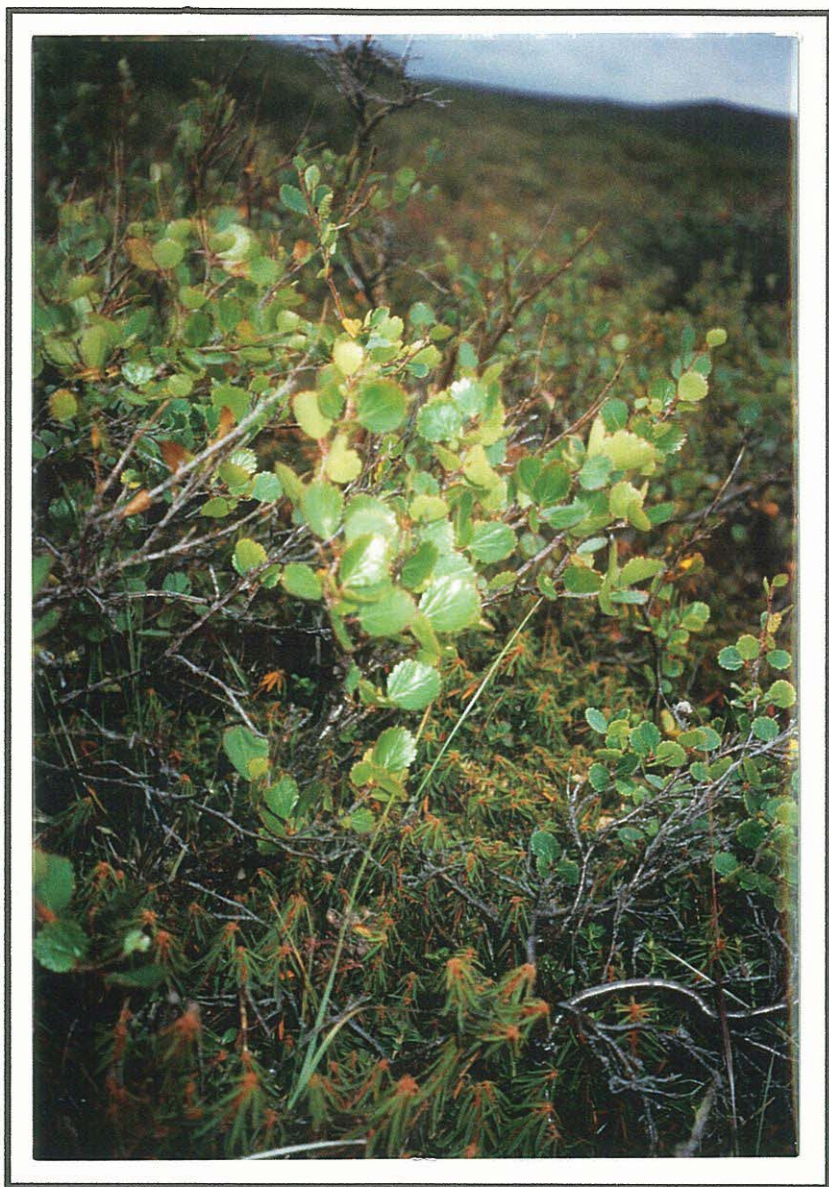
For example, Matton Mantla said,

The ʔekwò come here to Nòdìik'e³³ which runs from Whatì to Fort Providence. The ʔekwò traveled to there to eat their food from that area." (Matton Mantla, age 84: 98/02/09).

They discuss, at length, the reason for the changes in herd size and distribution within the Tłchq traditional territory. Joe Zoe Fish, who is 70 years, remembers

... As a boy, the ʔekwò always came around to our land (Whatì)
... That was 1955, when my uncle died and that was the last time ʔekwò came this way...only four years ago that is when

³³ See glossary for translation of place names and map on which it is located. If the place name is not in the glossary, the research team does not have electronic maps available for that area.



Hozlìt'ò

the ʔekwò came back to our land. (Joe Zoe Fish, age 70: 97/08/22)

Jimmy Martin (97/03/11), who is 76 years, explains that when he was a young man the ʔekwò migrated twice as far south as Old Fort Rae, but have not done so since. While, Adele Wedawin (97/04/17), who is 84 years, agrees when she explains:

...There used to be ʔekwò (around Fort Rae), said my late father. ... Since they hit a ʔekwò, there's been no more ʔekwò he said. Nothing, nothing, nothing. There was none and there continues to be none. (Adele Wedawin, age 84: 97/04/17).

In addition to disrespect shown towards the ʔekwò, the T̥chq̣ elders explain that smoke, fire and a lack of food can keep the ʔekwò from migrating to a particular area. All elders interviewed agree that since the ʔekwò stay away from the smell of smoke, they reason that the ʔekwò will stay away from the mines which smell of exhaust from the big machinery. They believe these smells, that are particularly strong during the construction phase, create fear. The fear weakens the ʔekwò's mind and the odor weakens the scent of the vegetation. This makes it difficult for the ʔekwò to find the T̥chq̣ and does not allow them to smell the vegetation on the opposite side of the mine.

The ʔekwò used to migrate to our land. But now (1998) there is the ʔek'atì mine in the way for the ʔekwò, that's why the ʔekwò mind is too weak to come toward our land now. To the ʔekwò it feels like there is something in their way. The smell can blow far. The ʔekwò can sense that. (Caroline Beaulieu, age 86:CHP-98/02/05-1to3/3)



Two ʔedza (hind legs) covered with Hozii'it'o (barrenland leaves)
to protect the meat from insects
Deèàatì 1999

4.1.6 Research Results: Summary of Oral Narratives

In summary, the oral narratives contain Tłchq knowledge of ɤekwɔ that are designed to share information about:

- Relationships between caribou and people, particularly the importance of respecting caribou, the large territory they require and the vegetation they depend on.
- Migration patterns over time, so hunters understand they cannot predict where the ɤekwɔ will migrate.
- The importance of understanding the annual cycle of the ɤekwɔ, who always returns to the birthing ground.
- The importance of understanding specific spring and fall ɤekwɔ routes.
- The vegetation caribou prefer and their behaviour when foraging.

Prior to information becoming knowledge contained in the oral narrative, harvesters collect information through observations. This information is discussed with other hunters and elders, who question and verify the observations. The information, then becomes part of Tłchq knowledge that is shared through oral tradition.

4.2 Research Results: Oral Histories of Harvesting

In October, 1998 the researchers decided they had sufficient information to start the next phase of the research, which was to use oral histories to document patterns of harvesting ɤekwɔ. Again the Community Elders' Committees(CEC) were vital to directing the researchers to interview the most qualified and knowledgeable elders.

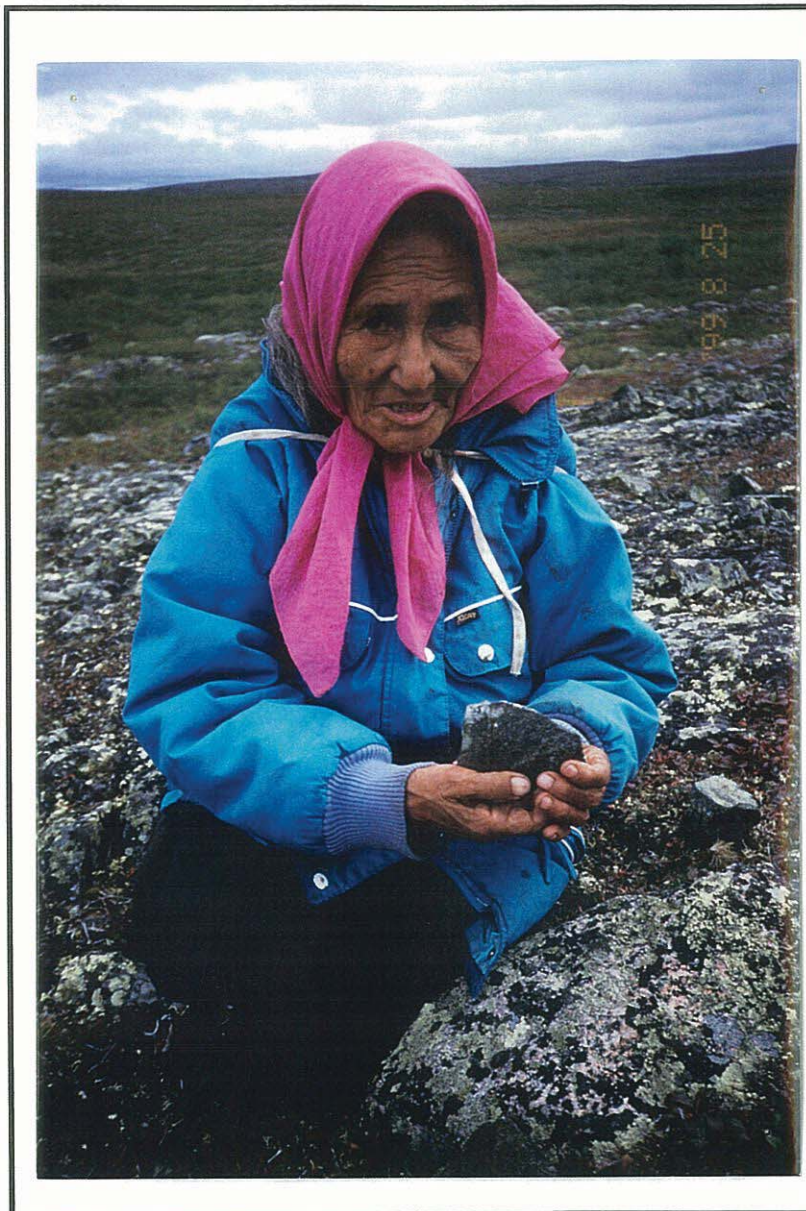
Between 1998 and 2000 the research team interviewed elders on their life histories of harvesting ɤekwɔ. This was done for several reasons. First, it is



Georgina Chocolate at Chacmool Conference
University of Calgary
Calgary, Alberta 1999

relevant for the non-Tł̥chq̓ to know the origin of the information that makes up the Tł̥chq̓ knowledge that is contained in oral narratives. Scientists often use indigenous knowledge as a basis for assumptions to be tested. Therefore it is relevant to show that Tł̥chq̓ knowledge that is shared is systematically collected through the act of harvesting. Such knowledge is associated with migration patterns of ɬekwò in a given year or over a period of time, foraging behaviour in both the barrenlands and boreal forest, weight of ɬekwò harvested and whether enough ɬekwò were harvested for the camp or community. Initially the research director and the researchers suggested interviewing the elders on where they expected to find ɬekwò and where the ɬekwò had not migrated. The CEC agreed, however this approach did not work. Tł̥chq̓ hunters are consistently thinking about positive results, about areas where ɬekwò are most often found. The question was too negative given that we could only assume hunters required a positive approach to hunting if they were to survive. Once the mistake was realized, the research team worked together to develop an interview guideline. After several meetings the team agreed to map harvesting patterns, mining activity, fires and where ɬekwò had been hit with a stick, and to document fitness of ɬekwò and whether the hunter harvest enough ɬekwò for the camp. A system needed to be developed to code the information on the topographical maps so that time could be saved inputting the data on the GIS. A decision had to be made about which elders to interview in which communities. A system had to be developed to determine the approximate year the harvesting took place.

The research team developed a coding system that made sense. The system was tested on Louis Zoe and Joe Mantla in Gametì by the GIS Administrator,



Elizabeth Chocolate holding a Kwetè (rock scraper)
used for scraping ?ewò (caribou hides)
Deèzàatì 1999

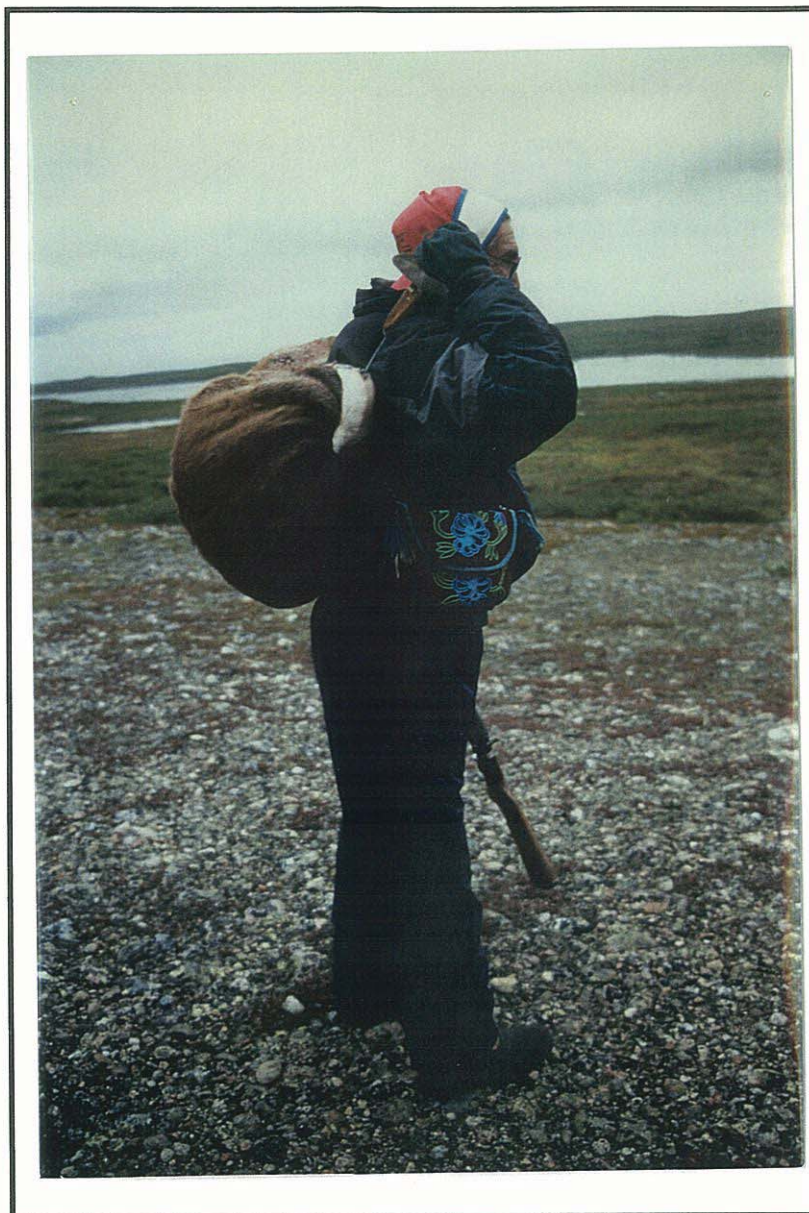
who also needed to understand the system in order to input the data collected. In 1998, the CEC directed the researchers to interview all hunters over 65, beginning with the following³⁴:

Nick (80) and Annie Black (76),
Suzie J. Bruneau (93),
Sammy Football (93),
Matto Mantla (84),
Moise (87) and Madelaine Martin (79),
Jimmy (80) and Elizabeth Mantla (66),
Joe Susie MacKenzie (81) and Julie MacKenzie
Elizabeth Michel (76),
Harry (82) and Liza Koyina (80),
Paul (80) and Elizabeth Rabesca (70),
Joseph Rabesca (92)
Adele Wedawin (85)

Finally, the researcher team devised a system to determine the approximate year that the harvesting took place. He got the registered dates of birth of the elders and made a table for each year that showed their ages and associated year. As the elders made statements such as, "I was about the age of my nephew----", or "I was about the size of ...", he would calculate their relative age and the approximate year of activity. At times the elder knew the year or told the researchers how old s/he was. Given the registration date of the elders' birth is often incorrect³⁵; and given that the remembered age or size when the harvest took place is being compared to members of the present community, time of harvests shown on the maps are probably correct within two to three years. Importantly, the CEC and the elders being interviewed are comfortable with this system, and the research team found that calculations are providing data consistent with the archival information

³⁴ The complete list of elders interviewed is under activities.

³⁵ Since many of the elders were born on the land and were not baptized or registered for a few years, guesstimates were made.



Pierre Beaverho carrying a Deghōleh
(caribou meat in caribou hair bundle)
Deèzàatì 1999

available. As summarized by Scott (1998:20)³⁶ she found that in 1955 wildlife officers reported a decrease of ʔekwò (barrenland caribou) between Sahtì (Great Bear Lake) and Tìdeè (Great Slave Lakes) from 219,000 in 1949 to 44,952 in 1955. Scott (1988:10) also states that "it was reported by J.P. Kelsall that ʔekwò shifted calving areas in 1952-53 and again in 1955-56 when they wintered on the north shore of Great Slave Lake." Later in this report, hunters stated that in 1955 and 1956 they had to harvest thin ʔekwò, which were not enough for the camp.

During these initial interviews the elders stated the number of ʔekwò seen in comparison to the number taken. The research team update the coding system to include this information. The researchers asked the elders to talk about each year and each season, as they remember harvesting, the elders interviewed have been very firm that they will only talk about what they remember clearly. For example, other elders have stated that Suzie Bruneau has hunted a lot around the ʔek'atì area as well as further east, but he himself stated that although he remembers hunting he cannot at this time remember the approximate years or how old he was. The research team has found that as elders are interviewed about specifics, other memories return to them. Many Tł̥chq̓ elders will not talk about what they are not sure about or what they do not know. They fear they will be viewed as lying about stories and will be discredited and dishonored. It is a very noble and honorable thing to be ranked and respected as a hunter with a great wealth of knowledge and information gained from experience.

³⁶ See Appendix V.



Robert Mackenzie
Deèzàatì 1999

The validity of the elders' comments has been questioned on the assumption that their advanced age may influence their ability to accurately remember events from long ago. Most social scientists, particularly those historians and anthropologists interested in oral history, accept that many seniors have short-term memory problems, yet their long-term memories are remarkably clear and detailed. This is demonstrated in our research by the fact that the elders' information is often repeated in different interviews with other elders.

The elders were asked to remember as far back as they could and, based on their own harvesting histories, to explain:

- Where and when the caribou were killed.
- What time of year the caribou were killed.
- Number of caribou taken (few, many, was there enough).
- Whether there was enough meat for the camp.
- Contents of stomach, stools and vegetation left in mouth.
- Condition of caribou (fat, skinny, average, healthy or not).
- Condition of hide.

Between December 1998 and February 2000, 1269 database entries were made on caribou, including both *tōdzī* (woodland caribou) and *ʔekwō* (barrenlands caribou) harvesting, reflecting data gathered for the years 1917 to 1998. Of the total amount, 1026 contained information on harvesting *ʔekwō*.

The information from these oral histories of harvesting histories will be explained under four headings: 1) Distribution of Harvested *ʔekwō*; 2) Underweight *ʔekwō* Harvested between 1917 and 1998; 3) Enough or Not Harvested *ʔekwō* between 1917 and 1998; and 4) Vegetation Found in the Mouths of Harvested *ʔekwō*.

Table VIII Zekwò Harvested on the Lakes at Tsòtì, Behtsokò and Gametì and at the Community of Wha Tì				
Year	Harvested on Tsòtì	Harvested at Wha Tì	Harvested near Behtsokò	Harvested on Gametì
1925	No	.....	No	No
1926	No	.....	No	No
1927	No	.....	No	No
1928	No	.....	No	No
1929	No	.....	No	No
1930	No	.....	No	No
1931	No	.....	Yes	No
1932	No	.....	No	No
1933	No	.....	No	No
1934	No	.....	No	No
1935	Yes	.....	No	No
1936	No	.....	Yes	No
1937	No	.....	No	No
1938	No	.....	Yes	No
1939	No	.....	No	No
1940	No	.....	No	No
1941	Yes	.....	Yes	No
1942	No	.....	No	No
1943	No	.....	No	No
1944	No	.....	Yes	No
1945	No	.....	No	No
1946	No	.....	Yes	No
1947	No	.....	Yes	Yes
1948	No	.....	Yes	Yes
1949	No	.....	Yes	Yes
1950	No	.....	Yes	Yes
1951	No	.....	No	Yes
1952	No	.....	No	Yes
1953	No	No	Yes	Yes
1954	No	No	No	Yes
1955	No	No	No	Yes
1956	No	No	No	No
1957	No	No	No	Yes
1958	No	No	Yes	No
1959	No	No	No	No
1960	No	No	Yes	No
1961	No	No	No	Yes

1962	No	No	No	No	Yes
1963	No	No	No	No	No
1964	No	No	No	No	Yes
1965	No	No	No	Yes	Yes
1966	No	No	No	Yes	Yes
1967	Yes	Yes	Yes	No	No
1968	Yes	Yes	No	No	No
1969	Yes	Yes	No	No	No
1970	Yes	Yes	No	Yes	Yes
1971	Yes	No	No	No	Yes
1972	No data	No data	No data	No data	No data
1973	No	No	No	Yes	No
1974	No	No	No	Yes	No
1975	No	No	No	No	No
1976	No	No	No	No	Yes
1977	No	No	No	No	Yes
1978	No	No	No	No	No
1979	No	No	No	No	No
1980	No	No	No	No	No
1981	No	No	No	No	No
1982	No data	No data	No data	No data	No data
1983	No data	No data	No data	No data	No data
1984	No	No	No	No	No
1985	Yes	Yes	No	No	No
1986	No	No	No	No	Yes
1987	No	No	Yes	Yes	No
1988	No	No	No	No	Yes
1989	No	No	No	No	No
1990	No	No	No	No	No
1991	No	No	No	No	No
1992	No	No	No	Yes	No
1993	No	No	No	Yes	No
1994	No	No	No	No	No
1995	No	No	No	Yes	No
1996	No	No	No	No	No
1997	No	No	No	No	No
1998	No	No	No	Yes	No

4.2.1 Oral Histories: Distribution of Harvested ʔekwò (Barrenlands Caribou)

As discussed in previous reports, Tìchq̓ oral narratives often discuss distribution and migration in terms of where the ʔekwò wintered, the ʔekwò relationship with people, how the ʔekwò react when people disrespect ʔekwò, when and where there were fires, and their concerns about industrial development including associated infrastructure. As discussed above, the term distribution is translated as dè in Tìchq̓ therefore during interviews the researchers only used terms related to migration, which are listed on page 16 in Table I. These concepts explain the actions taken by the ʔekwò and are more meaningful to the hunters who are trying to understand the ʔekwò's behaviour in relation to the dè.

The term distribution is used here to describe the extent of the reported areas used each year for harvesting. The research team documented information between 1917 and 1998, however there is insufficient data prior to 1925 to map distribution of harvesting between the years 1917 and 1924. Although the actual harvesting information may be lost with the passing of elders, the knowledge of those periods is passed through oral narratives that contain statements such as, "the ʔekwò were everywhere in 1924" (Adele Wedewin, age 84: CEC- 97/11/19). The information that was provided by the 27 harvesters through their life histories of harvesting was examined in the following manner:

- In seven year groupings, as shown on the map entitled "Barrenland Caribou Distribution Based on Harvesting Patterns in Winter and Spring ..." in Appendix II,
- Yearly, as listed in Table VIII, to determine where ʔekwò were between 1925 and 1998 in relation to the lakes known as Gametì

YEAR	Table IX: Distribution in Relation to Wekwèeti
1925	East of Wekwèeti and north as far as Deèzàati
1926	Northwest and southeast and east
1927	Around Wekwèeti and east to ?ek'ati, Ts'iedah and Nòdixahiti
1928	Around Wekwèeti, south and east to ?ek'ati, Ts'iedah and Nòdixahiti
1929	Southwest toward Behtsokò
1930	Northeast in a small area
1931	Southwest as far as Behtsokò, northeast around ?ek'ati and to Kok'eeti
1932	Around Wekwèeti, south, east to ?ek'ati and Ts'iedah, and west to Sahiti
1933	West and north-south and east to Ts'iedah and ?ek'ati
1934	South, around Wekwèeti and northwest past Yabahti
1935	West, south and east ('T' shape)
1936	West and southwest to northeast
1937	South and from southwest to east of Wekwèeti
1938	Southwest to Behtsokò, northeast and east
1939	Southwest, north and east to ?ek'ati
1940	Southwest, around Wekwèeti and east to ?ek'ati
1941	Southwest to Tsòti and northeast to Deèzàati and east side of ?ek'ati
1942	South, west and east to ?ek'ati and Nòdixahiti
1943	South in an east-west formation and in a northwest to east formation as far as ?ek'ati and Nòdixahiti
1944	Southeast to Behtsokò and to south of Wekwèeti
1945	East and as far east as ?ek'ati, Ts'iedah and Nòdixahiti
1946	Southeast to Behtsokò and northwest
1947	South and east (to ?ek'ati) and west
1948	East to Gameti, southeast, southeast of Whati, and east to ?ek'ati
1949	East and north-south along Camsell River system
1950	Same, but also northeast to Yabahti
1951	In a 'V' shape south of Wekwèeti, northwest to Sahiti and northeast to Deèzàati
1952	West and north, east to ?ek'ati, Ts'iedah and Nòdixahiti, and south and west to Semiti
1953	West and northwest to ?ts'èeti, south, south and east to ?ek'ati
1954	Southeast and northeast to ?ts'èeti along Camsell River system, east to ?ek'ati and Nòdixahiti
1955	South and east to ?ek'ati, north-south along Camsell River system
1956	A small area southeast of Wekwèeti only
1957	Both north-south and east-west
1958	Same as 1955
1959	In a 'C' shape from Wekwèeti east to ?ek'ati, south from Wekwèeti and then east again to Tidee (Great Slave Lake)

1960	Same but not as far as Tidee
1961	Southeast to Semiti, west and north to ?ts'èeti, south, east to ?ek'ati
1962	West and somewhat north and south, and west and north
1963	West and southwest to Behtsokò, west and north, west to Sahiti
1964	West and south, west and north, west
1965	West and southwest
1966	In a southwest block
1967	South, southwest to Tsòti, east and north to Deèzàati
1968	Northwest to Gots'òkàti, southwest to Tsòti, south
1969	In a block south, south and east and north of Tsòti
1970	Southwest to Whati, west and north to ?ts'èeti
1971	South and southwest, west and then south to south of Tsòti and west and north to Gots'òkàti
1972	No data
1973	West and south, west and northeasterly almost to Yabahti
1974	Southwest near Behtsokò and north to Deèzàati and east
1975	A small area west of Wekwèeti
1976	South, west to Gameti, east
1977	West, in a north-south formation
1978	In a circumference south, west, north and a bit east
1979	A small area south and east
1980	Same, but less south
1981	No data
1982	No data
1983	At Spòmbak'è and extending north and east from there
1984	An area east and south encompassing Ts'iedah
1985	South and west to edge of map, east to Ts'iedah
1986	South and west and north
1987	West and south to Behtsokò, north to Gots'òkàti and west from there to ?ts'èeti
1988	South and west to Semiti and Gameti and northeast from there to Gots'òkàti, south and east to Ts'iedah
1989	Southwest and east and north to north of Yabahti
1990	South in a southwest to northeast formation
1991	Small area to northwest
1992	An area south and east, almost to Behtsokò
1993	An area just north of Behtsokò
1994	No data
1995	A small area just to the east of Behtsokò
1996	From southwest to northeast at ?ek'ati and Yabahti
1997	A small area just west of Wekwèeti
1998	From southwest near Behtsokò northeast to ?ek'ati and Yabahti

and Tsòtì, and to the areas where the current communities of Whatì and Behtsokò³⁹ are located.

- Yearly, as listed in Table IX, to show where ʔekwò were in relation to Wekwèetì between 1925 and 1998.

As the maps and tables show, over the last 73 years the distribution of harvested ʔekwò rotated around Wekwèetì. The earliest pattern shows ʔekwò being harvested to the east of Wekwèetì, with most winter and spring harvesting in 1925 and 1928 taking place between Wekwèetì and the barrenlands around Gots'òkàtì (Mesa Lake), ʔek'atì (Lac de Gras), Deèzàatì (Point Lake), and Nòdìxahtì⁴⁰ (MacKay Lake). The harvesting trend then moves more to the southwest and east of Wekwèetì between 1929 and 1946, often reaching Behtsokò and ʔek'atì (Lac de Gras). The trend between 1949 to 1961 is in a north-south distribution along the river system between Sahtì (Great Bear Lake) and Tìdeè (Great Slave Lake) and then changes, around 1962, to a northerly trend west of Wekwèetì, with some harvesting taking place as far east as ʔek'atì (Lac de Gras), Deèzàatì (Point Lake) and Gots'òkàtì⁴¹. The trend changes again to distribution south of Wekwèetì, with a general movement back to the east. Some long-term trends are noticeable between 1931 and 1946, between 1949 and 1961, and between 1964 and 1978. Nevertheless, minor alterations in the distribution of the harvested ʔekwò displays change every three (3) to five (5) years, with two year groupings in 1925 and 1926, 1929 and 1930, 1944 and 1945, 1947 and 1948 that are completely different, followed again by a long-term pattern. After 1979 the distribution of harvesting patterns seems to change even two to three years.

³⁹ See maps in Appendix II for location.

⁴⁰ See maps in Appendix II for location.

⁴¹ See maps in Appendix II for location.



Gamètì Area
Where fires have destroyed caribou habitat
and traplines, 1999

Harvesting ʔekwò in Relation to Water Crossings and Locations for Caribou Fences

As is shown on the map entitled 'T̕chq̕ and ʔekwò', the 27 T̕chq̕ harvesters interviewed harvested ʔekwò on the trail leading to, or at, 32 of the 42 water crossing and locations for traditional fences.

Harvesting ʔekwò in Relation to Fire Activity

The maps entitled 'Barrenlands Caribou Distribution Based on Harvesting Patterns in Winter and Spring ... [starting in 1965]' show fire data received from Department of Renewable Resources, Wildlife and Economic Development (RWED), Government of the Northwest Territories. This data shows apparent fire activities between 1965 and 1995⁴². When winter and spring harvesting continues in apparent fire areas as in 1968, 1969, 1971 and 1973⁴³, we assume ʔekwò were traveling quickly through the areas, the fire was a top fire and therefore did not destroy vegetation growing closer to the ground, or the satellite information was misinterpreted⁴⁴. The research team made several attempts to fly over these areas with RWED staff and elders to verify size of areas destroyed by fires and to document vegetation, for several reasons, such as new fires, sickness among elders and the T̕chq̕ annual trip to Lac St. Anne, Alberta, this did not take place.

As stated above, the ʔekwò did not go to Whatì for approximately 30 years after a young boy hit a ʔekwò. This occurred sometime between 1956 and 1958. Table VIII shows harvesting activity in relation to Whatì, Tsotì, Gametì and Behtsokò. It is interesting to note that only once, in 1967, in the

⁴² See maps in Appendix II.

⁴³ See maps for relevant years in Appendix II.

⁴⁴ RWED has some concerns about their early fire data.



Sally Ann Zoe walking near staking pole
Deèzàatì 1999

30 year period following the 1950s did any of those elders interviewed from Behtsokò, Gametì and Wekweètì harvest ɤekwò near Whatì. The ɤekwò were harvested north of Whatì, on or near Tsòtì, during six of those years, but they were not actually harvested near the community of Whatì, except in 1967.

ɤekwò Harvesting Distribution in Relation to Mining Activity

The research team decided to compare past mining activity in relation to the distribution of harvested ɤekwò, since the Ṭchq elders attributed loud noise and the smell of fumes and smoke during the construction phase of Ekati Mine Site as the reason the ɤekwò traveled southeast of Łutselk'e in 1998. The data displayed on the maps titled 'Barrenlands Caribou Distribution Based on Harvesting in Winter and Spring ...[beginning in year 1929-1934]' (Appendix II) suggests that during past exploration and operation the mines did not interrupt harvesting of ɤekwò in adjacent areas. The elders suggest the 1998 migration pattern is due to activities associated with the construction at the BHP Ekati Mine site, and are fearful that the ɤekwò will be determined to travel in a particular direction that will lead them to migrate through mine sites. They are worried that in doing so the ɤekwò will be adversely affected by pollutants such as noise and ash, and may potentially eat vegetation where pollutants have settled.

These two seemingly conflicting observations and concerns regarding avoidance and adaptability on the part of the ɤekwò can be explained. First, the elders have stated that ɤekwò avoid places that are loud and smell like smoke or fire. Second, the Ṭchq elders have also stated that they have observed ɤekwò growing accustomed to loud noise such as planes, and the elders are therefore fearful that the ɤekwò will become accustomed to the noise, smell of fumes and smoke associated with mines. A third factor is that



Exploration Camp
BHP Claim Block
Nàdenìzaàtì (Exeter Lake)

2000

although the ʔekwə may avoid areas when they are not migrating, they will move directly through areas when they are migrating, regardless of the mining activities taking place. This has also been observed by biologists working with BHP Diamonds Inc. who, when working on a study of the response of caribou to fencing and plastic deflectors (Gunn, 1998), put up a yellow plastic rope hoping to deter caribou from the mine site. This rope was effective in deterring the ʔekwə when they were grazing, but once in migration mode they simply jumped or walked through the rope.

It is for this reason that the Tłı̨chʔ elders stress the importance of limiting pollution and protecting the caribou from the tailings and contaminants created by industrial development. Tłı̨chʔ elders and harvesters have observed and mentally documented the effects of mining on ʔekwə (barrenlands caribou), and as Louis Whane (DREC-00/05/10) stated,

there was a yellow substance all over the snow around the Diavik site. What was that? The ʔekwə will be affected by that and we all eat the ʔekwə. (Louis Whane, age 80 :DREC-00/05/10)

4.2.2 Oral Histories: Underweight Harvested ʔekwə between 1917 and 1998

"... the men who hunt often know which ʔekwə are really fat..." (Elizabeth Charlo, age 91: CHP-98/02/05-1/3). They judge ʔekwə by looking at them and then decide whether they are of sufficient weight to harvest, therefore it seems significant that they were harvesting ʔekwə without fat in the fall. As Table X shows, in 33 of the 1026 cases, the hunters mentioned harvesting at least some underweight ʔekwə. Sufficient data has not been collected to make conclusive statements, however it does appear that the majority of

Table X

Incidents of Harvesting where ?ekwò Lacked Weight or There were Not Enough

Ca. Year	Time of Yr.	State of Hide/s	Number of Underweight	Cases of Not Enough for Camp	Vegetation in Mouth
1916-17	Winter	Good	2 in 1 case	-	?adzìl
1917-18	Winter	Good	3 in 1 case	-	?adzìl
1918-19	-	-	-	-	-
1919-20	-	-	-	-	-
1920-21	-	-	-	-	-
1921-22	Fall Migration	Bad	-----1 in 1 case-----	---same case---	?adzìl
1922-23	-	-	-	-	-
1923-24	Winter	Good	-	1 case	?adzìl
1924-25	-	-	-	-	-
1925-26	Winter	Good	-	4 cases	?adzìl
1926-27	-	-	-	-	-
1927-28	-	-	-	-	-
1928-29	-	-	-	-	-
1929-30	Fall Migration	Good	-	1 case	1 st case-?adzìl
	-	-	-	1 case	2 nd case ?adzìl,
	-	-	-	-	?it'ò, d'ògò, t'òdzè,
1930-31	Fall Migration	Good	-	1 case	?adzìl, ?it'ò, d'ògò,
	-	-	-	-	t'òdzè
1931-32	Fall Migration	Good	-	-	?adzìl
1932-33	Fall Migration	Good	-	1 case	?adzìl
1933-34	Fall Migration	Good	-	1 case	?adzìl
	Spring Migration	Good	-	1 case	?adzìl
1934-35	Fall Migration	Good	-	2 cases	?adzìl
	Winter	Good	-	1 case	?adzìl
1935-36	-	-	-	-	-
1936-37	Winter	Good	ca. 5 in 1 case	-	?adzìl
	-	-	-	-	-
	Spring Migration	Good	-	1 case	?adzìl
	Spring Migration	Good	-	1 case	?adzìl
1937-38	-	-	-	-	-
1938-39	-	-	-	-	-
1939-40	Winter	Good	-	1 case	?adzìl
1940-41	-	-	-	-	-
1941-42	Fall Migration	Good	-	1 case	?adzìl
1942-43	-	-	-	-	-
1943-44	Fall Migration	Good	-	1 case	?adzìl
1944-45	-	-	-	-	-
1945-46	-	-	-	-	-
1946-47	Winter	Good	<10 in 2 cases	-	?adzìl,
1947-48	Fall Migration	Good	-	2 cases	?adzìl,
	Winter	Good	-	3 cases	?adzìl
1948-49	Winter	Good	<36 in 2 cases	-	?adzìl
1949-50	Winter	Good	-	1 case	?adzìl, ?it'ò, t'ògò,
1950-51	Winter	Good	<17 in 1 case	-	?adzìl
1951-52	Fall Migration	Good	-	1 case	?adzìl, ?it'ò, t'ògò,
	Winter	Good	<34	-	?adzìl
1952-53	-	-	-	-	-
1953-54	Winter	Good	<30 in 4 cases	-	?adzìl
1954-55	-	-	-	1 case	?adzìl
1955-56	Winter	Good	<94 in 5 cases	-	?adzìl

Ca. Year	Time of Yr.	State of Hide/s	Number that Lacked Fat	Incidences of Not Enough for Camp	Vegetation in Mouth
1956-57	Fall Migration	Good	-	1 case	?adzìl
	Winter	Bad	-----1 in 1 case-----	-----same case-----	?adzìl
	-	-	-	2 cases	?adzìl
	-	-	8	-	?adzìl
	Spring Migration	Good	-	1 case	Gòt's'gòo
1957-58	Fall Migration	Good	-	1 case	?adzìl
	Winter	Good	-	3 cases	?adzìl
1958-59	Fall Migration	Good	-	1 case	?adzìl, ?it'ò, t'ògò,
	Winter	Good	<16 in 4 cases	-	?adzìl
1959-60	Winter	Good	0	1 case	?adzìl
1960-61	Winter	Good	<10 in 2 cases	-	?adzìl
1961-62	-	-	-	-	-
1962-63	Winter	Good	-	2 cases	?adzìl
1963-64	-	-	-	-	-
1964-65	Winter	Good	0	1 case	1 st case-?adzìl, t'òdzìl
	-	-	< 10 in 2 cases	1 case	2 nd case - ?adzìl
1965-66	Winter	Good	-	1 case	?adzìl, t'òdzìl, t'òdzìl
1966-67	Winter	Good	-	3 cases	?adzìl
	-	-	<10 in 1 case	-	?adzìl
1967-68	Fall Migration	Good	-	2 cases	?adzìl
	Winter	Good	< 50 in 2 cases	-	?adzìl
1968-69	Winter	Good	<10 in 1 case	-	?adzìl
1969-70	Winter	Good	<50 in 2 cases	-	?adzìl
1970-71	Winter	Good	<300 in 3 cases	-	?adzìl
1971-72	-	-	-	-	-
1972-73	-	-	-	-	-
1973-74	Winter	Good	-	4 cases	?adzìl
1974-75	Fall Migration	Good	-	1 case	?adzìl
1975-76	-	-	-	-	-
1976-77	Winter	Good	-	1 case	?adzìl, t'òdzìl
1977-78	Winter	Good	-	3 cases	?adzìl
1978-79	-	-	-	-	-
1979-80	-	-	-	-	-
1980-81	-	-	-	-	-
1981-82	-	-	-	-	-
1982-83	Winter	Good	<60 in 1 case	-	?adzìl
1983-84	Winter	Good	<60 in 2 cases	-	?adzìl ¹
1984-85	-	-	-	-	-
1985-86	Winter	Good	<20 in 1 case	-	?adzìl
1986-87	Fall Migration	Good	-	1 case	?adzìldego, k'òb
	Winter	Good	<12 in 1 case	-	?adzìl
1987-88	Winter	Good	<8 in 1 case	-	?adzìl
1988-89	Winter	Good	<9 in 1 case	-	?adzìl
1989-90	Winter	Good	<8 in 1 case	-	?adzìl
1990-91	-	-	-	-	-
1991-92	-	-	-	-	-
1992-93	Winter	Good	<60 in 1 case	-	?adzìl
1993-94	Winter	Good	<20 in 1 case	-	?adzìl
1994-95	Winter	Good	<10 in 1 case	-	?adzìl
1995-96	Winter	Good	<16 in 1 case	-	?adzìl
1996-97	Winter	Good	<9 in 1 case	-	?adzìl
1997-98	Spring Migration	Good	-	1 case	?it'ògòkò, ?adzìl

¹ If do not mention whether the hide was good or bad, we assumed it was good.

ʔekwò may not have been healthy and it may have been a difficult summer for the herd.

In seven (7) cases all the ʔekwò harvested were underweight. The seven (7) cases of underweight ʔekwò were in the winters of 1917, 1918 and 1937, the falls of 1921, 1931, and 1956 and the spring of 1957. An average of three and a half (3.5) ʔekwò (barrenlands caribou) were taken in each case with (1) being the least amount taken and eight (8) the most taken. In all these cases very few were taken. In seven (7) cases the elders' remember the ʔekwò foraging on ʔadzìl and in one case ʔadzìl (lichen) and gots'agooʔìlq (labrador tea leaves).

The 26 cases the elders remembered that at least some of the ʔekwò were underweight. These were in the winters of 1947, 1949, 1951, 1952, 1954, 1956, 1959, 1961, 1965, 1967, 1968, 1969, 1970, 1971, 1983, 1984, 1986, 1987, 1988, 1989, 1990, 1993, 1994, 1995, 1996 and 1997. There were no cases in the fall or spring, and in these cases an average of 37 were taken with the least number being eight (8) ʔekwò and the most being about 300. In all of these cases it was reported that the ʔekwò had ʔadzìl (lichen) in their months.

T̥h̥ch̥q harvesters and the individuals who work with preparing the meat and the hides continually observe and discuss the fitness and health of the ʔekwò through statements about hides and meat. Both the hunters and the women, who continue to work with ʔekwò skin, state that during 1996 and 1997 the ʔekwò were fat and the hides were in good shape.

But then, this ʔekwò has been really good for the last two years, it's probably because it eats good food. That's how our parents



Bella Zoe scraping Deghq (hair) off of zewò (hide)
Deèzàatì 1999

used to talk about it, wherever there is good food for ʔekwò to eat is where they go to. That's how my late father used to tell us a story about it. Back in those days, the people had to struggle hard to make ends meet, that's where the people came from, so they know all about it. ... But then, that ʔekwò we say, the ʔekwò is really good for the last two years, if we do that to the hìde, [cleaning the ʔekwò hìde] there is not even one maggot in the ʔekwò hìde. ... But then, before it wasn't like that, our mother when they are working on ʔekwò hìde, there was lots of maggots in ʔekwò hìde, the hìdes looked useless, but she used to make string out of it. But now, for the last two years, there is not even one maggot in the ʔekwò hìdes, nothing. Before in the past, it wasn't like that, even though we shouldn't struggle with it, or work on it. (Adele Wedawin, age 86: pers. comm. 99/05)

At a meeting on November 30, 2000, Robert Mackenzie (pers. comm.) stated that there is a strong odor coming from the ʔekwò when removing the hìde. This odor was not there before.

4.2.3 Oral Histories: Not Enough Harvested ʔekwò between 1917 and 1998

As Ferguson, Williamson and Messier (1998:205) mention from the work with the Inuit on arctic tundra caribou, the number of caribou harvested is not as important as whether the number taken were enough for the camp. The T̥h̥ch̥ elders consistently explain hunters should only take what is needed and what can be carried.

As Table X illustrates, 41 of the 1026 cases of harvesting were situations where elders remembered not harvesting enough ʔekwò for the camp or the community. This is relative. At times there were few people in a camp and



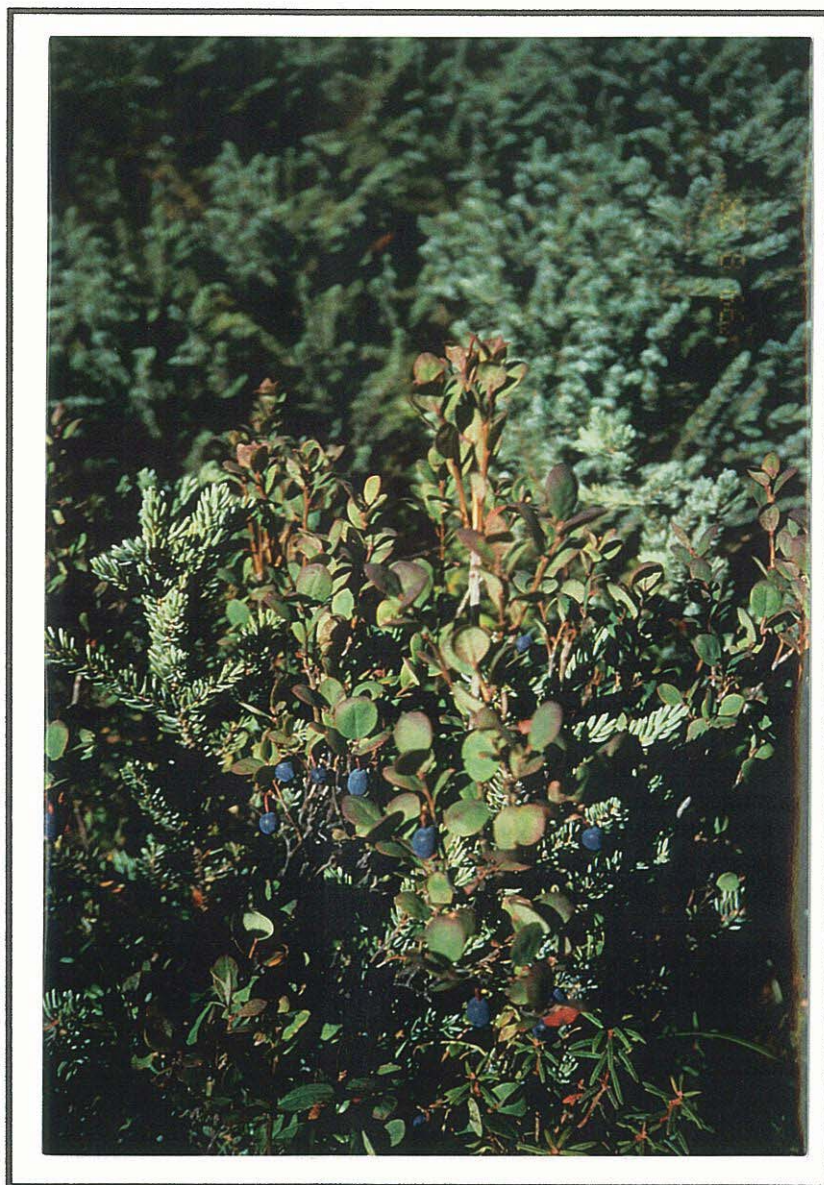
Paul Wetrade
Deèzàatì, 1999

therefore four (4) or five (5) ʔekwò were enough for their needs, while at other times harvesting 100 ʔekwò was not enough for the amount of people in a community. As is evident in Table X, during most years only one or two harvesters told of not getting enough ʔekwò for the camp. However, during the following years there were at least three (3) situations where hunters did not harvest enough ʔekwò:

- The winter of 1926.
- The fall and winter of 1934-35.
- The fall and winter of 1947-48.
- The fall, winter and spring of 1956-57.
- The fall and winter of 1957-58.
- The winter of 1966-67.
- The winter of 1974.
- The winter of 1978.

4.2.4 Oral Histories: Vegetation Found in the Mouths, Stomach and Stools of Harvested ʔekwò (Barrenlands Caribou) between 1917 and 1998

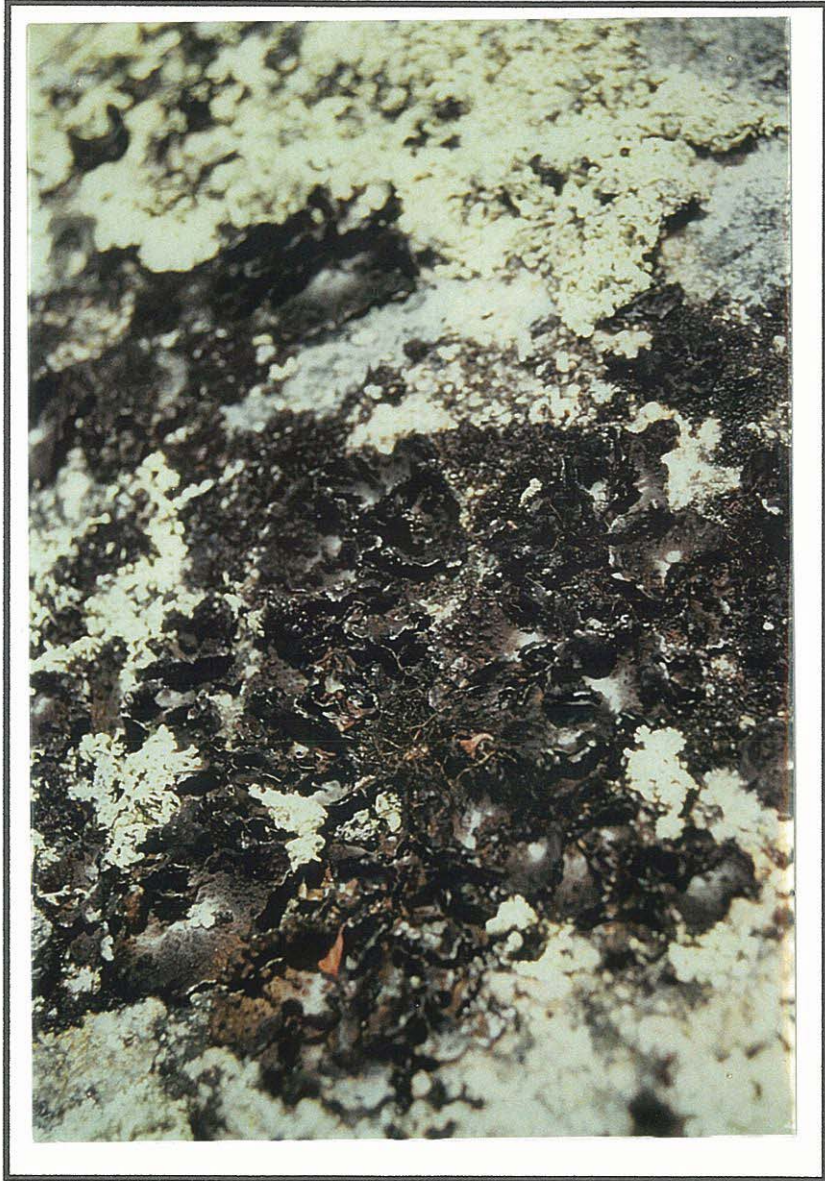
Based on the 1026 records, the following vegetation was associated with ʔekwò for the years between 1917 and 1998. Tables XI to XIII list the vegetation associated with the harvesting that took place during three periods. ʔadzìidegoo (white lichen) was mentioned the most often, with the people interviewed for those years being more specific than they were in 1999 about the color of the lichen the ʔekwò were eating. Consistent with the 1999 data, kwetsì was mentioned 22 times. A greater variety of plants were eaten by the ʔekwò in the fall, when they were on the barrenlands, than in the winter or spring when traveling through snow in the boreal forest. In the winter and spring it seems tì'o, (grasses and sedges) and ʔadzìì (lichen) are the most important food for the ʔekwò.



Dziewàzłt'ò



Dlòdodii



Kwetsì

Vegetation Found in Stomach, Stools and Mouth of Harvested ?ekwò

Table XI
Fall Migration

Tl̥chq	Times Mentioned	English	Latin
ʔadzìì (277 times)			
ʔadzìì	147	General term for lichen	
ʔadzìidegoo	112	Various type of white lichen	Several types found, not identified
ʔadzìidezq	12	Black lichen	Several types found, not identified
ʔadzìidekwo	6	Yellow lichen	Not identified
Tl̥o (75 times)			
Tl̥o	36	Term for grasses and sedges	
Tl̥odzìì	18	“Old grass”	CYPERACEAE <u>Carex sp. ??</u>
Tl̥oghq	17	Type of sedge	CYPERACEAE <u>Carex bigelowii ??</u>
Tl̥ot’aà	2	Type of grass or sedge	Not identified
Tl̥ok’àhwhìì	2	Type of grass or sedge	Not identified
Hozl̥it’q	11	“Barrenland Leaves”	<u>Salix sp.</u>
ʔit’qit’q	10	Cranberry leaves	ERICACEAE <u>sp.</u>
Daàghoo	8	Type of lichen found on trees	Not identified
K’òdòʔit’q	5	Willow leaves	SALICACEAE <u>Salix sp.</u>
Gots’qkàʔit’q	2	Cloudberry leaves	ROSACEAE <u>Rubus chamaemorus</u>
Kwets̥/kwetsq ¹	2	“black rock lichen”	UMBILICARIA <u>Muhlenbergi</u>
Tsqht’è	2	Crowberry	EMPETRACEAE <u>Empetrum nigrum</u>
Dl̥òdìì	2	mushroom	Not identified
Dziewàʔit’q	1	Blueberry leaves	ERICACEAE <u>Ledum decumbens</u>
K’l̥ʔit’q	1	Birch leaves	BETULACEAE <u>sp.</u>

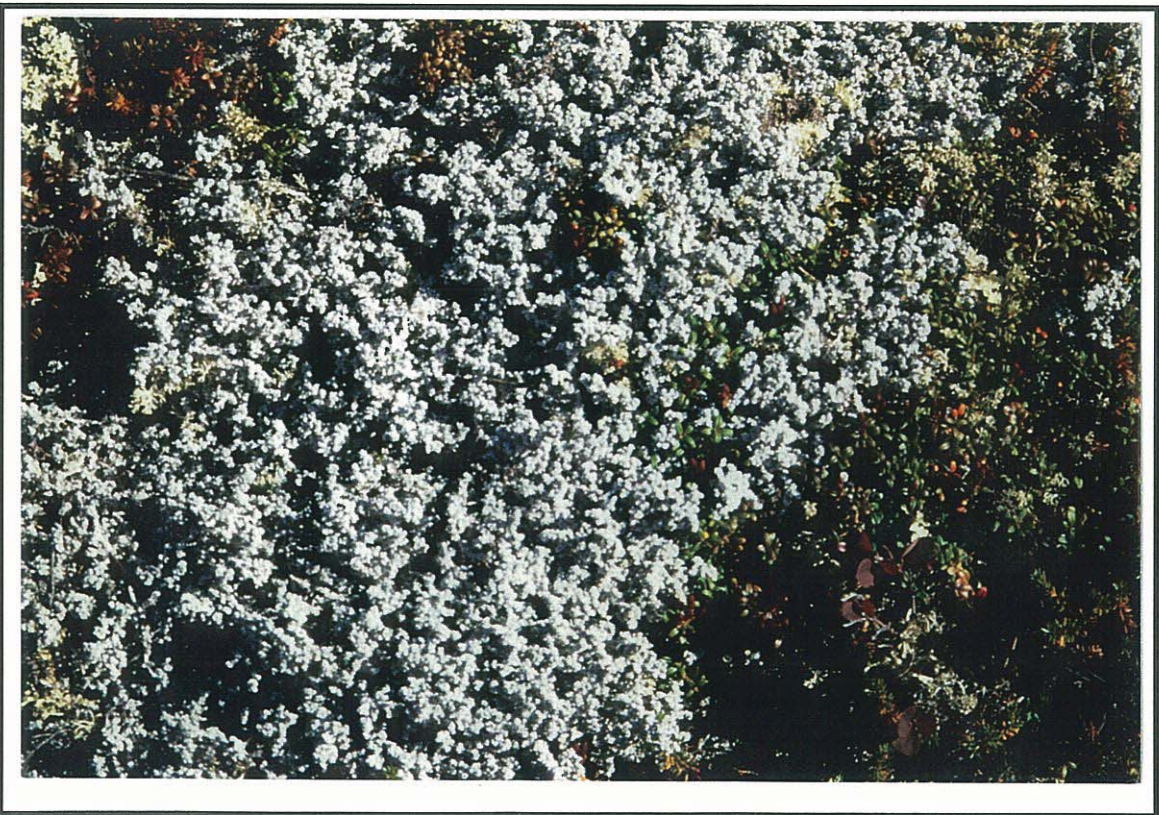


Tl̥oghq

¹ Same plant but kwets̥ is smoother and kwetsq is rough. Only kwets̥ is eaten by the Tl̥chq but the ?ekwo eat both.



Various types of ?adzìidegoo



Vegetation Found in Stomach, Stools and Mouth of Harvested ?ekwò

Table XII
Winter Migration

Tl̥chọ	Times Mentioned	English	Latin
ʔadzìl (575 times)			
ʔadzìldegoo	335	Various type of white lichen	Several types found, not identified
ʔadzìl	158	General term for lichen	
Tl̥'o (192 times)		Term for grasses and sedges	
Tl̥'o	126		
Tl̥'oghọ	62	Type of sedge	CYPERACEAE <i>Carex bigelowii</i> ??
Tl̥'odzìl	4	"Old grass"	CYPERACEAE <i>Carex</i> sp. ??
Daàghoo	52	Type of tree lichen	Not identified
ʔit'òʔit'ò	29	Cranberry leaves	ERICACEAE sp.
Kwetsì	12	"black rock lichen"	UMBILICARIA <i>Muhlenbergi</i>
K'òòʔit'ò	7	Willow leaves	SALICACEAE <i>Salix</i> sp.
Gots'òkàʔit'ò	7	Cloudberry leaves	ROSACEAE <i>Rubus chamaemorus</i>
Hozìl̥t'ò	5	"Barrenland Leaves"	<i>Salix</i> sp.
Dzìewàʔit'ò	2	Blueberry leaves	ERICACEAE <i>Ledum decumbens</i>
ʔet'edegoo	1	Not identified	Not identified
Degaet'ìl	1	Not identified	Not identified

Table XIII
Spring Migration

Tl̥chọ	Times Mentioned	English	Latin
ʔadzìl (326 times)			
ʔadzìldegoo	78	Various type of white lichen	Several types found, not identified
ʔadzìldezọ	22	Black lichen	Several types found, not identified
ʔadzìl	6	General term for lichen	
ʔadzìldekwo	5	Yellow lichen	Not identified
Tl̥'o (74 times)			
Tl̥'o	34	Term for sedges and grasses	
Tl̥'odzìl	24	"Old grass"	CYPERACEAE <i>Carex</i> sp. ??
Tl̥'oghọ	15	Type of sedge	CYPERACEAE <i>Carex bigelowii</i> ??
Tl̥'ot'aà	3	Type of grass or sedge	Not identified
Hozìl̥t'ò	10	"Barrenland Leaves"	<i>Salix</i> sp.
Daàghoo	8	Type of tree lichen	Not identified
ʔit'òʔit'ò	8	Cranberry leaves	ERICACEAE sp.
Kwetsì/Kwetsò	8	"black rock lichen"	UMBILICARIA <i>Muhlenbergi</i>
Gots'òkàʔit'ò	5	Cloudberry leaves	ROSACEAE <i>Rubus chamaemorus</i>
Dzìewàʔit'ò	5	Blueberry leaves	ERICACEAE <i>Ledum decumbens</i>
K'òòʔit'ò	1	Willow leaves	SALICACEAE <i>Salix</i> sp.
Dlòdòdìl	1	General term for mushroom	Not identified



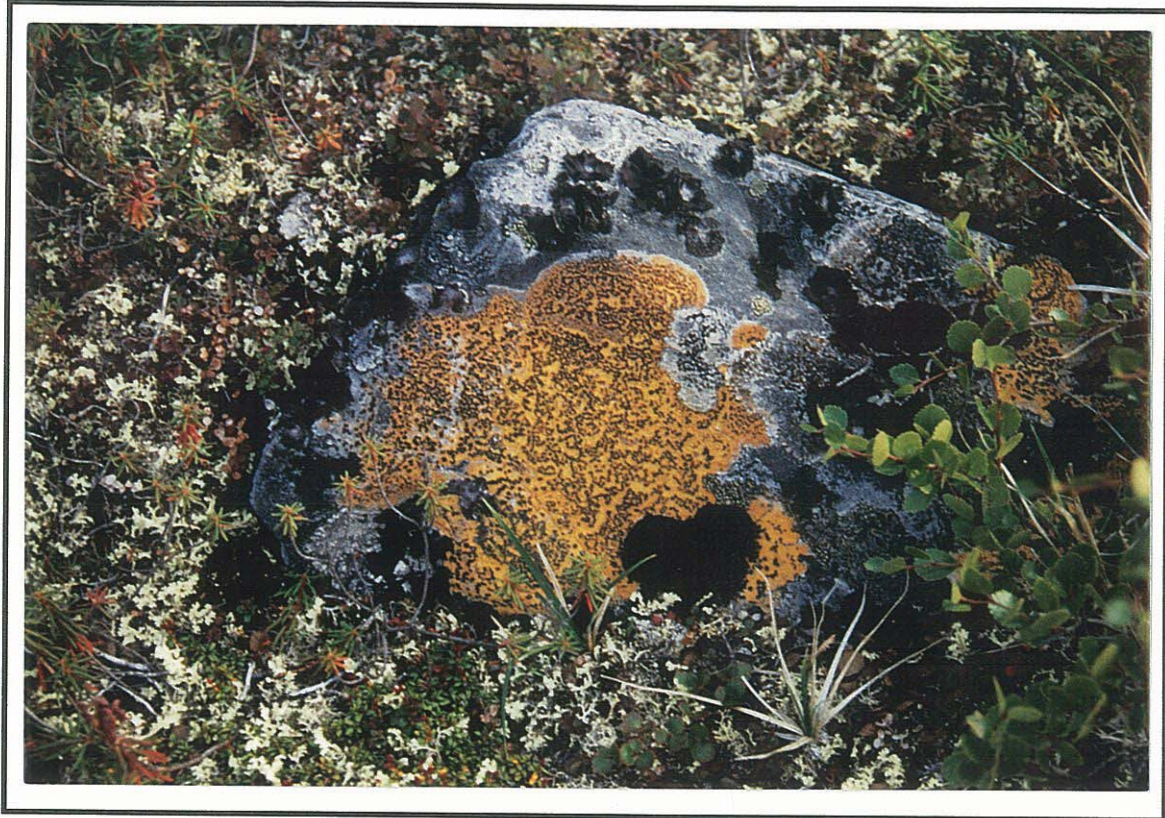
Tsqht'eqt'ò

Reports and articles (Thorpe 1999; Case et al 1996; Johnson and Ruttan 1993; Griffith et al 1998, 1999) consulted during the literature review discussed the variety of food the Ɂekwò eat and how the food sources they are dependent on differ between the boreal forest and the barrenlands. They do not contain any detail on vegetation that is comparable to that of the elders, as contained in the research results section.

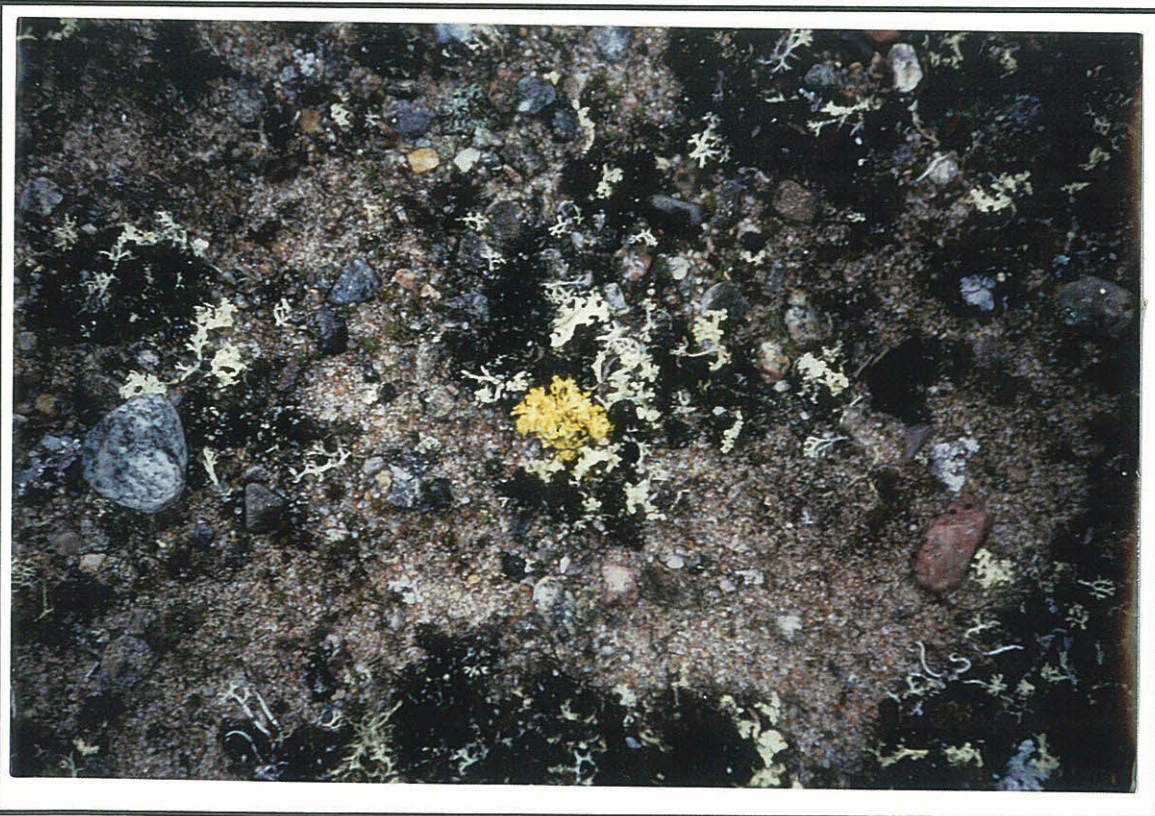
4.2.5 Oral Histories: Harvesting Distribution Patterns in Relation to Collared Cows' Distribution Patterns

The information discussed here comes from the Tł̥chq̓ elders and the Radio Collared Caribou data collected by RWED (Anne Gunn). As is evident from the map titled 'Dogrib and Caribou' in Appendix II, most Ɂekwò are harvested by Tł̥chq̓ hunters along river systems, whereas the maps titled 'Route of One Radio Collared Cow: 1996-2000' and 'Areas Used by Satellite-Collared Bathurst Caribou' in Appendix III do not show Ɂekwò traveling the same river routes as Tł̥chq̓ hunters. Although the data from these two approaches cannot feasibly be compared, there are some interesting similarities.

- The Ɂekwò harvested in Tł̥chq̓ territory in 1998 did not provide enough meat for the hunters, and during the same year all radio collared caribou traveled east of Łutselk'e, and therefore away from Tł̥chq̓ territory.
- There are similarities in distribution when comparing data from 1949-50 and spring 2000 (RWED), for the years 1953-55 and spring 2000 (RWED), again in 1971 and 1977 and winter 2000 (RWED), and, lastly, 1961 and 1965 with the spring of 1999 (RWED).
- The one radio collared cow whose movements are shown on the map 'The Route of One Radio Collared Cow: 1996-2000' used the water



ʔadzìidekwo





Pierre Beaverho and Charlie Tailbone cleaning ?ewòwò (caribou hide)
DeèzàaPtì 1999

crossings known by the Ṭḥcḥq and locations for fences 12 times in four (4) years.

4.2.6 Oral Histories: Summary of Harvesting Information

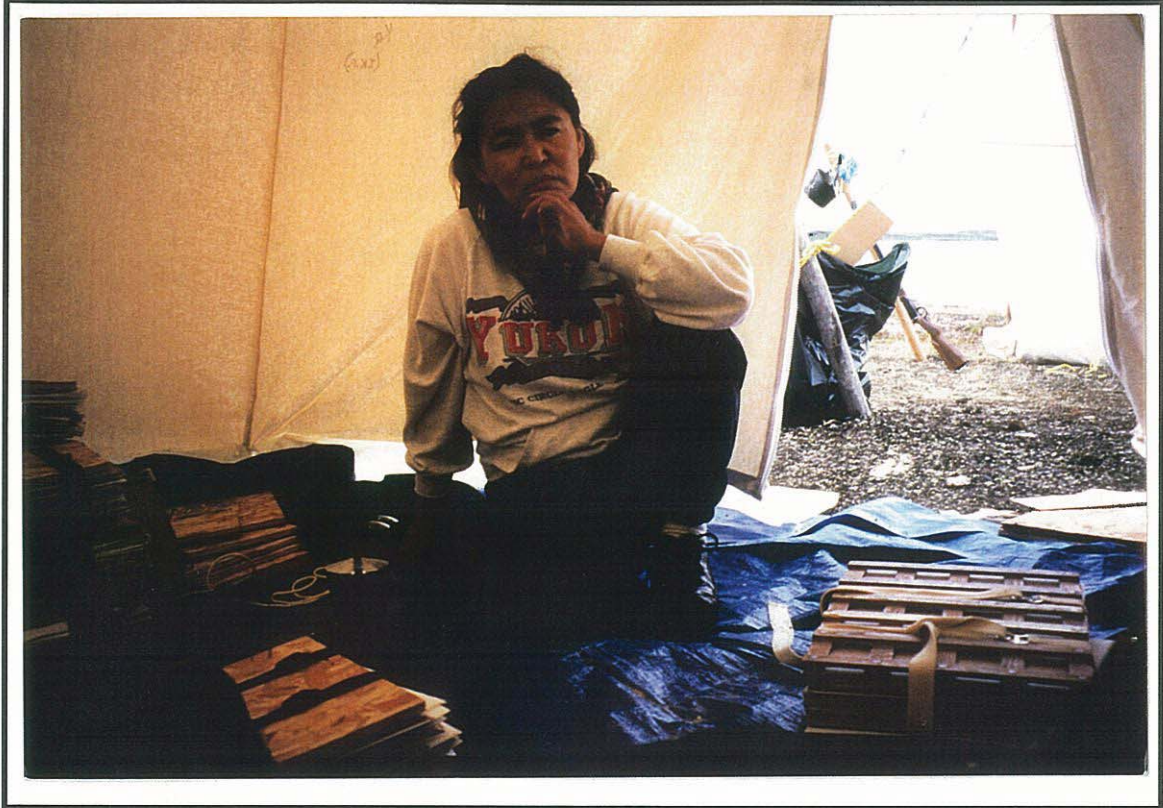
The distribution shown on the maps in Appendix II indicate ɤekwò being harvested in various locations on Ṭḥcḥq traditional territory. The data in Table X indicates that in many years there were either not enough ɤekwò for the camp or underweight ɤekwò being harvested. Only in the fall of 1921 (1922) and the 1956 were the harvested ɤekwò underweight and the number taken were not enough for the camp. Interestingly, these two cases the hides were reported as in bad shape as well. Throughout the period between the fall of 1956 and winter 1957 the harvested ɤekwò were not enough and were underweight. This is interesting to note, particularly because the incident in the 1950s occurs at the same time Rae Rock mine was in full operation and the same time as when it is known that a boy hit an ɤekwò with a stick in Whatì. The information in oral narratives reveals that the data on the maps corresponds with the elders' observations. The oral histories of harvesting also revealed the recorded vegetation found in the mouths, stools and stomachs of ɤekwò were similar as to those included in the oral narratives for each season and environment.

4.3 Field Research Results

The elders consider there to be two sets of knowledge associated with ɤekwò, one for the barrenlands and one for the boreal forest. As Johnny Eyakfwo states:

... Its like it [the ɤekwò] has two separate naawo [knowledge]

Madeline Chocolate



Researchers Reviewing Data Associated with ?ekwò dè (caribou habitat) and Vegetation Collected During the Day



Georgina Chocolate, Aalice Legat and Sally Anne Zoe

and that's how they [Johnny's elders] use to talk about it. So whatever land the ʔekwò are headed to ... They [his elders] knew all of its [ʔekwò] knowledge! That is how they use to talk about the animal and its knowledge ... Sometimes, the animal when it moves on with its young, when they first start to move, they are not fast, is what they said I had said. And that, because they are teaching them, they don't move fast is what they are saying. They teach them and teach them and do that and do that as they move in this direction and when they are close to the bush, and because they have been taught well by their parents, whatever their parents will do, they do also. That's what they say as they talk about them. So then, once they find out, once they find out, how the animal is taught of its parent on how to eat, how their parents work, they see all of this. So then, whatever its parent does and even if its not told, "Do this!" whatever it wants to eat, it would begin to kick away the snow like this and look for its own food. It will not do for it! Because its already been taught, it will not do that for it again. That is how the animals teach one another and it becomes an animal. This was said as they talked about it. So then, that which you asked about, you are right. They are big animals and however its parent teaches it and it grows thereby is how it learns like you said—even with how we teach our own children, they teach their own even better and that's how the animals wander about. Even we don't do that! (Johnny Eyakfwo, age 73: 97/04/17).

ʔekwò (barrenland caribou) habitat was studied at ʔek'atìʔezılı and Deèzàatì. The elders interviewed concentrated on landscape and the vegetation ʔekwò is known to prefer.

4.3.1 Field Research in Barrenlands

ʔek'atìʔetsìlì (mouth of Coppermine River)

During July of 1997, the research team spent 10 days at ʔek'atìʔetsìlì. Although photos were taken of vegetation and ʔekwò were sighted and observed, more training took place than research.



The mud (ʔelè) caribou roll in to ward off insects
Deèzàatì 1999

Deèzàatì⁴⁵ (Point Lake)

ʔekwò were observed at Deèzàatì the last week of August and the first week of September 1999. Most often small groups or single ʔekwò were seen traveling along the ʔekwò trails in the ts'oo (muskeg). The elders (Louis Whane, Pierre Zoe, Jimmy Martin, Personal Communication (data sheets): 99/08) stated that the ʔekwò's preferred habitat in the fall is ts'oo since they can find a greater variety and abundance of food. During spring and early summer when mosquitoes and flies are a nuisance, the ʔekwò prefer the what'a (eskers) and whagweè (open sandy areas covered with lichen), which are breezy, and the ʔela, which is a type of mud the ʔekwò roll in to coat themselves with mud and which protects them from the insects (Louis Whane, Pierre Zoe and Jimmy Martin, Personal Communication (data sheets): 99/08).

During discussions while at Deèzàatì, elders continued to mention the vegetation listed in Table XIV as sources of food for the ʔekwò.

TABLE XIV
Vegetation Associated with ʔekwò at Deèzàatì

Tɬɬɬɬ Term	Translation
ʔadzìì	Lichen-general
ʔadzìidegoo	white lichen
kwetsì	rock tripe
ʔadzìidet'e	type of lichen
ʔadzìidezo	type of lichen
dààghò	lichen-like vegetation on trees
dègogaet'ìì	red vine-like plant
dlòodìì	type of mushroom
hozìɬt'ò	translates as 'barrenland leaves'
k'òòɬt'ò	willow leaves
t'òdzìì	type of sedge or dog berries
t'òdzììɬt'ò	type sedge or dogberries leaves
t'òghoa	type of short sedge

⁴⁵ See Maps in Appendix II for harvesting patterns.



Bella Zoe

Predators and pests are acknowledged as being part of the ʔekwò dè (barrenland caribou habitat), especially in the barrenlands, but are rarely discussed in relation to where ʔekwò will migrate. Rather the Tłchq elders discuss how most predators move with the herd, and the ʔekwò behave in relation to these predators, and what type of habitat the ʔekwò used to escape or protect themselves from mosquitoes and flies such as how they will go in the water to escape from the flies and mosquitoes.

While at Deèzàatì, the elders observed that there is less lichen and other vegetation, important to ʔekwò, than even ten years ago⁴⁶. They also stated that the ʔekwò had an odor that was not there before. Further research could concentrate on narrowing down the time when these changes began, as well as determine the extent of these changes as a way to determine if they due to acid rain, global warming or if they are associated with more local industrial developments.

4.3.2 Field Research Boreal Forest

Ice Road between Whatì and Gamètì (Rae Lakes)

In February 2000 ʔekwò were observed along the ice road between Whatì and Gamètì. ʔekwò observed along the side of the ice road to Gamètì were very nervous. They appeared to want to travel in the open but were being forced into the bush to hide from the hunters. Twice the research team observed a small herd of approximately 15 ʔekwò cross the road. They did not seem bothered by the snow banks. Although at times the ʔekwò stopped and observe our vehicle they would run into the bush at the slightest noise.

⁴⁶ This observation was also made in the ʔek'atì (Lac de Graz) area.



ʔekwò near Winter Road to Gamètì
1999



They appeared tired probably because they had been hunted by several hunters.

Four (4) non-Tłıchǫ hunters and the vehicles of two Tłıchǫ hunters were observed. The non-Tłıchǫ hunters were butchering along the road, while the Tłıchǫ hunters had used their skidoos to hunt away from the road. The elders were extremely upset that the ɛkwǝ were being butchered on the road and in three (3) cases ɛkwǝ blood was spread across the road forcing the elders to be in a vehicle that drove over the blood. This is considered extremely disrespectful to the animal and the elders were upset at being put in this situation. We did stop and explain that the spreading of blood showed extreme disrespect and the hunters assured us that they would clean up. In the fourth case, no blood was observed although several ɛkwǝ had been shot and were in the truck.

The trip was made for the purpose of observing the ɛkwǝ in a boreal forest habitat that include snow, an ice road and where people were an part of the ɛkwǝ dè (caribou habitat). Nevertheless, we discussed only the disrespect shown to the ɛkwǝ in this situation and the potential for ɛkwǝ to become extinct if they were continually disrespected in a way that would cause them stress.

ʔıhdaatı (Stagg River area)

In May 1999 the research team traveled to ʔıhdaatı (Stagg River) with 15 elders from Behtsokǝ (Rae) to document vegetation that ɛkwǝ forage on in the boreal forest. Being summer ɛkwǝ were not observed at ʔıhdaatı. Nevertheless, the ɛkwǝ preferred vegetation was discussed. While at



Tl'odzìì



Tl'ot'àa

ʔihdaatɿ the elders mention the vegetation shown in Table XV as sources of food for the ʔekwò.

TABLE XV
Vegetation Associated with ʔekwò at ʔihdaatɿ

Tɿchɔ Term	Translation
ʔadzìidegoo	white lichen
kwetsɿ	rock tripe
ʔadzìidezo	type of lichen
dààghoo	lichen-like vegetation on trees
dègogaet'ì	red vine-like plant
gots'òkàɿt'ò	cloudberry leaves
k'òdòɿt'ò	willow leaves
t'òdzì	type of sedge or dog berries
t'oghɔa	type of sedge
t'ot'aà	Type of sedge

4.3.3 Summary of Field Work

The fieldwork served two purposes. First, as training for the staff, particularly with the elders. The elders wanted the research staff to see ʔekwò habitat so they could understand more clearly terms, concepts and descriptions used by the elders and harvesters, and to insure that the research staff understood the two sets of knowledge associated with ʔekwò. Second, to collect data, particularly on vegetation to insure appropriate translation from Tɿchɔ and Latin identification. Tɿchɔ classification of vegetation and habitat were documented.



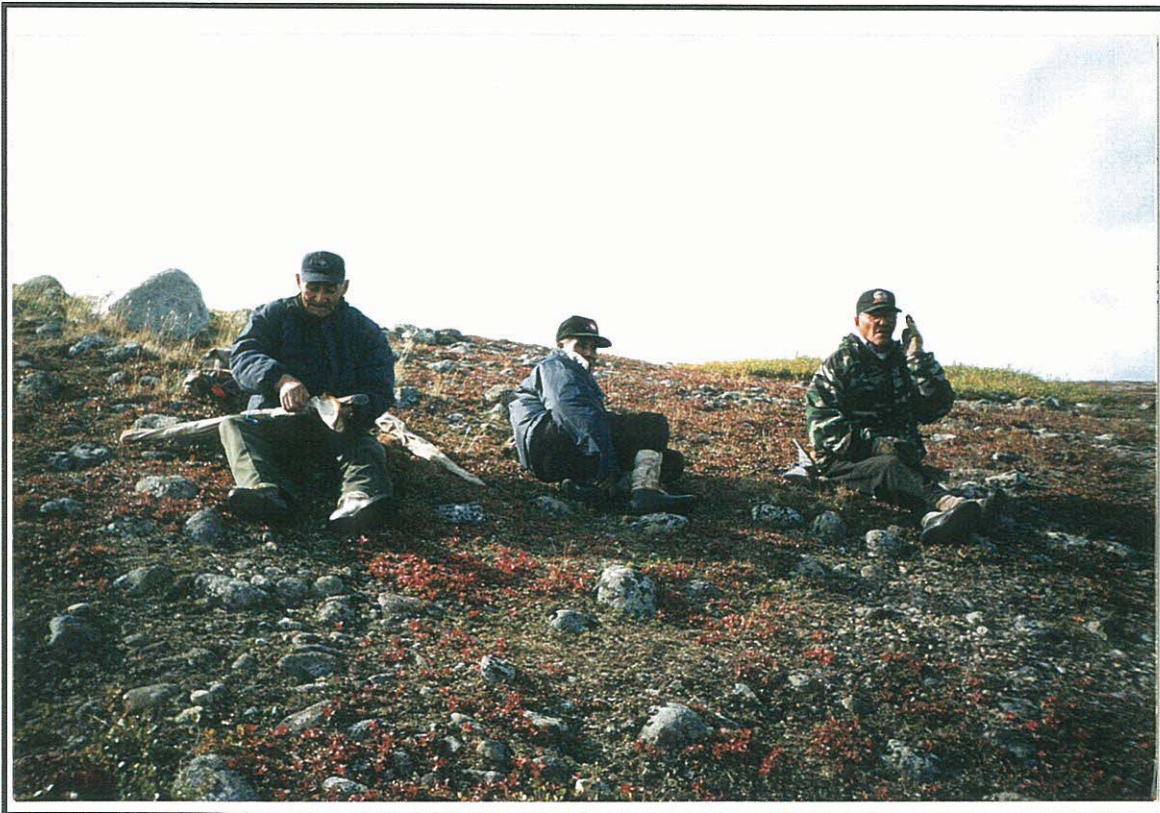
NWT Archives N79-052-0042
1950s

5. DISCUSSION/CONCLUSION

In the circumpolar north, where industrial development is seen as important to the economic well being of northern communities, the Tłıchǫ are extremely concerned for the caribou and the habitat within which it survives. Current wildlife management is based on approaches that are grounded in scientific studies. There is a concern among the Tłıchǫ that these management techniques are not sufficient to protect and conserve the caribou from industrial developments. They feel these studies are insufficient on their own, as they are based on short-term observations and statistical analysis. For this reason, documenting knowledge that has its basis in long-term observations and the experience of living on the land, and incorporating this into monitoring and management techniques, may provide the Tłıchǫ with more assurance that the caribou will be protected in an appropriate manner. This concern is also expressed by other circumpolar people, which has culminated in conferences and workshops such as the annual, North American Caribou Workshop to be held in Kuujjuq, Quebec April 2001, and the Human Role in Reindeer/Caribou Systems Workshop held in Rovaniemi, Finland February 1999, in which traditional and biological knowledge were discussed and a resulting research plan was developed (Goldman 2000). Particularly important is the baseline data contained in the traditional knowledge as expressed by Dr. Piers Vitebsky's, Head of Social Science and Russian Studies at the Scott Polar Research Institute at Cambridge University. Vitebsky, who presented a poster at the Rovaniemi Workshop, is involved in a project on vegetation change and indigenous knowledge. This project is seen as a new approach to climate change through the interdisciplinary study of reindeer herding and because the research uses two contrasting case studies of intensive reindeer herding, to look at the



Jimmy Martin, Pierre Beaverho and Philip Zoe
Deèzàatì 1999



Jimmy Martin, Louis Whane and Harry Simpson
Deèzàatì 1999

relationships between climate change and changes in vegetation, reindeer population and behaviour, human employment and culture and local control of resources. Vitebsky considers traditional knowledge as the most reliable form of baseline data and the most reliable source of information on changes relating to important variables.

In thinking about future monitoring and management of the ʔekwò, the T̥chq̥ also think baseline data is important when looking at environmental and social change. In establishing a premise on which T̥chq̥ knowledge could be documented for the purposes of establishing baseline data and change through time, the Whaèhdoò Nàowo K'e¹ research team's working premise since 1997 was based on elders' comments made during previous research projects (Legat and Zoe 2000; 1995) which was how the caribou² moved and stayed in places where vegetation was abundant and accessible. Thus the guiding premise that caribou distribution and migration patterns are related to the state of their habitat. In focusing on this premise the research team came to understand that there are at least nine (9) general truths known to the T̥chq̥ elders. These are:

- ʔekwò have unpredictable migration patterns, but when they migrate to a particular areas they are more likely to use certain trails and water crossings³.
- ʔekwò return to the same birthing grounds.
- ʔekwò follow the same general annual cycle each year.
- ʔekwò leaders, who are middle-aged cows with experience, have good memories.
- ʔekwò migrate to where the vegetation is lush and will remain in an area if the vegetation is easily accessible and plentiful.

¹ Translated as T̥chq̥ Knowledge and Heritage Program.

² As stated above, the term 'caribou' in this report is used to refer to both the woodland and barrenland caribou. The T̥chq̥ term ʔekwò refers only to barrenland caribou, and the T̥chq̥ term T̥dz̥ is used when referring only to woodland caribou.

³ These are areas harvesters consistently frequented and where they put up caribou fences prior to the late 1930s.



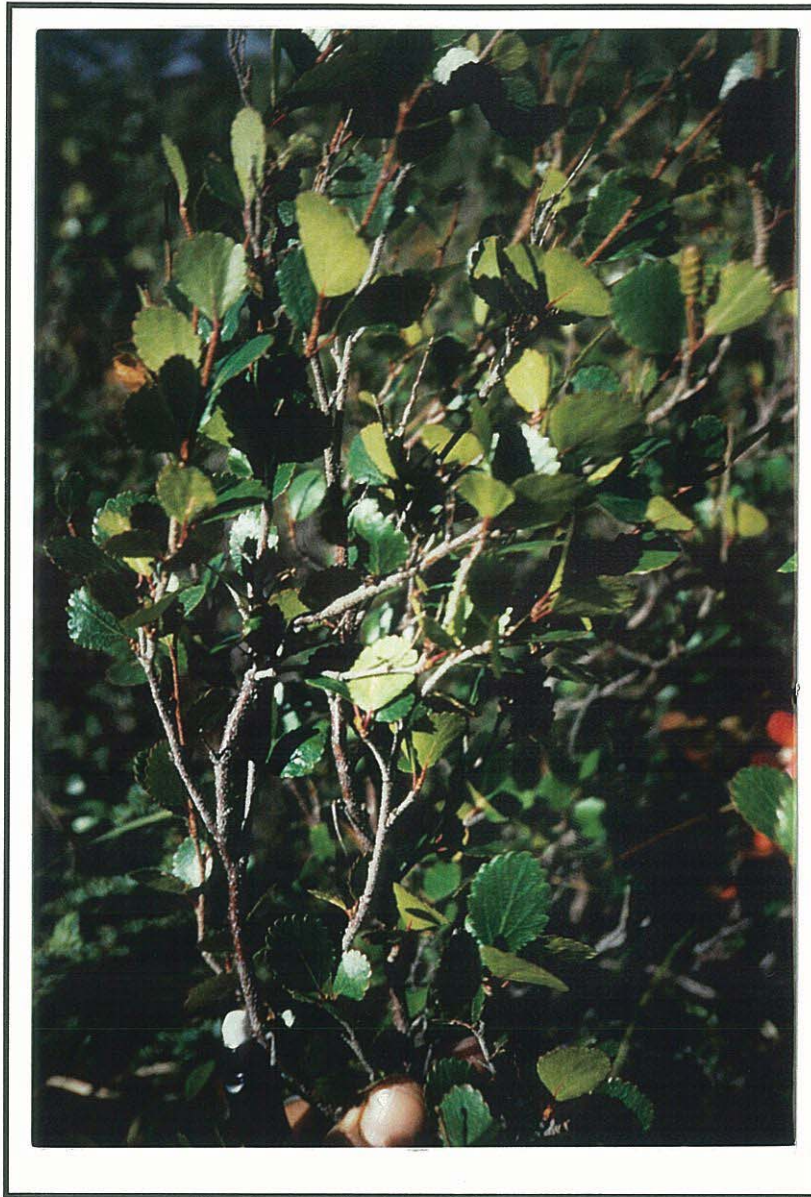
Paul Wetrade
Deèzàatì 1999

- ʔekwò have a very strong sense of smell.
- ʔekwò are fairly adaptable to changing environments making them susceptible to pollutants.
- ʔekwò's survival and continued annual migration is dependent on the respect shown to them by humans.
- Only a few people have a spirit connection with the caribou, and therefore the knowledge and intelligence that comes from this. These people know where the caribou are at any given time, but cannot predict where the caribou will migrate to in the boreal forest.

These general truths contribute to a universal understanding of caribou and reindeer, and suggest that more attention be paid to both the manner in which the Tłchq collected information on caribou and habitat, and on the oral narratives that contain the agreed upon and verified Tłchq knowledge. Information is collected and remembered through observations and experiences while hunting and harvesting caribou. The information is discussed with others who have also observed and experienced caribou behaviours. During these discussion, knowledge is verified, processed and taught to younger people, and most importantly becomes part of the knowledge that is shared through the oral narrative. Observed changes to caribou behaviour and the habitat are remembered, shared and discussed, enabling other harvesters to watch and either verify or not possible changes. Once verified the information is shared on a regular basis through oral narratives.

5.1 Discussion

The general truths will be discussed separately in relation to the data collected over the last several years and in relation to information from other studies.



Hozlìqt'ò

Although the tenth truth is listed: “Only a few people have a spirit connection with the ʔekwò, and therefore the knowledge and intelligence that comes from this. These people know where the ʔekwò are at any given time, but cannot predict where the ʔekwò will migrate to in the boreal forest”, it will not be discussed in this report. Although elders discussed this when providing other knowledge of caribou, the research team as well as the elders agreed that this report is not the place to discuss the spirit relationship between some individuals and caribou.

5.1.1 Unpredictable Migration Patterns

Both Tłıchǵ elders and caribou biologists accept there is no known pattern or consistent cause for shifting migration routes and distribution with which to predict future movements. Biologists Gunn (1999) Giest (1998) Case (1996) and Banfield (1980) focus on finding reasons why the caribou change their migration routes, with Geist (1998:316) suggesting the cycle as one of increases in population and dispersal followed by collapse and withdrawal of herd and decreases in the caribou's body size. Whereas, Tłıchǵ elders accept the ʔekwò's unpredictable behaviour and concentrate on what is predictable to locate, observe and harvest them within what both biologist and elders consider to be a very extensive territory. At the 1999 conference in Rovaniemi, Finland, entitled "The Human Role in Caribou and Reindeer Systems", biologists, reindeer herders and caribou hunters alike all stressed that both caribou and reindeer require a substantial range in which to forage and stressed the importance of the caribou relationship with humans (Goldman 2000).

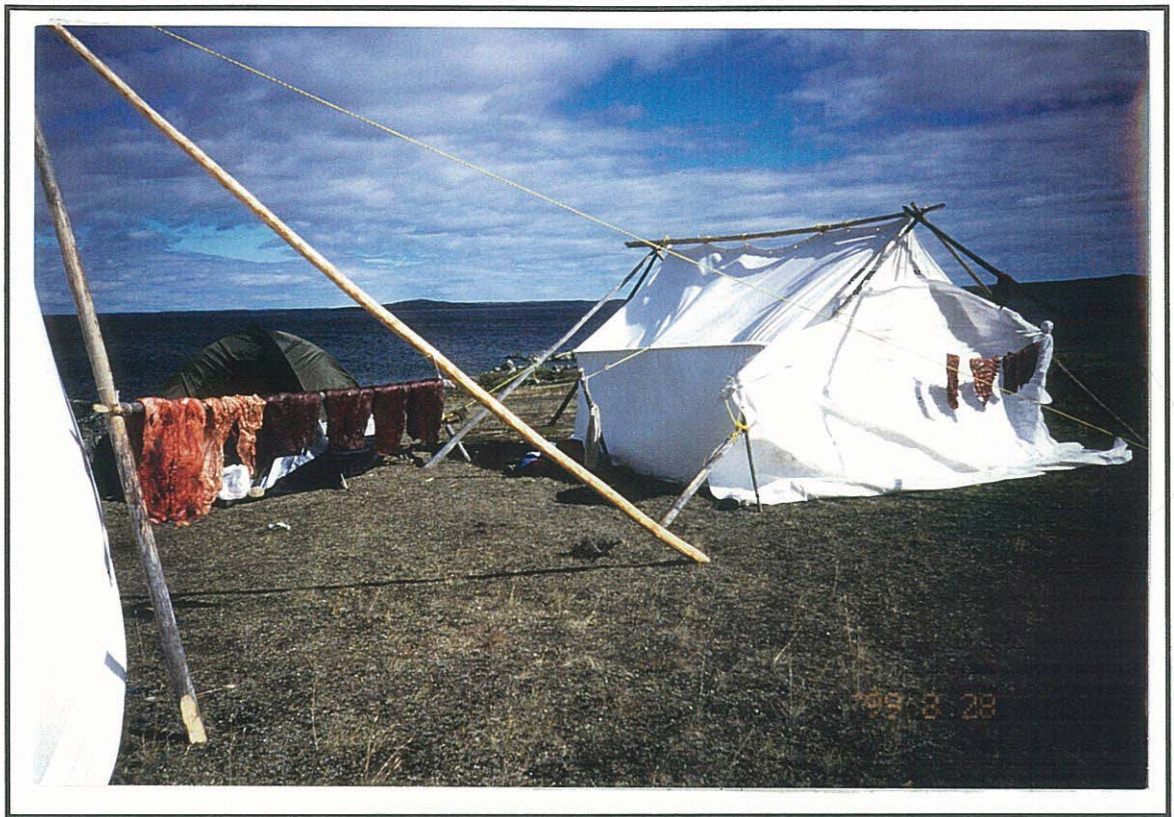


Pierre Zoe, Romie Wetrade and Harry Simpson
Deèzàatì 1999

The Tłıchq elders accept that the ʔekwò do not always travel to the same place and that it is impossible to predict where the caribou will migrate and winter, however they also acknowledge that it is highly probable that there always seem to be at least a few ʔekwò in most places. For example, although in 1998, the main herd moved south and west of Łutsek'e, Table X and the maps, in Appendix II, showing the 1998 harvesting distribution shows that at least a few ʔekwò were taken between ʔek'atì, Wekwèetì and Behtsokò. The hunters reported that in at least one case they could not locate enough for their own use. Similar information was reported in the early 1950s when few caribou were west of Wekwèetì and in several cases the caribou were underweight and/or there were not enough for the camp. Urquhart (1980:40) found similar patterns among the Porcupine caribou herd. He states that caribou from that herd will often use the same ranges for many years in succession, but not every year without fail, and that there are no known areas that are unoccupied every year.

Results from the life histories of harvesting⁴ show distribution of documented harvested ʔekwò between the years 1917-1998. Although there are no clear patterns that can be identified, the data suggests a slight shift every three to four years. These shifts do not seem to be as extreme as among other caribou herds such as those in the Arviat area, where one elder (name unknown) stated, "In 3-4 years they will move again. In Arviat now there's a lot of caribou in the winter, but in a few years there won't be" (Kruse et al. 1998: 453-54). Based on the data collected from the Tłıchq elders during the harvesting interviews, the distribution of the ʔekwò harvested moved constantly with slightly more visible shifts occurring every four to five years, and more extreme shifts seem to occur ever every decade or two.

⁴ See Table XI opposite page 58



Preparing Bògqò (drymeat) and ?ek'a (fat) on poles at camp
Deèzàatì 1999

Kruse et al. (1998) have noted that although environmental conditions like snow cover and rain affect the numbers of caribou, they are also effected by mining, airplanes and jet planes (interview with someone from Rankin Inlet, p.453) and they claim this causes a decline in herds. Like the Tł̥chq̓ elders, elders from the Kitikmeot region (Thorpe, 1998: 10) state that there have been changes in migration routes as a result of the mining operation in the ʔek'atì area.

5.1.2 ʔekwò Always Return to the Birthing Grounds

Although most Tł̥chq̓ elders did not travel to the birth grounds, they are well aware that the ʔekwò always return to their birthing grounds. Like the Inuit, who have a stronger dependency on ʔekwò in the summer than the Tł̥chq̓, they did not disturb the cows and calves when they are at their most vulnerable (Thorpe 1999). Rather the Tł̥chq̓ traveled north in the fall during which time they met the ʔekwò as they migrate south.

Because the ʔekwò always return to the same area, both the Tł̥chq̓ and the Inuit are concerned about development in association with the birthing grounds. Scientists are also observing the reality of traditional knowledge.

5.1.3 ʔekwò have an Annual Cycle that starts and end at the Birthing Grounds

The Tł̥chq̓ consider the home of the ʔekwò to be in the barrenlands and consider knowledge of the annual cycle to be important. The elders acknowledge the barrenlands as the home of the ʔekwò for two reasons: first the ʔekwò didn't always come to the boreal forest, and second because the ʔekwò



Roseann Martin making Bògqò (dry meat)
Deèzàatì 1999

always return to their birthing grounds which are located in the barrenlands. For the Ṭchq̣ elders the ʔekwò's annual cycles starts and ends in the birthing ground with a general pattern of movement first in a southern or south-western fashion and slowly turning to the north, but often continuing westward, and then turning to the north and east again, and finally returning to the birthing ground at Bathurst Inlet.

Although Ṭchq̣ elders will not predict when ʔekwò will come into an area, they acknowledge types of movement within the annual cycle can be related to physiological changes in the ʔekwò, as well as traveling conditions. These are:

- When calves are about two feet start following the mothers around barrenlands in summer to fatten up on lush vegetation.
- When calves are about three feet high the ʔekwò start traveling long distances towards the boreal forest, and cows teach the calves but the hozııʔekwo will stay in barrenland
- Start of fall freeze up the ʔekwò will start migrating.
- When bulls are fat the ʔekwò start moving to the boreal forest.
- When ready to rub velvet off antlers move to boreal forest.
- In the spring when it is warm and the snow is slushy the small cows start migrating back to barrenland.
- In the spring when the larger cows are big with the fetus they start migrating to barrenland.
- When the snow is gone and the lakes are slushy from melting the large bulls start migrating to barrenland.

Johnson and Ruttan (1993:117-119) noted that Slavey hunters also watch for both traveling conditions as well as physiological indicators to determine aspects of the annual cycle.



What'a . at Nàdenîzaàtì, north of ?ek'atì
Deèzàatì 1999

5.1.4 Lead ʔekwò, who are middle-aged cows with experience, have good memories.

Tłchq oral narratives tell how ʔekwò have excellent memories and start training their young as soon as they are strong enough to walk. These stories also tell of lead cows who both teach the calves and lead the main herd remembering where vegetation was in abundance and where it was. Baskin (1970 in Giest 1998:322) found that “calves born to tundra reindeer held in taiga not only learned to live in the taiga but also assumed the larger body frame of taiga reindeer.” It is interesting to note, however, that Baskin also states that reindeer do not learn once they are adults (Giest 1998:322), whereas Tłchq elders claim the middle-aged cows continually learn and know what areas have been grazed, and it is she that causes them to travel to areas with better grazing possibilities. Tłchq hunters do not kill the lead cow for this reason.

5.1.5 When ʔekwò are in an area particular trails and water crossings are used.

The elders know of clearly defined caribou routes which include water crossing and excellent locations for caribou fences⁵. The Tłchq expect ʔekwò to travel these routes if they are in the area, however they also acknowledged that these routes may not be used for various reasons: snow depth, weather conditions creating crusting snow cover, and availability of food⁶. In association with the trails particular habitat and landscape offer more varied vegetation, escape from pests, easy access to water, or the landscape may be an obstacle, such as steep

⁵ See Appendix III: Map entitled ‘Tłchq and ʔekwò’

⁶ This is also discussed by Case et al. (1996: 2), Ferguson et al. (1998: 213), Case et al. (1996: 2-13), Banfield (1980: 123-35), and the International Porcupine Caribou Board (1993: 8-24)



T'o
Ṗhdaatì 1998

cliffs. Habitat that either provides favoured food, such as ts'oo (muskeg), whagweè (dry sandy area with lichen) and tl'otà (type of moist grass land) variation of which can be found in both the barrenlands and the boreal forests. Wha'ta (eskers), whagweè (dry sandy areas with lichen) that are open and breezy, whereas ?ela (a type of mud) in which the caribou like to coat themselves and water are used to escape flies and mosquitoes. During the spring slushy snow on lakes is preferred as it provides relief to the ?ekwò legs and hooves as well as the ability to see predators. Other indigenous knowledge studies have noted a variety of factors such as the need to find a good food source (Johnson & Ruttan 1993: 119), the season and weather conditions (Johnson & Ruttan 1993: 120-21).

It is clear that they avoid the areas with the most development and the greatest amount of activity and traffic (Cameron, 1995; Wolfe, 1999; Kruse, 1998; Klein, 1999; Nelleman, 2000). Cameron (1995: 6) states that the caribou can tolerate a certain amount of surface development, especially if they can pass under or over it, but if their movements are restricted they change their migration patterns, although the point at which they start to move away cannot be predicted.

5.1.6 ?ekwò have a very strong sense of smell

Tłchò elders say that ?ekwò have a strong sense of smell that leads them to abundance and lush vegetation, and keeps them away from what they have learned is dangerous, such as areas where fires have been. The elders have expressed two concerns relating to the increase in industrial pollutants that often



ᐅᐃᐃ ᐱᐱᐅ

smell like smoke, such as exhaust from vehicles and buildings. The elders feel that the ɾekwò first become confused as they will be unable to smell vegetation and will be unsure as to where to travel, and then will learn that these smells will not immediately kill them and that there is still vegetation in these areas thereby adapting to the area and digesting contaminated plants and water such as those plants with a yellow ash type substance on them around Diavik Claim Block in May 2000.

5.1.7 ɾekwò migrate to where the vegetation is lush and will remain in that area if the vegetation is easily accessible and plentiful

Indigenous people and caribou biologists agree that caribou have a tendency to find lush and varied vegetation and agree they travel to where they can most easily access food (Geist 1998:316, 318; Johnson and Ruttan 1993:119-121). Hard snow and changing weather conditions make foraging difficult. Northern Yukon Ecological Knowledge Coop report (1996) explained that weather has influenced migration due to difficult feeding conditions, for example hard snow that is arduous to dig through.

Throughout the project, Tłıchǵ elders have explained that caribou highly developed sense of smell which leads them to the most lush vegetation. This is consistent with Anne Gunn's (WKSS presentation. 98/04) statement that ɾekwò seem to always return to the location within their birthing ground where the vegetation is the richest and when the vegetation is the most lush. Although George Kuptana in Thorpe (1999:10) does not refer to the ɾekwò's ability to smell, he did state that over a period of years the vegetation eaten by caribou



Gots'okaŋt'ò

will be trampled and disappear, thereby causing the caribou to migrate in search of new food.

5.1.8 ʔadzìì is the most important food for ʔekwò, however their varied diet is important to their overall fitness

Tłchq elders continually stated in both oral narratives and their histories of harvesting that ʔadzìì (lichen) is the most important food for the ʔekwò. They also state that more varied vegetation is eaten in the barrenland than in the boreal forest. Tłchq elders also emphasize the importance of kwetsì (rock tripe) as vegetation that fattens ʔekwò. According to many biologists, dietary needs change throughout the migration cycle, depending on pregnancy or post-calving nutrition requirements of the cows. During calving labrador tea and lichens are the primary vegetation. Geist (1998:318) states that caribou herd size is affected by the accessibility of vascular plant and lichen biomass and that lichen, which Tłchq oral narratives discuss as well as the time it takes for ʔadzìì (lichen) to regrow. Tłchq elders constantly discuss seasonal vegetation important to the ʔekwò in oral narratives as well as differences and similarities between the boreal forest and the barrenlands. These food sources were also documented in the Dene Culural Institute Traditional Ecological Knowledge report (1993) and in Thorpe (1999: 11), where it is stated that cottongrass is the first food calves eat after they tire of suckling and that caribou like mushrooms because they contain a lot of water.

(Case et al. 1996: 4-5) documented both winter and summer food preferences. They found that in winter lichen species and green parts of sedge, horsetails, alder, birch, willow and preferred, with lichens being the food of choice due to their high protein content and because they are easier to digest. In the spring,

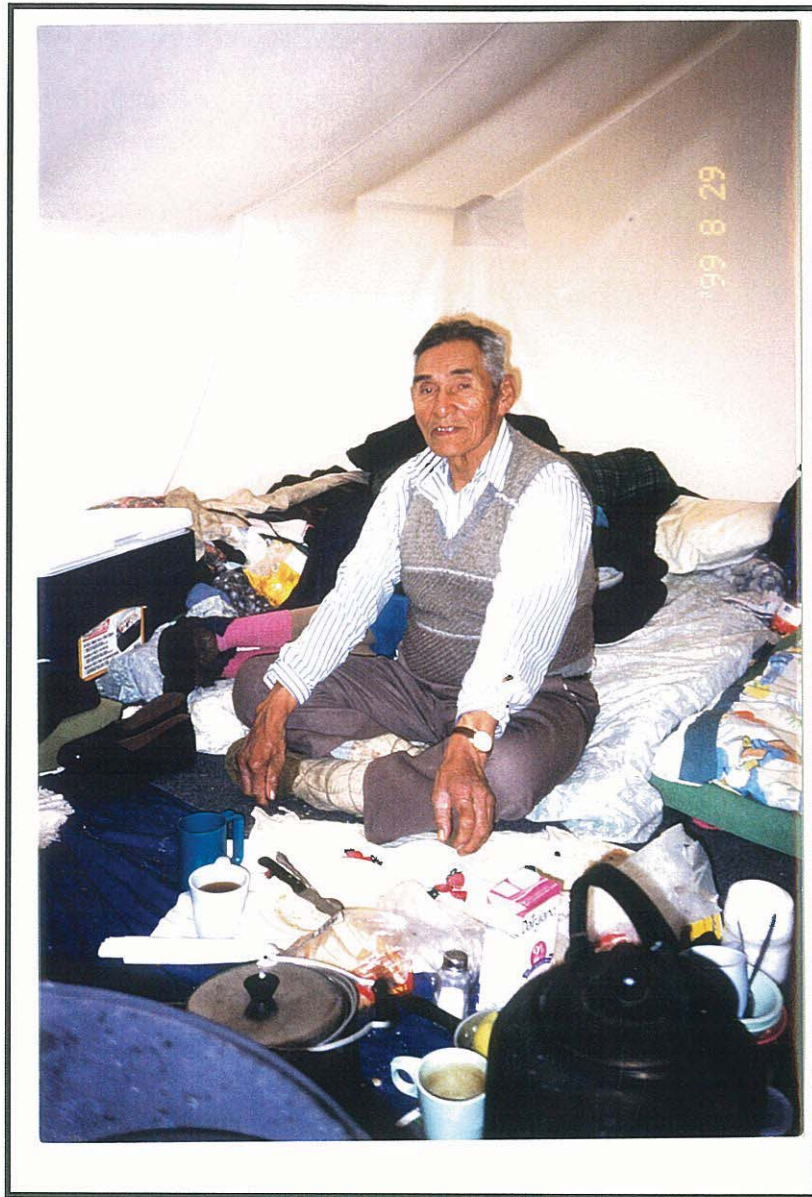


K'alatso (Type of Cotton Grass)

on the calving grounds, winter lichens are replaced with fruticose lichens, willows, dwarf birch, green alder and cottongrass. Preferred summer vegetation includes a variety of grasses, sedges, forbs, and select new sprouts and buds, and flowers. In the late summer the caribou eat willows, dwarf birch, bearberry.

5.1.9 Although ʔekwò are Adaptable, Adaptability has its limits therefore ʔekwò are Susceptible to Pollutants

Tłchq elders have observed how adaptable ʔekwò have been over the half century with ever increasing industrial developments and infrastructure. When discussing their concerns they often tell how caribou were once afraid of planes, running away and now they stand on runways often watch as planes land. They also point out that in 1998 ʔekwò moved south rather than southwest, and now they are traveling through the areas again. The elders are very concerned the ʔekwò will become more and more comfortable with mining sites and they and their meat will become contaminated. The caribou and reindeer's ability to adapt has been reported in other circumpolar regions. For example: Reimer et al.'s work (2000) on the effect of high voltage transmission lines in Norway has found that caribou avoid the transmission line areas during construction and that construction results in loss of habitat for caribou, and if they are not accompanied by roads, tourist tracks and settlements, they eventually become accustomed to their presence. However, they did conclude that there is insufficient data on the effect of the noise from the lines on caribou and this needs to be further studied.

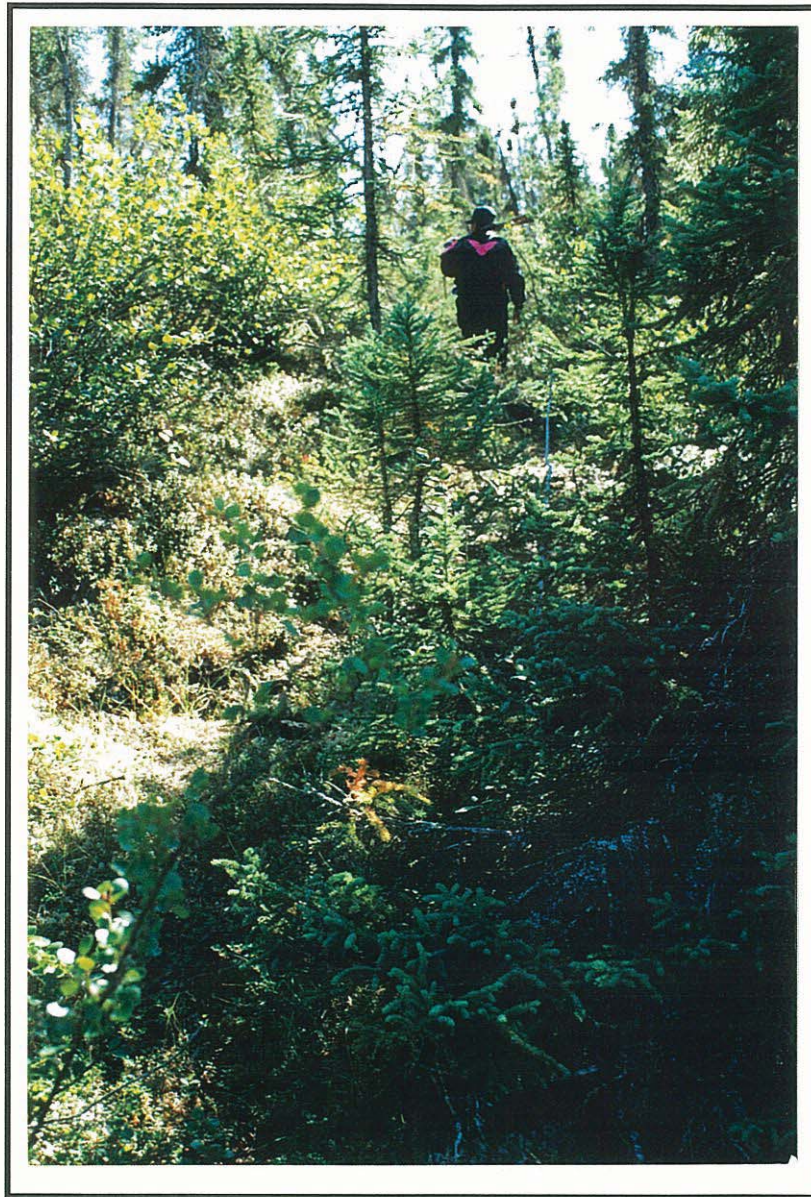


Jimmy Martin

The elders have observations of caribou for many years in most months of the year, including recent observations of caribou migration in relation to industrial development. They have witnessed some effects of mining development on caribou migration. During interviews, at meetings and during casual conversations the elders have expressed concern over things like dust affecting the vegetation the caribou eat, the noises from mining activity deterring them from migrating through the area, the possibility that if they do migrate through they may be harmed by contaminants from tailings ponds and they are worried the caribou may become confused by a combination of any of these occurrences.

The elders predictions have been noted by Wolfe et al. (2000) who studied the effects of roads and traffic on caribou and reindeer and found that roads serve as barriers, cause deaths from collisions, and may increase vigilance behaviour, taking away from foraging behaviour. Caribou have also been deflected by pipeline beams. In some provinces they have continued their migration across constructed railways or roads. Aircraft also has some effect. The caribou are not always affected, but often are, the calves being more sensitive, and helicopters are known to cause a stronger response than small planes. The response of the caribou is to run away, although cows do not abandon calves. Caribou have used gravel pads and shade provided by elevated production facilities, regardless of sex and age composition of group.

As the Tł̥ch̥q elders continually state all human behaviour is related to caribou migration and movements. A study by Nellemann et al. (2000) researched the density of caribou in differing radii from the central point of a lodge located near a national park in Norway. They found that there were lower densities of caribou near the lodge, which increased in number as the measurements moved



Boreal Forest

away from the lodge. It was also noted that lichen had been overgrazed in the areas farther from the lodge where the caribou had moved to obtain food. The researchers stated that this could prove problematic in the long term as eventually the caribou would run out of food to support their numbers (Nelleman: 12-14).

5.1.10?ekwò will Migrate to People with Whom They have a Respectful Relationship

The most important aspect relating to caribou migration and caribou survival for most circumpolar indigenous people is maintaining a respectful relationship with caribou and reindeer. The Dene Cultural Institute lists Slavey principles and specific rules regulating human behaviour towards nature (Johnson and Ruttan 1993:189-193) most of which are similar to those listed above. Like the Tłıchǫ and the Slavey, the Cree of Chisaslie know that caribou population fluctuates and that declines are related to the ethical transgression of the people who use caribou and caribou dè. Two Cree elders explained how the caribou disappeared around the turn of the century due to overslaughtering of caribou as a result of newly acquired repeating rifles. The caribou did not come back to the area until 1982, at which time hunting rules were again not respected and hunters were letting wounded animals get away, killing more than could be carried, not caring for the meat properly, and not disposing of the bones properly. Cree leaders worried that this signaled a lack of respect for the caribou and was a serious transgression of the traditional code in which ritual respect ensures that animals will continue to make themselves available. (Berkes 1999:101-108).



Rosanne Martin removing the Dehhò (caribou hair)
Deèzàatì 1999

5.1.11 Human Behaviour is Key to the Success of ʔekwò

Tłchq elders insist that ʔekwò and ʔekwò dè must be respected. Some may feel that the idea of respecting caribou may be outdated, however the Tłchq elders know once the ʔekwò and ʔekwò dè are no longer respected, social and economic problems will follow. The research was intended to document the elders' knowledge on caribou distribution and the state of their habitat. Based on the elders' wisdom and understanding of both dè as including humans and caribou, it is suggested that the most important changing factor in the caribou dè is human behaviour and human respect for the caribou. Although it was only in Whatì that a caribou was hit, there are other ways that a caribou can be offended. Traditionally, a sign of disrespect was shooting the leaders because it was known that the leaders are vital to the well being of the herd. The Dogrib Regional Elders' Committee are concerned for the herd and wonder what will happen if the leaders become confused due to the smell of pollutants. They feel it will be as problematic as shooting the leader.

Like the Chipewyan elders (Parlee), the Tłchq elders are concerned about the lack of knowledge that both young Tłchq have of caribou behaviour and habitat and the lack of knowledge of those who are overseeing industrial developments. They consider the pollutants that are falling on caribou habitat and the infrastructure to be signs that many individuals', of all cultural backgrounds to lack knowledge of how much territory caribou require to survive.

The elders' fear of the extent of the lack of respect through a lack of knowledge was confirmed when:



Panda Pit at BHP Ekati Mine on the north side of ʔekʔatʔ



New road (2000) leading to BHP's Misery Pit on the north side of ʔekaʔatʔ
 Arrow indicates a traditional caribou water crossing

- Diavik's biologists did not know or observe the important water crossing associated with ʔek'adii (Legat et al 1995); and
- BHP Diamonds Inc. built a road, leading to the new BHP Misery Pit, over another important caribou water crossing (Legat et al 2000).

The human role is key to the success or failure of reindeer and caribou. For example:

- In Norway hydroelectric projects have resulted in reduction of grazing area for domestic reindeer, have flooded grazing lands and in some cases obstructed traditional movement routes of the reindeer (Reimers: 75-82).
- Farnell (1999), Gunn (1996), Cameron et al 1995, and Reinmer et al (2000) have all conducted studies that looked at the effects of human activity, such as mine sites, power lines and construction on and found a reduction of caribou populations and dynamics in relations to habitat loss.
- Klein (1999) summarizes the impact of various developments in the circumpolar arctic on caribou and reindeer. In the Norilsk metalurgical complex in Siberia pipelines deflected movements, stopped caribou in their movements and as a result caused them to overgraze lichens and other vegetation. Techniques were used to deflect them to new feeding grounds. Pollutants from the mine spread over a large distance and have caused the widespread death of lichens or decrease in their growth rates, as well as to many of the vascular plants. There has been a reduction in the ability of area to support reindeer. No impact analysis was done and therefore no mitigation features incorporated into building and design, hence the serious later environmental problems (Klein: 93-94).
- At Alaska's Red Dog mine a road was constructed to the mine. It transects the migration route of the Western Arctic Caribou Herd (WACH) during their twice-annual movements. A system has been developed where the mine reduces road traffic during the two migration periods, through a notification process, thereby reducing the impact of road traffic during migration. An EIA occurred prior to development and steps were taken to minimize impacts. Local people were highly involved in this whole process (Klein: 94-95).



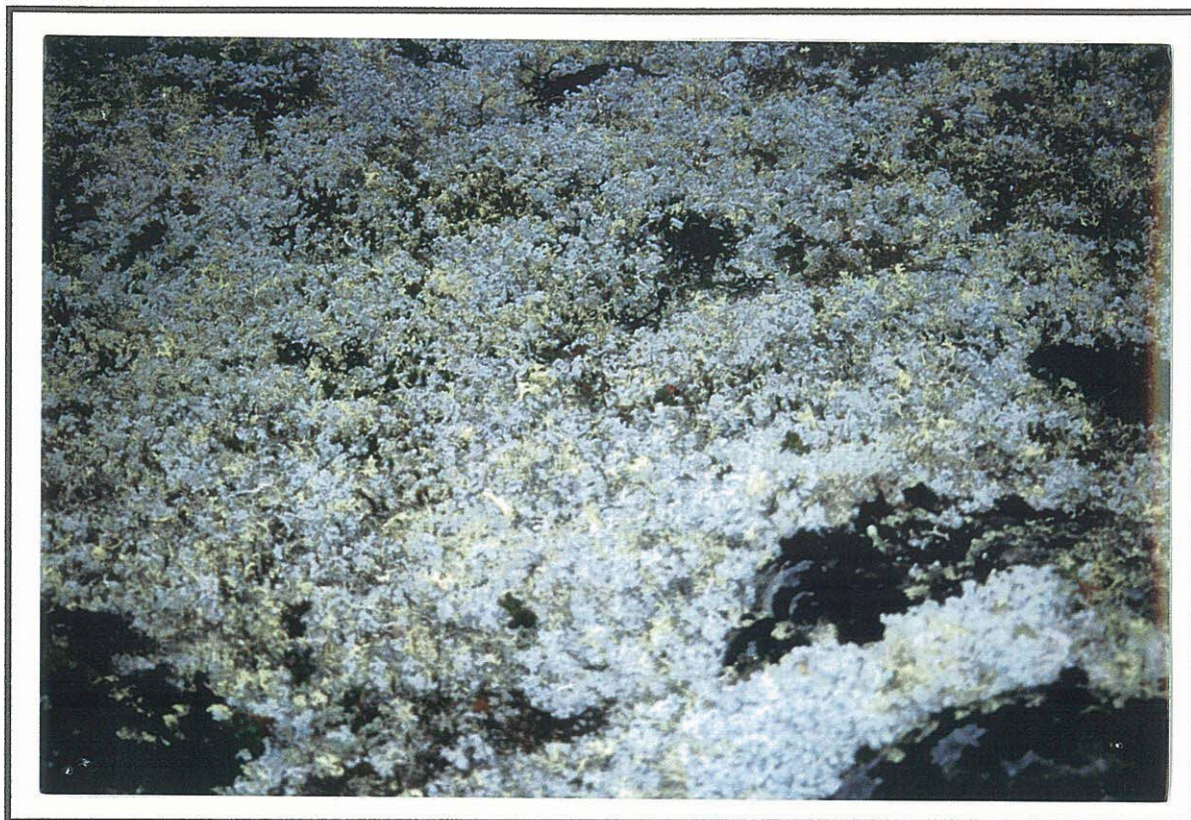
Margaret Lafferty from Wekweètì and Elizabeth Chocolate from Gamètì
Sitting on Whagweè (type of habitat) where various types of ?adzìì can be found
Deèzàatì 1999

5.2 Conclusion

The elders state that the most important factors affecting distribution are human activities and food availability. This is corroborated by others (Klein 1999; Cronin 1998; Wolfe 1997; Cameron 1995; Reimers unknown;) who have observed that recent increases in human activity, such as varying resource development, and other dramatic changes to the caribou habitat, affect caribou distribution and migration patterns. Documenting these changes, as observed by the Tł̥chq hunters and elders, contributes to a base of knowledge that can serve as baseline data for future assessment and monitoring purposes. This is especially pertinent given that Tł̥chq knowledge covers a long period of time, whereas scientific studies, which often correspond to the elders' observations, have been in existence for only a short period of time and as a result are sometimes unreliable due to gaps in information.

The elders are concerned about the rate and volume of change that is continuing to occur as a result of industrial development in the Tł̥chq traditional territory. These elders want their own program which will continue to document their knowledge of the past and to use harvesters trained by them to monitor through cumulative effects assessment and other means as a way to mitigate harmful effect. Mining development in recent years places an imperative on documenting Tł̥chq knowledge of the effects of industrial development on the habitat and the caribou that migrate throughout it.

The Tł̥chq Treaty 11 Council is concerned that unless Tł̥chq traditional knowledge of the caribou within their habitat is recognized and used, the caribou will be harmed by existing and potential industrial developments, such



Various types of ?adzìidegoo

caribou will be harmed by existing and potential industrial developments, such as diamond, gold and uranium mining and hydroelectric development. Baseline data, as well as monitoring by harvesters, is necessary if the caribou and their relation to human activity associated with roads, mining and other common development activities, is to be understood and properly managed.

5.3 Recommendations

Given the importance of the ʔekwò to the Tł̨chq, and given the their limitations to adapt to changing environments, the following recommendations are made in the hope that the caribou will be protected from destructive bi-products from industrial development.

- Baseline data research continues to be collected on the habitat within which the caribou travel in both the boreal forest and the barrenlands.
- Known ʔekwò water crossings are protected from highway development, and research is continued with the elders to document all caribou crossing,
- Baseline data is established about woodland caribou as they may be affected by industrial development resulting from the proposed pipelines,
- The collection of Tł̨chq harvesting data continues, not only on the state of the caribou taken, but the state of the habitat on which it depends.
- Caribou habitat is protected.
- Strict guidelines are developed to limit pollution
- Fences are put up around all tailings ponds to protect caribou from using the tailings rather than ʔelà (mud) to coat themselves.
- Additional Tł̨chq knowledge is documented on the use of stars to understand migration.
- Additional Tł̨chq knowledge is documented to further understand the adaptability of ʔekwò and associated problems.
- Wildfires in the boreal forest are put out as they deplete caribou winter forage.⁷

⁷ Fires also destroy Tł̨chq harvesters' trap lines.



Sally Zoe, Madelaine Chocolate, Georgina Chocolate and Allice Legat
University of Calgary, 1999

6. LINKS WITH PARALLEL STUDIES

Links were made to other studies through this report

7. TRAINING ACTIVITIES AND RESULTS

Training took place on a daily basis for all members of the research team.

Discussion of training is discussed where relevant under the Activities section and the Research Results section.



Margaret Lafferty and Louis Whane leaving Deèzàatì for Wekweètì
1999

7. REFERENCES CITED

_____ "A Story of Caribou and Social Learning". Photocopy in possession of Whaèhdòè Nàowoò Kò, year and author unknown.

Anderson, David G. "*Rangifer* and Human Interests". Paper prepared for the 10th Arctic Ungulate Conference, Tromsø, Norway, August 1999. Third Draft, May 24, 1999.

Back, Sir George. 1836 Narrative of the Arctic Land Expedition to the Mouth of the Great Fish River, and Along the Shores of the Arctic Ocean, in the Years 1833, 1834 and 1835. London: John Murray.

Banfield, A. W. F. and Jakimchuk, R. D. "Analyses of the Characteristics and Behaviour of Barren Ground Caribou in Canada". Prepared for Polar Gas Project, 1980.

Berkes, Fikret. Sacred Ecology: Traditional Ecological Knowledge and Resource Management. USA: Taylor & Francis. 1999.

Case, Ray, Buckland, Laurie, and Williams, Mark. "The Status and Management of the Bathurst Caribou Herd, Northwest Territories, Canada". 1996. Yellowknife, NWT, Department of Renewable Resources, Government of the Northwest Territories.

Farnell, Richard. "Evaluation of Diavik Diamond Mines Environmental Assessment in Relation to the Bathurst Caribou Herd". Report prepared for the Thchò Treaty 11 Council, March 1999.

Ferguson, A.D, Messier, Francois. "Collection and Analysis of Traditional Ecological Knowledge about a Population of Arctic Tundra Caribou". In Arctic, Vol. 50, Number 1, pp. 17-28, 1997.

Ferguson, M.A.D.; Williamson, R.G. and Messier, F. "Inuit Knowledge of Long-Term Changes in a Population of Arctic Tundra Caribou". In Arctic, Vol. 51, Number 3, pp. 201-219, 1998.

Freese, Curtis H. and Ewins, Peter J. "Guidelines for the Consumptive use of Wild Species in the Arctic, Wild Species Use by the Inuvialuit of Inuvik and

Paulatuk: An Analysis of WWF's Guidelines for Consumptive Use of Wild Species". A World Wildlife Fund Arctic Programme Discussion Paper, WWF International Arctic Programme, April 1998.

Goldman, Helle V. (Editor-in-Chief) Proceedings of the Human Role in Reindeer/Caribou Systems Workshop, Polar Research: 2000:19:1.

Griffith, Brad, Gunn, Anne, Russell, Don and Kielland, Knut. "Bathurst Caribou Calving Ground Studies: Influence of Nutrition and Human Activity on Calving Ground Location". Annual Report to West Kitikmeot Slave Study Society, Yellowknife, NWT, 1998.

Griffith, Brad, Gunn, Anne, Russell, Don and Kielland, Knut. "Bathurst Caribou Calving Ground Studies: Influence of Nutrition and Human Activity on Calving Ground Location". Annual Report to West Kitikmeot Slave Study Society, Yellowknife, NWT, 1999.

Grindal, Scott D. "Behavioural Monitoring of Barren-Ground Caribou During Spring Migration (1997)". Final report prepared for Diavik Diamonds Project, by Axys Environmental Consulting Ltd., Vancouver, B.C.

Gunn, Anne, Dragon, Judy, Papik, Stephanie, Panayi, Damian, Svoboda, Michael, Sutherland, Mika, D'Entremont, Marc. "Summer Behaviour of Bathurst Caribou at Mine Sites and Response of Caribou to Fencing and Plastic Deflector, July 1997". Final Report to the West Kitikmeot/Slave Study, prepared by the Department of Resources, Wildlife and Economic Development, April 1998.

Helm, June. "Dogrib." In Handbook of North American Indians, ed. William C. Sturtevant, *Subarctic*, Volume 6, 1981. Washington: Smithsonian Institute, pp.291-309.

Johnson, Martha; Ruttan, Robert A. "Traditional Dene Environmental Knowledge: A Pilot Project Conducted in Fort Good Hope and Colville Lake, NWT 1989-1993". Hay River, NWT: Dene Cultural Institute, 1993.

Klein, David. "Arctic grazing systems and industrial development: can we minimize conflicts?" In Polar Research, Vol. 19, No. 1, Rovaniemi, Finland, 10-14 February 1999, pp. 91-98.

Kruse, Jack; Klein, Dave; Braund, Steve; Moorehead, Lisa; Simeone, Bill. "Co-

Management of Natural Resources: A Comparison of Two Caribou Management Systems". In Human Organization, Vol. 57. No. 4, 1998, pp. 447-458.

Legat, Alice and Dawn Sprecher. "Caribou Behaviour in the ʔek'adii Area". Rae, NT: Tłıchǫ Treaty 11 Council, 1999.

..... and Zoe, Sally Anne. "Traditional Methods used by the Tłıchǫ to Redirect Caribou, Tłıchǫ Treaty 11 Council". Prepared for Department of Renewable Resources, GNWT. Whaèhdòè Nàowo K'e, Treaty 11 Council, Rae-Edzo, NT, 1995.

Mackenzie-Scott, Gabrielle. "Mining and Caribou Distribution within the Monfwi Territory: A Historical Outlook". Submitted to Caribou Distribution and the State of the Habitat, Tłıchǫ Treaty 11 Council, Tłıchǫ Treaty 11 Council, 1998.

Notes: part of Caribou Migration and the State of the Habitat, Annual Report, May 1998 submitted to WKSS.

Nellemann, Christian, Jordhoy, Per, Stoen, Ole-Gunnar, and Strand, Olav. "Cumulative Impacts of Tourist Resorts on Wild Reindeer (*Rangifer tarandus tarandus*). In Arctic, Vol. 53, No. 1, March 2000, pp. 9-17.

Northern Yukon Ecological Knowledge Co-op. "Community-based Ecological Monitoring in Northern Yukon". 1996-97 Internet: www.taiga.net/coop/reports/1997/rptcom971.html.

Petitot, Emile. 1884 On the Athabasca District of the Canadian North-west Territory. *Canadian Record of Science* 1:27-53. Montreal. (Reprinted from *Proceedings of the Royal Geographical Society*, 1883)

Porcupine Technical Committee. Sensitive Habitats of the Porcupine Caribou Herd. International Porcupine Caribou Board, January 1993.

Reimers, Eigel, Flydal, Kjetil, Stenseth, Rune. "High voltage transmission lines and their effect on reindeer; a research program in progress". In Polar Research, Vol. 19, No. 1, Rovaniemi, Finland, 10-14 February 1999, pp. 75-82.

Richardson, Sir John. 1857 *Arctic Searching Expedition: A Journal of a Boat-voyage Through Rupert's Land and the Arctic Sea, in Search of the Discovery of Ships Under Command of Sir John Franklin with an Appendix on the Physical Geography of North America*. 2 vols. London: Longman, Brown, Green, and Longmans.

Thorpe, Natasha and Sandra Eyegetok. "Tuktu and Nogak Project". Report submitted to West Kitikmeot/Slave Study Society, Yellowknife, NT, March 31, 1999.

Urquhart, D. R. "The Bathurst Herd: A Review and analysis of information concerning the Bathurst herd of barren-ground caribou in the NWT for the period 6000 B.C. to 1980 A.D." First Draft, prepared for the NWT Wildlife Service, June 1981.

Vitebsky, Piers, Ed. "Vegetation change and indigenous knowledge: a new approach to climate change through the interdisciplinary study of reindeer herding". Year unknown (work in progress). Cambridge, England: Scott Polar Research Institute.

Wolfe, Scott A., Brad Griffith and Carrie A. Gray Wolfe. "Response of reindeer and caribou to human activities". In Polar Research, Vol. 19, No. 1, Rovaniemi, Finland, 10-14 February 1999, pp. 63-73.

Web Sites:

www.rangifer.net - This site is located at Dartmouth College, USA and contains information on the human role in reindeer/caribou systems

www.polarnet.ca/tuktu - This is the web page for the Tuktu and Nogak Project in the Bathurst Inlet area of the Kitikmeot region, Nunavut.

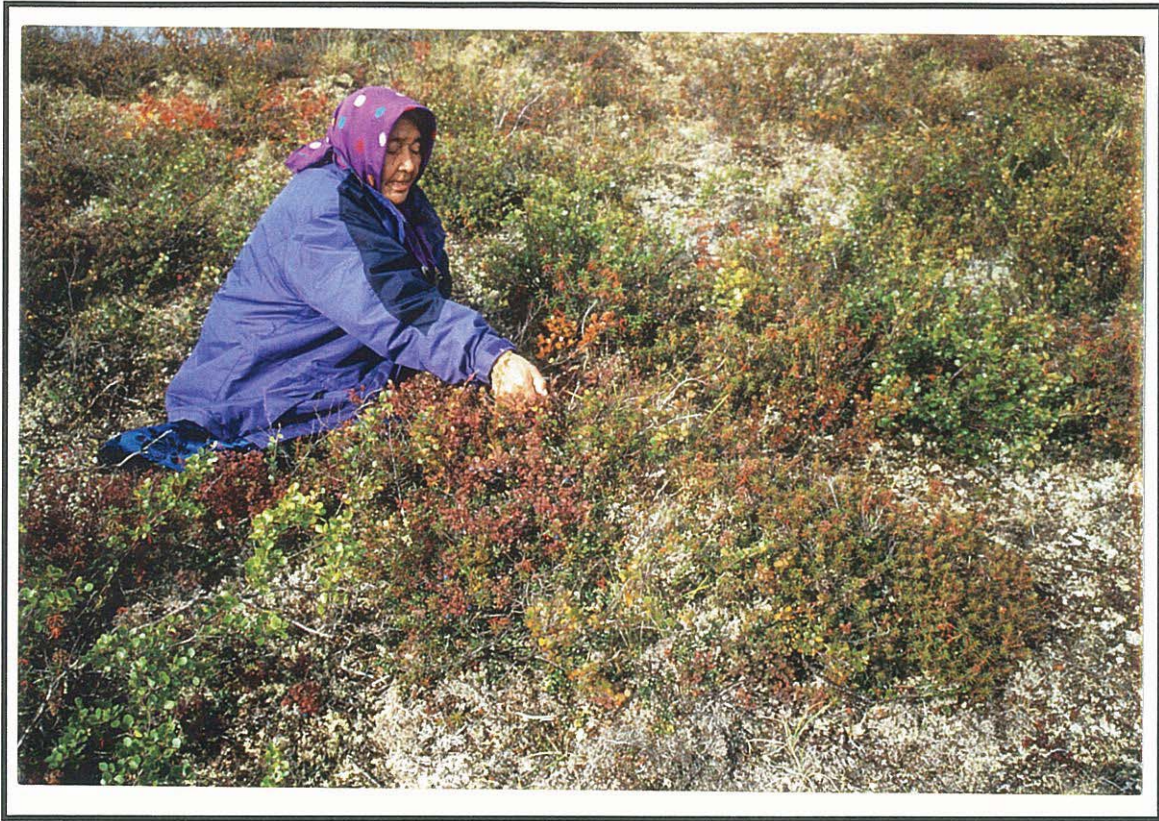
www.reindeer.salm.alaska.edu - This is the location of the University of Alaska Reindeer Research Program.

www.deer.rr.ualberta.ca/caribou/newsletter.htm - The Boreal Caribou Research Program, based out of the University of Alberta, studies woodland caribou in northern Alberta.

www.rangifer.no/eng/aboutrangifer.html - The home page for the Nordic Council for Reindeer Research. It lists publications available and links to other reindeer/caribou sites.

APPENDIX I

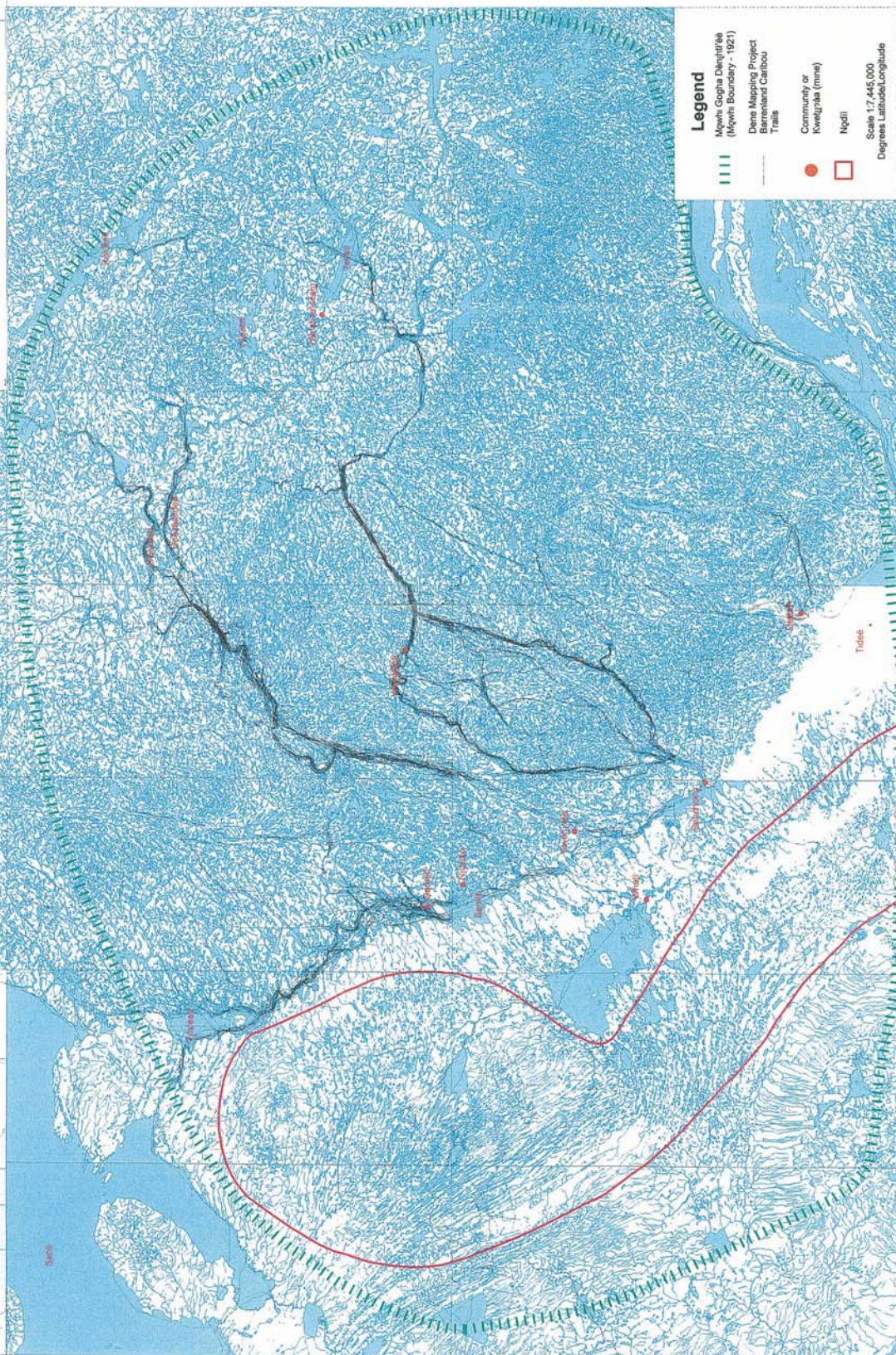
Traditional Trails Used for Harvesting ?ekwò



Elizabeth Chocolate
1999

(Credit: Whaèhđọ Nàowò K'ò, Dogrib Treaty 11 Council)

(Credit: Whaèhđọ Nàowò K'ò, Dogrib Treaty 11 Council)



Legend

-  Mowhi Gogha Dengh'le
(Mowhi Boundary - 1921)
 Dene Mapping Project
Barrenland Caribou
Trails
 Community or
Kweld'ya (mine)
 Ngdlil

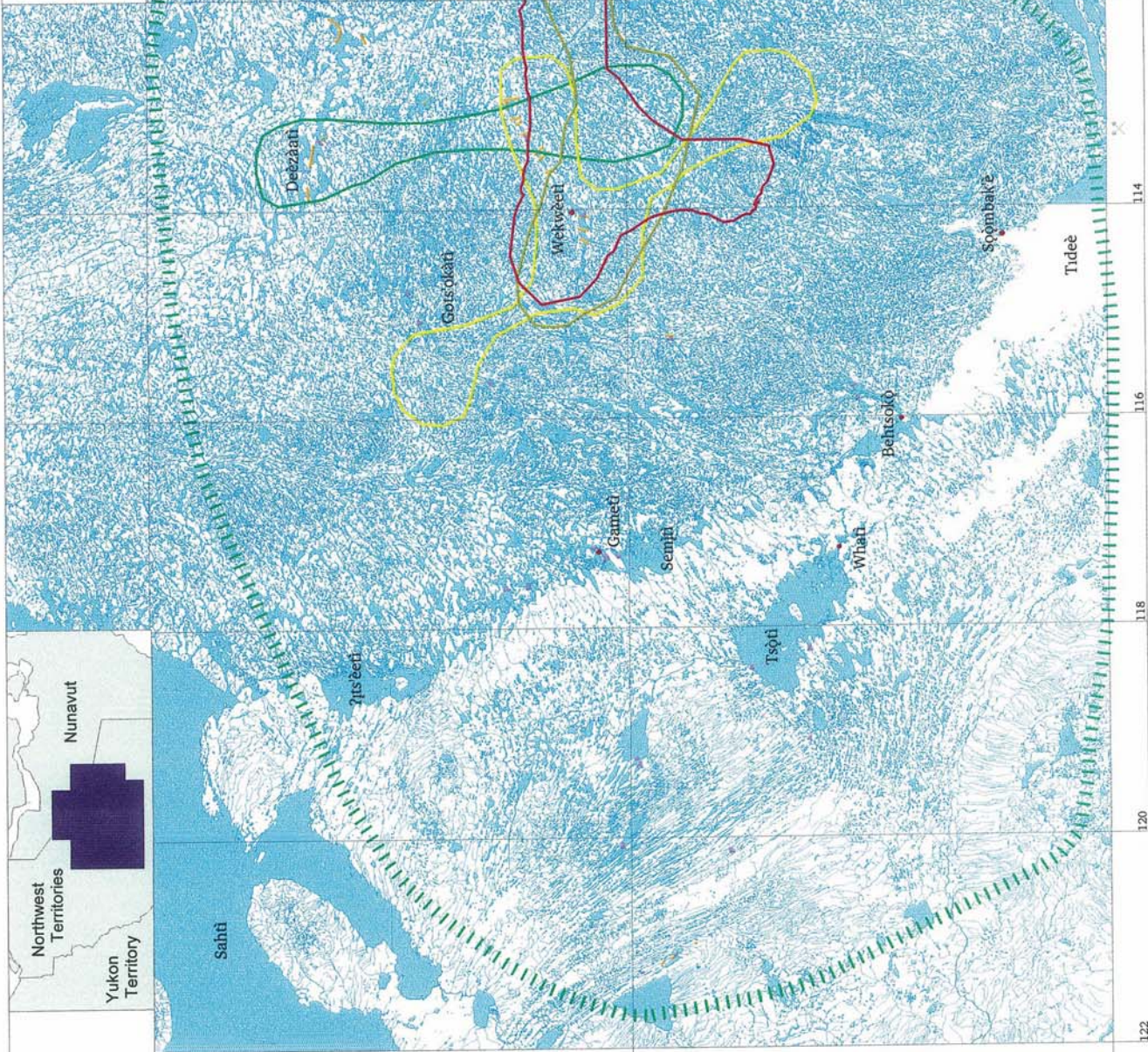
Scale 1:7,445,000
Degrees Latitude/Longitude

APPENDIX II

**ʔekwò (Barrenland Caribou) Distribution
Based On Harvesting Patterns in Winter and Spring
1925 to 1998**

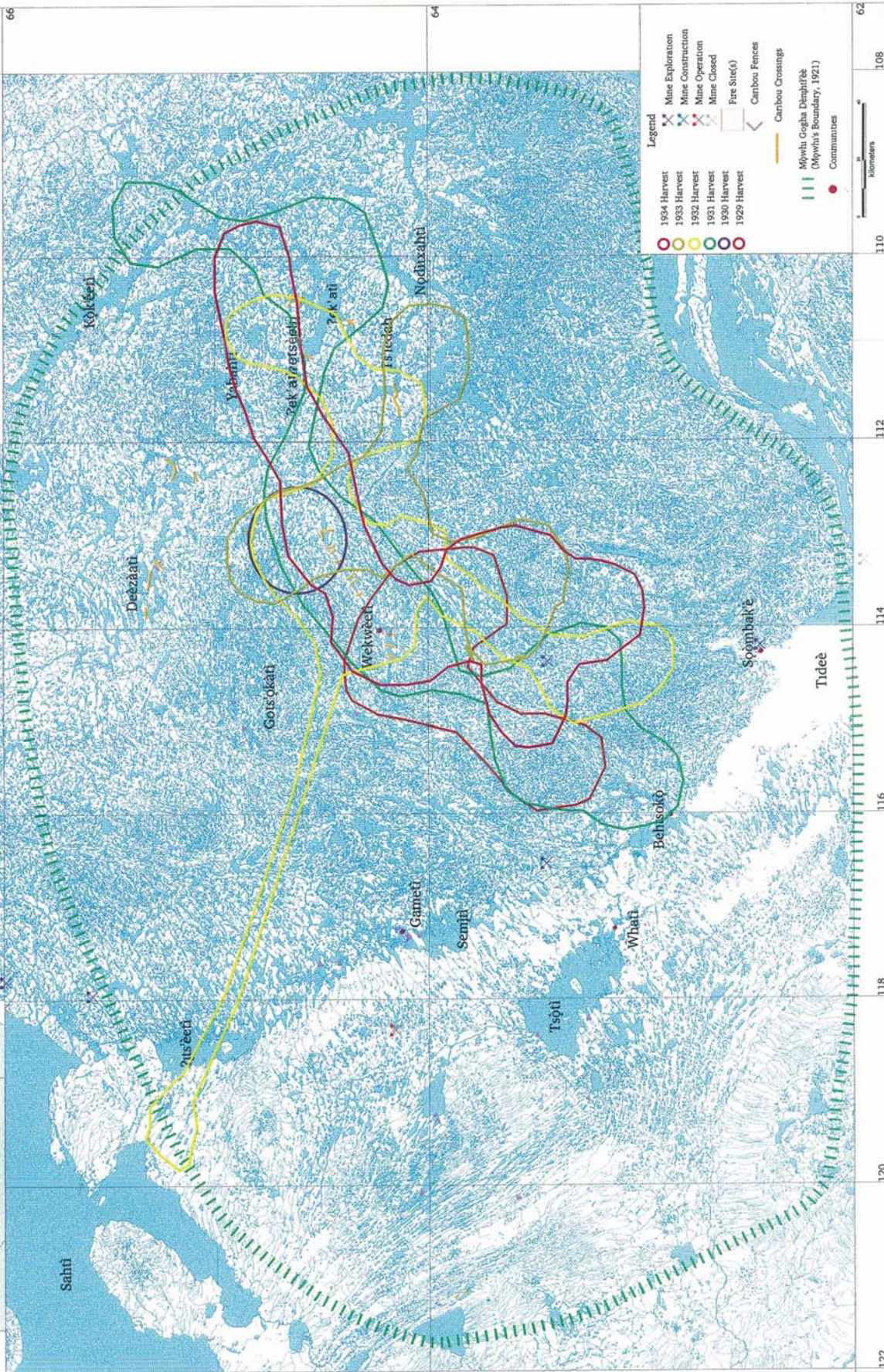
Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1925 to 28

Wahabdoq Nlowos Kq, Dogrib Treaty 11 Council (Oct, 2000)



Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1929 to 34

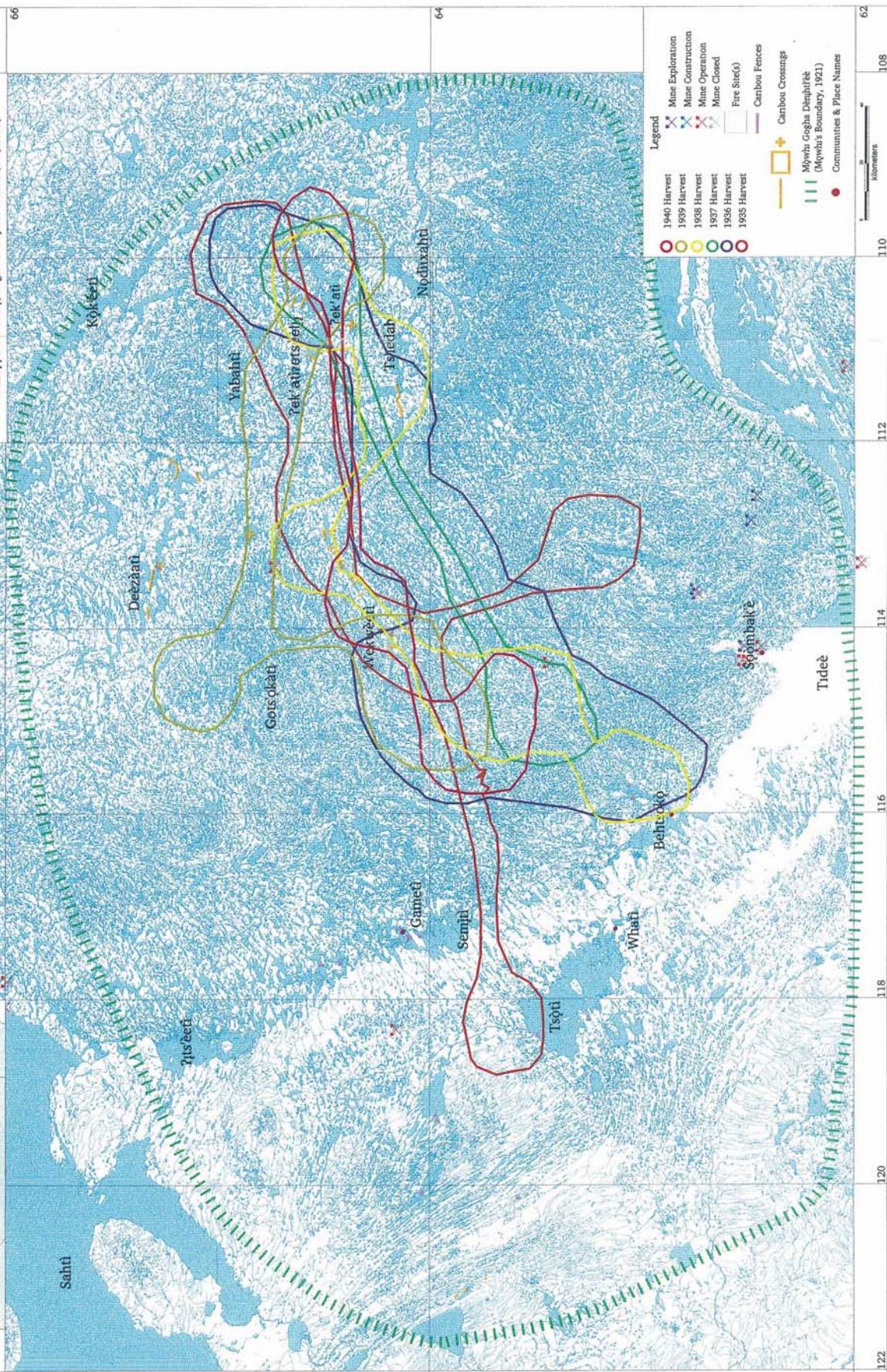
Whaahdop Nlawaos K9, Dogrib Treaty 11 Council (Oct, 2000)



- Legend**
- 1934 Harvest (Red circle)
 - 1933 Harvest (Orange circle)
 - 1932 Harvest (Yellow circle)
 - 1931 Harvest (Green circle)
 - 1930 Harvest (Blue circle)
 - 1929 Harvest (Purple circle)
 - Mine Exploration (Blue 'X')
 - Mine Construction (Red 'X')
 - Mine Operation (Green 'X')
 - Mine Closed (Yellow 'X')
 - Fire Site(s) (Black square)
 - Caribou Fences (Black line)
 - Caribou Crossings (Black line with arrows)
 - Mywa Gogha Dispersal Area (Mywa's Boundary, 1921) (Dashed green line)
 - Communities (Red dot)

Barrenland Caribou Distribution Based On Harvesting Patterns in Relationship To Mine, Fire And Community Activity 1935 to 40

Wahshodoo Naowoo Koo, Dogrib Treaty 11 Council (Oct, 2000)

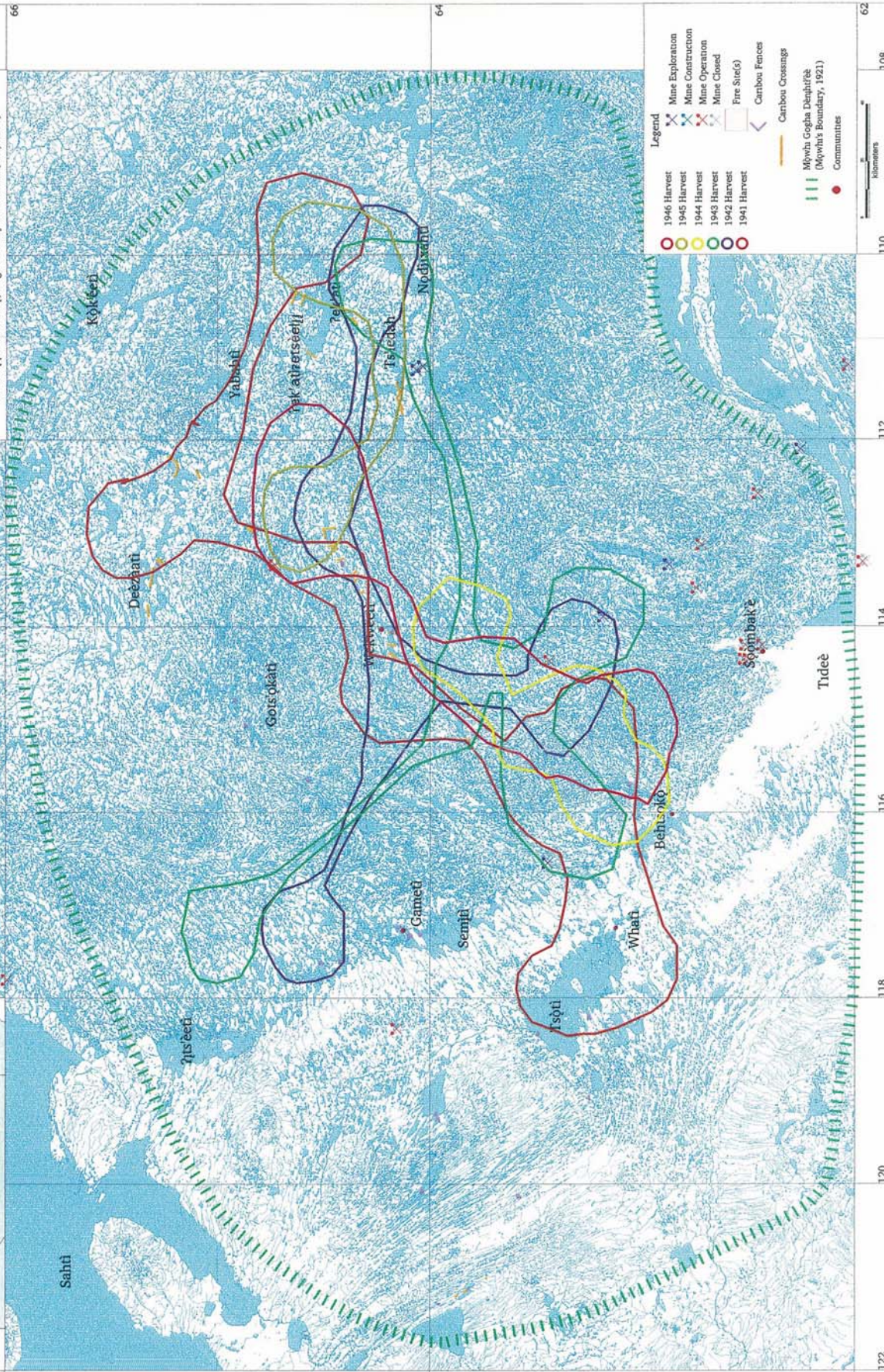
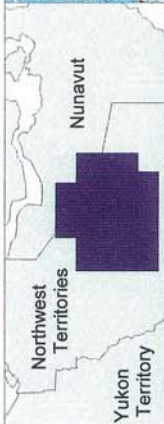


- Legend**
- 1940 Harvest
 - 1939 Harvest
 - 1938 Harvest
 - 1937 Harvest
 - 1936 Harvest
 - 1935 Harvest
 - Mine Exploration
 - Mine Construction
 - Mine Operation
 - Mine Closed
 - Fire Site(s)
 - Caribou Fences
 - Caribou Crossings
 - Myish Gogha Dighitit (Myish's Boundary, 1921)
 - Communities & Place Names

0 2 4 Kilometers

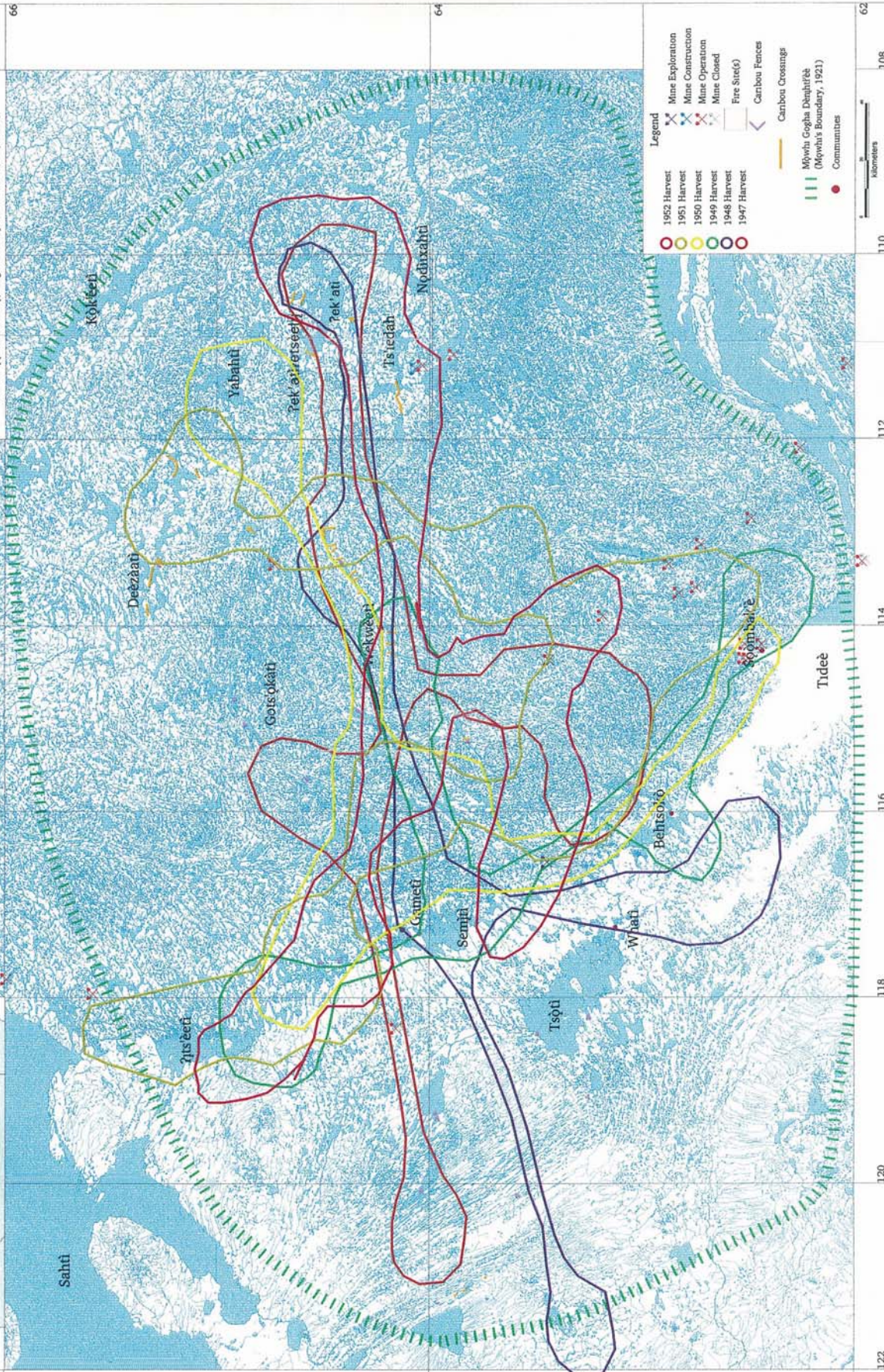
Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1941 to 46

Whaahdoo Nlwoob Kp, Dogrib Treaty 11 Council (Oct, 2000)



Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1947 to 52

Whaahdoh Nahwob Ko, Dogrib Treaty 11 Council (Oct, 2000)

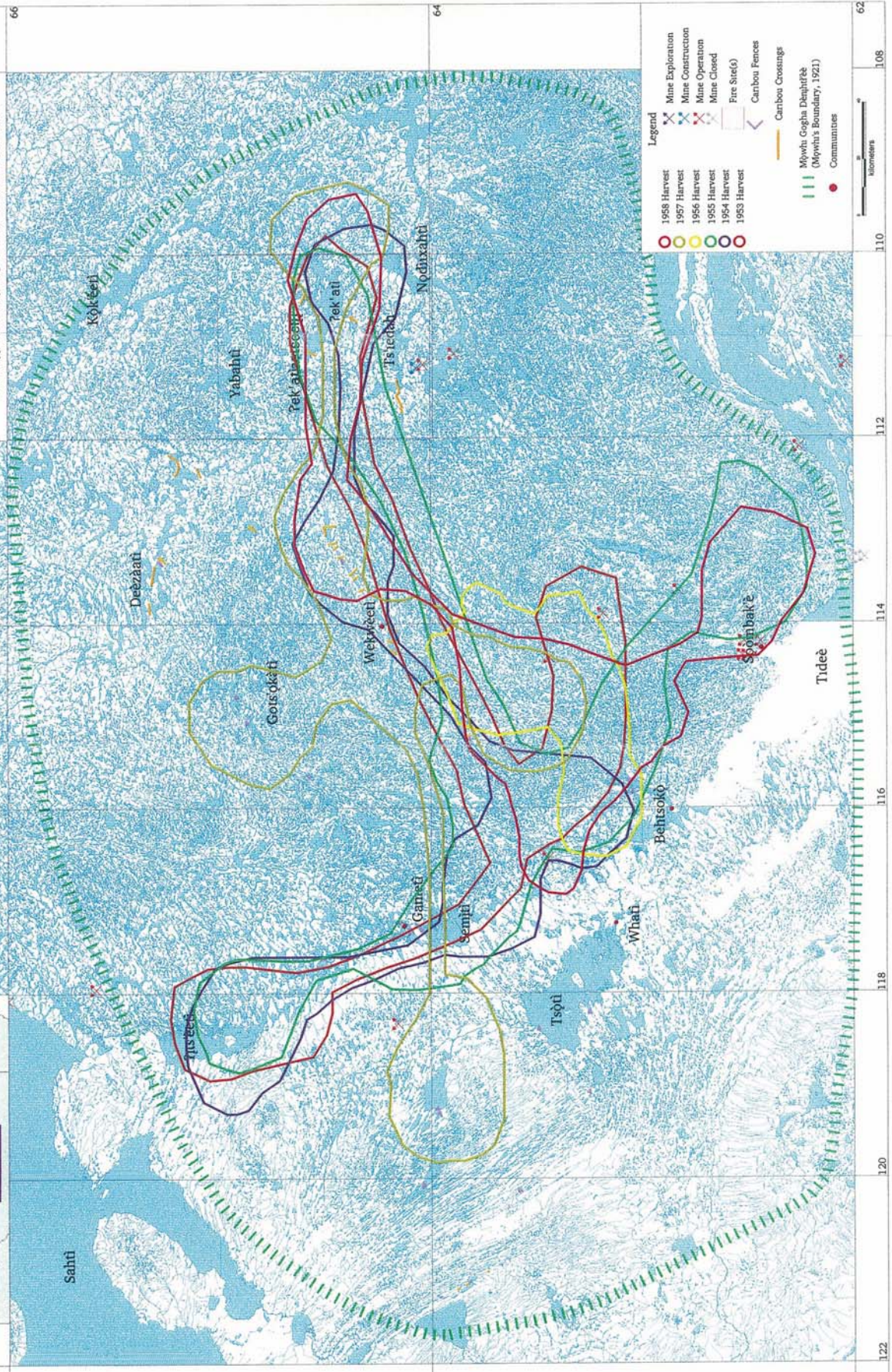


- Legend**
- 1952 Harvest
 - 1951 Harvest
 - 1950 Harvest
 - 1949 Harvest
 - 1948 Harvest
 - 1947 Harvest
 - Mine Exploration
 - Mine Construction
 - Mine Operation
 - Mine Closed
 - Fire Site(s)
 - Caribou Fences
 - Caribou Crossings
 - Miywits Gogha Dagh'it'e (Miywits Boundary, 1921)
 - Communities



Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1953 to 58

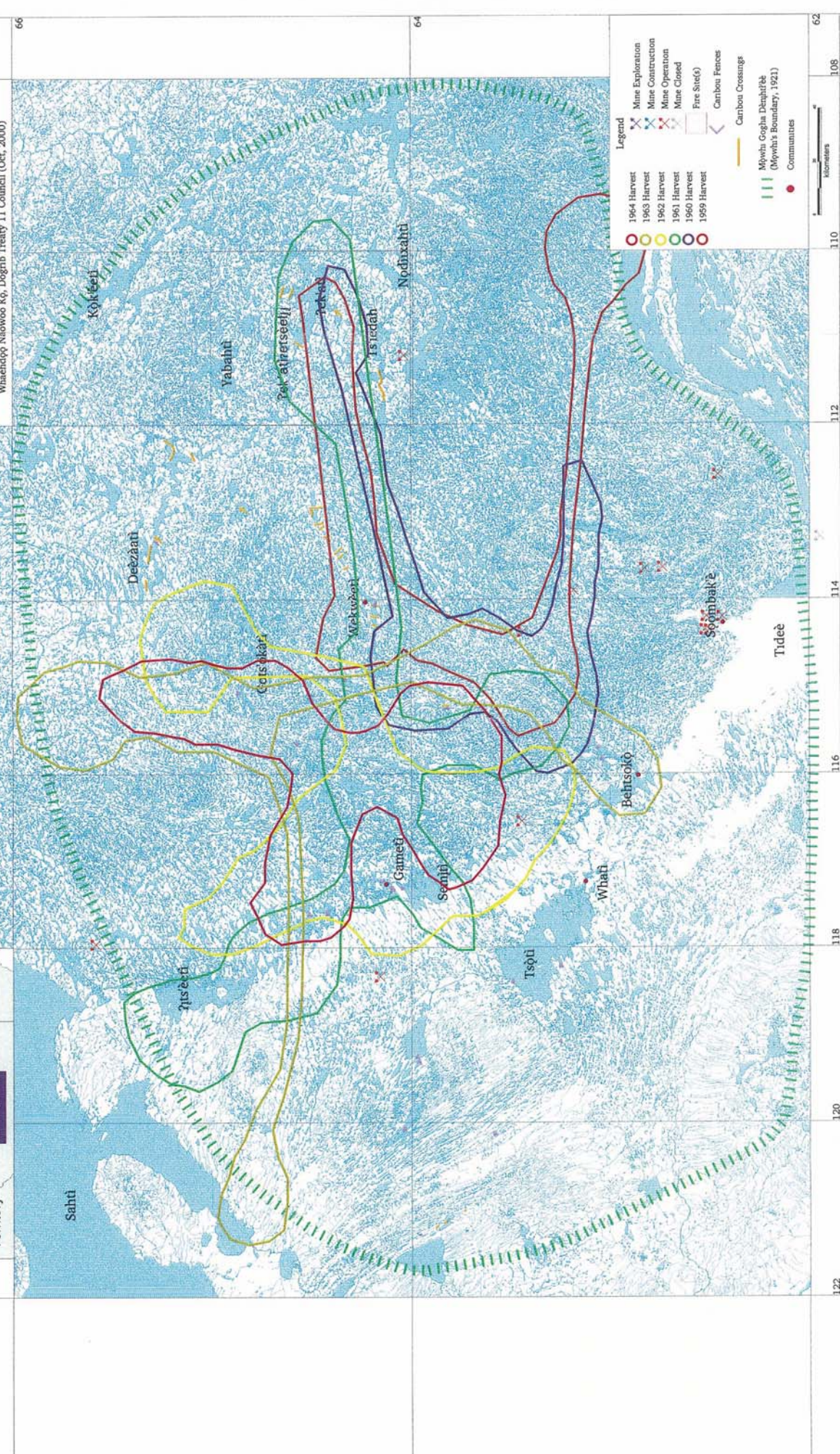
Whaahdoo Nulovoo Koo, Dogm Treaty 11 Council (Oct. 2000)





Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1959 to 64

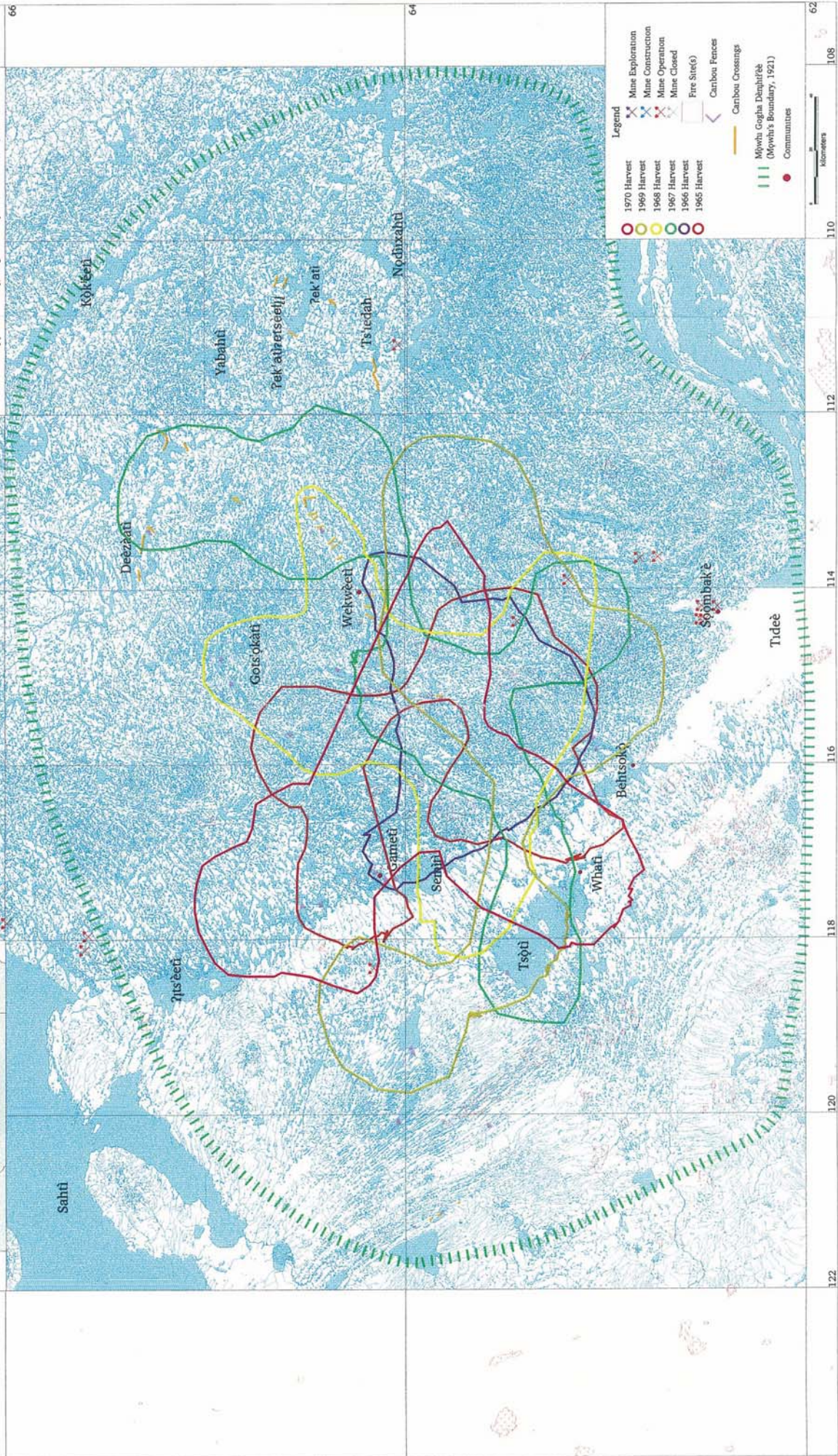
Whaahp' Nlowob K'o, Dogonb Treaty 11 Council (Oct, 2000)





Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1965 to 70

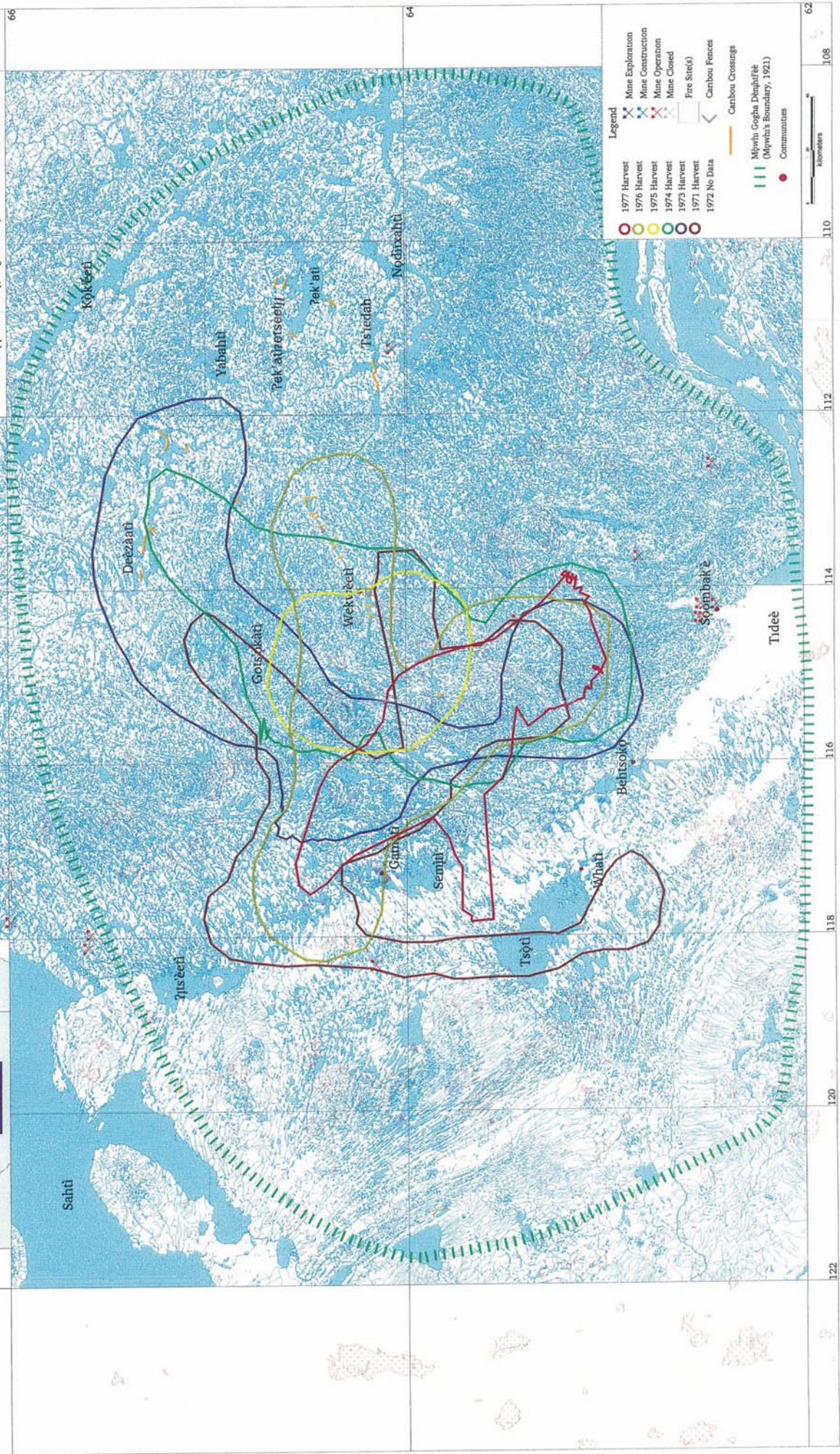
Whaahdop Nlowos Kp, Dogrib Treaty 11 Council (Oct, 2000)





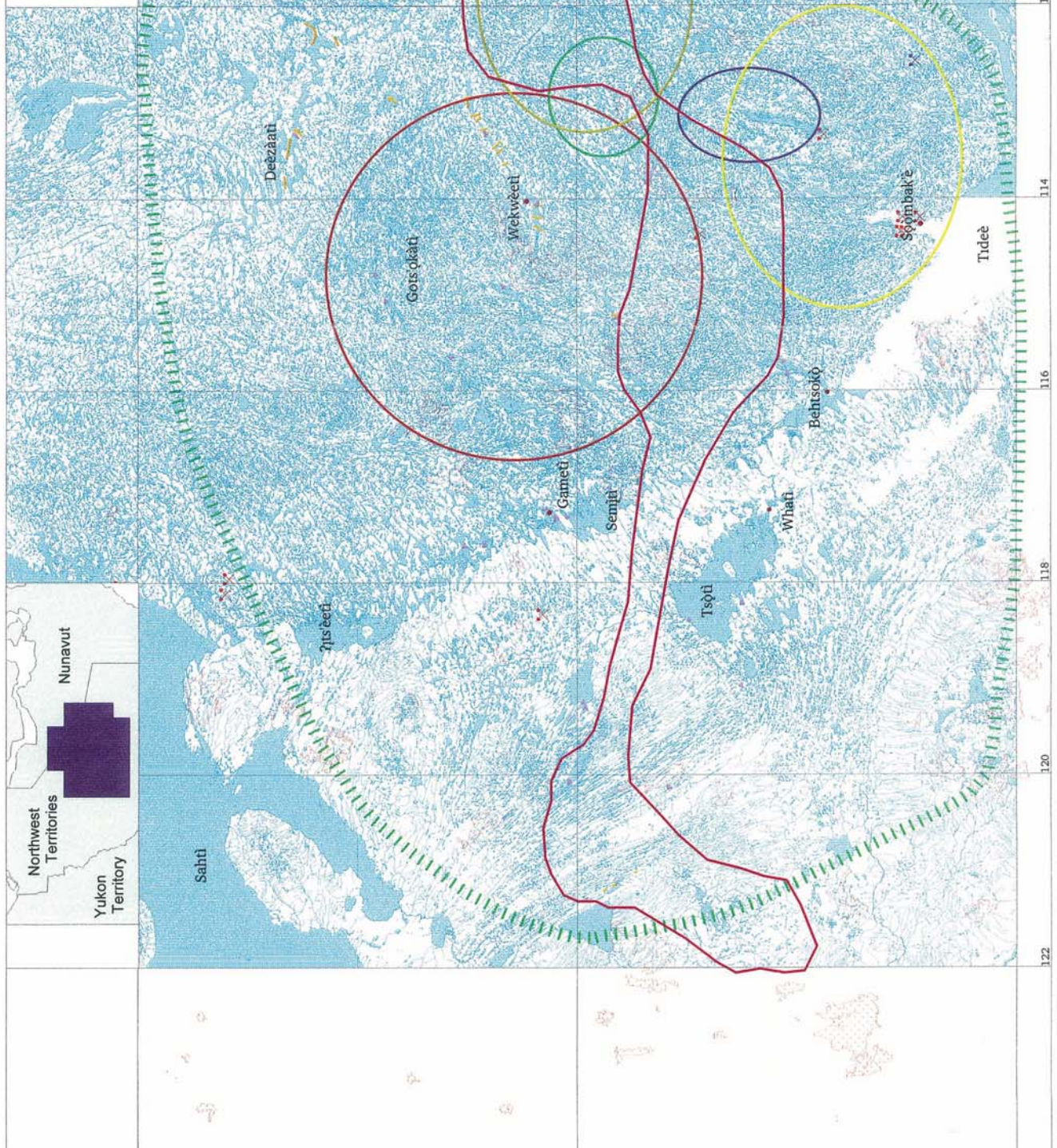
Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1971 to 77 (No Data for 1972)

Whashidoo Nlowoo K6, Dogrib Treaty 11 Council (Oct, 2000)



Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1978-85 (No Data for 1981 & 82)

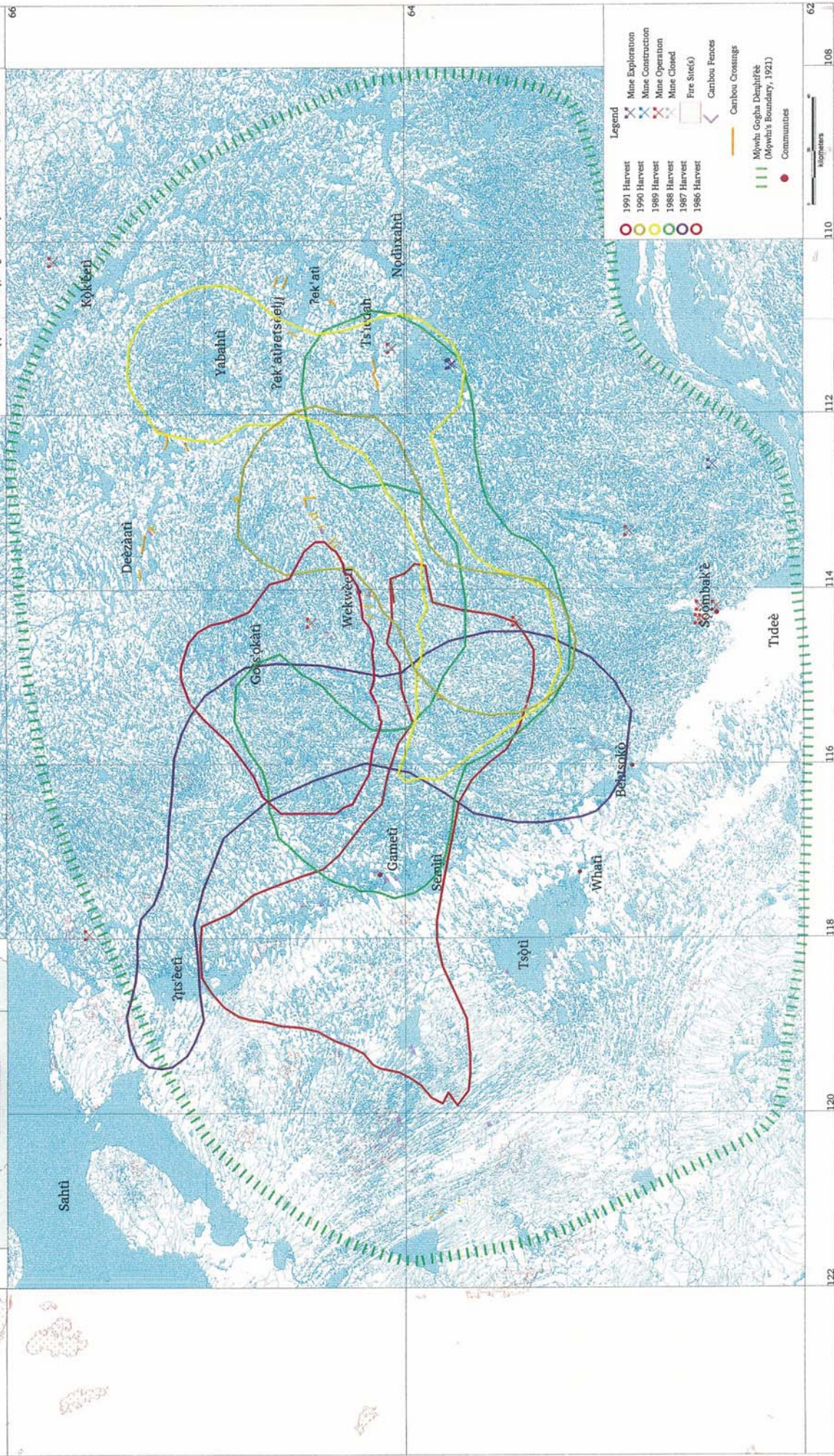
Whashdoo Nlowob Koo, Dogon Treaty 11 Council (Oct, 2000)





Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1986-91

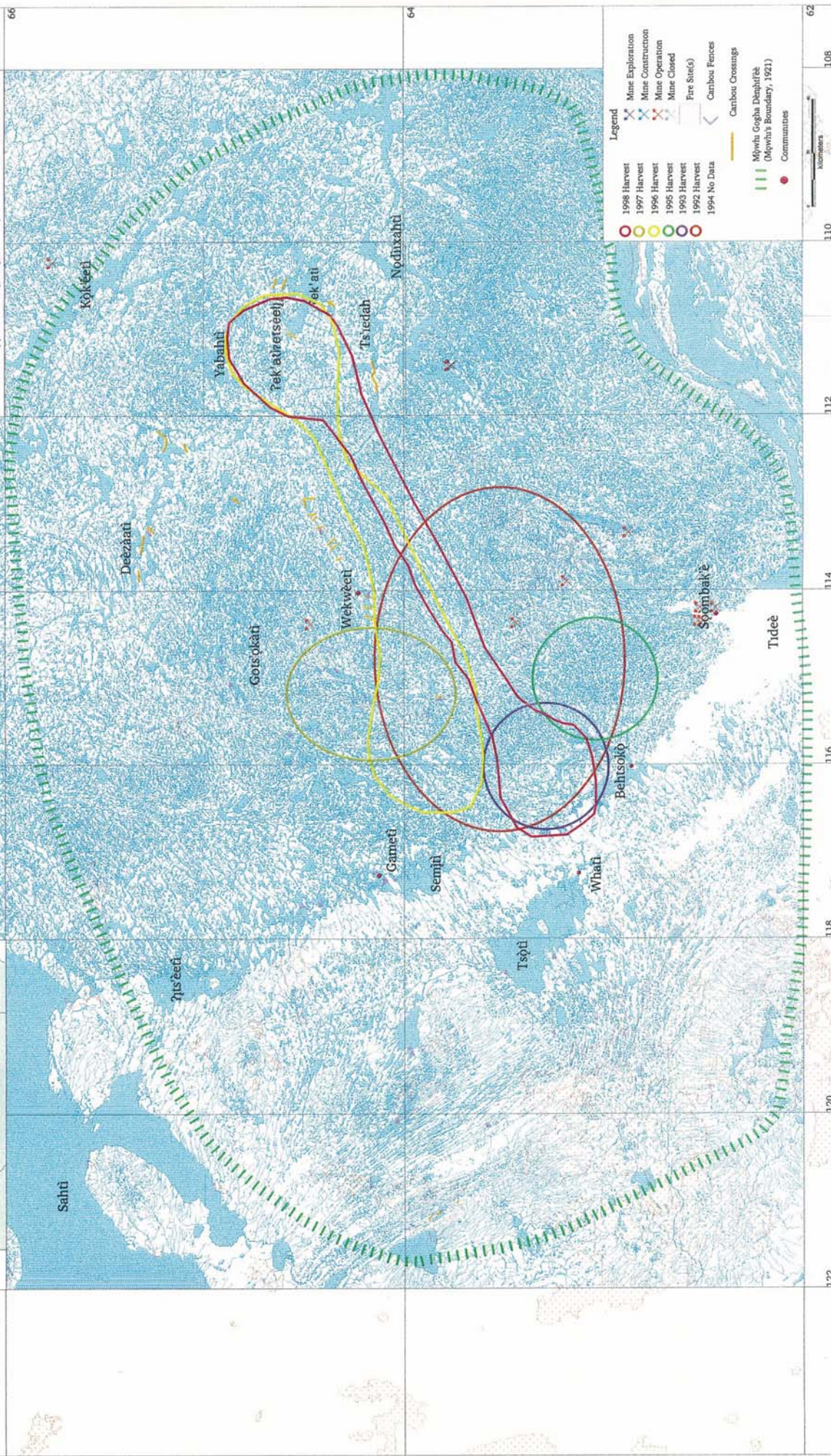
Wahabidop Niswob Kq, Dogrib Treaty 11 Council (Oct, 2000)





Barrenland Caribou Distribution Based On Harvesting Patterns in Winter and Spring 1992-98 (No Data for 1994)

Whaahdoh Nahwob K9, Dogrib Treaty 11 Council (Oct, 2000)

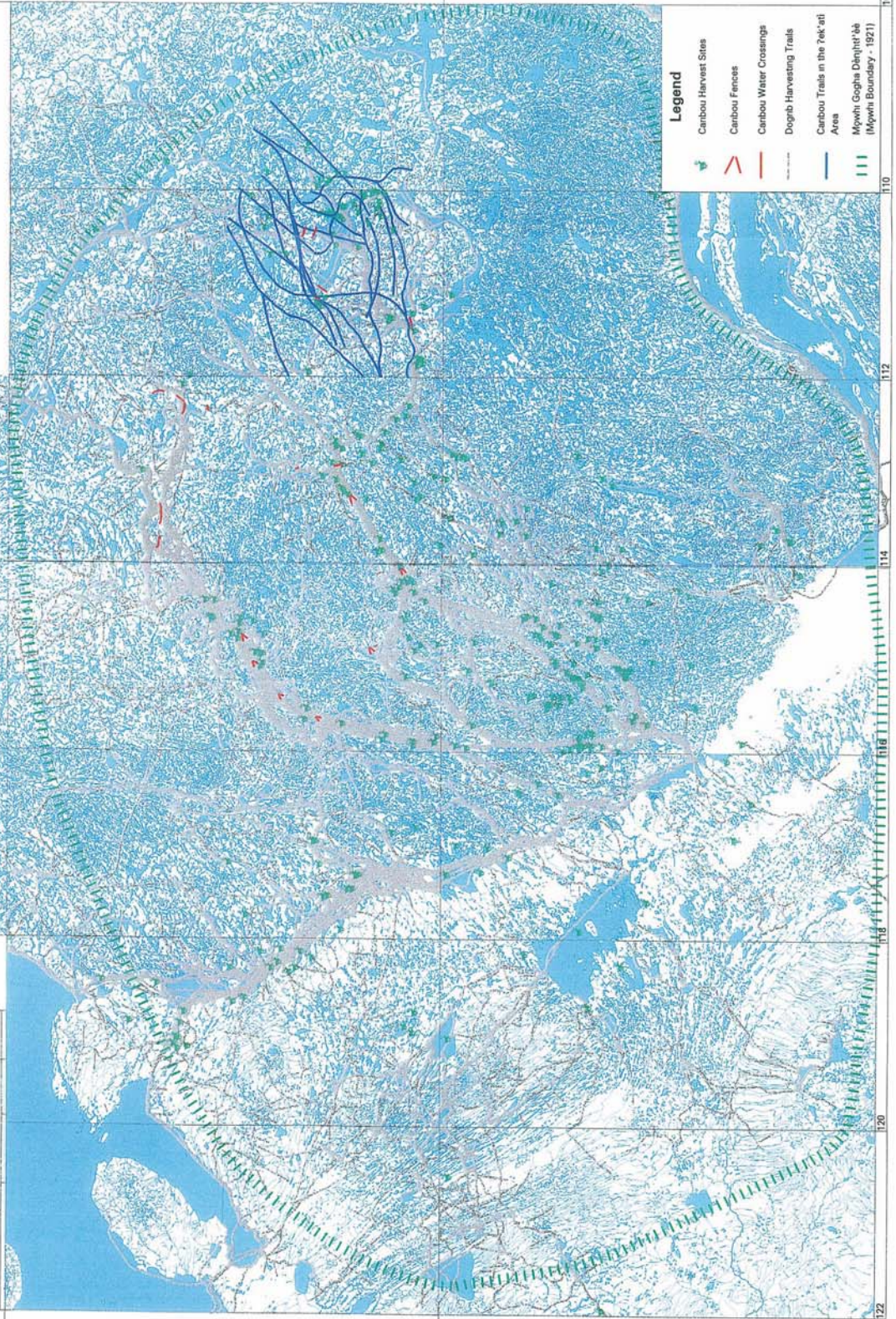


APPENDIX III

Tḥchọ and ʔekwò

T̨ichò and ʔekwò

(Credit: Whaahdò ʔahwòò K'ò, Dogrib Treaty 11 Council)

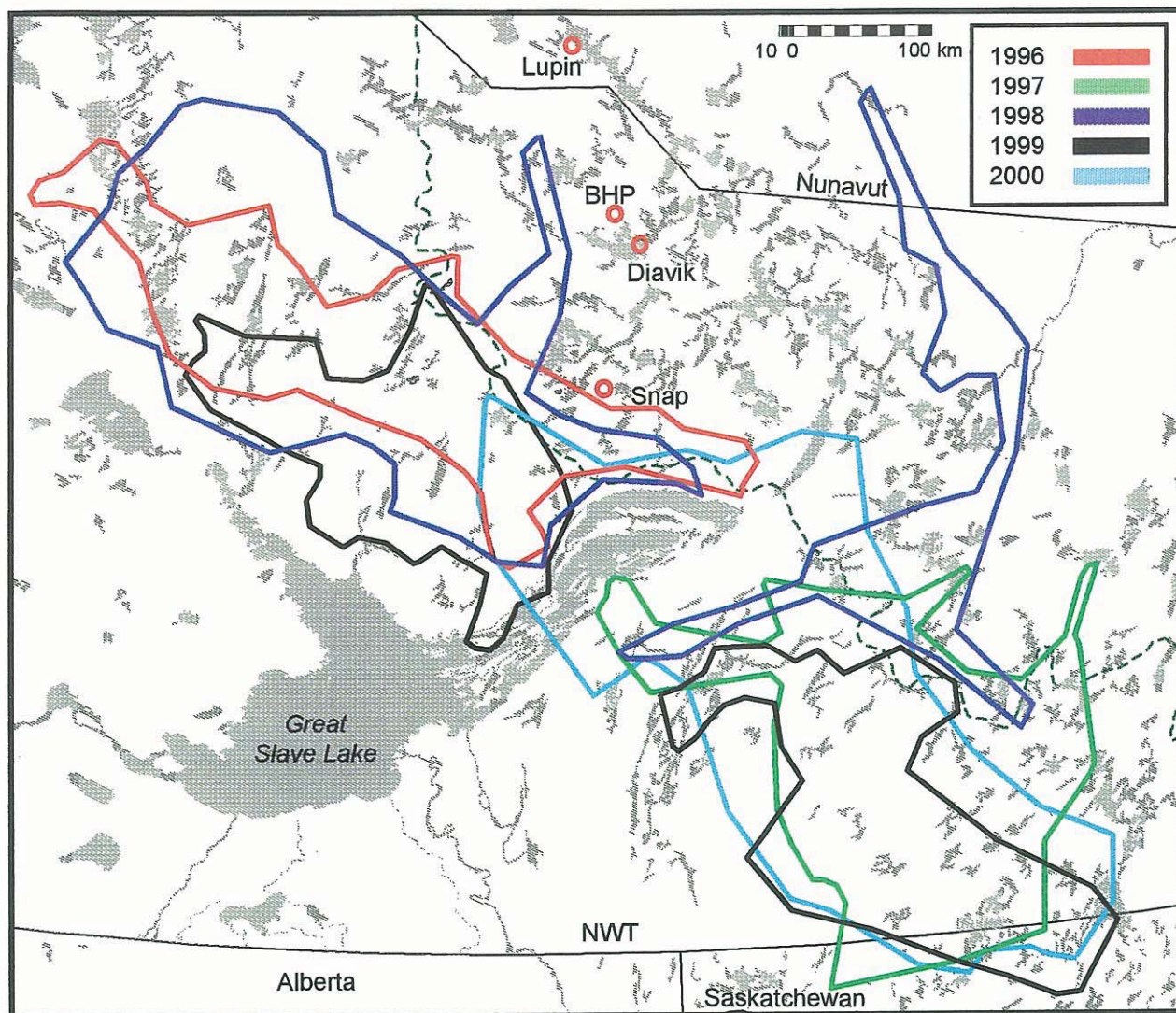


APPENDIX IV

**Areas Used by Satellite-collared Bathurst Caribou
During Winter, 1996 to 2000 (Draft)**

**Spring Migration of Collared Bathurst Caribou Cows,
19 April – 29 May 1996
27 April – 29 May 1997
20 April – 22 May 1998
29 April – 30 May 1999
3 April – 28 May 2000**

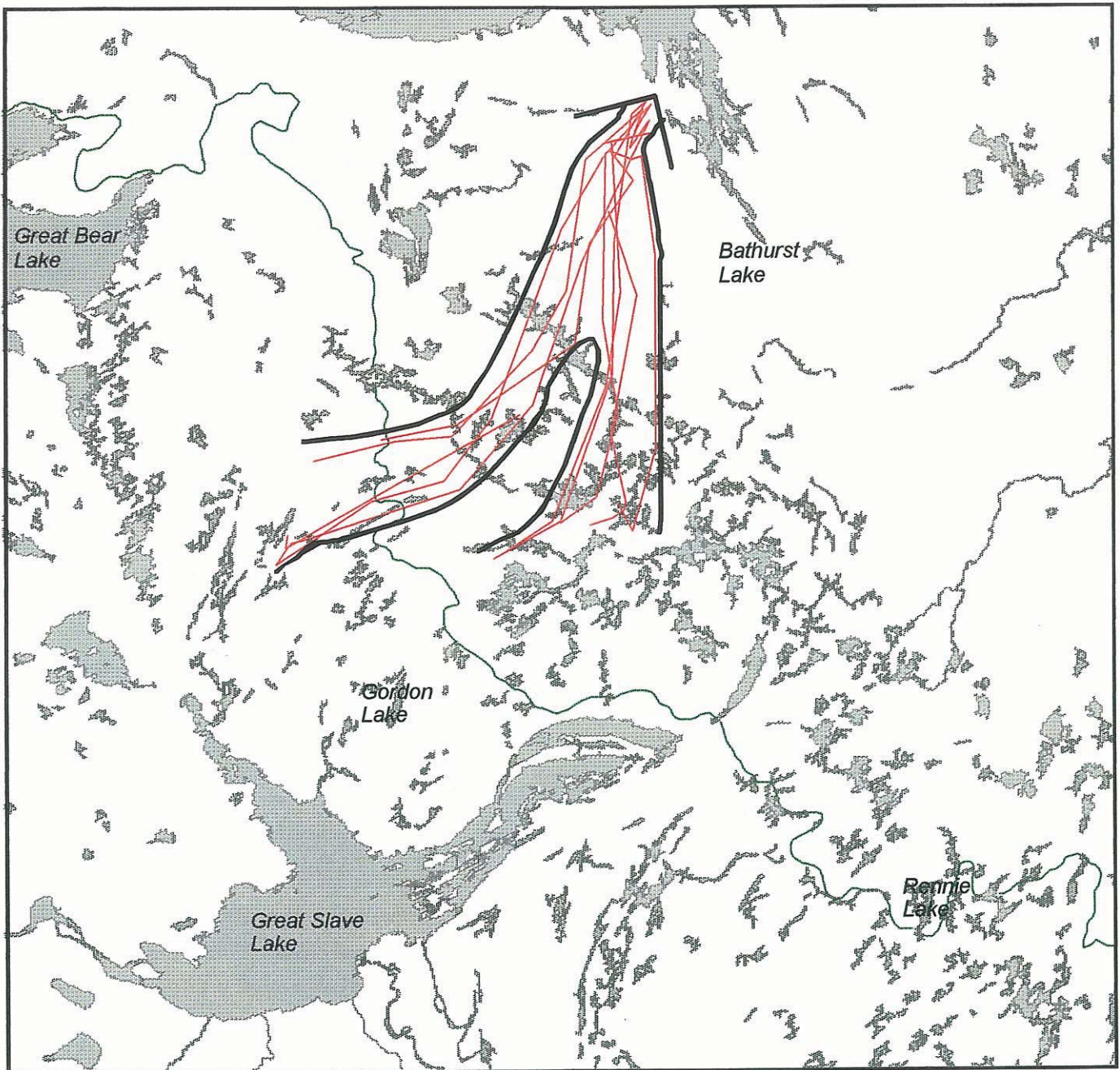
Route of One Radio Collared Caribou 1996-2000



Areas used by collared Bathurst cows during winter (Nov to Feb), 1996 - 2000.

Renewable, Wildlife and Economic Development

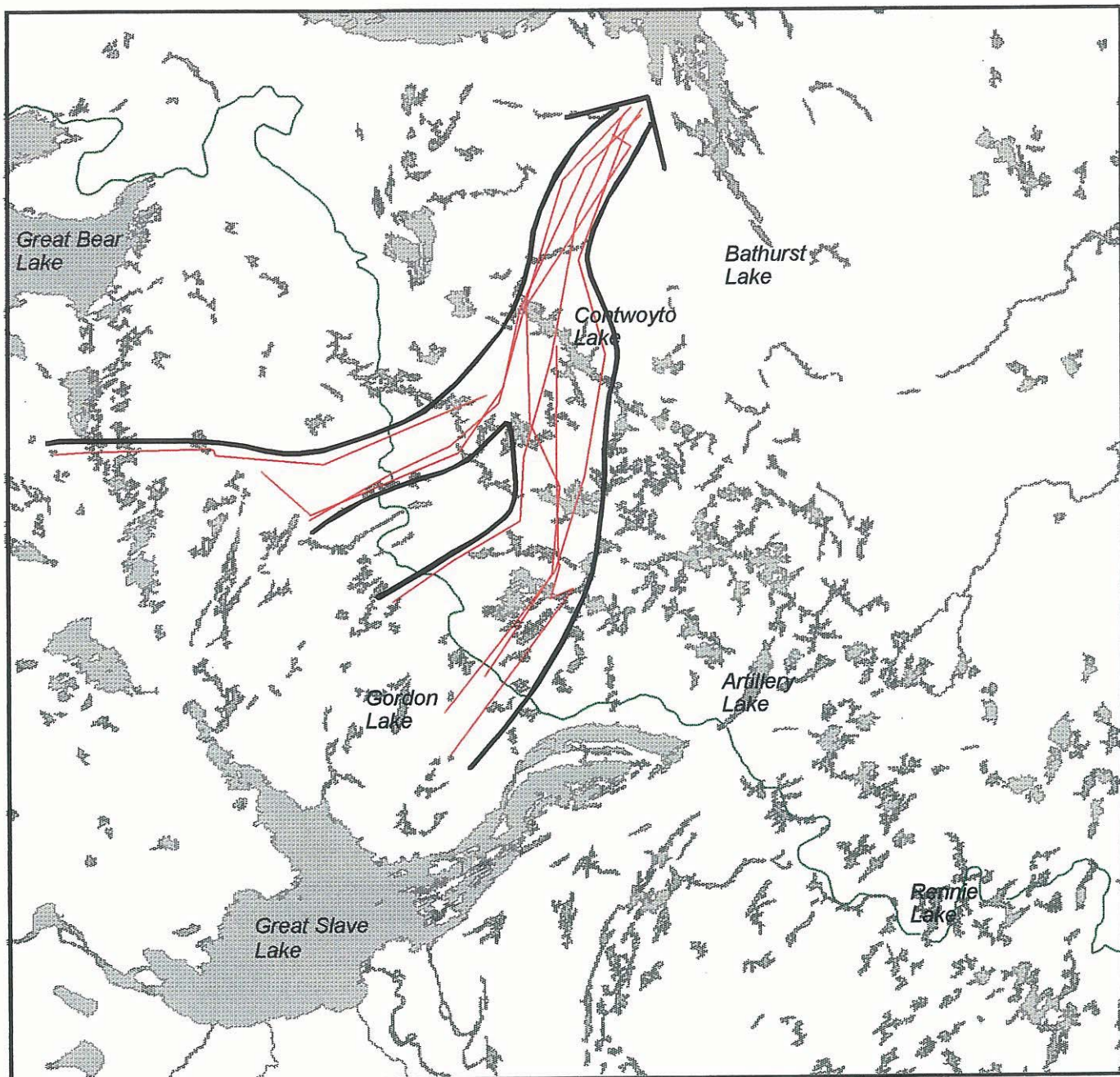
DRAFT



Spring migration of collared Bathurst caribou cows, 19 April - 29 May 1996.

Renewable, Wildlife and Economic Development

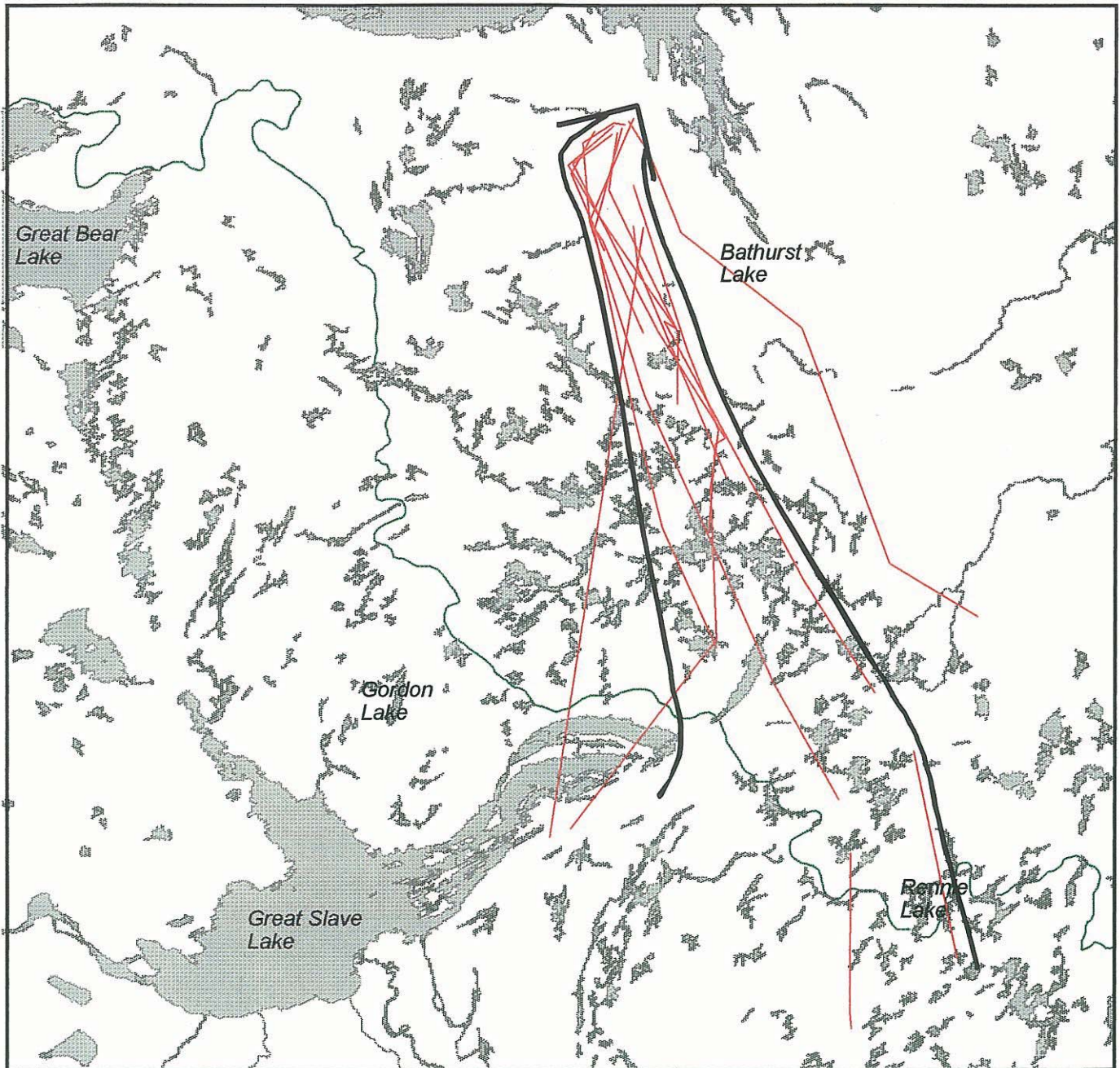
DRAFT



Spring migration of collared Bathurst caribou cows, 27 April - 29 May, 1997.

Renewable, Wildlife and Economic Development

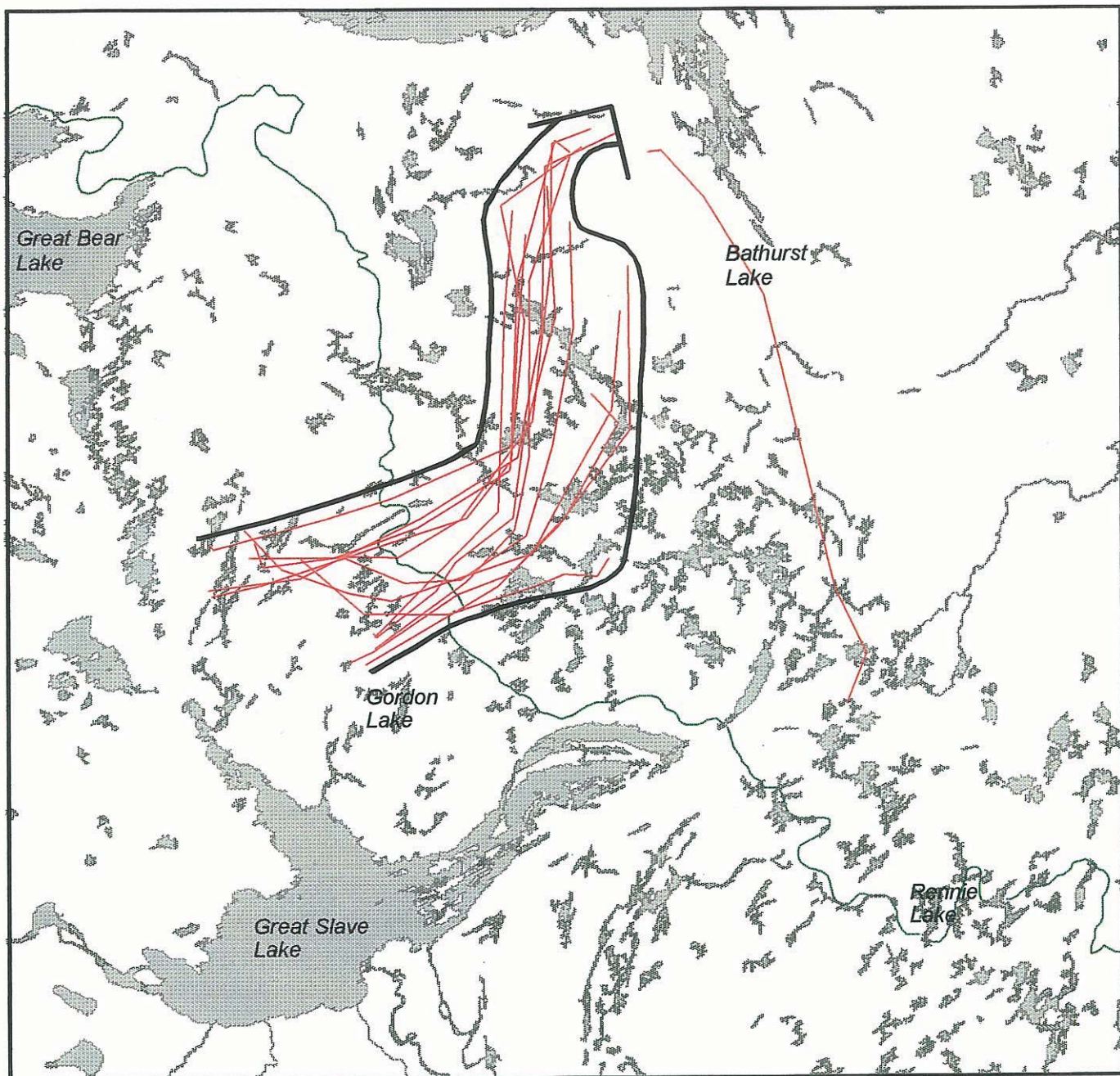
DRAFT



Spring migration of collared Bathurst caribou cows, 20 April - 22 May 1998.

Renewable, Wildlife and Economic Development

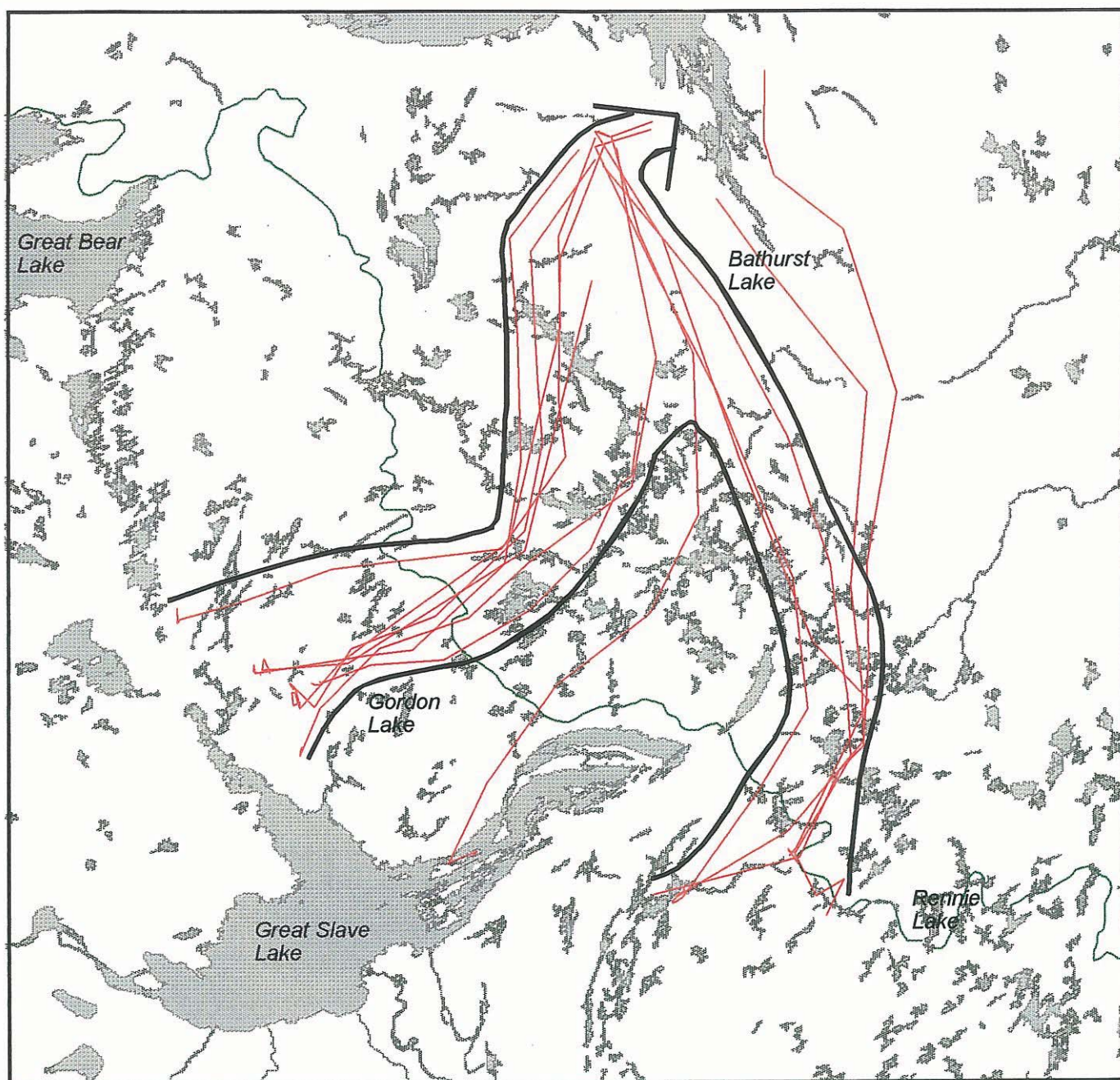
DRAFT



Spring migration of collared Bathurst caribou cows, 29 April - 30 May, 1999.

Renewable, Wildlife and Economic Development

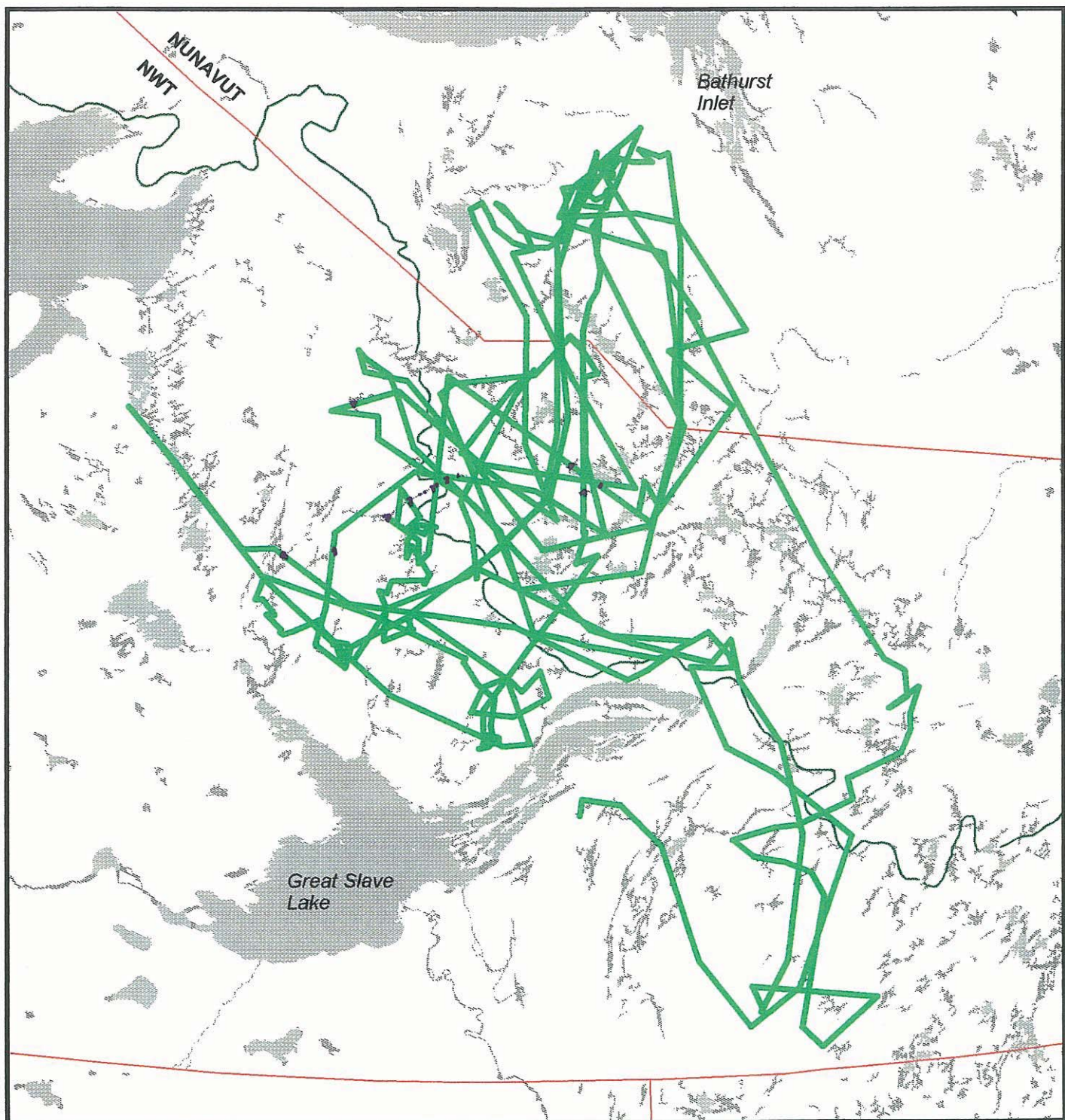
DRAFT



Spring migration of collared Bathurst caribou cows, 3 April - 28 May, 2000.

Renewable, Wildlife and Economic Development

DRAFT



Movements of collared Bathurst caribou cow #60, April 1996 to December 2000.

- Location of ʔekwò water crossing and traditional ʔekwò fences

APPENDIX V

Mining and Caribou Distribution Within the Monfwi Territory: A Historical Look

**By
Gabrielle Mackenzie-Scott, 1998**

**MINING AND CARIBOU DISTRIBUTION
WITHIN THE MONFWI TERRITORY:
A HISTORICAL LOOK**

**Prepared by:
Gabrielle Mackenzie-Scott 1998**

**Submitted to:
Caribou Distribution and the State of the Habitat
Dogrib Treaty 11 Council**

March 1998

Monfwi Territory:

Monfwi: "Many of my people are scattered across this country, some at Lac La Martre (Whati), Snare Lake (Wekeèti), Contwoyto Lake, many of whom are still in the bush yet. The size of the land has to be large enough for all my people."

Monfwi declared the boundary as: "from Fort Providence, all along the Mackenzie River right up to Great Bear Lake, then across to Contwoyto Lake, Seymour (Alymer) River to Snowdrift, along Great Slave Lake and back to Fort Providence"¹

¹ Fumoleau, Rene, As Long As This Land Shall Last p192

Background:

Prospecting in the Monfwi Territory goes back as far as 1770 when Samuel Hearne who was employed by the Hudson's Bay Company travelled to the vicinity of Great Slave Lake and north past Artillery and Clinton-Colden Lake to the Coppermine River.

In 1930, silver and pitchblende were discovered by Gilbert LaBine on the east shore of Great Bear Lake. By 1932 there were between 200 and 300 men in the Great Bear Lake prospecting. Between 2,500 and 3,000 claims were recorded up to the end of the year. Considerable prospecting was done near Great Bear Lake in 1933. However between 1936 and 1939 the prospecting centred in the area between Great Bear Lake and Indin Lake and very little was occurring near Great Slave Lake. In 1938 about 3500 claims were recorded between Indin Lake and Great Slave Lake. It's estimated there were between 300 and 400 prospectors who had moved into and begun working in this region during the summer of 1938.

In 1939 about 1,400 claims were recorded with approximately 125 men prospecting during the summer. Six months later, by the end of the year, there were about 7,700 claims in good standing in the Northwest Territories. About 5000 of these were between Great Slave Lake and Indin Lake.² Many of the properties that were successfully staked and explored, remain undeveloped and have been restaked since the early rush.

As I conducted this research, I read about the uranium rush during early 30's and gold rush in the mid 30's, and now in the 90's the diamond rush has occurred, all within the Dogrib Monfwi territory. It was reported in the December 93/January 94 issue of Up Here that the two years following the 1991 rush, 21,089 claims were recorded, covering over 45 million acres of land. In 1997 the Mining Recorder office reports that 2,291 claims were staked in the Northwest Territories.

For the Dogrib people the migration of the caribou was critical to their survival. For generations as a nomadic people, the livelihood of the Tlicho (Dogrib) depended on the caribou as their main source of food, clothing and shelter. Historically recorded observations of caribou were made by early explorers, anthropologists, traders, prospectors, bush pilots, surveyors, the Canadian wildlife service, the RCMP, game wardens and renewable resource officers.

One of the earliest recordings was made by Samuel Hearne in the 1770's. During his travels through the Dogrib Nation (1770-1772), he noted in his diary on September 3, 1771 that as they arrived at a small river on Point Lake the "the deer (caribou) were so plentiful."³

² Lord, C.S, Mineral Industry of the Northwest Territories, Geological Survey Memoir 230, Printer of the King's Most Excellency, 1941, pp 9.

³ Hearne, Samuel, A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean, M.G. Hurtig Ltd, 1971 pp201

According to A.W.F. Banfield in his report "The Barren Ground Caribou" anthropologist Frank Russell notes in the late 1800's the caribou had largely forsaken the crossing point at Fort Rae. In the book "The Settlement of the Great Slave Lake Frontier, NWT Canada from the Eighteenth to the Twentieth Century" George Ramsay Rae writes extensively on the migration of caribou at Rae Point, the sight of what is now known as Old Fort Rae. He says Rae Point bordered on the migration route of great herds of barren land caribou. "In the fall of each year with the commencement of the heavy storms in August, thousands of caribou began leaving the country between Great Bear Lake and Great Slave Lake and moved southward in a broad arc that impinged on the upper shore of the North Arm and crossed the outlying quarter of the east arm. A reverse surge northward took place in the spring and again millions of caribou passed Rae Point."⁴

He goes on to say that after Fort Rae was established in 1852 the Dogrib people would bring in eight to ten thousand caribou each year and exchange them at the trading post, in the same way trappers bartered fur at other trading posts. He says the traders used the caribou as provisions for the York boat crews. "Caribou meat from Fort Rae, until the arrival of the steamboat, was the 'fuel' on which the transport facilities on the Great Slave Lake - Mackenzie River trade route were operated."⁵

The objective of this report is to locate and determine mines within the Monfwi region and their length of operation; where possible define the construction phase of each mine and finally determine where the caribou migrated during the construction phase of the mine.

⁴ Rae, George Ramsay, "The Historical Geography of Fort Rae 1852 - 1956", The Settlement of the Great Slave Lake Frontier, NWT Canada from the Eighteenth to the Twentieth Century, 1963 pp 191

⁵ Rae, George Ramsay, pp191.

Mines Developed in Monfwi Territory:

Early 1900's

1. Aurous Gold Mining Company [Gold]

Location: 90 KM SE of Yellowknife on Wilson Island in the East Arm of Great Slave Lake. Its west end is 46 miles north 20 degrees east of Fort Resolution.

Mine History: The claim, named the Big Moose, was stake in September 1916 by R.H. Wilson three quarters of a mile from the west end of Wilson Island. Another claim called the Big Bear, adjoins the Big Moose on the east. This claim was staked by C.P. McTavish in September 1916 as well. During 1921 and 1922 trenches and shafts were dug. A cabin was constructed in Safety Cove, 2 miles from the west end of the island. The Big Moose claim consisted of two shafts about 100 feet from the south shore. The mine was abandoned after 1922. The both claims remained in good standing through to June of 1931.⁶

In 1993, an environmental assessment recommended mine the unmarked mine shafts be backfilled as they posed a potential risk to wildlife.⁷

Caribou Migration: No specific data was found regarding caribou migration at time of construction. However, during the summer of 1923 Guy Blanchet reports that during a canoe trip with Sousi Beaulieu and Black Basile, they sighted a herd of caribou moving southward on Thonokied Lake.⁸

It may be worth noting that in 1910 when the RCMP made their first patrol to Fort Rae, it was reported that people were starving because of entire absence of caribou. The priest, a Father Roure, told the police it was the first time the caribou had failed to arrive during his forty-two years as a missionary at Fort Rae.⁹

⁶ Lord, C.S., GSC Memoir 230 p124

⁷ Acres International Ltd., "Environmental Assessment and Remedial Options for Abandoned Mines of the Northwest Territories," March 1993, pp 44-46

⁸ The Beaver Magazine, Fall 1964

⁹ Rae, George Ramsey, pp199

1930's

2. Eldorado Gold Mines Ltd [Radium and Uranium, Silver]

Location: Port Radium, Great Bear Lake Latitude 66° 05' 05"

Longitude 118° 02' 10"

History of Mine: In May 1930 Gilbert LaBine and Charles St Paul staked claims for silver and radium. Subsequently some ore was sent to the Mine Branch in Ottawa where a method was found for extracting radium (1931-32). By July 26th, 1931 a cookhouse and bunkhouse had been built. Workers had **mined and hand picked** seven tons of high grade ore. the main source of food for the camp was caribou, whitefish and trout provided by local Indians.¹⁰ In 1932 diesel power was installed at the property and underground work began. The first commercial shipment of silver -radium ores occurred. In 1933 a processing plant designed to mill 25 tons of ore concentrate a day began operating in December. By 1933 there were about 300 people living in and around Port Radium. Many were prospectors. Between 1934-1939 Eldorado produced radium and uranium products. The mine temporarily closed June 18, 1940 and re-opened two years later in April 1942. By early 1943 concentrate was being shipped again. Operations continued until 1960 when its ore was exhausted. In the 1970's and early 80's the mine was reactivated to extract silver and copper. It was finally closed down in 1982.¹¹

Caribou Migration: J.P. Kelsall writes that caribou frequently wintered on Caribou Point between Dease and McTavish arms of Great Bear Lake. He says the lake discourages the caribou from moving further once migration is over in early winter. Kelsall says Yellowknife geologist, W. Macdonald and bush pilot E.J. Boffa report a marked and progressive reduction in the number of caribou wintering between Yellowknife and Port Radium after 1945.¹²

3. El-Bonanza[Silver, Copper, Uranium]

Location: The mine is situation on the Dowdell Peninsula about 6 miles south-southwest of Port Radium. Latitude: 66° 00'10"

Longitude: 118° 04' 30"

Mine History: First stake in 1931, it was first mined for the high grade silver found. Surface work and some underground work on the eastern arm began in 1934. Work ceased in 1936 on this part of the property. Some work was done

¹⁰ Peet, Fred J., Miners and Moonshiners, Sono Nis Press, Victoria, 1983, p106

¹¹ McGlynn, J.C., Geological Survey of Canada, Paper 70-17, Metallic Mineral Industry, District of MacKenzie, 1971, pp117-118

Pitt Publishing Company, "Historical Highlights of Canadian Mining"

"Our Northern Legacy 1989", NWT Chamber of Mines

¹² Kelsall, JP, The Caribou, Queen's Printer, 1968 p134

underground on the western arm of the property in 1938 by Eldorado Mines and the ore was milled in its Labine Point mill. In 1956 an old incline shaft was repaired and deepened. However the property was closed down in late 1956 before work was completed.

Caribou Migration: No specific data found.

4. Contact Lake [Uranium]

Location: This mine is located 330 KM northwest of Yellowknife on the northeast shore of Contact Lake, - (NTS 86F-13) Latitude 65° 59' 40";
Longitude 117° 48' 00"

It is about 9 miles southeast of Port Radium.

Mine History: Staking occurred in 1931. Between 1936 and 1939 a mill was operated. However, a fire destroyed the mill in 1944. Exploration at the site continued from 1944 through to 1949. Exploration resumed in 1969 and continued through to 1975 when the mine was finally abandoned.¹³

Caribou Migration: No specific data found

5. Burwash Yellowknife Mines Ltd [Gold]

Location: (Mineral Claim Sheet 85J-8) East shore of Yellowknife Bay, Great Slave Lake, southeast of the Yellowknife townsite.

Mine History: Geological Survey Canada conducted mapping of Yellowknife Bay and the east arm of Great Slave Lake, Yellowknife River and the barren grounds north of the east arm of the lake. This was available in 1933 to the public. In September 1934 24 claims were staked for Yellowknife Gold Mines on the east shore of Yellowknife Bay opposite Yellowknife, by CJ Baker and H Muir. Burwash Mines Limited was formed to take over these claims the same year. In the summer of 1935 exploration work continued and a vertical shaft to a depth of 125 feet was started. Early the next year (1936) exploration work continued and by the summer more than 2000 feet of diamond drilling and 300 feet of trenching were done on the discovery and on adjacent veins. Work halted in September. It closed in 1937. In 1945 the Rich Group Yellowknife Mines was incorporated, acquired the Rich claims and completed about 9,200 feet of diamond drilling that year.¹⁴ This was Yellowknife's first mine.

Caribou Migration: No data acquired regarding caribou migration at this location.

¹³ Environmental assessment and Remedial Options pp 77-80

¹⁴ Lord, C.S., GSC Memoir 261, pp 103-104

6. Miramir Con Mine Ltd. (Nerco Con, Con and Rycon Mines)[Gold, Silver]

Location: At Yellowknife on the shores of Great Slave Lake.

Latitude: 63° 26' 22"

Longitude: 114° 22' 08"

Mine History: The discovery of visible gold was made by a government geologist, Norman Jennejohn in 1934 on the west side of Yellowknife Bay. The Con Group of claims were staked in September and October of 1935 for Consolidated Mining and Smelting. Almost a year later, in August 1936 the P&G Group of claims were staked by G. Latham and Tom Payne and development work was begun by Rycon Mines, with diamond drilling on the Consolidated property. Construction of the first shaft and the mill began in 1937. By August of 1937, Consolidated had gained control of the P&G Group. The first gold was produced in September 5, 1938. (It has produced over 5.4 million ounces of gold since then.) In December a shaft was started at the Rycon Mine and the extracted ore was put through the Con Mill. By year end 6,794 ounces of gold had been produced. By the end of 1939 almost 54 thousand tons had been mined to produce 33, 750 ounces of gold. In 1996 414,113 tons of ore were milled to produce 111,021 ounces of gold.¹⁵

The mine has been in continuous operation since it opened, except in 1942 and 1943 when it closed because of WWII.

Caribou Migration: No specific data found

7. Giant Mines Yellowknife Ltd [Gold, Silver]

Location: situated on the west side of the north end of Yellowknife Bay

(NTS 85 J-9) Latitude 62° 30' 10"

Longitude 114° 21' 25"

Supercrest {Akaitcho} (NTS 85J-9) Latitude 62° 31' 30"

Longitude 114° 21'

Mine History: Staking occurred in 1935 by C.J. Baker and H.M. Muir for Burwash Yellowknife Mine Ltd. Between 1936 and 1938 some work was done on the claims by several companies, including Consolidated Mining and Smelting Company of Canada Ltd and Anglo-Huronian Ltd. Giant Yellowknife Gold Mines Ltd was incorporated and acquired the property in 1937. In 1938 D. W. Cameron discovered an outcrop of a gold bearing shear zone near the southeast boundary of the property. Between April 1939 and June 1940 Giant maintained a continuous exploration program. 74 tons of ore were shipped to Trail BC for processing. This ore contained gold and a little silver. During 1941 the southeast boundary of the property was re-examined. In 1943 the Frobisher Exploration Co Ltd acquired

¹⁵ Heath, Brad, "Mining Update", Mining North Magazine, 1996, p8.
McGlynn, GSC paper 70-17, p58-64.

operating control of Giant. In the summer a geological examination by A.S. Davidson led to the concept that the drift filled Baker Creek Valley, an area neglected by previous exploration, was underlain by a major system of gold-bearing shear zones. Diamond drilling continued in 1944 in Baker Creek Valley area resulting in the largest tonnage of gold ore known in the NWT. Construction of Shaft No.1 began September 24th 1945 and was completed the by January of 1946. In April, 1946 work was started on Shaft No. 2. In November equipment for 500 ton mill had been ordered and construction of the Snare River hydro-electric power plant had begun. Although the company began work on the dam, the project was taken over by the Department of Mines and Resources. In the summer of 1947 excavations for the crushing milling and roasting plants were completed. Work on Shaft No 3 near the crushing plant was initiated. In 1948 shaft No 2 was deepened to 780 feet. Milling operations commenced on May 12th but much of the gold remained in floatation concentrates, so further processing could be done pending the completion of the roaster early in 1949. June 3, 1948, the first gold brick was produced and on July 31st the 90 mile transmission line connecting the mine to the Snare River dam was completed. October 4th transmission of electricity began.

In 1949 a new roaster referred to as the Edwards type was installed. Then in 1952 a two stage Fluosolids roaster was put into service. Five years later a kiln roaster was installed for high temperature treatment and a new two stage fluosolids roaster was installed to increase the efficiency to 80 %.¹⁶

By 1960 it was the largest mine in the Northwest Territories. There were 26 claims in the Giant property. A number of other mines have been associated to Giant Yellowknife Mine. Varying amounts of information is available on them. Their name location and any data found is listed below:

8 Supercrest (Akaitcho)[Gold, Silver]

Location: Lat. 62° 31 '30"; Long. 114° 21'

This property is on the north edge of the Giant property and includes 8 claims.

9. Salimata [Gold]

Location: Lat 64° 04'; Long 111° 14'

This property was staked in first stake in 1945. It's located 150 miles northeast of Yellowknife on the east side of Matthews Lake between Mackay and

¹⁶ McGlynn, J.C., GSC Paper 70-17
Lord, C.S., Memoir 261 pp155-171
Memoir 230 pp 99-102

Courageous Lake.

Between 1945 and 1953 about 90 diamond drill test holes were sunk and four main zones were trenched. In 1952 a building for a gravity mill was partially constructed as where a number of other buildings. The property was closed in 1953. Between then and 1971 there was no activity. However, Giant Yellowknife put the mine back into production and in 1982 .14 million tons of ore were extracted. Production continued until 1987.

10. Tundra Gold Mine (formerly Bulldog)1963[Gold]

Location: Lat 64° 02'12", Long. 111 11'36"

The property consists of 54 claims at the south end of Matthews Lake. It was staked in 1945 by Jack Matthews. Between 1945 and 1951 the property was explored on the surface and by drilling. Rock trenches of 1500 feet were used to open the vein. In 1951 underground work began and in late 1952 a headframe, powerhouse, garage and a hoist building were constructed. The mine was closed and not re-opened until 1957. In 1957 and 58 worked ceased during the winter months. Construction on a steel frame two storey building, 200ft by 32ft, started in 1959. In subsequent years buildings were winterized so it could become a year round operation. A 4000 ft. airstrip was built on an esker about 8 miles from camp. Production of gold was continuous between 1964 and 1968.¹⁷ No date was found on when it was acquired by Giant Mines.

Caribou Migration: Prior to the development of Giant Mine, in the late 1920s, Walsh Lake was known as a crossing point for caribou. The author of *Prospector North of 60*, notes "beyond the Yellowknife settlement and about 25 miles south of Walsh Lake my guide (Indian) had built his cabin at a place renowned as a caribou crossing place and although the winter had been a hard one his place was one of the best provisioned on Yellowknife Bay."¹⁸ It was reported by JP Kelsall that caribou shifted calving areas in 1952-53 and again in 1955-56 when they wintered on the north shore of Great Slave Lake. He says the caribou moved south into a triangle formed by Yellowknife, Gros Cap and Thompson Landing on the north shore of the lake. As fall approached the herds moved into the forest at the headwaters of the Taltson and Snowdrift Rivers. "In 1952-53 some animals

¹⁷ McGlynn, J.C., GSC Paper 70-17, pp58-64

¹⁸ Nagle, Ted, & Zinovich, Jordan, the Prospector North of Sixty, Lone Pine, 1989 p181.

crossed the North Arm of Great Slave Lake to the west and spent time in the Gypsum Point area before rejoining the main herd to the east.....the herd numbered about 25,000 animals"¹⁹

11. **Negus Mines Ltd [Gold]**

Location: Negus is 2 miles south of Yellowknife on the west side of Yellowknife Bay.
Latitude: 62° 02' 12"
Longitude: 111° 10' 55"

Mine History: The property was staked in 1936 by O. Hagen and other unnamed prospectors. Prospecting activity continued through the summer of 1937 and diamond was commenced with winter. The diamond drill work continued through the winter of 1937-1938. In March a prospecting shaft was opened and the main shaft was started in September. The mill began operating February 5, 1939, with the first gold brick being poured February 21st. By year end, almost six thousand ounces of gold had been recovered. Work continued at the mine until September 1952 when the mine closed. It did not operate from October 1944 to July 1945 because of a labour shortage. In 1953 COMINCO bought the mineral rights, one claim, the headframe and some buildings. In 1957 the mill, roaster, buildings and surface rights were sold to Rayrock Mines.²⁰

12. **Pensive Yellowknife Mines [Gold]**

Location: The mine is located on the east side of the upper Pensive Lake, 68 KM NE of Yellowknife, about 41 KM from the Thompson Lundmark Mine.

Latitude: 64° 44' 10'

Longitude: 113° 20"

Mine History: The property was staked in 1938. Development work began in 1939 when a prospect shaft and small amalgamation mill were constructed. A headframe was erected in the spring of 1941. The property has not seen activity since 1947.²¹

Caribou Migration: No specific data found.

¹⁹ Kelsall, J.P., The Caribou, Queens Printer, Ottawa, 1968, p121

²⁰ Lord, C.S., GSC Memoir 230, pp112-118

McGlynn, J.C., GSC Paper 70-17, pp 40

²¹ Environmental Assessment and remedial options pp27-30

13 Philmore Yellowknife Mines [Gold, Copper, Tungsten]

Location: The mine is located on the Outpost Islands in the east arm of Great Slave Lake about 88 KM SE of Yellowknife.

Mine History: This property was staked in July 1935 for the Athabasca Syndicate. Sometime after Slave Lake Gold Mines bought the claims. Exploration work was carried out on the property from November 1935 through to March 1938. During this period, a 450 foot shaft and 1700 feet of drifts were developed. The mine was abandon and then re-opened in September 5, 1940. A 50 ton mill was constructed and milling began May 1, 1941. The mill shut down in August of 1942 and the property was closed in October the same year. The mill resumed operations in 1950 but was abandon a second time in 1952. Three years later a fire completely destroyed all buildings at the site.²²

Caribou Migration: No specific data found.

Caribou Data 1930's:

Reports of C.H.H. Clarke:

1936

In late July and through August caribou were seen passing in waves through the sanctuary and the south barrens as far as Thekulthill Lake. The numbers of animals began to decrease in late August. During the first two weeks of august a small herd moved in over the whole region of Hanbury, Artillery Clinton-Colden and Aylmer Lakes.

August 1st – small herd of caribou sighted travelling the Taltson River between King and Taltson lakes.

August 11th – caribou spotted 18 miles southwest of Taltson Lake

August 16th – caribou seen at the southwest end of Thekulthill Lake

August 18th – caribou travelling on Nonacho Lake

August 19th – a large herd seen migrating northward between Hanbury and Clinton-Colden Lakes. The migration lasted all day.

During a search and rescue operation Flight Lieut. L.E. Wray observed a herd he estimated to be several thousand moving rapidly south, in a long line six or seven animals abreast. The column was led by a buck about 100 yards in front of the column.

As well it was reported by a Mr Eric Fry, that the upper back River Valley was full of caribou. He notes these caribou were part of a second swing that moves into the Reliance region around freezeup every year. Reports indicate that in the autumn and winter of 1935-36 caribou had been plentiful at Reliance. In 1936-37 fewer caribou were in the

²² Lord C.S. Memoir 261 p236
Environmental assessment and Remedial Options p22

Reliance region but were plentiful at Snowdrift.

Clarke reports that on June 1937 a few stragglers were spotted at Hess Lake. But while making a portage at Grove Rapids on July 3rd a band was seen near the shore. He says the foot of Hanbury Lake was a moving mass. He estimated the herd to be about 20 thousand animals. He says the herd stretched through to Lac du Bois. In total, the whole herd was estimated to be least 100 thousand animals.

1940's

14 Ptarmigan Mines/Tom Mines(Tremingo Mines) [Gold]

Location: The mine is located approximately 15 miles east of Yellowknife on the Ingraham Trail. Latitude: 62° 31' 10"
Longitude: 114° 11' 50"

Mine History: The first staking by J.A. Morie occurred 1936 and was part of the Jack Group of six claims. In 1938 the Consolidated Mining and Smelting Co did some trenching and diamond drilling. Ptarmigan Mines was incorporated in October 1938. A 100 ton mill was constructed and milling operations commenced November 27th 1941. The first gold brick was poured Jan. 3 1942. In August of that year the mine closed because of WWII. Tremingo Resources developed a decline on the Tom property in 1985. In 1987 Tremingo purchased all the Ptarmigan property and extracted ore was taken to the mill at Giant Mine for processing. In 1989 it opened its own mill which ran at a capacity of 250 tons per day. Work continued through to August 1997 when operations were 'temporarily' suspended.²³

Caribou Migration: No specific data was found.

15 Thompson Lundmark[Gold]

Location: This property is located 48 KM NE of Yellowknife on the south shore of Thompson Lake.

Mine History: Staking first occurred in 1938. In 1941 a mill was constructed. A 55 mile winter road was used to access the site. The route crossed Jennejohn, Reid and Hidden lakes. The mill was operated for two years then shut down because of the lack of labour until 1947. Milling continued at the mine until May 1949 when operations ceased. Gold recovery was by chemical means. There was an 85 man camp which included a two storey bunkhouse, a small hospital and a curling rink as well as warehouses, headframes, shops and offices. Power was attained from

²³ Heath, Brad, Mining North Magazine 1997 p13
Lord C.S., GSC Memoir 261 pp247-249
Mining, Our Northern Legacy, p35

the hydro plant at Prosperous Lake. It should be noted that some discussions have occurred on developing the mine site as a historical tourist attraction.²⁴

Caribou Migration: In his book *Miners and Moonshiners*, Fred J. Peet says that at the time the powerline was being constructed to the mine site, he was located in a camp about forty miles from the barrens. "During the first week of October, the lake started freezing over... and the barren land caribou passed by seeking protection and refuge afforded by the trees growing in the valleys."²⁵ It is also worth noting that the winter road location was in area of the normal path of caribou winter migration.

16. Discovery Mines [Gold]

Location: The property is located on the west end of Giauque Lake 100 KM N.N.E of Yellowknife. (NTS 85P-4) Latitude: 63° 11' 12"
Longitude: 113° 53' 30"

Mine History: The claim was staked in the summer of 1944 by A.V. Giauque and subsequently acquired by Jakeway Prospecting Syndicate. Discovery Yellowknife Mines was formed in 1945. Prior to August diamond drilling was initiated. In November the north vein was discovered by one of the employees, Bert Wagenitz. Between January and September of 1946 extensive diamond drilling was conducted on the North vein and the adjacent area. In June underground development started and mining and plant supplies were ordered. A small plant had been flown into the site by October. In November a shaft was started. Work continued on the shaft until March 1947 when the first units of a permanent plant were installed. Underground work was continuous throughout 1947. Permanent buildings were erected in 1947. Milling commenced January 1 1950. A power line was built to the site in 1953 and an airstrip was constructed in 1956. The mill burned down in 1960. Discovery Mine closed down in 1968 after 19 years of production. It was reactivated in 1994 by GMD Resources Corp.²⁶

Caribou Migration: No specific data found.

17 DeStaffany Tantalum Beryllium Mines Ltd [Tantalite - columbite, Beryl]

Location: The mine is on the north shore of Great Slave Lake, 117 KM E.S.E of Yellowknife. (Mineral Claim Sheet 851-1)

²⁴ Lord C.S., GSC Memoir 261 pp279
Environmental Assessment and Remedial Options pp18-21

²⁵ Peet, Fred J., *Miners and Moonshiners* p180

²⁶ Our Northern Legacy 1989

Lord C.S., GSC Memoir 261 pp124-131

McGlynn, J.C., GSC Paper 70-17 pp 44-49

Mine History: Staked in 1942 as Moose No 1 and 2 on behalf of De Staffany Tungsten Gold Mines Ltd. Three tantalite claims were staked in July and August 1943. The next year a claim called the Best Bet No 1 was registered. In 1945 DeStaffany T. (tantalum) B. (beryllium) Mines Ltd was incorporated. Their property also included the Bill No 2 claim. In 1946 a crew of six men were employed. A 5 1/2 foot by 7 foot shaft was sunk to a depth of 40 foot on Moose No 11 or No 12 claim. A mill was erected on Moose 11 claim at the shore of Great Slave but did not operate until 1947 during the months of September and October. It remained in operation until 1954. Unrefined concentrates were produced. However a fire destroyed the mill and the mine was abandoned shortly afterwards.²⁷

Caribou Migration: No specific data found.

18 Peg Tantalum [Tantalum]

Location: The mine is located 71 KM ENE of Yellowknife between the upper Ross Lake. Redout Lake. Latitude: 62° 43' 40"

Longitude: 113° 06'50"

The mill is 1.7 km east of the upper Ross.

Mine History: The property was staked in 1943 by J.R. Saunders and acquired by Peg in 1944. Nine men were employed in the summer of 1945 and pegamite was stock piled. In the spring of 1946 mill machinery was brought as far Reid Lake then flown from there into the mill site at Upper Ross Lake. By September 21 men were employed and mill was under construction. Beginning in October of 1946 the mill operated intermittently for five weeks until mechanical problems forced a shutdown. Milling resumed in April of 1947 and operations continued on an intermittent basis through the summer. Most of the ore was taken from one surface mine. Work was never resumed after 1947.²⁸

Caribou Migration: No specific data found

19 Ruth Mines[Gold]

Location: This gold mine is located 90 KM east of Yellowknife on the west side of Tam Lake. It's about 56 km from the Ingraham trail. Latitude: 62° 27' 45"
Longitude: 112° 34' 15"

Mine History: The property was staked originally in the summer 1940 by J. Michelson. In 1941 12 men were employed to sink a shaft. In the winter a 25 ton mill was brought in tractor train. In the summer of 1942 the mine operated for two months and the mill operated for 12 days from August 1st and 186.8 tons of

²⁷ Environmental Assessment and Remedial Options pp14-17

²⁸ Environmental assessment and Remedial Options p9
Lord C.S., GSC Memoir 261 pp231

ore were processed. The buildings constructed included a cottage, a two storey bunk house and a shop, a office/staff house, hoist and mill. About 90 surface trenches were dug. Work halted until 1959 when mining and milling resumed for another season. Work at the site ceased again until 1973 when extensive diamond drilling occurred and then from 1982 to 1988 sampling and exploration were undertaken.²⁹

Caribou Migration: No Specific data was found

20 West Bay Mine [Gold]

Location: This mine is located on the southeast shore of Gordon Lake, about 77 KM NE of Yellowknife.

Mine History: The property was first staked in 1946. The mine went into operation in 1947 and worked continued through the fall of 1948 when it was shut down. In 1983 work was reactivated at the site with an extensive drilling, trenching and reworking of the original pit. The claim remained active over the next ten years.³⁰

Caribou Migration: No specific data found.

21. Liten [Gold]

Location: It is situated 53 KM NE of Yellowknife on the southwest shore of Little Sproule Lake.

Mine History: The property was staked in 1947. Gold was recovered by hand until 1964, at which time a mill, using mercury amalgamation, was installed. It operated for only 1 year. The 3 buildings on site remain intact. The mine was abandoned in 1972.³¹

Caribou Migration: No specific data found

22. Beaulieu Yellowknife Mines Ltd [Gold]

Location: 74 KM east of Yellowknife between Hansen Lake and John Lake, about 3 miles north of Campbell Lake.

Mine History: The claim was first staked in 1939 by S. Hanson and Associates of Yellowknife. A mill was constructed 1947. The mine was abandoned after two

²⁹ Lord, C.S. GSC Memoir 261 pp251

Environmental and Remedial Options p65

³⁰ Lord, C.S. GSC Memoir 261, pp 279-290

Environmental Assessment and Remedial Options pp39-43

³¹ Environmental assessment and remedial Options pp34-38

seasons of milling, using mercury amalgamation to extract gold. In 1982 and then again in 1987 different companies different companies acquired the property but allowed the claims to lapse. In January 1992 a new claim was stake over the mine site.³²

Caribou Migration: No data found in reference to caribou migration passing this site during construction phase.

1950's

23. Indore Gold Uranium Mine [Uranium]

Location: The mine is located south end of Hottah lake about 225 KM NE of Yellowknife

Mine History: The mine was staked in 1950. By 1952 underground work had commenced and a mill was in operation. However, by 1955 work had ceased and the mine was abandoned. The property was closed in 1956. Five wood frame buildings remain on the site and both entrances to the mine, an adit and a mine shaft have been left open³³.

Caribou Migration: J.P. Kelsall forwarded a brief report to the chief of the Canadian Wildlife service, Dr Lewis, on December 21, 1950. In it he says caribou are spread over a large area along the Arctic coast and the adjacent area. He says he believes the Lac La Martre herd is currently near Wrigley, although he hadn't visited the area yet. He also notes that the small herd which moves from the Coppermine River to east shore of Great Bear Lake, was moving northward in the area where he had seen them the previous April.³⁴

In a letter the on January 11, 1951 J.P. Kelsall writes after a ground patrol on the Lac La Martre Caribou herd, "We located the Lac la Martre herd without difficulty. Although scattered, animals from the herd extended within 35 miles of the southeast end of Lac La Martre. The main body which we discovered is only a few miles east of Fish Lake, within 50 miles of Wrigley. In this area, the heavy bush is literally crawling with caribou."³⁵

In October 1951 R. Douglas reports that while on patrol to Lac La Martre on the evening of October 26th a scattered herds of caribou in groups of 4 tot 20 were in the vicinity of the village at latitude 63° 08' N, longitude 117° 16' W. Within two

³² Lord, C.S., GSC Memoir 261 pp 70-84

³³ Environmental and Remedial Options p73

McGlynn, J.C., GSC Paper 70-17 pp115

³⁴ Kelsall, J.P. Northern Administration Ref. #G79.003 110.5

³⁵ Kelsall, J.P., Northern Administration Ref.#G79.003

days in a six mile radius about 200 animals were killed. Douglas says the small herds extended as far south as James Lake. He says there were reports of caribou at Russell Lake as well.³⁶

In another report, which Kelsall wrote to Dr Lewis on January 2, 1952, he refers to efforts to locate the Lac La Martre herd. " Warden Bulmer and myself accompanied the regular supply flight to Hottah Lake, Contact Lake, Eldorado, Sawmill Bay, and the lumber camp at McVicar Arm.... There were small scattered bands of caribou along McVicar Arm. Most of the animals were the forest and we only saw about 24. I have now covered a great deal of the usual winter range...without finding the herd. I might add we are not the only people having trouble finding this herd. The Rae Indians have not found it either and one group lost all their dogs and nearly starved themselves before they made it back to Rae on foot."

A report filed by J.P. Richards on January 29th 1952, quoting A.G. Loughrey indicates that the Rae herd wintered in the Blackwater /Fish Lake area.³⁷

In another letter dated November 13, 1952, Chelae writing to a Mr. F. A. McCall says, "the movement of caribou on to their winter range, as it is presently shaping, is quite different from the patterns displayed during the past four or five years. The Hanbury herd which should be in the country between the east arm of Great Slave Lake and Lake Athabasca is massed about Drybones Lake some 100 miles northeast of Yellowknife. The Rae herd is also far from its usual position for this season. "

On January 17th 1952, F.A. McCall writes in a letter to Kelsall caribou have been reported about 20 miles northeast of Fort Smith. He says very few have been brought in by hunters but while on flight from Fort Resolution a few small herds and a lot of tracks were seen on the east side of the Slave River.

In his book, *The Caribou*, Kelsall writes in the winter of 1952-53 several thousand caribou moved along the south side of Great Bear Lake and wintered around Fort Franklin. "In the spring of 1953, instead of taking the usual routes eastward toward Bathurst Inlet, all the animals moved northward to find calving areas and summer pastures north of Great Bear Lake."³⁸

24. Rayrock Mine [Uranium]

Location: The Rayrock property is located on the Marion River system at Sherman Lake about 100 miles northwest of Yellowknife. Latitude: 63° 26' 54"
Longitude: 116° 32'18"

³⁶ Douglas, R., Caribou report File 70, Ref. # G79.003

³⁷ Richards, J.P., File #3769 Northern Administration Branch Ref. #G79 003.112.4

³⁸ Kelsall, John P. *The Migratory Barren-Ground Caribou of Canada*, Queens Printer 1968

Mine History: A team from the Geological Survey of Canada first found uranium in this area in 1934. A.W. Joliffe investigated the property in 1944 but it wasn't until 1948 when a claim was staked by A.V. Giauque and Associates. In 1953 Rayrock Mines was formed by American Yellowknife and Lodge Uranium in order to finance further exploration. In the spring of 1954 test drilling was done on the best showings. In 1955 the drill program was used to outline the ore body and underground work began. The next year the mine went into production. A mill and treatment plant were constructed and the first uranium concentrates were produced in 1957. The mine closed July 31, 1959. A number of buildings were constructed, including a powerhouse, carpenter and electrical shops office - warehouse and three two storey bunkhouses to accommodate 100 men, 9 residences, a staff house for 14 and a cookhouse.³⁹

Caribou Migration: A report to the commanding officer of RCMP Police for the Fort Smith Sub Division in July 1955 states very few caribou were shot in comparison to the previous year. He notes 10 families from the Coppermine area who normally camp and hunt caribou at Contwoyto Lake stayed on the coast.

"Around the middle of October 1954, a herd of caribou was located approximately 50 miles southwest of Coppermine in the Rae River District. It is believed that approximately 1000 caribou would be in this herd."⁴⁰ In another report sent from Port Radium on June 23, 1955 the officer notes that herd of about 200 stayed for most of the winter between Hottah Lake and Cameron Bay. He says the caribou returned north early in the year, though no large herds were noticed in the area. According to reports from local Indians plenty of caribou were killed to meet their needs for meat and skins and the officer reports that the caribou were considered to be in better shape than the previous year.⁴¹

Two officials from the Canadian Wildlife Service, John P. Kelsall (1955) and A.G. Loughrey (1952) estimated the winter herd at Caribou Point to be over 10 thousand each year since 1950. However in 1954-1955 the winter population dropped to the lowest on record of around 500.⁴²

The area between Great Bear Lake and Great Slave Lake, wildlife officer Banfield estimated 1954 the herd to be about 219,000. In 1948-49 Banfield estimated the herd at 219,000. In 1950-51 Kelsall estimated the herd had dropped to 147,000. Kelsall continued to report a further drop in 1952-53 to 51,000. However he reported a slight increase in 1954-55 to 59,500. Officials would not attribute the decrease either to hunting pressures or disease. In this period Rae people took an average of 9000 animals a winter. Wildlife officer expressed concern that continued hunting may result in a disaster for the herd.

³⁹ McGlynn, J.C., GSC Paper 70-17 p88

⁴⁰ Northern Administration Lands Branch, Dept. of Resources and Development "G" Division, Royal Canadian Mounted Police Ref. #G79.003.3 July 1, 1955.

⁴¹ Northern Administration Lands Branch, #G70.003 100.3 June 23, 1955.

⁴² Northern Administration Branch #79.003 112.5

A herd of 7,000 is reported to winter regular at Lever Lake. In March 1955, it was estimated the herd in the Fort Franklin area to be about 26,100. The herd arrived near Fort Franklin late in 1954. Over 130 wolves were taken using poison bait traps. Another 25 wolves were spotted during the census flying. Officials believed the high number of wolves in the area resulted in a high caribou kill by predators. it was also estimated the people of fort Franklin and Fort Norman took between 1500 and 2000 animals.

Another small herd of 3000 was reported to have wintered at Lac Grandin. A census flight late in the winter over Gordon Lake estimated that herd to be about 3,900. On March 30 a herd of about 16,600 animals was spotted at Indian Mountain Lake moving north. It was believed this herd had come from south of Great Slave Lake. During the arial surveys only 144 animals were seen in the Artillery –MacKay Lake area. It was estimated about 2,900 caribou would have been in the area.⁴³

An extensive arial survey was conducted in 1955. Over 38 thousand miles where flown in the sector alone. In a confidential report of July 15, 1955, the results showed a steady decline since 1948-49. The reports were as follows:

	<u>1949</u>	<u>1955</u>
North of Great Bear Lake	35,000	4,928 —
Between Great Bear and Great Slave Lakes	219,000	55,952
Between Athabasca and Great Slave Lakes	315,000	79,534

Kelsall believed the decline in the Rae herd began in 1951. He also speculated the Rae herd had moved because of the unusual numbers of caribou reported from Bathurst and east.⁴⁴

A RCMP report dated July 1, 1959 from the Port Radium detachment states that local Indians reported that caribou had been shot between Port Radium and Fort Franklin. Cst G.H. Johnson reports that no caribou migrated through this area during the period from July 1958 to June 30th, 1959.⁴⁵

25. Hidden Lake [Gold]

Location: The mine site is located 45 KM NE of Yellowknife on the west shore of Hidden Lake.

⁴³ Northern Administration Branch #G79.003 112.5

⁴⁴ Northern Administration Branch Ref. #G79.003 110.5

⁴⁵ Northern Administration Branch #G79.003 100.6

Mine History: The site was first staked in 1938. Activity has been intermittent with most activity occurring between 1959 and 1969. There are nine buildings at the site. Several tons of ore were milled in 1968. The site is accessible by an 11 kilometer winter road and is located in a recreational area.⁴⁶

Caribou Migration: Caribou migrate usually on an annual basis through this region.

1960's

26. Echo Bay Mine [Silver, Copper]

Location: (NTS 86L-1;K-4) Latitude 66° 06'

Longitudes: 118° 00'

Leased the former radium producing property, Port Radium and adjoining Cominco property

Mine History: This property was in operation 1964 to 1976. It is adjacent to what is known as the El-Bonanza Property. It was staked in 1930 with some diamond drilling occurring in 1932.⁴⁷

Caribou Migration: A report dated October 18, 1963 provides some information regarding caribou movement early in the winter. L. Skov writes from Yellowknife, that ten days previously no caribou were sighted on trip to Pellatt Lake. He says visibility was poor. However he says on October 5th, reports of massive herds just milling around on Contwoyto and Pellatt Lake were received. As well, he says on October 11th Gus d'Aoust said caribou had been in the Reliance area most of the summer. Also the Chief at Snare Lake, Pierre Wedzin said caribou were only a days journey from the settlement in the Winter Lake area.

27. Terra Silver Mine [Silver, Lead, Copper, Zinc]

Location: The mine is located between Ho-Hum Lake and the south shore of the Camsell River about 280 KM NW of Yellowknife. Latitude: 65° 36' 15"

Longitude: 118° 06' 55"

Mine History: The mine began producing silver in 1969. The site includes a mill, service buildings and a camp. There are five underground entrances. Tailings from the mill were deposited on the shore and in Ho-Hum Lake. There are also three large tanks farms at the site. Operations ceased in 1985 and the mine was abandoned.

⁴⁶ Environmental Assessment and Remedial Options p 27

⁴⁷ McGlynn, J.C., GSC Paper 70-17 p118

1970's

28. Smallwood Silver Mine [Silver, Lead, Zinc & Copper]

Location: The site is situated on the northwest shore of Smallwood Lake about 270 KM NW of Yellowknife. Latitude: 65° 35' 15"
Longitude: 117° 57' 25"

Mine History: There has been very little activity at the site since it was first staked in 1930. In the 1970's exploration and surface diamond drilling occurred. In the early 80's some underground activity occurred. Ore from the mine was hauled on an 18km road to the mill at Terra Mines for milling and processing. Only five small service buildings were constructed on the site.⁴⁸

Caribou Migration: No specific data found.

29. Northrim Silver Mine [Silver]

Location: The mine is located on the north shore of the Camsell River 270 KM NW of Yellowknife.

Mine History: The property was first staked in 1932. Between 1934 and 1970 intermittent drilling and a little underground mining took place. A mill, which operated for two years, was installed in 1971. The mill was reactivated in 1976 and continued operations in 1977. In 1978 the mine ceased operations after a fire destroyed the mill. The sight remains silent but requires cleanup of fuel storage tanks, remaining buildings and processing chemicals.⁴⁹

Caribou Migration: No specific data found

30. Norex Mine [Silver]

Location: 270 KM NE of Yellowknife, 1KM south
of Camsell River. Latitude: 65° 35' 15"
Longitude: 117° 57' 25"

Mine History: The property was staked in 1950. This mine was developed as a satellite mine to Terra Mines. There are only three buildings and a small two container tank farm at the site. The mine was abandoned in 1985.

⁴⁸ Environmental and remedial Options p65

⁴⁹ Environmental Assessment and Remedial Options p65

1980's and 1990's

29. Lubin [Gold]

Location: The mine is located on the shores of Contwoyto Lake, 90 KM south of the Arctic circle and 400 KM NE of Yellowknife Latitude: 65° 45'52"
Longitude: 110° 13'35"

Mine History: Initial production at the mine started in May 1982. However, the construction phase of the operation was unique. The only access to the mine was by air. The parent company, Echo Bay Mines, purchased a Hercules and a Convair to fly in everything thing needed to build and put the mine into operation. Up to nine Hercules flights a day were dispatched from Yellowknife, on a 24 hour basis, six days a week. This continued for 20 months. Over 1,600 flights were required during the construction phase. As well the company constructed a 360 mile ice road across the barren lands to haul 3.5 million gallons of fuel and an additional 750 loads of freight during a 10 week ice road season. In 1996, 31 million pounds of freight and 22 million litres of fuel were trucked into the mine. The trip takes about 48 hours with rest stops at two camps, one at Lockhart Lake and one at Lac de Gras. The mine remained in operation, using a 737 for crew changes. According to Mining Update, 1997, it cost \$299 US to produce an ounce of gold. The mine was shutdown in early winter of 1997.⁵⁰

30. Colomac Mine [Gold]

Location: 220 kilometres north of Yellowknife

History of Mine: Colomac began production in May 1990. The mine was initially owned Neptune Resources but due to financial difficulties was sold and then resold to Royal Oak Mine. The ore was considered low grade but open pit mining, new technology, and higher gold prices made it economical. The mine was closed in October 1997 after producing half a million ounces of gold.⁵¹

Caribou Migration: No specific data, however winter roads were used to access the mine site during construction and operation. Parts of these winter roads were in the migration paths of the caribou. They also provided increased access by hunters to caribou.

⁵⁰ Our Northern Legacy, 1989
Mining North, 1997

⁵¹ Heath, Brad, Mining North 1997 p 8

31. **Ekati Mine [Diamond]** (originally called Koala)

Location: Lac de Gras about 200 Km northeast of Yellowknife

Mine History: In 1989 Chuck Fipke staked mineral claims in the Lac de Gras area. In August of 1990 a joint venture agreement was signed between DiaMet and BHP's for the NWT Diamond Project. The NWT diamond rush was sparked by the discovery of diamonds at Point lake by BHP and Diamet in 1991.

The Diamond rush is the largest mineral staking rush in North American mining history. Over 10 million acres were staked. In 1992 BHP carried out a winter drilling program. Their drilling continued in the winter of 1993 at the Leslie, Fox and Koala sites. Bulk sampling was initiated and the company began work on environmental protocols. An office was opened in Yellowknife and a camp was established at the Koala site. As well, underground work started at the Fox site. In the fall of 1994 BHP built an extended runway and the first jet, a 727, landed at the Koala Camp. The winter drilling program continued at Panda Koala, Fox, Leslie and Misery sites. The underground bulk sampling at the Fox site was completed and work was initiated at the Panda pit begins. In 1996 the mine received final approval after an Environmental Review process and construction of a permanent camp was accelerated, with an estimated 1000 workers on site at the height of construction. In April 1997 the main camp was completed, the nine million fuel storage tanks were completed in August and ammonium storage buildings were completed by year end. Production is scheduled to in the summer of 1998.⁵²

32. **Diavik Diamond Mines Inc. [Diamonds]**

Location: About 200 KM north east of Yellowknife on the eastern edge of Lac de Gras. This is known by the Dogrib people as Ekadi.

Mine History: The projected mine life is 16 to 22 years. Licensing process has just begun. The site was staked in 1991. In June 1992 the Diavik partnership was established. In 1993 a Yellowknife office was opened. In March 1994 pipes A154N and A154S were discovered. Work on Environmental Baseline Studies began in October the same year. Two new pipes, A418 and A21 were discovered in February of 1995. Diavik had established a 75 person exploration camp by February 1996. Underground bulk sampling on pipes A 154S and A418 was completed in July 1996. A corporate office was opened in Yellowknife in December 1996. By June of 1997, the Environmental Baseline Study had been completed and a Prefeasibility Study was completed in September.

⁵² Hannock, Lynn, Mining North 97, NWT Chamber of Mines, 1997.

Caribou Migration:

Studies completed in 1996 indicate the Bathurst caribou herd occupied a range of about 250 thousand square kilometer. The calving ground historically is at the south end of Bathurst Inlet. During the early 80's the area east of the Inlet was used. Most of the cows reach the calving area by late May, while bulls, yearlings, and non-pregnant cows generally do not migrate as far as the calving grounds. The animals regroup with the cows and calves in late June and early July to form large aggregations because of the harassment of insects. Throughout the summer the herd is spread throughout the summer grazing areas of the tundra. By October the herd moves to the treeline for rut then the bulls and cows segregate and return to the forest. "The precise movements of caribou are unpredictable. Only large scale movements such as the movement towards the calving ground in May and June and the movement southward in the fall can be predicted with any degree of certainty. Even timing and routes vary....an area where there were thousands of caribou one year may not have a single animal the next. With few barriers to their movement, with the possible exception of the large lakes such as Contwoyto and Point lakes in the fall, there are no specific migration corridors which are used each year."⁵³

From both photo and visual surveys scientists have documented a decline in the herd in the late 1970s which was followed by a substantial recovery after 1980. A 280% increase was observed between 1982 and 1986. It is believed though this large increase was a result of recruitment and immigration.⁵⁴

Biologists indicate that the ratio of adult male to female is difficult to assess because the herd only comes together during the fall rut. Otherwise it is separated by age and sex. The average estimate used throughout North America is 36% male and 64% female.

The Status and Management reports notes numerous mining activities have been conducted in the Bathurst range during the period between 1986 and 1996. It says the only major documented impact on the herd are associated with winter roads. Hunting data indicates that 49% of General Hunting Licence holders and 51% of resident hunters use winter roads. The largest recorded harvest occurred on the Lupin winter road in 1983/84 when 3,744 caribou were taken.⁵⁵

⁵³ Case, Ray et al, The Status and Management of the Bathurst Caribou Herd, Gov't of NWT, 1996 p2

⁵⁴ ibid p6

⁵⁵ ibid p22